PROCEEDING OF

THE SEVENTINTH MEETING OF

COMBINED AGRESCO OF SAUs AND KAMDHENU UNIVERSITY OF GUJARAT

ORGANIZED(Virtual Mode) BY

S. D. AGRICULTURAL UNIVERSITY
SARDARKRUSHINAGAR – 385 506

(April 27 to July 15, 2021)

DIRECTORATE OF RESEARCH
S. D. AGRICULTURAL UNIVERSITY
SARDARKRUSHINAGAR – 385 506

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Proceedings of 17thMeeting of Combined AGRESCO meeting of SAU's, Organic University and Kamdhenu University (27th April to 15th July , 2021)

Inaugural session

Date: 27th April, 2021 **Time: 09.30 am onwards**

Welcome address	Dr. B. S. Deora, Director of Research and Dean PG studies, SDAU, Sardarkrushinagar
Chairman	Dr. R. M. Chauhan, Hon. VC, SDAU, Sardarkrushinagar
Co-Chairman	Dr. N. H. Kelawala, Hon. VC, Kamdhenu University, Gandhinagar Dr. B. R. Shah, Hon. VC, Organic University, Gandhinagar Dr. V. P. Chovatia, Hon. VC, JAU, Junagadh Dr. K. B. Kathiria, Hon. VC, AAU, Anand Dr. Z. P. Patel, Hon. VC, NAU, Navsari Dr. R. M. Chauhan, Hon. VC, SDAU, Sardarkrushinagar
Rapporteur	Dr. V. P. Ramani, ADR, AAU, Anand Dr. V. R. Naik, ADR, NAU, Navsari Dr. Pramod Mohnot, ADR, JAU, Junagadh Dr. L. D. Parmar, ADR, SDAU, Sardarkrushinagar

The meeting was started at 9:30 amthrough virtual platform hosted by Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar under the chairmanship of Dr. R. M. Chauhan, Honorable Vice Chancellor, SDAU in august presence of Dr. N. H. Kelawala, Hon. VC, Kamdhenu University, Gandhinagar, Dr. B. R. Shah, Hon. VC, Organic University, Gandhinagar, Dr. V. P. Chovatia, Hon. VC, Junagadh Agricultural University, Junagadh, Dr. K. B. Kathiria, Hon. VC, Anand Agricultural University, Anand, Dr. Z. P. Patel, Hon. VC, Navsari Agricultural University, Navsari, Directors of Research & Deans PG Studies, Directors of Extension Education and Associate Directors of Research of all SAU's. The programme was started with a prayer for well being of the professional, farmers and all human beings.

Dr. B. S. Deora, Director of Research and Dean PG studies, SDAU, Sardarkrushinagar welcomed all the Hon'ble VC of all SAU's, Directors of Research and Dean PGS, Director of Extension Education, Deans, Directors, Senior Professors and Scientists, Conveners of different AGRESCO Sub-committees, Scientists and colleagues. In his welcome address, he highlighted the strength of Gujarat's agriculture indicating strong agricultural research capabilities, different farm universities, emerging contract farming through FPOs, strong agricultural machinery and marketing infrastructure, increasing adoption of high-tech agriculture including, tissue culture, shade house, agricultural export zone *etc*. He highlighted the challenges faced by agriculture in today's scenario *i. e.*, global warming, soil degradation, overexploitation of water resources, raising water level in coastal area, increasing food demand besides decreasing agricultural land, pest and disease problem, fragmentation of land holdings, high labour wages and labour shortage during peak season beside ongoing pandemic. He stated that our productivity is also stagnated/decreased due to

improper soil management, inefficient irrigation method, high input costs, low input use efficiency, poor use of organic inputs, and lack of crop rotation and use of high concentrated chemical fertilizers. Under these challenges, we have severalchallenges before us like how to achieve the sustainable growth, produce quality food, achieve the productivity, and efficiently utilize the resources. We are working and need to work intensely to solve these issues. He highlighted that, in this combined AGRESCO, we are discussinga total of 1211 programmes including 37 new varieties proposed for approval besides 232 technologies for farming recommendations, 180 for scientific recommendations, 3 for entrepreneurs, industries and policy makers are proposed for approval. In addition, 759 new technical programmes formulated by scientific faculty of all SAU's to address problems of agricultural, animal husbandry and allied fields will be discussed. He claimed that these universities achievement in research and extension education through these achievements is possible only through visionary mode, zeal of scientific faculty and experts and at last thanked all the Deans, faculty and scientific faculty for actively working in teaching, research and extension to solve the farmers' problems. Also thanked all the scientific faculty who are working hard to achieve the Hon'ble Prime Minister's goals to achieve the "Doubling of farmer's income by 2022" and to bring the prosperity in the farmer's life.

Later, Dr. N. H. Kelawala, Hon. VC, Kamdhenu University, Gandhinagar in his address appreciated the efforts of scientific faculty for bringing recommendations to the farming and scientific communities and also requested to churn the new technical programmes (NTPs) with thorough discussion on 49 NTPs proposed from Animal Health, 52 from Animal production, 21 from Dairy and FPT proposed by scientists. This year, they said that there is less number of recommendations, but will be helpful for farmers and scientific community. He also appreciated the efforts of SAU's to help the people under Covid-19 pandemic through RTPCR test. He also appreciated the faculty for their wonderful work even under pandemic situation through online teaching and continued research work and called the scientists to think out of the box under this pandemic and to bring out best recommendation for the farmers.

Dr. B. R. Shah, Hon. VC, Organic University, Gandhinagar congratulated newly appointed Vice Chancellors, Dr. K. B. Kathiria, VC, AAU, Anand, Dr. Z. P. Patel, VC, NAU, Navsari and Dr. R. M. Chauhan, VC, SDAU, Sardarkrushinagar. He also congratulated the efforts of all faculty for their hard work, dedication and never give up attitude even under this pandemic situation. He detailed about the establishment of Organic University in Gujarat. He requested the help and co-operation of all SAU's and Kamdhenu University for the smooth functioning of Organic University, Gandhinagar since the university is in infant stage. He gave details on course curriculum of M.Sc. (Agriculture) Agronomy with specialization in organic farming and desired to extend new discipline i.e. Extension Education and Plant Breeding. He pointed out few organic farming research areas like method of conversion of inorganic farming land to organic farming land, organic cultivation techniques, soil management, organic fertilization, green manure handling, non-chemical weed management, organic methods of pest, disease and nematode control, development of package of practices of organic farming, strategies of quality crop production, biomass generation and management, investigating bioformulations having equivalent capacity that of chemical

fertilizers *etc.*He also urged for scouting of natural resources and local cultivars and their repository development for their future use for breeding for biotic and abiotic stresses, botanicals for pest and diseases, use of ITKs etc. Apart from these, he claimed that there is a need to focus on pesticide residue testing, development of protocols for developing new bioformulations, microbes maps, and development of need based advisory in organic farming, research on recycling and development of natural resources etc. They suggested that, under Animal husbandrydivision,there is a need to make research association with market issues, social and political aspects, policy matters and regional associations. He also suggested to offer short term courses on entrepreneurships for young farmers in organic farming, development of incubation centres in different regions of Gujarat. At the end, he requested that as the Organic University, Gandhinagar is facing resource deficit in terms of land and man power, he urged to all SAU's and Kamdhenu University to form MoU's with Organic University, Gandhinagar and help the Organic Universitythrough mutual co-operation and development of all universities.

Dr. V. P. Chovatia, Hon. VC, JAU, Junagadh in his address expressed that India is blessed with vast diversity in natural resources having second highest arable land area in the world and also highlighted food production statistics of the country which indicated that the agricultural production of India today has increased from 1.7 to 2.6 times as compared to 1971. However, we are also facing the average lower productivity of many crops as compared to global average. He emphasized that the demand for food grains of the country by 2030 will be 345 million tones and on another hand the pressure on land is increasing. In this regard, he said that there is a need to take proper measures to overcome these issues. Gujarat is blessed with several eight different agro climatic zones each havingdiverse weather, soil type and capable of growing variety of crops. He also stated that, the research at higher educational institutes in India accounts for mere 4% of total national R&D expenditure.He also thrown light on the different constrains faced in the agriculture sector likesmall and fragmented land holdings, low seed replacement ratio, unavailability of manures and fertilizers, biocides, lack of irrigation facilities, soil erosion and quality, low farm mechanization, inadequate storage and transport facility, low level of primary and secondary food processing units at village levels*etc*. and claimed that which must beaddressed by the scientists to bring changes in these.

He claimed that improved seed played vital role in increasing agricultural production (10-20%) in developing countries like India by improving maturity time, high yield, resistance to biotic and abiotic stresses like pests, diseases, droughts etc. He called for production of export oriented quality food products under climate change scenario to earn foreign exchange. He also quoted some of his personal observations on effect of climate change on agriculture which are challenging for scientific community such as no/low bearing in coconut, sapota, aonla and ber, three times flowering in mango in last three years, no hastbahar in pomegranate in Saurashtra region of Gujarat, minor pest becoming major pest (Sucking pests) especially in summer season, new pest becoming havoc (like fall army worm, Spirulina white fly)*etc.*

Hon. Vice Chancelloralso called our scientists to focus to explore the new innovative technologies in future like bioscience research, biotechnological research, alternate source of energy (Bioenergy), nanotechnology, robotics, artificial intelligence, block chain technology, nutrition sensitive research, post-harvest management and value addition etc. They elaborated that the NTPS should concentrate on achieving the policy of government *i. e.*, “One district one crop”. The social science group scientists have to work on encouragement of “Farmer’s Producing Organizations (FPO’s) on large scale, direct marketing opportunities due to new agricultural bills of Govt. of India to enhance the farmer’s income. The number of internet users in India will reach 66 billion by 2025, which must be effectively utilized to transfer more and more scientific technologies to the farmers. AT the end, he urged the agricultural scientists to make collaboration with global and national and industrial partners to improve the quality of research and for wider adoption of resulting technologies.

Dr. K. B. Kathiria, Hon. VC, AAU, Anand in his remarks expressed that the NTPs to be formulated as per the needs of farmers, processers/industries and mechanization needs. He appreciated all the scientific communities especially young team of scientists for their excellent research and recommendations, but he implied that the developed technologies must be demonstratedand transferred in time to the end user (farming community) bythe respective scientist to make surein adaptation of technologies by the farmer/end user.Similarly, requested that the new varieties must be transferred to the farmer via seed corporations through large scale multiplications. He also urged the scientists to carry out interdisciplinary research also and inter-university collaborativeresearch including exchange of germplasm, technologies through necessary MoU’s between universities for breeding in *Bt* cotton etc. He also called that the NTPs have to be proposed with multiplication trails at different locations across different universities with inter-university collaboration. Apart from this, he said there is need to develop good liaison with the line departments for popularization and transfer of technologies, varieties, combo herbicide products to save the labour cost and to reduce the overall cost of cultivation of crops *etc.* He also commendedpopularization and promotion of new varieties by the farmers themselves through seed production in their own farm and to make them self-reliant in seed production. He also called for development of new varieties having wider adaptation over entire state and even at other states. At last, urged to explore new arenas of season for cultivation of crops like semi-rabi, summer season under this era of climate change.

Dr. Z. P. Patel, Hon. VC, NAU, Navsari in his speech appreciated all the scientists for their commendable work even under Covid pandemic situation. He claimed that NAU, Navsari has brought 24 per cent increase in recommendations and made 51 per cent rise in proposing NTPs over last year. Further said that NAU is proposing 15 varieties of different crops in this 17th AGRESCO for the benefit of farming communities.

Dr. R. M. Chauhan, Hon. VC, SDAU, Sardarkrushinagar in his welcome address praised that the country has became self-reliant in seed production through the contribution of various agencies. Similarly, called to promote the farmers to become self-reliant in seeds as an indication of *Atma Nirbhar Bharat*. He alsourged that till today the ‘Seed Replacement Ratio’ and ‘Varietal Replacement Ratio’ isless in India which must be increased. He also

urged that all the experiments and NTPs must be conducted under micro irrigation systems and they should be proposed for recommendation with the micro irrigation only so as to create awareness among farmerson savingof precious water resources.He requested that the herbal pesticides need to be emphasized and promoted for plant protection as an alternative to the chemical pesticides. The horticultural scientists are asked to make the farmers to produce more of fruits and vegetable so as to make the availability of these fruits to the poorest consumers also. He called the engineering scientists to focus on development of light weight tractors and implements to avoid soil compaction, and also called to develop light weight implements capable of operating by draught animals wherever the farmers are not having access to heavy tractor operated implements.

Hon'ble Vice Chancellor entrusted social science scientists to focus on providing knowledge and new technology released by the universities to the farmers so as to make the farmers to adopt new technology and become self-reliant farmers and to make the villages "Hub of universities". The Veterinary Science and Animal Husbandry scientists are insisted to promote stress tolerant *Desi* or local breeds of animals. He also called the veterinary scientists to focus on natural herbal medicines to take care the health of animals.

At the end, Hon'ble Vice Chancellor with expression of thanks to all the Vice Chancellors, Directors, scientists and all the technical staff for joining the inaugural session of combined AGRESCO meeting through virtual mode, and also requested everyone for two minutes stand up silence prayer for peace to the scientists/university employees who lost their life in the Covid-19 pandemic.

17.1. CROP IMPROVEMENT

Date : 27th -29th April, 2021 **Time: 9:00 a.m. onwards**

The 17th Combined AGRESCO online meeting of four SAU's for Crop Improvement Sub-committee for release proposals / recommendations and new technical programmes was held on 27th -29th April, 2021 hosted by SDAU, Sardarkrushinagar. At the outset, Dr. K.B. Kathiria, Chairman of the sub committee meeting and Hon'ble Vice Chancellor, AAU, Anand welcomed all the Vice Chancellors of SAUs, Co-Chairmen, Conveners and scientists of crop improvement sub-committee. In his welcome speech, he appreciated the research activities carried out for releasing new varieties / recommendations by different scientists.

Chairman	Dr. K. B. Kathiria, Honorable Vice-Chancellor, AAU, Anand
Co-Chairmen	1. Dr. R. R. Acharya, Research Scientist (Vegetable), MVRS, AAU, Anand 2. Dr. R. B. Madariya, Research Scientist (Oil seed), JAU, Junagadh
Rapporteurs	1. Dr. P. T. Patel, Research Scientist (Seed), SDAU, Sardarkrushinagar 2. Dr. A. G. Pansuriya, Assoc. Res. Sci. WRS, JAU, Junagadh 3. Dr. D. A. Patel, Professor and Head, GPB, BACA, AAU, Anand 4. Dr. P. B. Patel, Research Scientist (Rice), NAU, Navsari
Statistician	1. Dr. V. B. Darji, Associate Professor, College of AIT, AAU, Anand

Presentation of recommendations and new technical programmes by Conveners of SAUs

Sr.No.	Name	Designation & University
1	Dr. J. N. Patel	Research Scientist, BTRS, AAU, Anand
2	Dr. R. B. Madariya	Research Scientist (Groundnut), MORS, JAU, Junagadh
3	Dr. D. A. Chauhan	Associate Research Scientist, PRS, NAU, Navsari
4	Dr. L. D. Parmar	Asociate Director of Research, SDAU, SKNagar

Summary

Name of University	No. of Recommendations			
	Farming Community		Scientific Community	
	Proposed	Approved	Proposed	Approved
AAU, Anand	9+2	9+1	1*	0
JAU, Junagadh	7	7	2	2
NAU, Navsari	15	13	0	0
SDAU, SKNagar	6	6	0	0
Total	37+2	35+1	3	2

* continue…

All the recommendations / release proposals presented by different conveners were thoroughly screened by the house and approved with suggestions as follows.

17.1.1 RECOMMENDATIONS/ RELEASE PROPOSALS OF VARIETIES/ HYBRIDS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr.	Centre/Station/Department
17.1.1.1	**Proposal for release of Brinjal variety GUJARAT ROUND BRINJAL 8 (GRB 8: Anand Raj)**
	The farmers of Gujarat state are recommended to grow brinjal variety Gujarat Round Brinjal 8 (GRB 8: Anand Raj) during *kharif-rabi* season. The proposed genotype recorded 426 q/ha average fruit yield which was 25.5, 20.9, 24.3, 25.7 and 32.0 *per cent* higher than the checks GAOB 2, GNRB 1, GRB 5, Swarna Mani Black and GOB 1, respectively. The genotype has ovoid shaped fruit with purple fruit skin colour having strong glossiness. It has less prevalence of little leaf disease reaction, lower number of jassids and white flies as well as shoot and fruit borer damage as compared to all checks. The genotype contains higher total soluble sugars (3.92%) and reducing sugars (2.51%) as compared to the check varieties GAOB 2, GNRB 1, GRB 5, Swarna Mani Black and GOB 1.
	<u>ભલામણ</u> સમગ્ર ગુજરાતમાં ખરીફ - રવી ઋતુમાં રીંગણ નો પાક ઉગાડતા ખેડૂતોને ગુજરાત ગોળ રીંગણ ૮ (જીઆરબી ૮ : આણંદ રાજ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૪૨૬ કિવ./હે. જોવા મળેલ છે. જે અંકુશ જાતો જીએઓબી ૨, જીએનઆરબી ૧, જીઆરબી ૫, સ્વર્ણ મણી બ્લેક અને જીઓબી ૧ કરતા અનુક્રમે ૨૫.૫, ૨૦.૯, ૨૪.૩, ૨૫.૭ અને ૩૨.૦ ટકા વધારે માલુમ પડેલ છે. આ જાતના ફળ અંડાકાર અને જાંબુડીયા રંગના ચળકતા હોય છે. આ જાતમાં અંકુશ જાતોની સરખામણીમાં ઘટ્ટીયા પાનનો રોગ, તડતડીયા, સફેદ માખી તથા ડૂંખ અને ફળ કોરીખાનાર ઈયળનું નુકશાન ઓછું જોવા મળેલ છે. આ જાતમાં કુલ દ્રાવ્ય શર્કરા (૩.૯૨%) અને રીડયુસીંગ સુગર (૨.૫૧%) ચકાસણી હેઠળની બધીજ અંકુશ જાતો કરતાં વધારે માલુમ પડેલ છે.
	Release proposal was accepted by the house **[Action: Res. Scientist, Main Vegetable Research Station, AAU, Anand]**
17.1.1.2	**Proposal for release of Chilli variety Gujarat Anand Vegetable Chilli 141 (GAVC 141: Anand Tej)**
	The farmers of middle Gujarat are recommended to grow chilli variety Gujarat Anand Vegetable Chilli 141 (GAVC 141: Anand Tej) during *kharif-rabi* season. The proposed genotype gave 149 q/ha average green fruit yield in middle Gujarat, which was 12.1, 27.6, 36.9 and 64.7 per cent higher over the checks GVC 111, GAVC 112, GVC 121 and JCA 283, respectively. The fruits

	of this genotype have medium intensity of green colour at unripe stage with smooth texture. This genotype has less prevalence of chilli leaf curl disease, fruit damage by fruit borer with lower or comparable thrips infestation as compared to the checks GAVC 112 and JCA 283. The genotype contains higher ascorbic acid (16.37 mg/100g), total soluble sugars (3.78%) and reducing sugars (0.50%) as compared to the checks GVC 111 and GAVC 112.
	<u>ભલામણ</u> મધ્ય ગુજરાતમાં ખરીફ- રવી ઋતુમાં મરચીનો પાક ઉગાડતા ખેડૂતોને ગુજરાત આણંદ શાકભાજી મરચી ૧૪૧ (જીએવીસી ૧૪૧: આણંદ તેજ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. મધ્ય ગુજરાતમાં આ જાતનું સરેરાશ ઉત્પાદન ૧૪૯ કિવ./હે. જોવા મળેલ છે જે અંકુશ જાતો જીવીસી ૧૧૧, જીએવીસી ૧૧૨, જીવીસી ૧૨૧ અને જેસીએ ૨૮૩ કરતા અનુક્રમે ૧૨.૧, ૨૭.૬, ૩૬.૯ અને ૬૪.૭ ટકા વધારે માલુમ પડેલ છે. આ જાત આછા લીલા રંગના અને લીસા ફળ ધરાવે છે. આ જાતમાં અંકુશ જાતો જીએવીસી ૧૧૨ અને જેસીએ ૨૮૩ ની સરખામણીમાં પાનનાં કોકડવાનો રોગ, ફળ કોરી ખાનાર ઈયળ અને થ્રીપ્સનું નુકસાન ઓછું જોવા મળેલ છે. આ જાતમાં એસ્કોર્બીક એસીડ (૧૬.૩૭ મિ.ગ્રા,/૧૦૦ગ્રા.), કુલ દ્રાવ્ય શર્કરા (૩.૭૮%) અને રીડયુંસીગ સુગર (૦.૫૦%) અંકુશ જાતો જીવીસી ૧૧૧ અને જીએવીસી ૧૧૨ કરતા વધારે માલુમ પડેલ છે.
	Release proposal accepted by the house with following suggestion: 1. Add supplementary data of green to dry chilli fruit ratio and dry chilli powder in the proposal. **[Action: Res. Scientist, Main Vegetable Research Station, AAU, Anand]**
17.1.1.3	**Proposal for release of Tomato variety Gujarat Anand Tomato 8 (GAT 8: Anand Roma)**
	The farmers of middle Gujarat are recommended to grow tomato variety Gujarat Anand Tomato 8 (GAT 8: Anand Roma) during *kharif-rabi* season. The proposed genotype gave 406 q/ha average fruit yield in middle Gujarat. It exhibited 46.4, 35.3, 38.4, 13.9, 20.4, 22.3 and 25.3 per cent higher fruit yield over the checks GT 2, AT 3, JT 3, GAT 5, JT 6, GT 7 and DVRT 2, respectively. The growth habit of the genotype has determinate type and light intensity of green colour leaf. The fruits are ovoid in shape with flat to pointed blossom end. This genotype has less prevalence of tomato leaf curl disease and leaf damage by leaf miner as well as comparable or less fruit damage by fruit borer as compared to the checks GAT 5, JT 6, GT 7 and DVRT 2. The genotype contains 10.79 mg/100g lycopene, 11.30 mg/100g ascorbic acid, 0.10% acidity and 0.04 acidity to sugar ratio.
	<u>ભલામણ</u> મધ્ય ગુજરાતમાં ખરીફ-રવી ઋતુમાં ટામેટાનો પાક ઉગાડતા ખેડૂતોને ગુજરાત આણંદ ટામેટા ૮ (જીએટી ૮ : આણંદ રોમા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. મધ્ય

	ગુજરાતમાં આ જાતનું સરેરાશ ઉત્પાદન ૪૦૬ કિવ./હે. જોવા મળેલ છે. આ જાતમાં અંકુશ જાતો જીટી ૨, એટી ૩, જેટી ૩, જીએટી ૫, જેટી ૬, જીટી ૭ અને ડીવીઆરટી ૨ કરતા અનુક્રમે ૪૬.૪, ૩૫.૩, ૩૮.૪, ૧૩.૯, ૨૦.૪, ૨૨.૩ અને ૨૫.૩ ટકા વધારે ઉત્પાદન માલુમ પડેલ છે. આ જાત નિયંત્રિત વૃધ્ધિવાળી અને આછા લીલા પાન ધરાવે છે તથા ફળ લંબગોળ અને છેડેથી અણીવાળા છે. આ જાતમાં અંકુશ જાતો જીએટી ૫, જેટી ૬, જીટી ૭ અને ડીવીઆરટી ૨ ની સરખામણીમાં પાનનાં કોકડવાનો રોગ અને પાનકોરીયાનું પ્રમાણ ઓછું તથા ફળ કોરીખાનાર ઈયળનું નુકસાન ઓછું અથવા તેના જેટલું જોવા મળેલ છે. આ જાતમાં ૧૦.૭૯ મી.ગ્રા./૧૦૦ ગ્રા. લાયકોપિન, ૧૧.૩૦ મી.ગ્રા./૧૦૦ ગ્રા. એસ્કોર્બીક એસીડ, ૦.૧૦ ટકા એસીડીટી અને ૦.૦૪ એસીડીટી અને સુગર ગુણોત્તર માલુમ પડેલ છે.
	Release proposal accepted by the house with following suggestions: 1. Include yield data of *kharif-rabi* 2020-21 in corresponding table. 2. Include shelf- life related information in salient features. **[Action: Res. Scientist, Main Vegetable Research Station, AAU, Anand]**

17.1.1.4	**Proposal for release of Okra variety Gujarat Anand Okra 8 (GAO 8: Anand Komal)**
	The farmers of middle Gujarat agro-climatic zone are recommended to grow okra variety Gujarat Anand Okra 8 (GAO 8: Anand Komal) during *kharif* and *summer* season. The proposed genotype recorded 125 q/ha average fruit yield in middle Gujarat. While, it manifested 129 and 114 q/ha fruit yield during *kharif* and *summer* season, respectively. Fruits of this genotype are dark green colour, tender, smooth, medium long having narrow acute shape of apex. It has strong serration of leaf blade margin and deep depth of lobbing. The genotype has tall plant stature with more number of nodes and short internodes. It has less prevalence of yellow vein mosaic disease and enation leaf curl disease as well as lower jassids population and shoot damage as compared to the checks GAO 5, GO 6 and Pusa Sawani. The genotype contains higher phenol (0.13%), total soluble sugars (2.50%) and total chlorophyll (0.55 mg/g) as compared to the checks GAO 5, GO 6 and Pusa Sawani.
	ભલામણ મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારના ચોમાસુ અને ઉનાળુ ઋતુમાં ભીંડાનો પાક ઉગાડતા ખેડૂતોને ગુજરાત આણંદ ભીંડા ૮ (જીએઓ ૮: આણંદ કોમલ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. મધ્ય ગુજરાતમાં આ જાતનું સરેરાશ ઉત્પાદન ૧૨૫ કિવ./હે. જોવા મળેલ છે. આ જાત ચોમાસાની ઋતુમાં ૧૨૯ કિવ./હે. તેમજ ઉનાળુ ઋતુમાં ૧૧૪ કિવ./હે. સરેરાશ ઉત્પાદન આપે છે. આ જાતની શીંગો ઘાટા લીલા રંગની, કુણી, મધ્યમ લંબાઈની અને પાતળી ટોચ ધરાવતી હોય છે. તેના પાંદડા ઉંડા ખાંચાવાળા હોય છે. છોડ ઉંચો અને વધારે સંખ્યામાં ગાંઠો અને આંતરગાંઠો ધરાવે છે. આ જાતમાં પીળી નસનો પંચરંગીયો, એનેસન પાનનો કોકડવા રોગ, લીલા તડતડીયા તથા ડુંખ કોરી ખાનાર ઈયળનો ઉપદ્રવ અંકુશ જાતો જીએઓ ૫,

જીઓ ૬ તથા પુસા સાવની કરતાં ઓછો જોવા મળે છે. આ જાતમાં ફિનોલ (૦.૧૩%), કુલ દ્રાવ્ય શર્કરા (૨.૫૦%) અને કુલ હરિતદ્રવ્ય (૦.૫૫ મી.ગ્રા./ગ્રા.) નુ પ્રમાણ અંકુશ જાતો જીએઓ ૫, જીઓ ૬ અને પુસા સાવની કરતાં વધારે માલુમ પડેલ છે.

Release proposal accepted by the house with following suggestions:

1.	Table 1a	:	Arrange first *kharif* trials data then summer trials
2.	Table 2e	:	Delete table

[Action: Res. Scientist, Main Vegetable Research Station, AAU, Anand]

17.1.1.5 Proposal for release of Rice variety Gujarat Rice 21 (GR 21: Vatrak)

The *kharif* transplanted rice growing farmers of Gujarat state are recommended to grow Gujarat Rice 21 (GR 21: Vatrak). The average yield of variety is 5345 kg/ha. It is moderately resistant against major insect-pests *viz.*, White Backed Plant Hopper, Yellow Stem Borer and Leaf Folder and major diseases *viz.*, Bacterial Leaf Blight, Leaf Blast, Neck Blast, Sheath Rot and Grain Discoloration. It possesses medium slender grain type, cluster panicle, good tillering ability, medium maturity, good cooking and grain qualities as well as rice grain contain high amount of Fe and Zn.

ભલામણ

ગુજરાત રાજ્યના ખરીફ રોપાણ ડાંગર ઉગાડતા ખેડુતોને ગુજરાત ડાંગર ૨૧ (જી.આર. ૨૧ : વાત્રક) જાતનું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતનુ સરેરાશ ઉત્પાદન ૫૩૪૫ કિ.ગ્રા./હે. છે. આ જાત ડાંગરની મુખ્ય જીવાતો જેવી કે, સફેદ પીઠવાળા ચુસિયા, ગાભમારાની ઈયળ અને પાન વાળનાર ઈયળ તથા મુખ્ય રોગો જેવા કે, જીવાણુંથી થતો પાનનો સુકારો, પાનનો કરમોડી, ગાંઠનો કરમોડી, પર્ણચ્છેદનો કોહવારો અને ભૂખરા દાણાના રોગ સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે. આ મધ્યમ વહેલી પાકતી જાત મધ્યમ પાતળો દાણો, ભરાવદાર કંટી, સારી ફુટ, દાણા અને રાંધવાની સારી ગુણવત્તા તેમજ ચોખામાં લોહ તથા ઝીંકની વધુ માત્રા ધરાવે છે.

Release proposal accepted by the house with following suggestions:

1.	Recommendation text	:	Add data of checks in English and Gujarati version
2.	Table 4a	:	Add observation: Number of grains per penicle Sr. No. 11: Write Aroma- “absent” instead of “0”.

[Action: Research Scientist, MRRS, AAU, Nawagam]

17.1.1.6 Proposal for release of Rice variety Gujarat Anand Rice 22 (GAR 22: Swagat)

The *kharif* transplanted rice growing farmers of middle Gujarat are recommended to grow Gujarat Anand Rice 22 (GAR 22: Swagat). The

	average yield of the variety is 5613 kg/ha. It is having moderate resistance against major insect-pests *viz*., White Backed Plant Hopper, Yellow Stem Borer and Leaf Folder and major diseases *viz*., Bacterial Leaf Blight, Leaf Blast, Neck Blast, Sheath Rot and Grain Discoloration. It possesses long slender grain type, straight panicle, good tillering ability, medium maturity, good cooking and grain qualities.
	<u>ભલામણ</u> મધ્ય ગુજરાતના ખરીફ રોપાણ ડાંગર ઉગાડતા ખેડુતોને ગુજરાત આણંદ ડાંગર ૨૨ (જી.એ.આર.૨૨: સ્વાગત) જાતનું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાત નું સરેરાશ ઉત્પાદન ૫૬૧૩ કિ.ગ્રા./હે. છે. આ જાત ડાંગરની મુખ્ય જીવાતો જેવી કે, સફેદ પીઠવાળા ચુસિયા, પાન વાળનાર ઈયળ અને ગાભમારાની ઈયળ તથા મુખ્યરોગો જેવા કે, જીવાણુંથી થતો પાનનો સુકારો, પાનનો કરમોડી, ગાંઠનો કરમોડી, પર્ણચ્છેદ નો કોહવારો અને ભૂખરા દાણાના રોગ સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે. આ મધ્યમ વહેલી પાકતી જાત લાંબો દાણો, સીધી કંટી તેમજ દાણા રાંધવાની સારી ગુણવત્તા ધરાવે છે.
	Release proposal accepted by the house with following suggestions: 1. Recommendation text : Add data of checks in English and Gujarati version 2. Table 4a : Add observation : Number of grains per penicle **[Action: Research Scientist, MRRS, AAU, Nawagam]**
17.1.1.7	**Proposal for release of Urdbean variety Gujarat Anand Urdbean 4 (GAU 4: Shyamal)**
	The farmers of middle Gujarat are recommended to grow urdbean variety Gujarat Anand Urdbean 4 (GAU 4: Shyamal) during *summer* and *kharif* season. The proposed genotype gave 1005 kg/ha and 864 kg/ha seed yield in *kharif* and *summer* season, respectively in middle Gujarat. It exhibited yield advantage of 19.1 and 23.9% in *kharif* as well as 22.2 and 23.4 % in *summer* over the checks T 9 and GU 1, respectively. The variety has medium maturity, semi-erect in nature and resistant against YMD under natural field condition.
	<u>ભલામણ</u> મધ્ય ગુજરાતમાં ઉનાળુ અને ચોમાસુ ૠતુમાં અડદની ખેતી કરતાં ખેડૂતોને ગુજરાત આણંદ અડદ ૪ (જી.એ.યુ.૪: શ્યામલ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. મધ્ય ગુજરાતમાં આ જાત ચોમાસુ અને ઉનાળુ ૠતુમાં અનુક્રમે ૧૦૦૫ કિ.ગ્રા./હે. અને ૮૬૪ કિ.ગ્રા./હે. દાણાનું સરેરાશ ઉત્પાદન આપે છે. જે અંકુશ જાતો ટી ૯ અને ગુજરાત અડદ ૧ કરતાં અનુક્રમે ૧૯.૧ અને ૨૩.૯ ટકા ચોમાસુ ૠતુમાં તેમજ ૨૨.૨ અને ૨3.૪ ટકા ઉનાળુ ૠતુમાં વધારે છે. આ નવી જાત મધ્યમ વહેલી પાકતી, અર્ધ-ઉભડી અને પંચરંગીયાના રોગ સામે સારી પ્રતિકારક શકિત ધરાવે છે.

<table>
<tr><td></td><td>Release proposal accepted by the house with following suggestions:
1. Check and rectify the data of Fe, Mn, Zn and Cu in the proposal.
2. Write ‘traders opinion’ instead of ‘consumers preference’ in Table 9.
[Action: Research Scientist, PRS, AAU, Vadodara]</td></tr>
<tr><td rowspan="4">17.1.1.8</td><td>Proposal for release of Mungbean variety Gujarat Anand Mungbean 8 (GAM 8: Hara Moti)</td></tr>
<tr><td>The farmers of middle Gujarat are recommended to grow mungbean variety Gujarat Anand Mungbean 8 (GAM 8: Hara Moti) during summer season. The proposed genotype recorded 1171 kg/ha seed yield, which is 86.6, 18.2, 18.9 and 14.3% higher over the check varieties GM-4, Meha, GAM 5 and GM 6, respectively. It matures within 65-75 days (medium group), having determinate growth habit with medium seed size and shiny green colour seed. It is resistant against Mungbean Yellow Mosaic Virus (MYMV) disease and the seeds have high protein content.</td></tr>
<tr><td><u>ભલામણ</u>
મધ્ય ગુજરાતમાં ઉનાળુ ઋતુમાં મગનો પાક ઉગાડતા ખેડૂતોને ગુજરાત આણંદ મગ ૮ (જી.એ.એમ. ૮: હરા મોતી) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. મગની ગુજરાત આણંદ મગ ૮ જાતના દાણાનું સરેરાશ ઉત્પાદન પ્રતિ હેકટરે ૧૧૭૧ કિ.ગ્રા. મળેલ છે, જે અંકુશ જાતો જીએમ ૪, મેહા, જીએએમ ૫ અને જીએમ ૬ કરતા અનુક્રમે ૮૬.૬, ૧૮.૨, ૧૮.૯ અને ૧૪.૩ ટકા વધારે માલુમ પડેલ છે. આ જાત ૬૫-૭૫ (મધ્યમ) દિવસોમાં પાકી જાય છે. આ જાત નિયંત્રિત વૃધ્ધિ ધરાવતી અને મધ્યમ કદના ચળકતા લીલા રંગના દાણા ધરાવે છે. આ જાત પીળા પંચરંગીયા રોગ સામે પ્રતિકારકતા અને દાણામાં વધારે પ્રોટીન ધરાવે છે.</td></tr>
<tr><td>Release proposal accepted by the house with following suggestion.
1. Write ‘traders opinion’ instead of ‘consumers preference’ in Table 9.
[Action: Research Scientist, RRS, AAU, Anand]</td></tr>
<tr><td rowspan="3">17.1.1.9</td><td>Proposal for endorsement of Chrysanthemum variety: Ratlam Selection</td></tr>
<tr><td>The farmers of middle Gujarat are recommended to grow chrysanthemum variety Ratlam Selection released by Punjab Agricultural University, Ludhiana during rabi season. In middle Gujarat, proposed variety recorded 40.78 t/ha average flower yield, which is 130.27 and 29.83 per cent higher over the checks IIHR 6 and Sunil, respectively. The proposed variety has determinate type of growth habit with broad leaves as well as early flowering, white in colour with semi-double flower head. This variety has less prevalence of aphid population as compared to the checks. The flowers of the variety has good shelf life.</td></tr>
<tr><td></td></tr>
</table>

<table>
<tr><td></td><td><u>ભલામણ</u>
મધ્ય ગુજરાતમાં શિયાળુ ઋતુમાં સેવંતીનો પાક ઉગાડતા ખેડૂતોને પંજાબ કૃષિ મહાવિધાલય, લુધિયાણા દ્વારા બહાર પાડેલ જાત રતલામ સિલેકશનનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ફુલોનું સરેરાશ ઉત્પાદન ૪૦.૭૮ ટન/હે. જોવા મળેલ છે. જે અંકુશ જાતો આઈઆરએચઆર ૬ અને સુનિલ કરતા અનુક્રમે ૧૩૦.૨૭ અને ૨૯.૮૩ ટકા વધારે માલુમ પડેલ છે. આ જાત નિયંત્રિત વૃધ્ધિવાળી તથા પહોળા પાન ધરાવે છે. આ જાતના ફુલ સફેદ રંગના, સેમી-ડબલ પાંખડીવાળા અને વહેલા આવે છે. આ જાતમાં મોલોનું પ્રમાણ અંકુશ જાતોની સરખામણીમાં ઓછું જોવા મળેલ છે. આ જાતના ફુલોનો સંગ્રહ સમય સારો જોવા મળેલ છે.</td></tr>
<tr><td></td><td>Endorsement proposal accepted by the house with following suggestions:
1. Point no. 5 (c) : Add “Selection at PAU, Ludhiana”
2. Point no. 17 : Acknowledge to PAU, Ludhiana
3. Write ‘traders opinion’ instead of ‘consumers preference’ in table 9.
[Action: Principal, College of Horticulture, AAU, Anand]</td></tr>
<tr><td colspan="2">Recommendation for Farming Community:</td></tr>
<tr><td>17.1.1.10</td><td>Effect of growing methods on seed yield and quality in Bottle gourd [Lagenaria siceraria (Molina) Standl] GABGH 1”</td></tr>
<tr><td></td><td>Bottle gourd hybrid seed producers/farmers of middle Gujarat agro-climatic zone-III are recommended to follow trailing method for hybrid seed production during kharif season to get higher seed yield and net profit per hectare with better seed germination and vigour.</td></tr>
<tr><td></td><td><u>ભલામણ</u>
મધ્ય ગુજરાતનાં કૃષિ આબોહવાકિય વિસ્તારમાં દુધીના પાકમાં સંકર બીજ ઉત્પાદન કરતાં બીજ ઉત્પાદકો/ ખેડૂતોને ભલામણ કરવામાં આવે છે કે ખરીફ ઋતુમાં દુધીના પાકમાં માંડવા પધ્ધતિ અનુસરવાથી હેક્ટરે વધુ સંકર બીજ ઉત્પાદન અને ચોખ્ખુ વળતર મળે છે તેમજ બીજમાં અંકુરણ ક્ષમતા અને જુસ્સો સારો જોવા મળે છે.</td></tr>
<tr><td></td><td>Recommendation was accepted by the house.
[Action: Asstt.Prof.&Head, Dept. of Seed Science & Technology, BACA, AAU, Anand]</td></tr>
<tr><td>17.1.1.11</td><td>Recommendation for release of rice varieties for summer season in middle Gujarat</td></tr>
<tr><td></td><td>Recommendation differed by the house with following suggestion:
1. Inititate evaluation trail for released varieties of rice using checks Jaya and Gurjari in summer season
[Action: Research Scientist, MRRS, AAU, Nawagam]</td></tr>
</table>

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

17.1.1.12

Proposal for release of Groundnut variety Gujarat Groundnut 37 [GG 37: Sorath Gaurav]

The farmers of Gujarat state growing groundnut during *summer* season are recommended to grow Spanish bunch groundnut variety Gujarat Groundnut 37 [GG 37 : Sorath Gaurav]. This variety has recorded mean pod yield of 3218 kg/ha, which was 20.77, 19.11 and 14.33 *per cent* higher over the check varieties, GG 6 (2398 kg/ha), GJG 31 (2702 kg/ha) and TG 37A (2815 kg/ha), respectively. This variety has also recorded high kernel yield (2350 kg/ha), oil yield (1148 kg/ha) and number of pods per plant over the check varieties. This variety was found comparable to the check varieties against tikka, stem rot and collar rot diseases. The damage due to thrips in GG 37 was also comparable to the check varieties.

<u>ભલામણ</u>

ગુજરાત રાજ્યમાં ઉનાળુ ઋતુમાં મગફળી ઉગાડતા ખેડૂતોને ઉભડી પ્રકારની મગફળીની જાત ગુજરાત મગફળી ૩૭ [જીજી ૩૭: સોરઠ ગૌરવ]નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ડોડવાનું સરેરાશ ઉત્પાદન ૩૨૧૮ કિ.ગ્રા. પ્રતિ હેક્ટર મળેલ છે, જે અંકુશ જાત જીજી ૬ (૨૩૯૮ કિ.ગ્રા./હે.), જીજેજી ૩૧ (૨૭૦૨ કિ.ગ્રા./હે.) અને ટીજી ૩૭ એ (૨૮૧૫ કિ.ગ્રા./હે.) કરતા અનુક્રમે ૨૦.૭૭, ૧૯.૧૧ અને ૧૪.૩૩ ટકા વધારે માલુમ પડેલ છે. અંકુશ જાતોની સરખામણીએ આ જાતમાં દાણાનું ઉત્પાદન (૨૩૫૦ કિ.ગ્રા./હે.), તેલનું ઉત્પાદન (૧૧૪૮ કિ.ગ્રા./હે.) અને છોડ દીઠ ડોડવાની સંખ્યા વધારે મળેલ છે. આ જાતમાં પાનના ટપકા, થડનો સુકારો અને ઉગસુકના રોગોનું પ્રમાણ અંકુશ જાતો જેટલું જોવા મળેલ છે. જીજી ૩૭માં થ્રીપ્સથી થતા નુકસાનનું પ્રમાણ પણ અંકુશ જાતો જેટલું જોવા મળેલ છે.

Release proposal accepted by the house with following suggestions:

1. Point no. 5 (c) **:** Write dose of irradiation
2. Write “Summer” instead of “S”for all tables
3. Arrange zone wise table 2a, 2b, 2c
4. Remove mean row in case of single location data.
5. Write the procedure of mutation in intordinctory paragraph.
6. Delete pod yield data from ancillary table.

[**Action: Research Scientist (Groundnut), MORS, JAU, Junagadh]**

17.1.1.13

Proposal for release of Groundnut variety Gujarat Groundnut 38 [GG 38: Sorath Navin]

The farmers of Gujarat state growing groundnut during *kharif* season are recommended to grow Spanish bunch groundnut variety Gujarat Groundnut 38 (GG 38: Sorath Navin). This variety has recorded mean pod yield of 2966 kg/ha, which was 31.53, 33.12 and 10.87 *per cent* higher over the check varieties, GG 7 (2255 kg/ha), GJG 9 (2228 kg/ha) and TG 37A (2675 kg/ha),

<table>
<tr><td rowspan="3"></td><td>respectively. This variety has also recorded high kernel yield (2146 kg/ha) and high oil yield (1050 kg/ha) over the check varieties. This variety was found comparable to the check varieties against tikka, rust, stem rot and collar rot diseases. The damage due to leaf defoliators in GG 38 was also comparable to the check varieties.</td></tr>
<tr><td><u>ભલામણ</u>
ગુજરાત રાજ્યમાં ચોમાસુ ઋતુમાં મગફળી ઉગાડતા ખેડૂતોને ઉભડી પ્રકારની મગફળીની જાત ગુજરાત મગફળી ૩૮ (જીજી ૩૮: સોરઠ નવીન)નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ડોડવાનું સરેરાશ ઉત્પાદન ૨૯૬૬ કિ.ગ્રા. પ્રતિ હેક્ટર મળેલ છે, જે અંકુશ જાતો જીજી ૭ (૨૨૫૫ કિ.ગ્રા./હે.), જીજેજી ૯ (૨૨૨૮ કિ.ગ્રા./હે.) અને ટીજી ૩૭એ (૨૬૭૫ કિ.ગ્રા./હે.) કરતા અનુક્રમે ૩૧.૫૩, ૩૩.૧૨ અને ૧૦.૮૭ ટકા વધારે માલુમ પડેલ છે. અંકુશ જાતોની સરખામણીએ આ જાતમાં દાણાનું ઉત્પાદન (૨૧૪૬ કિ.ગ્રા./હે.) અને તેલનું ઉત્પાદન (૧૦૫૦ કિ.ગ્રા./હે.) વધારે મળેલ છે. આ જાતમાં પાનના ટપકા, ગેરુ, થડનો સુકારો અને ઉગસુકના રોગોનું પ્રમાણ અંકુશ જાતો જેટલું જોવા મળેલ છે. આ જાતમાં પાન ખાનાર ઈયળોથી થતું નુકસાન પણ અંકુશ જાતો જેટલું જોવા મળેલ છે.</td></tr>
<tr><td>Release proposal accepted by the house with following suggestions:
1. Point no. 5 (c) : Write only pedigree method
2. Write “Kharif” instead of “K”for all tables
3. Table 1 : Write “mean” instead of “average”
Year : K 202; Location: Kodinar: Write “ 2121ab ”
4. Table 5 : Retain only k-18 and delete k19 and k20.
5. Table 7 : Correct the range of character pod yield kg/ha for J99 “(1428- 4618)” instead of “(1428-4167)”
6. Remove mean row in case of single location data.
7. Delete pod yield data from ancillary table
[Action: Research Scientist (Groundnut), MORS, JAU, Junagadh]</td></tr>
<tr><td rowspan="2">17.1.1.14</td><td>Proposal for release of Chickpea variety Gujarat Gram 7 [GG 7: Sorath Suraj]</td></tr>
<tr><td>Farmers of Gujarat state growing chickpea under conserved moisture (un-irrigated) condition are recommended to grow Gujarat Gram 7 (GG 7: Sorath Suraj) variety. This variety has produced 1859 kg/ha seed yield which was 43.3, 30.3, 18.4 and 9.0 per cent higher over check varieties Gujarat Gram 1 (1297 kg/ha), Gujarat Gram 2 (1427 kg/ha), Gujarat Junagadh Gram 3 (1570 Kg/ha) and Gujarat Junagadh Gram 6 (1706 Kg/ha), respectively. Seeds of this variety are large size and brown in colour. This variety is resistant to stunt disease and resistant to moderately resistant against wilt disease. It showed low pod borer damage. This variety has higher protein (23.65%) and zinc (33.50 ppm) content as compared to the check varieties</td></tr>
</table>

<u>ભલામણ</u>

ગુજરાત રાજ્યમાં બિનપિયત પરિસ્થિતિ હેઠળ ચણા ઉગાડતા ખેડુતોને ગુજરાત ચણા ૭ (જીજી ૭: સોરઠ સુરજ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાત ૧૮૫૯ કિ.ગ્રા./હે. દાણાનું ઉત્પાદન આપે છે જે અંકુશ જાતો ગુજરાત ચણા ૧ (૧૨૯૭ કિ.ગ્રા./હે.), ગુજરાત ચણા ૨ (૧૪૨૭ કિ.ગ્રા./હે.), ગુજરાત જુનાગઢ ચણા ૩ (૧૫૭૦ કિ.ગ્રા./હે.) અને ગુજરાત જુનાગઢ ચણા ૬ (૧૭૦૬ કિ.ગ્રા./હે.) કરતા અનુક્રમે ૪૩.૩, ૩૦.૩, ૧૮.૪ અને ૯.૦ ટકા વધુ છે. આ જાતના દાણા મોટા કદના અને કથ્થાઈ રંગના છે. આ જાત સ્ટન્ટ રોગ સામે પ્રતિકારક શકિત તેમજ સુકારા રોગ સામે પ્રતિકારક થી મધ્યમ પ્રતિકારક શકિત ધરાવે છે. આ જાતમાં પોપટા કોરી ખાનાર ઈયળથી ઓછુ નુકસાન જોવા મળેલ છે. આ જાતમાં અંકુશ જાતોની સરખામણીમાં પ્રોટીન (૨૩.૬૫%) અને જસત (૩૩.૫૦ પીપીએમ) વધારે જોવા મળેલ છે.

Release proposal accepted by the house with following suggestions:

1. Table 1 :
   - Retain only Ancova data
   - Delete the data of Vallabhipur (2018-19)
2. Table 4 :
   - Verify the mean and range
   - Add plant population data
3. Remove data in paranthesis from tables 1 and 2.
4. Add SEm value in tables 3, 4 and 5.
5. Verify the yield data of Dhandhuka centre for the year 2018-19 in Table 1.
6. Put the figure with uniform decimal point in table 4.

[Action: Research Scientist (Chickpea), PRS, JAU, Junagadh]

17.1.1.15 Proposal for release of Chickpea variety Gujarat Kabuli Gram 1 [GKG 1: Sorath Kabuli]

Farmers of Gujarat state growing kabuli chickpea are recommended to cultivate early maturing variety Gujarat Kabuli Gram 1 (GKG 1: Sorath Kabuli). In south Saurashtra, it recorded 2790 kg/ha seed yield, which is 14.7, 22.8 and 42.6 *per cent* higher over check varieties KAK 2, JGK 1 and PG 0517, respectively under irrigated condition. In north Saurashtra, it produced 1875 kg/ha seed yield, which is 29.8 and 20.7 *per cent* higher over KAK 2 and JGK 1, respectively and in Middle Gujarat, it recorded 1751 kg/ha seed yield which is 2.2 and 8.6 *per cent* higher over KAK 2 and PG 0517, respectively under irrigated condition.

In Bhal and Coastal areas, this variety has produced seed yield 1219 kg/ha which is 8.2, 7.9 and 50.1 *per cent* higher over check varieties KAK 2, JGK 1 and PG 0517, respectively under un-irrigated condition, where in south Gujarat, it gave 963 kg/ha seed yield, which is 5.4, 7.6 and 6.9 *per cent* higher over check varieties KAK 2, JGK 1 and PG 0517, respectively under un-irrigated condition.

As seeds of this variety are of extra-large size (43.5 g/100 seeds), it is suitable

	for export purpose. This variety has good level of resistance against stunt disease with low pod borer damage. It has higher dal recovery (67.45%), protein (23.60%), iron (63.78 ppm) and zinc (35.40 ppm) content.
	<u>ભલામણ</u> ગુજરાત રાજ્ય માં કાબુલી ચણા ઉગાડતા ખેડુતોને વહેલી પાકતી કાબુલી ચણાની જાત ગુજરાત કાબુલી ચણા ૧ (જીકેજી ૧: સોરઠ કાબુલી) નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. પિયત પરિસ્થિતિમાં, આ જાત દક્ષિણ સૌરાષ્ટ્રમાં ૨૭૯૦ કિ.ગ્રા./હે. દાણાનું ઉત્પાદન આપે છે જે અંકુશ જાતો કે.એ.કે. ૨, જે.જી.કે. ૧ અને પી.જી. ૦૫૧૭ કરતા અનુક્રમે ૧૪.૭, ૨૨.૮ અને ૪૨.૬ ટકા વધુ છે. ઉત્તર સૌરાષ્ટ્રમાં આ જાતના દાણાનું ઉત્પાદન ૧૮૭૫ કિ.ગ્રા./હે. છે જે અંકુશ જાતો કે.એ.કે. ૨ અને જે.જી.કે. ૧ કરતા અનુક્રમે ૨૯.૮ અને ૨૦.૭ ટકા તેમજ મધ્ય ગુજરાતમાં દાણાનું ઉત્પાદન ૧૭૫૧ કિ.ગ્રા./હે. છે જે અંકુશ જાતો કે.એ.કે. ૨ અને પી.જી. ૦૫૧૭ કરતા અનુક્રમે ૨.૨ અને ૮.૬ ટકા વધુ છે. બિનપિયત પરિસ્થિતિમાં, આ જાત ભાલ અને દરિયાઈ કાંઠા વિસ્તારમાં દાણાનું ઉત્પાદન ૧૨૧૯ કિ.ગ્રા./હે. આપે છે જે અંકુશ જાતો કે.એ.કે. ૨, જે.જી.કે. ૧ અને પી.જી. ૦૫૧૭ કરતા અનુક્રમે ૮.૨, ૭.૯ અને ૫૦.૧ ટકા વધુ છે. જ્યારે દક્ષિણ ગુજરાતમાં દાણાનું ઉત્પાદન ૯૬૩ કિ.ગ્રા./હે. આપે છે જે અંકુશ જાતો કે.એ.કે. ૨, જે.જી.કે. ૧ અને પી.જી. ૦૫૧૭ કરતા અનુક્રમે ૫.૪, ૭.૬ અને ૬.૯ ટકા વધુ છે. આ જાતના દાણા ખુબ મોટા (૪૩.૫ ગ્રામ/૧૦૦ દાણા) કદના હોવાથી નિકાસ માટે અનુકુળ છે. આ જાત સ્ટન્ટના રોગ સામે પ્રતિકારક શકિત ધરાવે છે તેમજ આ જાતમાં પોપટા કોરી ખાનાર ઈયળથી ઓછુ નુકસાન જોવા મળેલ છે. આ જાતમાં દાળનું પ્રમાણ (૬૭.૪૫%), પ્રોટીન (૨૩.૬૦%), લોહ (૬૩.૭૮ પીપીએમ) અને જસત (૩૫.૪૦ પીપીએમ) વધુ જોવા મળેલ છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 5 (c) : Write breeding method “entry developed through pedigree method by ICRISAT, Pattancheru, Hyderabad.” 2. Table 1 : 2018-19 LSVT-1: Delete the Vallabhipur row 3. Table 6 : Add plant population data in ancillary observations 4. Verify the test weight of JGK 1. 5. Check ‘CV’ value of Tanchha centre in LSVT RF 2018-19 (Table 1). 6. Add the data of disease susceptible check JG 62 for comparison in table 8. 7. Add SEm value in table 3. 8. Put photographs of wilt sick plot 9. Check the data of range in table 4. 10. Change the name of variety “Gujarat Kabuli Gram 1 (GKG 1)” instead of Gujarat Kabuli 1 (GK 1) in whole proposal.” [**Action: Research Scientist (Chickpea), PRS, JAU, Junagadh]**

17.1.1.16 **Proposal for release of Pearl millet biofortified hybrid Gujarat Hybrid Bajra 1231 [GHB 1231: Sawaj Shakti]**

The summer pearl millet growing farmers of Gujarat state and semi *rabi* pearl millet growing farmers of Saurashtra region are recommended to grow Gujarat Hybrid Bajra (GHB 1231: Sawaj Shakti) as a dual purpose (grain and dry fodder) biofortified hybrid. During summer, this hybrid recorded average 5737 kg/ha grain yield, which was 48.4 and 12.4% higher than check hybrids GHB 558 and GHB 732, respectively. It has also recorded average 8193 kg/ha dry fodder yield, which was 27.1 and 7.5% higher than check hybrids GHB 558 and GHB 732, respectively.

During semi *rabi*, this hybrid recorded average 4485 kg/ha grain and 8212 kg/ha dry fodder yield, which was 30.9 and 16.1% higher than check hybrid GHB 538 in Saurashtra region. The proposed hybrid is resistant against major pearl millet diseases like downy mildew, blast and rust and pest like shoot fly and stem borer. The grains of this hybrid possess higher content of Fe (> 70 ppm) and Zn (> 40 ppm) which is additional benefit to the farming and consumer community of pearl millet for their nutritional security.

<u>ભલામણ</u>

ગુજરાત રાજયમાં ઉનાળુ અને સૌરાષ્ટ્ર વિસ્તારમાં અર્ધ-શિયાળુ બાજરાનું વાવેતર કરતાં ખેડુતોને દાણા અને સુકાચારાના બંન્ને હેતુઓ માટેની બાયોફોર્ટિફાઈડ સંકર જાત ગુજરાત સંકર બાજરા ૧૨૩૧ (જીએચબી ૧૨૩૧: સાવજ શક્તિ)નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. ગુજરાત રાજ્યમાં ઉનાળુ ઋતુમાં આ જાતના દાણાનું સરેરાશ ઉત્પાદન ૫૭૩૭ કિ.ગ્રા./હે. મળેલ છે જે અંકુશ સંકર જાતો જીએચબી-૫૫૮ અને જીએચબી-૭૩૨ કરતાં અનુક્રમે ૪૮.૪ અને ૧૨.૪ ટકા વધારે છે. આ જાતમાં સુકાચારાનું સરેરાશ ઉત્પાદન ૮૧૯૩ કિ.ગ્રા./હે. મળેલ છે. જે અંકુશ સંકર જાતો જીએચબી-૫૫૮ અને જીએચબી-૭૩૨ કરતાં અનુક્રમે ૨૭.૧ અને ૭.૫ ટકા વધારે છે.

સૌરાષ્ટ્ર વિસ્તારમાં અર્ધ-શિયાળુ ઋતુમાં આ જાતના દાણાનું ૪૪૮૫ કિ.ગ્રા./હે. અને સુકાચારાનું ૮૨૧૨ કિ.ગ્રા./હે. સરેરાશ ઉત્પાદન મળેલ છે. જે અંકુશ સંકર જાત જીએચબી-૫૩૮ કરતાં અનુક્રમે ૩૦.૯ અને ૧૬.૧ ટકા વધારે છે. આ સંકર જાત બાજરાના મુખ્ય રોગો જેવા કે કુતુલ, પાનના ટપકા અને ગેરુ તેમજ જીવાતો જેવી કે સાંઠાની માખી અને ગાભમારાની ઈયળ સામે પણ પ્રતિકારક શકિત ધરાવે છે. આ સંકર જાતના દાણામાં લોહ (>૭૦ પીપીએમ) અને અને જસત (>૪૦ પીપીએમ) તત્વોનું પ્રમાણ વધારે છે જે બાજરાના વાવેતર કરતા ખેડૂત અને ઉપભોક્તા સમુદાય માટે તેમની પોષણ સુરક્ષા માટે વધારાનો ફાયદો આપે છે.

Release proposal accepted by the house with following suggestions:

1. Point no. 9(e) : Write name of disease
2. Point no. 9(g) : Mention sowing time (summer/semi rabi)
3. Table 1A : Write season

	4. Verify : Grain yield data of SKNagar and Vijapur for 2018/2019/2020 table 1A. 5. Verify : Grain yield and fodder yield data for Kodinar location year 2020 in table 1B . 6. Table 6A : Write “number of trials” instead of “figures in parnathesis samples” 7. Table 8A : Write “disease was not observed” for Blast and Rust disease instead of “0” 8. Write popular name Sawaj Shakti instead of Sorath Shakti [**Action: Research Scientist (Pearl Millet), PMRS, JAU,Jamnagar]**
17.1.1.17	**Proposal for release of Essentially Derived Variety for Pearl millet Gujarat Hybrid Bajra 538 for Downey Mildew [GHB 538 (EDV for DM): Maru Sona]**
	The farmers of Gujarat state growing pearl millet during *kharif* season are recommended to grow Gujarat Hybrid Bajra 538 (EDV for DM) [GHB 538 (EDV for DM): Maru Sona] as a Downey mildew resistant and early maturing hybrid. This hybrid recorded average grain yield of 2589 kg/ha which is 3.5 *per cent* higher than check hybrid GHB 538. It has also recorded 6320 kg/ha dry fodder yield which is 10.8 *per cent* higher than check hybrid GHB 538. The proposed hybrid is resistant against pearl millet diseases like blast and rust and pests like shoot fly and stem borer.
	ભલામણ ગુજરાત રાજયમાં ચોમાસુ બાજરાનું વાવેતર કરતાં ખેડુતોને કુતુલ રોગ સામે પ્રતિકારક અને વહેલી પાકતી સંકર જાત ગુજરાત સંકર બાજરા ૫૩૮ (EDV for DM) [જીએચબી ૫૩૮ (EDV for DM): મરૂ સોના] નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતના દાણાનું સરેરાશ ઉત્પાદન ૨૫૮૯ કિ.ગ્રા./હે. મળેલ છે જે અંકુશ સંકર જાત જીએચબી ૫૩૮ કરતાં ૩.૫ ટકા વધારે છે. આ જાતમાં સુકાચારાનું ઉત્પાદન ૬૩૨૦ કિ.ગ્રા./હે. મળેલ છે. જે અંકુશ સંકર જાત જીએચબી ૫૩૮ કરતાં ૧૦.૮ ટકા વધારે છે. આ સંકર જાત બાજરાના અન્ય રોગો જેવા કે પાનના ટપકા અને ગેરુ તેમજ જીવાતો જેવી કે સાંઠાની માખી અને ગાભમારાની ઈયળ સામે પણ પ્રતિકારક શકિત ધરાવે છે.
	Release proposal accepted by the house with following suggestion: 1. Submit DNA fingerprinting result and data for both parents and hybrid 2. Write morphological descriptors of improved and original parents 3. In point no. 5d objective write “resistance” instead of “sucseptibility” 4. Include data on disease epiphytotic condition of parental lines [**Action: Research Scientist (Pearl Millet), PMRS, JAU, Jamnagar]**

<table>
<tr><td rowspan="4">17.1.1.18</td><td>Proposal for release of Cotton hybrid Gujarat Cotton Hybrid-24 BG-II [G.Cot.Hy-24 BG-II: Sorath Swet Kanak]</td></tr>
<tr><td>The farmers of Gujarat state growing Bt cotton hybrid (Gossypium hirsutum L.) are recommended to grow cotton hybrid Gujarat Cotton Hybrid-24 BG-II (G.Cot.Hy-24 BG-II: Sorath Swet Kanak) under irrigated condition. This hybrid has recorded 3070 kg/ha seed cotton yield, which was 45.4, 53.3, 45.1 and 20.9 per cent higher over BG-II check hybrids viz., G.Cot.Hy-12 (1943 kg/ha), RCH-2 (1843 kg/ha), MRC-7351 (2285 kg/ha) and PCH-4599(2741 kg/ha), respectively. This hybrid gave lint yield of 1076 kg/ha, which was 55.7, 61.1, 60.2 and 29.3 per cent higher over BG- II check hybrids G.Cot.Hy-12 (635 kg/ha), RCH-2 (614 kg/ha), MRC-7351 (726 kg/ha) and PCH-4599 (899 kg/ha), respectively. It possesses 33.9% ginning outturn. This hybrid is medium in maturity. It is found resistant to alternaria leaf spot and bacterial leaf blight disease and found moderately resistant against sucking pests.</td></tr>
<tr><td> <u>ભલામણ</u> ગુજરાત રાજ્યના પિયત વિસ્તારમાં બીટી સંકર કપાસ ઉગાડતા ખેડૂતોને હિરસુતમ કપાસની જાત ગુજરાત કપાસ સંકર-૨૪ બોલગાર્ડ ૨ (જી.કોટ.હાઈબ્રીડ-૨૪ બોલગાર્ડ ૨: સોરઠ સ્વેત કનક)નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ હાઈબ્રીડમાં કપાસનું ઉત્પાદન ૩૦૭૦ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ બોલગાર્ડ ૨ હાઈબ્રીડ જાતો જેવી કે, જી.કોટ. હાઈબ્રીડ-૧૨ (૧૯૪૩ કિ.ગ્રા./હે.), આરસીએચ-૨ (૧૮૪૩ કિ.ગ્રા./હે.), એમઆરસી-૭૩૫૧ (૨૨૮૫ કિ.ગ્રા./હે) અને પીસીએચ-૪૫૯૯ (૨૭૪૧ કિ.ગ્રા./હે.) કરતા અનુક્રમે ૪૫.૪, ૫૩.૩, ૪૫.૧ અને ૨૦.૯ ટકા વધુ છે. આ હાઈબ્રીડ જાતમાં રૂનું ઉત્પાદન ૧૦૭૬ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ બોલગાર્ડ ૨ હાઈબ્રીડ જાતો જેવી કે જી.કોટ. હાઈબ્રીડ-૧૨ (૬૩૫ કિ.ગ્રા./હે.), આરસીએચ-૨ (૬૧૪ કિ.ગ્રા./હે.), એમઆરસી-૭૩૫૧ (૭૨૬ કિ.ગ્રા./હે.) અને પીસીએચ-૪૫૯૯ (૮૯૯ કિ.ગ્રા./હે.) કરતા અનુક્રમે ૫૫.૭, ૬૧.૧, ૬૦.૨ અને ૨૯.૩ ટકા વધુ છે. આ હાઈબ્રીડ જાતમાં રૂની ટકાવારી ૩૩.૯ જોવા મળેલ છે. આ મધ્યમ પાકતી હાઈબ્રીડ જાત છે. આ હાઈબ્રીડ બળિયા ટપકા અને ખુણીયા ટપકાના રોગ સામે પ્રતિકારક શક્તિ ધરાવે છે અને ચુસીયા જીવાતો સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે.</td></tr>
<tr><td>Release proposal accepted by the house with following suggestions:
1. Point no. 7(a) and 8 : Replace “hybrid ” instead of “ genotype”
2. Point no. 12(a) : Clarify about breeder tag
3. Remove mean row in case of single location data
4. Add morphological descriptors of checks for comparision
 [Action: Research Scientist (Cotton), CRS, JAU, Junagadh] </td></tr>
</table>

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<table>
<tr><td rowspan="2">17.1.1.19</td><td>Proposal for release of Cowpea variety GUJARAT NAVSARI VEGETABLE COWPEA-3 [GNVC-3:Shakambhari]</td></tr>
<tr><td>Release proposal was differed by the house.
[Action: Asso Res Sci, PCRS, NAU, Navsari]</td></tr>
<tr><td rowspan="3">17.1.1.20</td><td>Proposal for release of aromatic Rice variety GUJARAT RICE-22 [GR-22 :Navsari Kamod]</td></tr>
<tr><td>The farmers of Gujarat state growing transplanted rice are recommended to grow aromatic rice variety Gujarat Rice 22 (GR 22: Navsari Kamod). In Gujarat, it has recorded average grain yield of 4935 kg/ha which is 118.7, 30.5, 14.3 and 36.6 per cent higher over the check varieties Krishna Kamod, Narmada, GAR-14 and GR-101, respectively. It has strong aroma, short slender grain, more productive tillers and more number of grains per panicle. It has intermediate amount of amylose (23.10 %), protein (6.14 %) and high head rice recovery (64.2 %). The variety is moderately resistant against bacterial leaf blight, grain discoloration and sheath rot. In case of insects, it showed tolerant reaction to brown plant hopper and moderately resistant reaction against stem borer, leaf folder and sheath mite.</td></tr>
<tr><td><u>ભલામણ</u>
ગુજરાતમાં રોપાણ ડાંગરનું વાવેતર કરતા ખેડૂતોને ડાંગરની સુગંધિત જાત ગુજરાત ડાંગર ૨૨ (જી.આર.-૨૨: નવસારી કમોદ)નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. ડાંગરની આ જાતનું ગુજરાતમાં દાણાનું સરેરાશ ઉત્પાદન ૪૯૩૫ કિ.ગ્રા./હેકટર છે, જે અંકુશ જાતો કૃષ્ણ કમોદ, નર્મદા, જી.એ.આર.-૧૪ અને જી. આર.-૧૦૧ કરતાં અનુક્રમે ૧૧૮.૭, ૩૦.૫, ૧૪.૩ અને ૩૬.૬ ટકા વધુ છે. આ વધુ સુગંધ ધરાવતી જાતનો દાણો નાનો અને પાતળો તેમજ ફુટ અને કંટીમાં દાણાની સંખ્યા વધુ છે. આ જાતના દાણામાં મધ્યમ એમાઈલોઝ (૨૩.૧૦%) અને પ્રોટીન (૬.૧૪%) છે. મીલીંગ બાદ આખા દાણાનું પ્રમાણ વધુ (૬૪.૨%) ધરાવે છે. ડાંગરની આ જાત પાનના સુકારા, ભુખરા દાણાનો રોગ અને પર્ણચ્છેદના કોહવારા સામે મધ્યમ પ્રતિકારક શકિત ધરાવે છે. ડાંગરની આ જાત બદામી ચુસીયા સામે પ્રતિકારક તેમજ ગાભમારાની ઈયળ, પાન વાળનારી ઈયળ અને પર્ણતલ કથીરી સામે મધ્યમ પ્રતિકારક શકિત ધરાવે છે.</td></tr>
<tr><td></td><td>Release proposal accepted by the house with following suggestions:
1. Decide the appropriate number instead of GR 22 in consultation with MRRS, AAU, Nawagam and acoordingly change the name of variety
2. Delete table 5.
3. Add the data pertaining to threshability
4. Add data of Grain chalkiness
5. Add days to maturity in table 8.
6. Add disease and pest data of Nawagam centre
7. Add SEm and CV value in Table 4
[Action: Asso Res Sci, MRRS, NARP, NAU, Navsari]</td></tr>
</table>

<table>
<tr><td>17.1.1.21</td><td>Proposal for release of short slender Rice variety GUJARAT RICE-23 [GR 23 : Bahubali Kolam]</td></tr>
<tr><td></td><td>Release proposal was differed by the house.
[Action: Asso Res Sci, RRS, NAU, Vyara]</td></tr>
<tr><td>17.1.1.22</td><td>Proposal for release of high protein red Rice variety GUJARAT NAVSARI RICE-9 [GNR-9 : Lalkada Gold)</td></tr>
<tr><td></td><td>Rice variety Gujarat Navsari Rice 9 (GNR-9: Lalkada Gold) is recommended for transplanted rice growing areas of South Gujarat. This rice variety recorded average grain yield of 4200 kg/ha which is 40.4 and 19.7 % higher over check varieties Lalkada and GNR-4, respectively. Long slender grain rice variety GNR-9 contains intermediate amylose (21.5 %), high head rice recovery (56.24%), high Protein (8.44 %), Iron (3.4 ppm) and Zinc (19.17 ppm) in polished rice. The variety showed moderately resistant reaction against disease like leaf blast as well as pests like stem borer, leaf folder and sheath mite.</td></tr>
<tr><td></td><td><u>ભલામણ</u>
દક્ષિણ ગુજરાતમાં રોપાણ ડાંગરનું વાવેતર કરતા ખેડૂતોને ડાંગરની જાત ગુજરાત નવસારી ડાંગર ૯ (જી.એન.આર.- ૯: લાલકડા ગોલ્ડ)નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. ડાંગરની આ જાતનું સરેરાશ ઉત્પાદન ૪૨૦૦ કિ.ગ્રા./હેક્ટર છે, જે લાલકડા અને જી.એન.આર.-૪ કરતા અનુક્રમે ૪૦.૪ અને ૧૯.૭% વધુ છે. આ જાતનો દાણો લાંબો પાતળો, મધ્યમ એમાઈલોઝ (૨૧.૫%), વધુ આખા ચોખાનું પ્રમાણ (૫૬.૨૪%), વધુ પ્રોટીન (૮.૪૪%), લોહ તત્વ (૩.૪ પીપીએમ) અને જસત (૧૯.૧૭ પીપીએમ) ધરાવે છે. ડાંગરની આ જાત પાનનો કરમોડી રોગ તેમજ ગાભમારાની ઈયળ, પાન વાળનારી ઈયળ અને પર્ણતલ કથીરી જેવી જીવતો સામે મધ્યમ પ્રતિકારક શકિત ધરાવે છે.</td></tr>
<tr><td></td><td>Release proposal accepted by the house with following suggestions:
1. Write scale in table 5(b)
2. Add year wise quality parameters in table.
3. Add the disease and pest data of screening nursery from Nawagam
4. Delete table 2 regarding district trial
5. Add SEM, CD and CV in table 3
[Action: Assoc. Res Sci, RRS, NAU, Vyara]</td></tr>
<tr><td>17.1.1.23</td><td>Proposal for release of Sugarcane variety GUJARAT NAVSARI SUGARCANE-12 [GNS-12 : Divyashi]</td></tr>
<tr><td></td><td>The farmers of South Gujarat growing sugarcane are recommended to grow sugarcane variety Gujarat Navsari Sugarcane 12 (GNS-12: Divyashi). This variety produces average cane yield of 129.34 t/ha which is 17.98 and 27.94 per cent higher over the checks CoN 05071 and Co 86032, respectively. The</td></tr>
</table>

	variety has characteristics of early maturity, non lodging and non flowering. It also possesses higher sugar yield. This variety exhibited moderately resistant reaction against major diseases like wilt and red rot, while resistant against whip smut. It is good ratooner and less susceptible to major insect.
	<u>ભલામણ</u> શેરડીની જાત ગુજરાત નવસારી શેરડી ૧૨ (જી.એન.એસ.-૧૨: દિવ્યશી) ને દક્ષિણ ગુજરાતનાં શેરડીનું વાવેતર કરતાં વિસ્તાર માટે ભલામણ કરવામાં આવે છે. શેરડીની આ જાતનું સરેરાશ ઉત્પાદન ૧૨૯.૩૪ ટન/હેક્ટર છે જે અંકુશ જાતો કો.એન. ૦૫૦૭૧ અને કો. ૮૬૦૩૨ કરતાં અનુક્રમે ૧૭.૯૮ અને ૨૭.૯૪% વધુ છે. આ જાત વહેલી પાકતી, ઢળી ન પડે તથા ફુલો ન આવવાના ગુણધર્મો ધરાવે છે. આ ઉપરાંત વેપારી ખાંડનું ઉત્પાદન પણ વધુ છે. શેરડીની આ જાત મુખ્ય રોગો જેવા કે સુકારા અને રાતડા સામે મધ્યમ પ્રતિકારક જયારે ચાબુક આંજિયા સામે પ્રતિકારક છે. લામ પાક માટે અનુકુળ તથા મુખ્ય જીવાતો સામે ઓછી અસરગ્રસ્ત છે.
	Release proposal accepted by the house with following suggestions: 1. Table 5 **:** Write “disease not appeared” in red rot reaction (Cotton swab method) 2. Write “Check” instead of “Standard” in table 1,2,3,4,7,8,10 and11. 3. Add SEm in table 1,2,3 and 4. 4. Write CD @ 5% instead of CD in table 1,2,3, and 4. **[Action: Res Sci, MSRS, NAU, Navsari]**
17.1.1.24	**Proposal for release of Turmeric variety GUJARAT NAVSARI TURMERIC-3 [GNT-3: Pitambari]**
	The farmers of South Gujarat are recommended to grow turmeric variety Gujarat Navsari Turmeric 3 (GNT 3: Pitambari). This early maturing turmeric variety recorded 32.89 t/ha average green rhizome yield. It exhibited 10.36 and 27.51 *per cent* green rhizome yield superiority over GNT-2 (LC) and Pratibha (NC), respectively. It possesses higher tillers per plant, mother rhizomes, finger rhizomes, rhizome length as well as width. It also exhibited higher curcumin content, oleoresin content, dry rhizome recovery and powder recovery, which are desired quality traits for the processing industry. Turmeric variety GNT-3 (Pitambari) is resistant to rhizome rot and moderately resistant to leaf blight.
	<u>ભલામણ</u> હળદરની જાત ગુજરાત નવસારી હળદર ૩ (જી.એન.ટી.-૩: પિતાંબરી)ને દક્ષિણ ગુજરાતમાં હળદરની ખેતી કરતા વિસ્તાર માટે ભલામણ કરવામાં આવે છે. હળદરની આ વહેલી પાકતી જાત લીલા ગાંઠીયાનુ સરેરાશ ઉત્પાદન ૩૨.૮૯ ટન/હેકટર આપે છે, આ જાત સ્થાનિક જાત જી.એન.ટી. - ૨ અને રાષ્ટ્રીય જાત પ્રતિભા કરતાં અનુક્રમે ૧૦.૩૬ અને ૨૭.૫૧ ટકા વધુ ઉત્પાદન આપે છે. આ જાત ફુટની સંખ્યા, માતૃ અને અંગુલી ગાંઠોની સંખ્યા, ગાંઠોની લંબાઈ અને પહોળાઈ વધારે સંખ્યામાં ધરાવે છે. વધુ કર્કુમીન, ઓલીયોરેસીન, સુકા ગાંઠીયાનુ વજન અને પાવડરનું પ્રમાણ આ જાતના મૂલ્ય વર્ધક ગુણો છે. આ જાત ગાંઠના સડા સામે પ્રતિકારક અને

	પાનના સુકારા સામે મધ્યમ રોગ પ્રતિકારકતા ધરાવે છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 5(a) : Write code number instead of local germplasm 2. Point no. 9(g) : Write only morphological characters 3. Table 2 : Add range of ancillary observations. 4. Add the information of local check for comparison in point No. 9b [**Action: Prof & Head, Dept. of GPB, NMCA, NAU, Navsari]**
17.1.1.25	**Proposal for release of Mango Ginger variety GUJARAT NAVSARI MANGO GINGER-2 [GNMG-2: Jyoti]**
	The mango ginger variety Gujarat Navsari Mango Ginger 2 (GNMG-2: Jyoti) is recommended for mango ginger growing areas of South Gujarat. This mango ginger variety recorded 31.17 t/ha average green rhizome yield. It exhibited overall 18.81 *per cent* green rhizome yield superiority over local check Kachuro. It also possesses higher number of mother and finger rhizomes, rhizome length, rhizome width and tillers per plant. The strong mango like aroma, presence of curcumin content, oleoresin content, higher total oil content, higher dry rhizome weight as well as powder recovery per cent and lower fiber content are value added traits. The variety is resistant to rhizome rot and moderately resistant to leaf blight.
	ભલામણ આંબા હળદરની જાત ગુજરાત નવસારી આંબા હળદર ૨ (જી.એન.એમ.જી. ૨: જયોતિ) ને દક્ષિણ ગુજરાતમાં આંબા હળદરની ખેતી કરતા વિસ્તાર માટે ભલામણ કરવામાં આવે છે. આંબા હળદરની આ જાત લીલા ગાંઠીયાનુ સરેરાશ ઉત્પાદન ૩૧.૧૭ ટન/હેકટર આપે છે. આ જાત એકંદરે સ્થાનિક અંકુશ જાત કચુરો કરતાં ૧૮.૮૧ ટકા જેટલુ વધારે લીલા ગાંઠીયાનુ ઉત્પાદન આપે છે. આ જાત વધુ માતૃ અને અંગુલી ગાંઠો, ગાંઠોની લંબાઇ, ગાંઠોની પહોળાઇ અને વધુ ફુટની સંખ્યા ધરાવે છે. આંબા જેવી તીવ્ર સુગંધ, વધુ કર્કુમીન, ઓલીયોરેસીન, કુલ તેલની ટકાવારી, સુકા ગાંઠીયાનુ વજન, પાવડરનું પ્રમાણ અને ઓછા રેશાનું પ્રમાણ આ જાતના મૂલ્યવર્ધક ગુણો છે. આ જાત ગાંઠના સડા સામે પ્રતિકારક અને પાનના સુકારા સામે મધ્યમ રોગપ્રતિકારક શક્તિ ધરાવે છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 5(a) : Write “selection from local Kachuro” instead of “selection from local germplasm”. 2. Table 1 : Add SEm, CD and CV in PET 2017. 3. Correct table 1 and point No. 9b 4. Include only ancillary observations along with range in table 2 5. Remove mean row in case of single location data **[Action: Prof & Head, Dept. of GPB, NMCA, NAU, Navsari]**

17.1.1.26 Proposal for release of Okra variety GUJARAT NAVSARI OKRA-1 [GNO-1 : Purna Rakshak]

Okra variety Gujarat Navsari Okra 1 (GNO-1: Purna Rakshak) is recommended for cultivation by okra growing farmers of south Gujarat. The average fruit yield of this okra variety is 12.72 t/ha which exhibited yield advantages of 10.70, 13.52 and 12.59 % in *kharif* season over the check varieties GAO-5, Pusa Sawani and GO-6, respectively. It shows moderately resistant reaction against YVMV, powdery mildew, ELCV disease as well as moderately resistant reaction against fruit and shoot borer, jassid and whitefly.

ભલામણ

ભીંડાની જાત ગુજરાત નવસારી ભીંડા ૧ (જી.એન.ઓ. ૧: પૂર્ણા રક્ષક) ને દક્ષિણ ગુજરાત વિસ્તારમાં ભીંડાનું વાવેતર કરતાં ખેડૂતો માટે ભલામણ કરવામાં આવે છે. ભીંડાની આ જાતનું સરેરાશ ફળ ઉત્પાદન ૧૨.૭૨ ટન/હેક્ટર છે. આ જાત ચોમાસુ ઋતુમાં અંકુશ જાતો જી.એ.ઓ. ૫, પુસા સાવની અને જી.ઓ. ૬ કરતાં અનુક્રમે ૧૦.૭૦, ૧૩.૫૨ અને ૧૨.૫૯ % વધુ ઉત્પાદન આપે છે. આ જાત પંચરંગીયો, ભૂકી છારો તથા વાઈરસથી થતા પાનના કોકડવાના રોગ સામે તેમજ ફળ અને છોડની ડૂંખ કોરી ખાનારી ઈયળ, તડતડિયાં અને સફેદ માખી જીવાતની સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.

Release proposal accepted by the house with following suggestions:

1. Point no. 12 (a) : Write “Professor and Head” instead of “Assistant professor, GPB”.
2. Point no. 12 (a) : Correct quantity of breeder seed in stock in point No. 12b.
3. Table 1 : Delete mean PET (*Kharif*-17) and SSVT (*Kharif*-18)
4. Table 6a : Write in text “powdery mildew not appeared”.
5. Table 9 : Replace “Fruit width” instead of “Fruit girth” and “days to first picking” instead of “days to harvesting” and delete fruit yield (t/ha).
6. Give DUS characteristics of proposed variety along with checks.
7. In case of single location data, delete the line indicating mean
8. Add the names of evaluators of different centres in proposal

[Action: Prof & Head, Dept of Veg Sci, ACHF, NAU, Navsari]

17.1.1.27 Proposal for endorsement of Finger millet Biofortified variety CFMV2 [CFMV2: Gira]

Finger millet variety CFMV 2 (Gira) is recommended for finger millet growing regions of Gujarat. This finger millet variety produced average grain yield of 3551 kg/ha which is 15.02 % higher over local check GNN 6 as well as 27.47 and 25.88 % over national checks PR 202 and GPU 67, respectively. The variety has attractive red colour with bold grain, uniform maturity and having non-lodging plant type. It is moderately resistant to foot rot as well as leaf, neck and finger blast diseases. It also showed moderate reistance to pests like stem borer and aphids under field condition.

	<u>ભલામણ</u> નાગલીની જાત સી.એફ.એમ.વી. ૨ (ગીરા) ગુજરાત રાજયનાં નાગલી ઊગાડતા વિસ્તારમાં વાવેતર કરવાની ભલામણ કરવામાં આવે છે. નાગલીની આ જાતનું સરેરાશ દાણાનું ઉત્પાદન ૩૫૫૧ કિ.ગ્રા./હે. છે જે સ્થાનિક અંકુશ જાત જી.એન.એન. ૬ કરતાં ૧૫.૦૨ ટકા અને રાષ્ટ્રીય અંકુશ જાતો પી.આર. ૨૦૨ અને જી.પી.યુ. ૬૭ કરતાં અનુક્રમે ૨૭.૪૭ અને ૨૫.૮૮ ટકા વધુ છે. આ જાત લાલ રંગના ભરાવદાર અને મોટા દાણાવાળી સારી ગુણવત્તા ધરાવતી, એકી સાથે પાકતી અને ઢળી પડવા સામે પ્રતિકારક જાત છે. આ જાત થડનો કોહવારો તથા પાનનાં, કણસલાની ગાંઠનાં અને કણસલાનાં કરમોડીનાં રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે. આ જાત જીવાતો જેવી કે, થડ કોરી ખાનાર ઈયળ અને મોલો સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે.
	Release proposal accepted by the house with following suggestions: 1. Table 2(b) **:** Delete table 2. Table 7 **:** Write score for pest reaction. 3. Write unit kg/ha in place of q/ha in table 2(b), 3(a) and 3(b) 4. Do not alter any text if it is under notification in AICRP project 5. Give year wise mean and % increase over in table 1a, 1b and 1c. 6. Delete the names of other states in point no 9c (specific area of adaptation) 7. Write data in kilograms in place of quintals in table 4 8. Correct recommended ecology in Point No. 8. **[Action: Asso Res Sci, HMRS, NAU, Waghai]**
17.1.1.28	**Proposal for release of Little millet variety GUJARAT VARI-4 [GV-4: Ambika]**
	Little millet variety Gujarat Vari 4 (GV 4: Ambika) is recommended for little millet growing regions of Gujarat. This little millet variety produces average grain yield of 2933 kg/ha which is 13.78 % higher over local check GNV 3 as well as 44.29 and 31.44 % over national checks CO 2 and OLM 203, respectively. The variety has bold grains, uniform medium maturity with more tillers and non-lodging plant type. It is moderately resistant to diseases like blast, grain smut and sheath blight. It also showed moderate reistance to pests like stem borer and aphids under field condition.
	<u>ભલામણ</u> વરીની જાત ગુજરાત વરી ૪ (જી.વી. ૪: અંબિકા) ને ગુજરાત રાજયમાં વરી ઉગાડતા વિસ્તારમાં વાવેતર કરવાની ભલામણ કરવામાં આવે છે. વરીની આ જાતનું સરેરાશ દાણાનું ઉત્પાદન ૨૯૩૩ કિ.ગ્રા./હેક્ટર છે. આ જાત અંકુશ જાત જી.એન.વી.-૩ કરતાં ૧૩.૭૮ ટકા અને રાષ્ટ્રીય અંકુશ જાતો સી.ઓ. ૨ અને ઓ.એલ.એમ. ૨૦૩ કરતાં અનુક્રમે ૪૪.૩૯ અને ૩૧.૪૪ ટકા વધુ ઉત્પાદન આપે છે. આ જાત ભરાવદાર દાણાવાળી, મધ્યમ અને એકીસાથે પાકતી, વધુ ફુટ આપતી અને ઢળી પડવા સામે પ્રતિકારકતા ધરાવે છે. આ જાત કરમોડીના રોગ સામે પ્રતિકારક તથા દાણાનો અંગારીયો અને શીથ બ્લાઈટ રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે. આ જાત જીવાતો જેવી કે, થડ કોરી ખાનાર ઈયળ અને મોલો સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે.

	Release proposal accepted by the house with following suggestions: 1. Point no. 5 (a) : Write code number of germplasm instead of selection from local germplasm 2. Table 3 b, 4a and 4b : Write Scale 3. Table 5 : Delete table 4. Table 6a : Add scale in serial number 6, 7 and 8. 5. Give range in table No. 7. 6. Write 'traders opinion' instead of 'varietal acceptance by different traders' in table 8 7. In table no. 6, remove the observation 1000 grain weight and also either put the score for milling value or delete it 8. Check the values of 1000 grain weight as it differs in table 6 and table 7 **[Action: Asso Res Sci, HMRS, NAU, Waghai]**
17.1.1.29	**Proposal for Release of Rabi Sorghum variety GUJARAT JOWAR 101 [GJ 101 : Madhu Moti]**
	The sorghum variety Gujarat Jowar 101 (GJ 101: Madhu Moti) is recommended for *rabi* cultivation under irrigatied as well as conserved moisture conditions in Gujarat state. The *rabi* sorghum variety produced average grain yield of 2640 kg/ha and fodder yield of 7142 kg/ha. The grain yield is 22.3, 23.7, 10.3, 37.6 and 24.9 *per cent* higher over local check varieties Nizer Goti, BP-53, Phule Revati and National checks CSV-216R and CSV-29R, respectively. It produced 7142 kg/ha dry fodder yield, which is 4.1, 8.4, 2.4 and 7.0 *per cent* higher over checks Nizer Goti, BP-53, CSV-216R and CSV-29 R, respectively. Under conserved moisture condition, it produced 1697 kg/ha grain yield which is 23.3, 15.3 and 28.0 *per cent* higher over Nizer Goti, CSV-216R and CSV-29R, respectively along with 5814 kg/ha dry fodder yield. It exhibited moderately resistant reactions to Ergot, Grain Mold, Anthracnose and Leaf blight diseases and was found as good as checks for infestations of shoot fly and stem borer.
	ભલામણ જુવારની જાત ગુજરાત જુવાર ૧૦૧ (જી.જે. ૧૦૧: મધુ મોતી)ને ગુજરાતમાં શિયાળુ ઋતુમાં પિયત તેમજ સંગ્રહીત ભેજમાં વાવેતર માટે ભલામણ કરવામાં આવે છે. શિયાળુ જુવારની આ જાતનું દક્ષિણ ગુજરાતમાં પિયત પરીસ્થિતિમાં સરેરાશ દાણાનું ઉત્પાદન ૨૬૪૦ કિ.ગ્રા./હેક્ટર છે, જે અંકુશ જાતો નિઝર ગોટી, બી.પી.-૫૩, ફુલે રેવતી અને રાષ્ટ્રીય અંકુશ જાતો સી.એસ.વી. ૨૧૬ આર. તથા સી.એસ.વી. ૨૯ આર. કરતાં અનુક્રમે ૨૨.૩, ૨૩.૭, ૧૦.૩, ૩૭.૬ અને ૨૪.૯ ટકા વધારે ઉત્પાદન આપે છે. આ જાતના સુકાચારાનું ઉત્પાદન ૭૧૪૨ કિ.ગ્રા./હેક્ટર છે જે અંકુશ જાતો નિઝર ગોટી, બી.પી.-૫૩, સી.એસ.વી. ૨૧૬ આર. તથા સી.એસ.વી. ૨૯

	આર. કરતાં અનુક્રમે ૪.૧, ૮.૪, ૨.૪ અને ૭.૦ ટકા વધારે છે. સંગ્રહીત ભેજ વાવેતર પરિસ્થિતિમાં આ જાતનું સરેરાશ દાણાનું ઉત્પાદન ૧૬૯૭ કિ.ગ્રા./હેક્ટર છે, જે અંકુશ જાતો નિઝર ગોટી, સી.એસ.વી. ૨૧૬ આર. તથા સી.એસ.વી. ૨૯ આર. કરતાં અનુક્રમે ૨૩.૩, ૧૫.૩ અને ૨૮.૦ ટકા વધારે છે. આ પરિસ્થિતિમાં સુકાચારાનું ઉત્પાદન ૫૮૧૪ કિ.ગ્રા./હેક્ટર મળે છે. આ જાત ગુંદરીયો, ગ્રેઈન મોલ્ડ, એન્થરેકનોઝ અને પાનના સુકારા સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે. આ જાતમાં સાંઠાની માખી તથા ગાભમારાની ઈયળનો ઉપદ્રવ અંકુશ જાતો કરતા ઓછો જોવા મળેલ છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 4 (b) : II(A): (a):1 : Replace "Research Scientist Sorghum" instead of "Acting Research Scientist (Sorghum)". 2. Table 8 : Verify average particle weight, particle density, particle volume and particle surface area. 3. Include DUS characteristics of checks in table 9. 4. Give range instead of mean in table 7 5. FLD should be conducted at Arnej and Dhandhuka in collobration with Research Scientist (Sorghum), NAU, Surat. 6. Propose the variety for whole Gujarat conditions and accordingly change the name GJ 101 instead of GNJ 2 in whole proposal **[Action: Res Sci, MSRS, NAU, Surat]**
17.1.1.30	**Proposal for release of Desi Cotton variety GUJARAT NAVSARI COTTON-27 [GN.Cot.27: Surti Sonu]**
	The herbaceum cotton variety Gujarat Navsari Cotton 27 (GN. Cot.27: Surti Sonu) is recommended for cultivation under rainfed areas of South Gujarat. This Desi cotton variety recorded 1264 kg/ha average seed cotton yield which is 27.2 and 22.8 % higher than checks G.Cot.23 and GN.Cot.25, respectively under rainfed condition of South Gujarat. It exhibited 433 kg/ha average lint yield and 34.4 % average ginning out turn. The variety showed resistance against Wilt, Alternaria leaf spot as well as Bacterial leaf blight diseases. The proposed variety recorded below ETL population of sucking pests. The bollworms damage is also found low and comparable to checks.
	ભલામણ દેશી કપાસની જાત ગુજરાત નવસારી કપાસ ૨૭ (જી.એન. કોટ. ૨૭: સુરતી સોનુ) ને દક્ષિણ ગુજરાતનાં બિન પિયત વિસ્તારમાં વાવેતર માટે ભલામણ કરવામાં આવે છે. દક્ષિણ ગુજરાતની બિન પિયત પરિસ્થિતીમાં દેશી કપાસની આ જાતના કપાસનું સરેરાશ ઉત્પાદન ૧૨૬૪ કિ.ગ્રા./હેક્ટર મળેલ છે જે અંકુશ જાતો જી. કોટ. ૨૩ અને જીએન. કોટ. ૨૫ કરતાં અનુક્રમે ૨૭.૨ અને ૨૨.૮ ટકા વધુ છે. આ જાતના રૂનું સરેરાશ ઉત્પાદન ૪૩૩ કિ.ગ્રા./હેક્ટર અને રૂનું સરેરાશ પ્રમાણ ૩૪.૪% મળેલ છે. આ જાત છોડનાં સુકારા, પાનના બળિયા ટપકાં અને ખુણિયા ટપકાંનાં રોગો સામે પ્રતિકારક ગુણધર્મ ધરાવે છે. આ જાતમાં ચુસિયા પ્રકારની જીવાતોનું પ્રમાણ ક્ષમ્ય માત્રા કરતાં ઓછું જોવા મળેલ છે. આ જાતમાં જીંડવાની ઈયળોનું નુકસાન પણ ઓછુ જોવા મળેલ છે જે અંકુશ જાતો જેટલુ છે.

	Release proposal accepted by the house with following suggestions: 1. Point no. 9 (b) : Write only distinguished characters 2. Point no. 9 (g) : Write agronomic features 3. Table 1 : Delete check G. cot. 21 and GADC 2. 4. Table 4 : Write disease not appeared instead of '0' or 'disease free'. 5. Give DUS characteristics of proposed variety with check in Annexure-II. 6. Give market price of proposed variety with checks. 7. Delete overall mean in table 1A. **[Action: Res Sci, MCRS, NAU, Surat]**
17.1.1.31	**Proposal for release of high oil containing Niger variety GUJARAT NAVSARI NIGER 4 [GNNIG 4 : Kasturi]**
	The niger variety Gujarat Navsari Niger 4 (GNNIG 4: Kasturi) is recommended for cultivation in South Gujarat for *kharif* season. This niger variety produced average seed yield of 543 kg/ha which is 41.10 and 34.07 % higher over the national check IGPN-2004-1 and local check GNNIG 3, respectively. The variety also produced 205 kg/ha oil, which is 65.32 and 57.69 % high as compared to national check IGPN-2004-1 and local check GNNIG-3, respectively. It is also found resistant to Alternaria and Cercospora leaf spot diseases and major pests viz; caterpillar and semi looper of niger.
	ભલામણ ખરસાણીની જાત ગુજરાત નવસારી ખરસાણી ૪ (જી.એન.એન.આઈ.જી. ૪ (કસ્તુરી) ને દક્ષિણ ગુજરાતના ચોમાસા ઋતુમાં ખરસાણીનો પાક લેતા ખેડૂતો માટે ભલામણ કરવામાં આવે છે. ખરસાણીની આ જાતનું સરેરાશ ઉત્પાદન ૫૪૩ કિ.ગ્રા./હેક્ટર છે, જે અંકુશ જાતો આઈ.જી.પી.એન.-૨૦૦૪-૧ તથા જી.એન.એન.આઈ.જી.- ૩ કરતા અનુક્રમે ૪૧.૧૦ અને ૩૪.૦૭ % વધુ છે. નવી જાતમાં તેલનું ઉત્પાદન પણ ૨૦૫ કિ.ગ્રા./હેક્ટર છે, જે અંકુશ જાતો આઈ.જી.પી.એન.-૨૦૦૪-૧ તથા જી.એન.એન.આઈ.જી.-૩ કરતા અનુક્રમે ૬૫.૩૨ અને ૫૭.૬૯ % વધુ છે. આ જાત ખરસાણીમાં આવતા અલ્ટરનેરીયા અને સરકોસ્પોરા નામના પાનનાં ટપકાંનાં રોગ તથા અગત્યની જીવાતો જેવી કે પાનની કાતરાઈયળ તથા ઘોડીયા ઈયળ સામે પ્રતિકારક શકિત ધરાવે છે.
	Release proposal accepted by the house with following suggestions: 1. Give distinguish characteristics of proposed variety with checks in point no. 9b. 2. Write mutation breeding instead of mass selection in breeding method 3. Add one or more clearly distinguishing morphological characters in table 8 4. Propose the variety for south Gujarat instead of whole Gujarat and accordingly changes in proposal **[Action: Asso Res Sci, NRS, NAU, Vanarasi]**

17.1.1.32	**Proposal for release of Adenium variety GUJARAT NAVSARI ADENIUM-3 [GNAd-3 : Aabha)**
	The nursery men dealing with ornamental plants, landscape designers and plant lovers are recommended to grow adenium variety GNAd 3 (Aabha) under polyhouse for higher commercial value as well as in garden and house plant. Adenium variety GNAd 3 is novel that it bears pink coloured flowers having multipetalous flower form with dual whorls of petals (10) in each flower with prominent red streaks in the centre of the petals along with good flower size, flower clusters per plant and flowering duration. It can be propagated by grafting on local pink root stock.
	<u>ભલામણ</u> ગુજરાતમાં સુશોભીત છોડની નર્સરી ધરાવતા લોકો એડેનીયમ જાત જી.એન.એડી. ૩ (આભા) પોલી હાઉસમાં ઉગાડી આકર્ષક વળતર મેળવી શકે છે તેમજ લેન્ડસ્કેપ ડીઝાઈનર્સ આ જાતને બગીચામાં અને છોડનો શોખ ધરાવતા લોકો ઘરમાં પણ ઉગાડી શકે છે. એડેનિયમની જી.એન.એડી.-૩ એ મધ્યમાં લાલ રેખા ધરાવતુ ગુલાબી રંગની દસ (૧૦) પાંખડીઓ વાળા ફૂલો ધરાવતુ નવીન પ્રકારનું એડેનીયમ છે. જે મોટા આકારના ફુલોવાળા, સારા ઝુમખા અને સારા સમયગાળા સુધી ફુલો આપે છે. આ જાતને સ્થાનિક ગુલાબી ફુલવાળા મૂળકાંડ સાથે કલમબાંધી (ગ્રાફ્ટીંગ) તેનું સંવર્ધન કરી શકાય છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 5 (c) : Write Heterosis Breeding 2. Point no. 10 : Add column for hybrid 3. Add descriptors of proposed hybrid along with checks in point no.9b. 4. Recast English and Gujarati recommendation text **[Action: Prof & Head, Dept. of Flori., ACHF, NAU, Navsari]**
17.1.1.33	**Proposal for release of Adenium variety GUJARAT NAVSARI ADENIUM-4 [GNAd-4 : Shobhita]**
	The nursery men dealing with ornamental plants, landscape designers and plant lovers are recommended to grow adenium variety GNAd 4 (Shobhita) under polyhouse for higher commercial value as well as in garden and house plant. Adenium variety GNAd 4 is novel that it bears flowers having single whorl of pinkish red coloured petals (5) with dark red coloured margin and pointed tip and scores higher in terms of number of flowers/ cluster, maximum open flowers / cluster, and flowers/plant/ year. It can be propagated by grafting on local pink root stock.
	<u>ભલામણ</u> ગુજરાતમાં સુશોભીત છોડની નર્સરી ધરાવતા લોકો એડેનીયમ જાત જી.એન.એડી.-૪ (શોભીતા)

	પોલીહાઉસમાં ઉગાડી આકર્ષક વળતર મેળવી શકે છે તેમજ લેન્ડસ્કેપ ડીસાઈનર્સ આ જાત ને બગીચામાં અને છોડનો શોખ ધરાવતા લોકો ઘરમાં પણ ઉગાડી શકે છે. એડેનીયમ ની જાત જી.એન.એડી. ૪ ઘેરા લાલ રંગની કિનારી તેમજ અણીવાળી ટોચ સાથેનું, ઘેરા ગુલાબી રંગની પાંચ (૫) પાંદડીઓ વાળું આકર્ષક ફૂલ ધરાવતુ નવીન પ્રકારનુ એડેનીયમ છે. આ જાત વધુ ફૂલો વાળા ઝુમખા સાથે વર્ષ દરમ્યાન લાંબા સમય સુધી ફૂલો આપે છે. સ્થાનિક ગુલાબી ફૂલ વાળા મૂળકાંડ સાથે કલમ બાંધી (ગ્રાફ્ટીગ) તેનું સંવર્ધન કરી શકાય છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 10 : Add column for hybrid 2. Table 5 : Serial no 3: T3- G. Ad 2 : Write flower colour "reddish pink" instead of "pink". 3. Write heterosis breeding in point no.5c. 4. Add descriptors of proposed hybrid along with checks in point no.9b. 5. Recast English and Gujarati recommendation text **[Action: Prof & Head, Dept. of Flori., ACHF, NAU, Navsari]**

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17.1.1.34	**Proposal for release of pigeonpea variety Gujarat Tur 107 (GT 107: Banas Abhay)**
	The farmers of Gujarat state are recommended to grow pigeonpea variety Gujarat Tur 107 (GT 107: Banas Abhay) in *kharif* season. The proposed genotype recorded average yield of 1879 kg/ha which is 32.23, 14.71, 40.24 and 36.38 *per cent* higher over the checks GT 101, GT 103, UPAS 120 and BDN 711, respectively. This variety matures in 160 days (within 151-165 days *i.e.* Mid-early group). It has spreading type growth habit, having yellow flower colour, straight green pod with brown streak and creamy white seeds. It showed resistant reaction against wilt.
	<u>ભલામણ</u> ગુજરાત રાજ્યમાં ચોમાસું ઋતુમાં તુવેર વાવતા ખેડૂતોને ગુજરાત તુવેર ૧૦૭ (જી.ટી. ૧૦૭ : બનાસ અભય) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૧૮૭૯ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ જાતો જી.ટી. ૧૦૧, જી.ટી.૧૦૩, ઉપાસ-૧૨૦ અને બી.ડી.એન. ૭૧૧ કરતાં અનુક્રમે ૩૨.૨૩, ૧૪.૭૧, ૪૦.૨૪, અને ૩૬.૩૮ ટકા વધારે છે. આ જાત ૧૬૦ દિવસમાં પાકતી હોવાથી, મધ્યમ વહેલી પાકતી જાતોના વર્ગમાં સમાવેશ થાય છે. આ જાતના છોડનો ફેલાવો થતો હોય છે. આ જાતના ફુલનો રંગ પીળો, શીંગો તપ્કીરીયા રંગની લીટી ધરાવતી તેમજ દાણા ક્રીમી સફેદ રંગના છે. આ જાત સુકારા સામે પ્રતિકારકતા ધરાવે છે.
	Release proposal accepted by the house with following suggestions. 1 Table 2a,2b and 2c : Delete trial mean 2 Table 7d : Write name of center 3 Remove check UPAS 120 from comparison

4 Delete Point no. 9i

[Action: Research Scientist (Pulses), PRS, SDAU, Sardarkrushinagar]

17.1.1.35 Release proposal of pigeonpea variety Gujarat Tur 108 (GT 108 : Banas Ujjwal)

The farmers of Gujarat state growing pigeonpea are recommended to grow pigeonpea variety Gujarat Tur 108 (GT 108: Banas Ujjwal) during *kharif* season This variety gave 2400 kg/ha. average seed yield, which was 36.27, 12.82, 13.15, 12.19 and 21.40 *per cent* higher than the checks BDN 2, GJP 1, Vaishali, AGT 2 and GT 104, respectively. The variety GT 108 is mature in 174 days (within 166-185 days *i.e.* medium group). It is semi spreading type, having yellow flower, straight green pod with brown streak and creamy white seed. It has showed resistant reaction against SMD.

<u>ભલામણ</u>

ગુજરાત રાજ્ય ના ખરીફ ઋતુમાં તુવેર ઉગાડતા ખેડૂતોને ગુજરાત તુવેર ૧૦૮ (જી.ટી. ૧૦૮ : બનાસ ઉજ્જવલ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૨૪૦૦ કિ.ગ્રા./ હે. મળેલ છે, જે અંકુશ જાતો બી.ડી.એન. ૨, જીજેપી ૧, વૈશાલી, એજીટી ૨ અને જીટી ૧૦૪ કરતાં અનુક્રમે ૩૬.૨૭, ૧૨.૮૨, ૧૩.૧૫, ૧૨.૧૯ અને ૨૧.૪૦ ટકા વધારે છે. આ જાત ૧૭૪ દિવસમાં પાકતી હોવાથી, મધ્યમ પાકતી જાતોના વર્ગમાં સમાવેશ થાય છે. આ જાત નો વિકાસ મધ્યમ ફેલાવવા પ્રકારનો છે. આ જાતના ફૂલનો રંગ પીળો, તપ્કીરીયા રંગની લીટી ધરાવતી શીંગો અને દાણા ક્રીમી સફેદ રંગના છે. આ જાત વંધ્યત્વ ના રોગ સામે પ્રતિકારકતા ધરાવે છે.

Release proposal accepted by the house with following suggestions.

1.	Table 1, 2a,2b,2c and 2d	:	Delete trial mean
2.	Table 1	:	SSVT (% increase over checks) : Delete: “-6.98”. value
3.	Table 1	:	Edit “significantly superior @ 5%” instead of “statistically superior @ 5%”.
4.	Table 4a	:	Correct the range for number of seeds per pod of SKNP 1614 i.e. “3-5” instead of “3.8- 4.3”.
5.	Table 8	:	Write “CD @5%” instead of “CD”.

6. Write SEm, CD and CV up to two decimal points in table 8

[Action: Research Scientist (Pulses), PRS, SDAU, Sardarkrushinagar]

17.1.1.36 Proposal for release of tobacco variety Gujarat Culcutti Tobacco 5 (GCT-5 : Banas Culcutti)

The farmers of Gujarat state are recommended to grow rustica tobacco variety Gujarat Culcutti Tobacco 5 (GCT 5 – Banas Culcutti) in *rabi* season. This variety is medium early maturing and exhibited an average cured leaf yield of 4976 kg/ha, which is 15.80 and 7.45 *per cent* higher than check GCT 3 and DCT 4, respectively. This variety possesses better leaf quality and is moderately tolerant to leaf curl virus and leaf mosaic virus diseases.

	<u>ભલામણ</u> ગુજરાતના શિયાળુ ઋતુમાં કલકતી તમાકુ ઉગાડતા ખેડૂતોને મધ્યમ વહેલી પાકતી સુધારેલ જાત ગુજરાત કલકતી તમાકુ ૫ (જીસીટી ૫: બનાસ કલકત્તી) નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાત ના સુકા પાંદડાનું સરેરાશ ઉત્પાદન ૪૯૭૬ કિ.ગ્રા./હેક્ટર છે. જે અન્ય અંકુશ જાતો ગુજરાત કલકત્તી તમાકુ ૩ અને દાંતીવાડા કલકત્તી તમાકુ ૪ કરતા અનુક્રમે ૧૫.૮૦ અને ૭.૪૫ ટકા વધારે છે. આ જાત પાંદડાની સારી ગુણવત્તા સહિત પાનના કોકડવા અને પચરંગીયા રોગ સામે પ્રતિકારક શક્તિ ધરાવે છે.
	Release proposal accepted by the house with following suggestions: 1. Propose the variety for whole Gujarat instead of north Gujarat and change the name "Gujarat Calcatti Tobacco 5 (GCT 5)" instead of Dantiwada Calcatti Tobacco 5 (DCT 5)." 2. Add the name of Scientist from BTRS, AAU, Anand for evaluation. 3. Arrange to conduct FLD at AAU, Anand. **[Action: Associate Research Scientist, Agricultural Research Station, SDAU, Ladol]**
17.1.1.37	**Release proposal of ashwagandha variety Gujarat Ashwagandha 2 (GA 2 : Banas Shakti)**
	The farmers of North Gujarat are advised to grow ashwagandha variety, Gujarat Ashwagandha 2 (GA 2: Banas Shakti) in irrigated condition during *rabi* season. This variety exhibited 563 kg/ha dry root yield, which is 30.20 *per cent* higher over the check GAA 1.
	<u>ભલામણ</u> ઉત્તર ગુજરાતના પિયત વિસ્તારમાં અશ્વગંધાની વાવણીમાં રસ ધરાવતા ખેડૂતોને અશ્વગંધાની જાત ગુજરાત અશ્વગંધા ૨ (જીએ ૨: બનાસ શક્તિ)નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતમાં સૂકા મૂળનું ઉત્પાદન ૫૬૩ કિ.ગ્રા./હે. મળેલ છે જે અંકુશ જાત જીએએ ૧ કરતા ૩૦.૨૦ ટકા વધારે છે.
	Release proposal accepted by the house with following suggestions. 1. Add yield in salient features. 2. Point no. 5(a) : Write code number instead of local germplasm 3. Give short description in point no 9e and 9f and give table number in brackets 4. Edit in all tables name of proposed genotype i.e. "SKA11" instead of "GA 2 (Banas Shakti)" 5. Table 7 : Delete table 6. Correct recommendation paragraphs 7. Mention availability of breeder seed in proposal 8. Verify the detailed data regarding phenolic compounds 9. Propose the variety for north Gujarat instead of whole Gujarat and accordingly change the name **[Action:Prof. and Head, Department of G&PB, CPCA, SDAU, Sardarkrushinagar]**

17.1.1.38	**Release proposal for endorsement of cotton compact variety GTHV-13/28**
	The farmers of North Gujarat are recommended to grow cotton compact variety GTHV 13/28 under irrigated condition in narrow spacing (HDPS 60 cm X 10 cm) for getting higher cotton seed yield. This variety gave 1996 kg/ha average cotton seed yield with a tune of 48.9, 61.5, 1.5 and 11.3 *per cent* higher than check varieties G. Cot 16, CCH 15-5, DSC 1501 and ANGC 1502, respectively. This variety possesses long staples (28.2 mm) and average fine fiber (4.7 mv) with good tenacity (28.9 g/tex).
	<u>ભલામણ</u> ઉત્તર ગુજરાતના પિયત પરિસ્થિતિમાં કપાસની સાંકડા ગાળે (૬૦સે.મી. X ૧૦સે.મી) ખેતી કરતા ખેડુતોને વધુ ઉત્પાદન મેળવવા માટે કપાસની જીટીએચવી-૧૩/૨૮ જાત વાવવા માટે ભલામણ કરવામાં આવે છે. આ જાતના કપાસનું સરેરાશ ઉત્પાદન ૧૯૯૬ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ જાતો જી. કોટ ૧૬, સીસીએચ ૧૫-૫, ડીએસસી ૧૫૦૧ અને એએનજીસી ૧૫૦૩ કરતાં અનુક્રમે ૪૮.૯, ૬૧.૫, ૧.૫ અને ૧૧.૩ ટકા વધારે છે. ગુણવત્તાની દ્રષ્ટિએ આ જાત લાંબા (૨૮.૨ મી.મી.) લીસા (૪.૭ એમ. વી.) અને સારી સખ્તાઈ (૨૮.૯ ગ્રામ/ટેક્ષ) વાળા રેસા ધરાવે છે.
	Release proposal was accepted by the house. **[Action: Associate Research Scientist, Cotton Research Station, SDAU, Talod]**
17.1.1.39	**Proposal for release of Til variety Gujarat Til 7 (GT 7 : Banas Gaurav)**
	The farmers of Gujarat state growing til crop are recommended to grow variety Gujarat Til 7 (GT 7: Banas Gaurav) during *kharif* season. The proposed genotype gave 957 kg/ha average seed yield, which was 25.92, 18.73, 8.87, 21.49 and 18.16 *per cent* higher than check varieties GT 2, GT 3, GT 4, GT 6 (local checks) and GT 10 (National check), respectively.
	<u>ભલામણ</u> ગુજરાત રાજય ના ચોમાસુ તલની વાવણી કરતા ખેડૂતો માટે ગુજરાત તલ ૭ (જીટી ૭: બનાસ ગૌરવ) જાત નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતના દાણા નું સરેરાશ ઉત્પાદન ૯૫૭ કિ.ગ્રા./હે. છે, જે ગુજરાત તલ ૨, ગુજરાત તલ ૩, ગુજરાત તલ ૪, ગુજરાત તલ ૬ (સ્થાનિક અંકુશ જાતો) અને ગુજરાત તલ ૧૦ (રાષ્ટ્રીય અંકુશ જાત) કરતાં અનુક્રમે ૨૫.૯૨, ૧૮.૭૩, ૮.૮૭, ૨૧.૪૯ અને ૧૮.૧૬ ટકા વધારે છે.
	Release proposal accepted by the house with following suggestions: 1. Point no. 9 (g) : Edit seed rate to 2.5-3 kg/ha and NPKS to 50:25:40:20 kg/ha. 2. Give weighted mean in table 2 **[Action: Research Scientist, Castor-Mustard Res.Station, SDAU, Sardarkrushinagar]**

17.1.2 RECOMMEDATION FOR SCIENTIFIC COMMUNITY

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17.1.2.1	**Interspecific hybridization for transferring aphid resistance to cultivated mustard [*Brassica juncea* (L.) Czern.)] varieties**
	The recommendation was differed and the house suggested to fulfill the all objectives mentioned during approval of the technical programme as under: 1. Use *Brassica fruticulosa* for interspecific hybridization to transfer aphid resistance in cultivated mustard (*Brassica juncea*) varieties. **[Action: Professor and Head, Dept. of GPB, BACA, AAU, Anand]**

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17.1.2.2	**Application of brassinolide to mitigate saline stress during germination and growth period in chickpea**
	It is recommended to scientific community that pre-soaking of chickpea seed with 0.25 ppm brassinolide (B2) for 2 hrs before sowing helps to mitigate salinity stress up to 6.0 dS/m with 50 % yield reduction as compared to control.
	Recommandation was accepted by the house with following suggestion. 1. In regression equation write R^2 inplace of r^2 **[Action: Prof. & Head, Dept. of GPB, JAU, Junagadh]**
17.1.2.3	**Micropropagation in Kankoda (*Momordica dioica* Roxb.)**
	Surface sterilization: Internodal explant of kankoda to be used after surface sterilization with carbendazim for 30 minutes followed by 0.1 % Mercuric chloride treatment for 15 minutes and washed with sterilized distilled water for four to five times for removing traces of the chemicals. **Shoot multiplication:** Low concentration of kinetin (MS + K1) is effective for getting early shoot initiation and maximum number of shoots. **In-vitro rooting:** Half strength MS media supplemented with high concentration of IBA (IBA3) is effective for getting early root initiation. **Hardening:** A pot mixture of soil: sand (1: 1 volume basis) is effective for getting 60-65% and 90-95% survival rate of plantlets for primary and secondary hardening, respectively under greenhouse condition.
	Recommandation was accepted by the house **[Action: Prof. & Head, Dept. of GPB, JAU, Junagadh]**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI – NIL

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR- NIL

17.1.3 NEW TECHNICAL PROGRAMMES

Summary

Name of University	New Technical Programmes		Remarks
	Proposed	Approved	
AAU, Anand	01	01	-
JAU, Junagadh	04	01	3 NTP be presented in Horticulture & Agro-Forestry subcommittee
NAU, Navsari	00	00	-
SDAU, SKNagar	03	02	One NTP shifted to basic science subcommittee

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action
17.1.3.1	Comparative Structural Analysis of Functional Protein Associated with Nematode Resistance in Tomato	**Approved** [**Action: Professor and Head, Dept. of GPB, BACA, AAU, Anand]**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title	Suggestion/s and Action
17.1.3.2	Propagation of a rare and medicinally important declining shrub species *Premna serratifolia* L. by hardwood cuttings	**Present in Horticulture & Agro-Forestry subcommittee** **[Action: Prof. & Head, Dept. of GPB, JAU, Junagadh]**
17.1.3.3	Effect of growth regulators on cuttings of Barbados cherry (*Malpighia glabra* L.)	**Present in Horticulture & Agro-Forestry subcommittee** **[Action: Prof. & Head, Dept. of GPB, JAU, Junagadh]**
17.1.3.4	Induction of rooting through plant growth regulators in stem cutting of Thuja	**Present in Horticulture & Agro-Forestry subcommittee** **[Action: Prof. & Head, Dept.**

		of GPB, JAU, Junagadh]
17.1.3.5	Effect of Chemical Mutagens on Morphological charcters of tuberose (*Polianthes tuberosa* L.)	Approved **[Action: Prof. & Head, Dept. of Horticulture, JAU, Junagadh]**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI - NIL

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title & Centre	Suggestion/s and Action
17.1.3.6	Identification of effective method for storage of wheat seed in godown.	**Approved with following suggestions** 1. Add observation : Initial and Final moisture per cent 2. Specify the size of bags and period of storage **[Action: Research Scientist, Department of Seed Technology, SDAU, Sardarkrushinagar]**
17.1.3.7	Tamarind (*Tamarindus indica* Linn.): Domestication, Conservation and Resources for Sustenance and Livelihood Amelioration	**Approved** [**Action: Professor and Head, Department of Genetics and Plant Breeding, CPCA, SDAU, Sardarkrushinagar.]**
17.1.3.8	Effect of harvesting time on root yield and quality of Ashwagandha (Withania somnifera L. DUNAL).	**Present in Basic Science subcommittee.** [**Action: Professor and Head, Department of Genetics and Plant Breeding, CPCA, SDAU, Sardarkrushinagar.]**

General Suggestions:

1. In future, data on organoleptic taste should be included in all the release proposals of vegetable crops.

[**Action**: All vegetable Research Scientist]

2. In release proposal of vegetable chilli, supplementary data of dry chilli yield and their related parameters should be included.

   [**Action**: All vegetable Research Scientist]
3. Strengthening the vegetable research at SDAU, Sardarkrushinagar
   [Action: DOR, SDAU, SKnagar]
4. Scientists of all the SAUs should share the germplasm and other technologies
   [**Action**: DOR, AAU/JAU/NAU/SDAU]
5. The check varieties/hybrids should be decided during cropping scheme meeting every year. Research Scientist of respective crop will be deciding checks in varietal evaluation trials.
   [**Action**: All Research Scientist of respective crop and DOR, AAU/JAU/NAU/SDAU]
6. Efforts should be made to collect the release varieties of fruit and flower crops from other universities/ICAR institutes for evaluation and further endorsement.
   [**Action:** DOR, AAU/JAU/NAU/SDAU]
7. If plant population analysis is significant in seed/grain yield of all crop's trials, then ANCOVA should be followed particularly in rainfed trials.
   [**Action**: All Crop Scientist of SAUs].
8. Follow code system for new technical programmes.
   [Action: All Crop Scientist of SAUs].
9. Common procedure should be followed to write a name of scientist for development of variety. [**Action**: All Crop Scientist of SAUs].
10. Separate meeting should be arranged by Directorate of Research office of SAUs for finalizing and inclusion of the new technical programmes and recommendations of basic science group.

    [**Action**: DOR, AAU/JAU/NAU/SDAU]

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17.2 CROP PRODUCTION/NATURAL RESOURCES MANAGEMENT

Date	**:**	3rd -9th May, 2021
Orgnized by	**:**	Sardrkrushinagar Dantiwada Agricultural University
Chairman	**:**	Dr. R. M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar
Co-Chairman	**:**	Dr. V. R. Naik, ADR, NAU, Navsari
		Dr. A. U. Amin, Research Scientist (Seed Spices), SDAU, Jagudan
Conveners	**:**	Dr. S.N. Shah, Associate Professor, Dept. of Agronomy. BACA, AAU, Anand
		Dr. R. K. Mathukia, Prof. & Head, Dept. of Agronomy., COA, JAU, Junagadh
		Dr. H. M. Viradiya, Res. Sci., Main Sugarcane Res. Station, NAU, Navsari
		Dr J.R. Jat, Research Scientist, Agroforestry Res. Station., SDAU, SKNagar
Rapporteurs	**:**	Dr. D. M. Patel, Associate Professor, SDAU, Sardarkrushinagar
		Dr. R. M. Solanki, Associate Professor, JAU, Junagadh
		Dr. B. D. Patel, Professor & Head, AAU, Anand
		Dr. V. P. Usdadiya, Professor & Head, NAU, Navsari
Statistician	**:**	Dr G. K. Chaudhary, Assoc. Prof. & Head, SDAU

SUMMARY OF RECOMMENDATIONS

Name of Univ.	No. of proposed recommendtions		No. of approved recommendtions		No. of recommendtions		
	Farmers	Scientific	Farmers	Scientific	Confirmtion*	Withheld	Dropped
AAU	22	04	22	03	-	-	01
JAU	23	16	20	15	-	-	04
NAU	12	03	11	02	-	-	02
SDAU	20	01	18	01	-	-	02

***Confirmation of earlier recommendtions**

17.2.1 RECOMMENDATIONS FOR FARMERS

ANAND AGRICULTURAL UNIVERSITY

17.2.1.1	**Evaluation of nutrient composition of bacterial biodegraded crop residues** (Withheld during 16th Combined AGRESCO was approved in 17th AGRESCO)
	For making good quality compost from crops residues viz., banana pseudostem, pigeon pea stalk, cotton stalk and castor stalk, farmers are recommended to mix Anubhav Bacterial Biodecomposer Consortium (ABBC 1.0 L/t) and 200 kg cow dung slurry/t (cow dung and water in1:2 ratio) of shredded crop residues mixed in the pit (as per required size) with maintaining optimum moisture in the pit (65-70%) to get finished compost within 40-45 days for banana pseudostem, 55-60 days for pigeon pea stalk, 70 days for cotton stalk and 80-85 days for castor stalk, which is 5-10 days earlier than the compost prepared without bacterial Biodecomposer consortium. Further, nutrient composition in finished compost is found better in pigeon pea stalk followed by banana pseudostem, cotton stalk and castor stalk.

	ખેત પેદાશ અવશેષો જેવા કે કેળના થડ,તુવેરની કરાઠી,કપાસની કરાઠી તથા દિવેલાના રાડામાંથી કમ્પોસ્ટ બનાવવા માટે અનુભવ બેકટેરીયલ બાયોડીકમ્પોઝર કન્સોર્ટિયમ (એબીબીસી ૧.૦ લીટર/ટન) અને ૨૦૦ કિ.ગ્રા. ગાયના છાણની સ્લરી/ટન (ગાયનો છાણ અને પાણી ૧:૨ ના પ્રમાણે) પ્રમાણે ખેત પેદાશોનાં નાના ટુકડા કરેલ અવશેષો સાથે મિશ્ર કરીને જરુરી ભેજની (૬૫-૭૦ %) જાળવણી જરૂરિયાત મુજબનાં ખાડામાં કરવાથી ૪૦-૪૫ દિવસે કેળના થડ, ૫૫-૬૦ દિવસે તુવેરની કરાઠી, ૭૦ દિવસે કપાસની કરાઠી અને ૮૦-૮૫ દિવસે દિવેલાના રાડા માંથી સંપૂર્ણ કોહવાયેલ ગુણવત્તાસભર કમ્પોસ્ટ તૈયાર કરી શકાય છે અને આ કમ્પોસ્ટ અનુભવ બેકટેરીયલ બાયોડીકમ્પોઝર કન્સોર્ટિયમનો ઉપયોગ કરવાથી ૫ થી ૧૦ દિવસ વહેલુ તૈયાર થાય છે. સંપૂર્ણ કોહવાયેલ કમ્પોસ્ટમાં પોષક તત્વોની માત્રા વિવિધ પાક અવશેષો પૈકી તુવેરની કરાઠીમાં સૌથી વધુ, કેળના થડમાં કપાસની કરાઠી કરતા વધુ અને દિવેલાના રાડામા સૌથી ઓછી જોવા મળેલ છે. **Approved** (**Action**: *Professor and Head, Department of Agronomy, BACA, AAU, Anand*)
17.2.1.2	**Nutrient management through organic sources in summer green gram (*Vigna radiata* L.)**
	The farmers of middle Gujarat Agroclimatic Zone growing summer green gram organically are recommended to apply 1.0 L/ha Bio NP liquid biofertilizer (*Rhizobium* and PSB) mixed with either 500 kg/ha vermicompost OR 250 kg/ha castor cake into the soil for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં સેન્દ્રિય ખેતીથી ઉનાળુ ઋતુમાં મગનું વાવેતર કરતા ખેડૂતોએ વધુ ઉત્પાદન અને વળતર મેળવવા હેક્ટર દીઠ ૧.૦ લિટર બાયો એનપી (રાઇઝોબીયમ અને પીએસબી) પ્રવાહી જૈવિક ખાતર ૫૦૦ કિલોગ્રામ વર્મિકમ્પોસ્ટ અથવા ૨૫૦ કિલોગ્રામ દિવેલી ખોળ પૈકી કોઈપણ એકની સાથે ભેળવી જમીનમાં આપવાની ભલામણ કરવામાં આવે છે. **Approved** (**Action**: *Professor and Head, Department of Agronomy, BACA, AAU, Anand*)
17.2.1.3	**Feasibilities of transplanting of cotton under varying age of seedlings**
	The farmers of middle Gujarat Agroclimatic Zone growing Bt. cotton are recommended to transplant either 20-30 days old seedling raised in plug nursery (cocopeat : vermiculite : perlite in proportion of 7:2:1; volume based) under open field condition on 1stJuly or 20 days old seedling during first fortnight of July for obtaining higher seed cotton yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં બીટી કપાસનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા ખુલ્લી જમીનમા કરવામા આવેલ પ્લગ નર્સરીમાં (કોકોપીટ : વર્મીક્યુલાઇટ : પરલાઇટ ૭:૨:૧ ઘનમાપ પ્રમાણમાં) તૈયાર કરેલ ૨૦ થી ૩૦ દિવસના ધરુંને ૧જુલાઈ સુધી અથવા ૨૦ દિવસના ધરુંને જુલાઈના પ્રથમ પખવાડિયા દરમ્યાન ફેરરોપણી કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion:** 1. Rephrasing the text (**Action**:*Professor and Head, Department of Agronomy, BACA, AAU, Anand*)
17.2.1.4	**Field performance of promising *Rhizobium* isolates on green gram**
	The farmers of middle Gujarat Agroclimatic Zone growing *kharif* greengram are recommended to apply either 20 kg N/ha **or** 2 t FYM/ha + 10 kg

	N/ha + seed treatment of *Rhizobium selenitireducens* AAU M1 (5 ml/kg seed) for obtaining higher yield and net return. Besides, apply 40 kg P_2O_5/ha as basal. મધ્ય ગુજરાત ખેતઆબોહવાકીય વિસ્તારમાં ચોમાસું મગનું વાવેતર કરતાં ખેડૂતોએ વધુ ઉત્પાદન અને વળતર મેળવવા ૨૦ કિલોગ્રામ નાઇટ્રોજન/હેક્ટર જમીનમાં આપવાની અથવા ૨ ટન છાણિયું ખાતર/હેક્ટર + ૧૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર જમીનમાં આપવાની સાથે રાઈઝોબીયમ સેલેનાઈટીરીડ્યુસન્સ એએયુએમ ૧ નો ૫ મિલિલીટર/કિલોગ્રામ બીજ પ્રમાણે બિયારણને પટ આપી વાવેતર કરવાની ભલામણ કરવામાં આવે છે. વધુમાં ૪૦ કિલોગ્રામ ફોસ્ફરસ/હેક્ટર પાયામાં આપવો. **Approved** (**Action**:*Professor and Head***,** *Department of Agril. Microbiology, BACA, AAU, Anand*)
17.2.1.5	**Effect of nitrogen and topping levels on yield and quality of bidi tobacco hybrid varieties**
	The farmers of middle Gujarat Agroclimatic Zone cultivating bidi tobacco hybrid are recommended to apply 180 kg N/ha, of which 45 kg N/ha as basal through ammonium sulphate and remaining 135 kg N/ha as top dressing through urea in three equal splits at an interval of 30 days after transplanting and to do topping at 21-leaves stage for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં સંકર બીડી તમાકુની ખેતી કરતાં ખેડુતોને વધુ ઉત્પાદન અને વળતર મેળવવા ૧૮૦ કિલોગ્રામ નાઇટ્રોજન/હેક્ટર પૈકી ૪૫ કિલોગ્રામ/હેક્ટર પાયામાં એમોનિયમ સલ્ફેટ ધ્વારા અને બાકીનો ૧૩૫ કિલોગ્રામ/હેક્ટર પૂર્તિ ખાતર તરીકે યુરીયા ધ્વારા ફેરરોપણી બાદ ૩૦ દિવસના આંતરે ત્રણ સરખા હપ્તામાં આપવાની અને ૨૧ પાને ખૂંટણી કરવાની ભલામણ કરવામાં આવે છે. **Approved** (**Action**:*Research Scientist(Tobacco), Bidi Tobacco Research Station, AAU, Anand*)
17.2.1.6	**Effect of integrated nutrient management on yield, chemical composition and soil status in bidi tobacco under middle Gujarat condition**
	The farmers of middle Gujarat Agroclimatic Zone cultivating bidi tobacco are recommended to apply 140 kg N/ha, of which 35 kg N/ha as basal through poultry manure (2 t/ha) and remaining 105 kg N/ha as top dressing through urea in three equal splits at an interval of 30 days after transplanting for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં બીડી તમાકુની ખેતી કરતાં ખેડુતોને વધુ ઉત્પાદન અને વળતર મેળવવા ૧૪૦ કિલોગ્રામ નાઇટ્રોજન/હેક્ટર પૈકી ૩૫ કિલોગ્રામ/હેક્ટર પાયામાં મરઘાંના ખાતર ધ્વારા (૨ ટન/હેક્ટર) અને બાકીનો ૧૦૫ કિલોગ્રામ/હેક્ટર પૂર્તિ ખાતર તરીકે યુરીયા ધ્વારા ફેરરોપણી બાદ ૩૦ દિવસના આંતરે ત્રણ સરખા હપ્તામાં આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions** 1. Check SEm ± data 2. Recast RDN (**Action**: *Research Scientist(Tobacco), Bidi Tobacco Research Station, AAU, Anand*)

17.2.1.7	**Feasibility of vegetable intercropping in *rustica* tobacco (*Nicotiana rustica* L.) under middle Gujarat conditions**
	The farmers of middle Gujarat Agroclimatic Zone cultivating *rustica* tobacco are recommended to intercrop either 3-lines of garlic at 10 cm apart **OR** 3-lines of radish 10 cm apart or 2-lines of onion 15 cm apart as a green vegetable into the 60 cm row spacing of *rustica* tobacco for obtaining higher tobacco equivalent yield and net return. Intercrops are to be sown by 15-25 days after transplanting of tobacco and harvested by 30-45 days after sowing. મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં કલકત્તી તમાકુની ખેતી કરતાં ખેડુતોને વધુ તમાકુ સમકક્ષ ઉત્પાદન અને વળતર મેળવવા કલકત્તી તમાકુની બે હાર વચ્ચેના ૬૦ સેન્ટીમીટરના ગાળામાં આંતર પાક તરીકે ત્રણ હાર લસણ ૧૦ સે.મી.ના અંતરે અથવા ત્રણ હાર મુળા ૧૦ સે.મી.ના અંતરે અથવા બે હાર ડુંગળીનું ૧૫ સે.મી.ના અંતરે લીલા શાકભાજી માટે વાવેતર કરવાની ભલામણ કરવામાં આવે છે. તમાકુની ફેરરોપણીનાં ૧૫-૨૫ દિવસ બાદ આંતરપાકનું વાવેતર કરવું અને વાવેતરનાં ૩૦ થી ૪૫ દિવસ બાદ લણણી કરી લેવી. **Approved with following suggestion:** 1. Rephrasing the text 2. Add tobacco equivalent yield in recommendation in place of yield 3. Replace word pooled with average (**Action**: *Research Scientist(Tobacco), Bidi Tobacco Research Station, AAU, Anand*)
17.2.1.8	**Effect of integrated nutrient management on yield, chemical composition and soil status in *rustica* tobacco under middle Gujarat condition**
	The farmers of middle Gujarat Agro-climatic Zone cultivating *rustica* tobacco are recommended to apply either 150 kg N/ha through chemical fertilizer and dipping of seedling root in the solution of 5 ml/L Bio NPK liquid biofertilizer for 15 minutes **or** 100 kg N/ha through chemical fertilizer and 2 t/ha poultry manure together with dipping of seedling root in the solution of 5 mL/L Bio NPK liquid biofertilizer for 15 minutes before transplanting for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં કલકતી તમાકુની ખેતી કરતાં ખેડુતોને વધુ ઉત્પાદન અને વળતર મેળવવા ૧૫૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર રાસાયણિક ખાતર આપવાની સાથે ધરુંના મૂળને બાયો એનપીકે પ્રવાહી જૈવિક ખાતરનાં ૫ મિલિલીટર/લીટર દ્રાવણમાં ૧૫ મિનિટ સુધી ડૂબાડી રાખવાની **અથવા** ૧૦૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર રાસાયણિક ખાતર દ્વારા અને ૨ ટન/હેક્ટર મરઘાનું ખાતર આપવાની સાથે ધરુંના મૂળને બાયો એનપીકે પ્રવાહી જૈવિક ખાતરના ૫ મિલિલીટર/લીટરનાં દ્રાવણમાં ૧૫ મિનિટ સુધી ફેરરોપણી પહેલા ડૂબાડી રાખવાની ભલામણ કરવામાં આવે છે. **Approved** (**Action**: *Research Scientist(Tobacco), Bidi Tobacco Research Station, AAU, Anand*)

17.2.1.9	**Effect of nitrogen levels on quality and yield of *rustica* tobacco varieties**
	The farmers of middle Gujarat Agro-climatic Zone cultivating *rustica* tobacco are recommended to apply 150 kg N/ha, of which 37.5 kg N/ha as basal through ammonium sulphate and remaining 112.5 kg N/ha as top dressing through urea in three equal splits at an interval of 30 days after transplanting for obtaining higher yield, quality and net return. Moreover, *rustica* tobacco variety DCT 4 registered higher yield as compared to variety GCT 3. મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં કલકતી તમાકુની ડીસીટી ૪ જાતનું ઉત્પાદન જીસીટી ૩ જાત કરતા વધારે જોવા મળેલ છે. આ બન્ને જાતોની સારી ગુણવત્તા, વધુ ઉત્પાદન અને વળતર મેળવવા ૧૫૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર પૈકી ૩૭.૫ કિલોગ્રામ/હેક્ટર પાયામાં એમોનિયમ સલ્ફેટ ધ્વારા અને બાકીનો ૧૧૨.૫ કિલોગ્રામ/હેક્ટર પૂર્તિ ખાતર તરીકે યુરીયા ધ્વારા ફેરરોપણી બાદ ૩૦ દિવસના આંતરે ત્રણ સરખા હપ્તામાં આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Mention the variety in text (**Action**: *Research Scientist(Tobacco), Bidi Tobacco Research Station, AAU, Anand*)
17.2.1.10	**Effect of different organic manures and Bio NPK consortium on yield and quality of Isabgul (*Plantago ovate* Forsk)**
	The farmers of middle Gujarat agroclimatic zone growing isabgul are recommended to apply 4 t FYM/ha along with either seed treatment of Bio NPK liquid biofertilizer @ 5 ml/kg seeds **or** soil application of 1 L/ha Bio NPK liquid biofertilizer mixed with 50 kg FYM for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ઈસબગુલની ખેતી કરતાં ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા વાવણી પહેલા ૪ ટન છાણીયું ખાતર/હેક્ટર આપવાની સાથે બાયો એનપીકે પ્રવાહી જૈવિક ખાતરની ૫ મિલિલીટર/કિલોગ્રામ બિયારણ પ્રમાણે બીજ માવજત **અથવા** બાયો એનપીકે પ્રવાહી જૈવિક ખાતરને જમીનમાં ૧ લિટર/હેક્ટર ૫૦ કિલોગ્રામ છાણીયા ખાતરમાં ભેળવી આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Add 50 kg FYM in the text (**Action**: *Associate Research Scientist(M&AP), Medicinal & Aromatic Plant Research Station, AAU, Anand*)
17.2.1.11	**Effect of organic manure, bio NPK consortium and chemical fertilizer on yield of hybrid maize (*Zea mays* L.) in *kharif* season**
	The farmers of middle Gujarat Agro-climatic Zone growing *kharif* hybrid maize are recommend to apply 5 t FYM/ha along with recommended dose of 160 kg N/ha and 20 kg P_2O_5/ha for obtaining higher yield and net return. Application of 40 kg N/ha and 20 kg P_2O_5/ha is to be made as basal and remaining amount of nitrogen should be applied in three equal splits at 4-leaves, 8-leaves and tasseling stages. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ ઋતુમાં સંકર મકાઈનું વાવેતર કરતાં

	ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા ૫ ટન છાણિયાં ખાતર/હેક્ટરની સાથે ભલામણ કરેલ ૧૬૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર અને ૨૦ કિલોગ્રામ ફૉસ્ફરસ/હેક્ટર આપવાની ભલામણ કરવામાં આવે છે. જે પૈકી ૪૦ કિલોગ્રામ નાઈટ્રોજન/હે અને ૨૦ કિલોગ્રામ ફૉસ્ફરસ/હેક્ટર ખાતરને પાયામાં આપવું અને બાકીનો નાઈટ્રોજન ખાતર ત્રણ સરખા હપ્તામાં ૪-પાન, ૮-પાન અને ચમરી અવસ્થાએ આપવું. **Approved with following suggestions:** 1. Delete the name of variety from the text (**Action**: *Associate Research Scientist,Main Maize Research Station, AAU, Godhra*)
17.2.1.12	**Effect of nitrogen and phosphorus on yield of baby corn hybrid in *rabi* season**
	The farmers of middle Gujarat Agro-climatic Zone growing *rabi* baby corn hybrid are recommended to apply 60 kg N/ha, of which 30 kg N/ha as basal and remaining 30 kg N/ha at 30 DAS and 20 kg P_2O_5/ha as basal for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળુ ઋતુમાં સંકર બેબી કોર્નનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા ૬૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર પૈકી ૩૦ કિલોગ્રામ/હેક્ટર પાયામાં અને બાકીનો ૩૦ કિલોગ્રામ/હેક્ટર વાવણી બાદ ૩૦ દિવસે અને ૨૦ કિલોગ્રામ ફોસ્ફરસ/હેક્ટર પાયામાં આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** **1**. Delete the name of variety from the text (**Action**: *Associate Research Scientis,Main Maize Research Station, AAU, Godhra*)
17.2.1.13	**Nitrogen management in early rice varieties of middle Gujarat**
	The farmers of AES-V (Nawagam area) and AES-II (Thasara area) of middle Gujarat Agro-climatic Zone growing early maturing rice varieties Gurjari or Mahisagar during summer season are recommended to apply 10 t FYM/ha along with 100 kg N/ha, of which 40 kg N/ha as basal, 40 kg N/ha at tillering stage and 20 kg N/ha at panicle initiation stage for obtaining higher yield and net return. Besides, apply 30 kg P_2O_5/ha as a basal dose. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારનાં એઈએસ-૫(નવાગામ વિસ્તાર) અને એઈએસ-૨(ઠાસરા વિસ્તાર)માં ડાંગરની વહેલી પાકતી ગુર્જરી અથવા મહીસાગર જાતની ઉનાળું ઋતુમાં ફેરરોપણી કરતાં ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા ૧૦ ટન/હેક્ટર છાણીયા ખાતરની સાથે ૧૦૦ કિલોગ્રામ નાઈટ્રોજન/હેક્ટર પૈકી ૪૦ કિલોગ્રામ/હેક્ટર પાયામાં, ૪૦ કિલોગ્રામ/હેક્ટર ફૂટ અવસ્થાએ અને ૨૦ કિલોગ્રામ/હેક્ટર કંટી અવસ્થાએ આપવાની ભલામણ કરવામાં આવે છે. વધુમાં ૩૦કિલોગ્રામ ફોસ્ફરસ/હેક્ટર ને પાયામાં આપવો. **Approved** (**Action**: *Research Scientist(Rice), Main Rice Research Station, AAU, Nawagam*)

17.2.1.14	**Study of pigeon pea varieties under relay cropping system**
	The farmers of middle Gujarat Agro-climatic Zone are recommended to adopt either blackgram-pigeonpea or greengram-pigeonpea relay cropping system for obtaining higher pigeonpea equivalent yield and net return. 1. In case of blackgram-pigeon pea relay cropping, blackgram is to be sown at 45 cm apart during first week of July and pigeonpea (AGT 2 or BDN 2 or Vaishali) during first week of September. 2. Whereas, in case of greengram-pigeonpea relay cropping, greengram is to be sown at 45 cm apart during first week of July and pigeonpea (AGT 2 or Vaishali) during first week of September. 3. Keep a row after each two - rows of blackgram or greengram for the sowing of pigeonpea. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ખેડૂતોને તુવેર સમકક્ષ વધારે ઉત્પાદન અને નફો મેળવવા અડદ-તુવેર અથવા મગ-તુવેર રીલે વાવેતર પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. ૧. અડદ-તુવેર રીલે પાક પધ્ધતિ માટે અડદનું વાવેતર ૪૫ સેન્ટીમીટર અંતરે જુલાઈના પ્રથમ અઠવાડિયામાં અને તુવેર (એજીટી ૨ અથવા બીડીએન ૨ અથવા વૈશાલી) નું વાવેતર સપ્ટેમ્બર મહિનાના પ્રથમ અઠવાડિયામાં કરવું. ૨. જ્યારે મગ-તુવેર રીલે પાક પધ્ધતિ માટે મગનું વાવેતર ૪૫ સેન્ટીમીટર અંતરે જુલાઈના પ્રથમ અઠવાડિયામાં અને તુવેર (એજીટી ૨ અથવા વૈશાલી)નું વાવેતર સપ્ટેમ્બર મહિનાના પ્રથમ અઠવાડિયામાં કરવું. ૩. બંને રીલે પાક પધ્ધતિમાં,અડદ કે મગની દરેક બે હાર બાદ તુવેરના વાવેતર માટે એક હાર છોડી દેવી. **Approved** (**Action**:*Unit Officer, Pulse Research Station, AAU, Vadodara*)
17.2.1.15	**Effect of different multi-micronutrient mixture grade application on growth, yield and quality of chickpea under conserve moisture condition in *Bhal* region**
	The farmers of *Bhal* and Coastal agroclimatic zone growing chickpea under conserved soil moisture condition are recommended to apply 1% foliar spray of Government notified multi-micronutrient mixture either Grade II (Fe: 6.0, Mn: 1.0, Zn: 4.0, Cu: 0.3 and B: 0.5 per cent) OR Grade I (Fe: 2.0, Mn: 0.5, Zn: 4.0, Cu: 0.3 and B: 0.5 per cent) at 30, 45 and 60 days after sowing along with 20 kg N and 40 kg P_2O_5/ha as basal for obtaining higher yield, net return and iron content in seed. ભાલ અને દરિયાકાંઠા ખેત આબોહવાકીય વિસ્તારમાં સંગ્રહિત ભેજમાં ચણાનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન, વળતર અને દાણામાં વધુ લોહ તત્વના પ્રમાણ માટે ૨૦ કિ.ગ્રા. નાઈટ્રોજન અને ૪૦ કિ.ગ્રા. ફોસ્ફરસ પ્રતિ હેક્ટર પાયામાં ઉપરાંત સરકાર માન્ય મલ્ટિ માઈક્રોન્યૂટ્રીયન્ટ મિક્ષ્ચર ગ્રેડ ૨ (લોહ: ૬.૦, મેંગનીજ: ૧.૦, જસત: ૪.૦, કોપર: ૦.૩ અને બોરોન: ૦.૫ ટકા) અથવા ગ્રેડ ૧ (લોહ: ૨.૦, મેંગનીજ: ૦.૫, જસત: ૪. ૦, કોપર: ૦.૩ અને બોરોન: ૦.૫ ટકા) પૈકી કોઈપણ એકનો ૧ટકા દ્રાવણનો વાવણી બાદ ૩૦,૪૫ અને ૬૦ દિવસે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે.

	Approved with following suggestions: 1. Add conserved moisture in title instead of un-irrigated 2. Recast the text 3. Replace the word "haulm' with stover in the text **(Action:** *Associate Research Scientist, ARS, AAU, Arnej***)**
17.2.1.16	**Effect of dates of sowing and irrigation scheduling at critical growth stages on sesame**
	The farmers of middle Gujarat Agro-climatic Zone growing summer sesame are recommended to sow sesame during 3rd week of February and apply five irrigations at sowing, branching (30-45 DAS), flowering (45-50 DAS), capsule development (55-60 DAS) and seed development (65-70 DAS) stages for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તાર માં ઉનાળુ તલની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે તલની વાવણી ફેબ્રુઆરી માસના ત્રીજા અઠવાડિયા દરમિયાન કરવી તથા પાંચ પિયત એટલે કે વાવણી સમયે, ડાળીની અવસ્થા (૩૦-૩૫ દિવસે), ફૂલ બેસવાની અવસ્થા (૪૫-૫૦ દિવસે), ઘાંટા બેસવાની અવસ્થા (૫૫-૬૦ દિવસે) તથા દાણા ભરાવાની અવસ્થા (૬૫-૭૦ દિવસે)એ આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Recast the text 2. 'Stover yield' replaced by " stalk yield" **(Action:** *Principal, ARS, COA, AAU, Jabugam***)**
17.2.1.17	**Economic feasibility of cotton based cropping sequences (summer) under middle Gujarat conditions (Tribal area)**
	The farmers of middle Gujarat Agro-climatic Zone are recommended to grow summer groundnut during first week of February after harvesting of cotton for obtaining higher net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને ભલામણ કરવામાં આવે છે કે ઉનાળુ મગફળી નું વાવેતર કપાસનો પાક લીધા પછી ફેબ્રુઆરી માસ ના પ્રથમ અઠવાડીયામાં લેવાથી વધુ આવક મેળવી શકાય છે. **Approved with following suggestions:** 1. Recast the text 2. Delete SEm & CD from table 2 **(Action:** *Principal, ARS, COA, AAU, Jabugam***)**
17.2.1.18	**Integrated nutrient management in summer Green gram (*Vigna radiate* L.)**
	The farmers of middle Gujarat agroclimatic zone growing greengram during summer season are recommended to apply 40 kg P_2O_5/ha through PROM as basal dose with Liquid Bio NP Biofertilizer (*Rhizobium* and PSB) @ 5 ml/kg seed treatment for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ ઋતુમાં મગની ખેતી કરતા ખેડૂતોને વધુ

	ઉત્પાદન અને વળતર મેળવવા માટે પ્રવાહી જૈવિક ખાતર બાયો એન.પી. (રાઈઝોબિયમ + પી.એસ.બી.) ૫.૦ મિલિલીટર/કિલોગ્રામ પ્રમાણે બીજ માવજત આપવી અને સાથે પાયામાં ૪૦ કિલોગ્રામ ફૉસ્ફરસની પુર્તિ વધુ ફૉસ્ફરસ ધરાવતા સેન્દ્રિય ખાતર (પ્રોમ) દ્વારા કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Remove treatment T_1 from recommendation (**Action:** *Unit Head and Training Organiser, TRTS, AAU, D' Baria*)
17.2.1.19	**Effect of foliar application of organic and inorganic nutrients sources on growth, yield and quality of green gram (*Vigna radiata* (L.) Wilczek)**
	The farmers of middle Gujarat Agro-climatic Zone growing greengram during *kharif* season are recommended to apply 10 kg N and 20 kg P_2O_5/ha as basal along with foliar spray of either 3% urine of indigenous cow at pre-flowering stage OR 10 % vermiwash at pre-flowering and pod formation stages for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારના ચોમાસુ ઋતુમાં મગની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા પ્રતિ હેક્ટરે પાયામાં ૧૦ કિલોગ્રામ નાઈટ્રોજન તથા ૨૦ કિલોગ્રામ ફૉસ્ફરસ ખાતર આપવું તથા દેશી ગાયના ૩ ટકા મુત્ર નો ફૂલ બેસવાની અવસ્થા પહેલાં છંટકાવ કરવો અથવા વર્મિવોશ ૧૦ ટકાનો ફૂલ બેસવાની અવસ્થા પહેલાં અને દાણા ભરાવવાની અવસ્થાએ છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions** Delete the word "through urea" from the recommendation (**Action:** *Associate Research Scientist, ARS, AAU, Derol*)
17.2.1.20	**Effect of foliar application of organic and inorganic nutrients sources on growth, yield and quality of black gram (*Vigna mungo* (L.) Hepper)**
	The farmers of middle Gujarat Agro-climatic Zone growing blackgram during *kharif* season are recommended to apply 10 kg N and 20 kg P_2O_5/ha as basal along with foliar spray of 10 % vermiwash at pre-flowering and pod formation stage for obtaining higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ ઋતુમાં અડદની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા પ્રતિ હેક્ટરે પાયામાં ૧૦ કિલોગ્રામ નાઈટ્રોજન તથા ૨૦ કિલોગ્રામ ફૉસ્ફરસ ખાતર આપવું તથા વર્મિવોશ ૧૦ ટકાનો ફૂલ બેસવાની અવસ્થા પહેલાં અને દાણા ભરાવવાની અવસ્થાએ છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Delete foliar spray of 3 % urine from the Recommendation (**Action:** *Associate Research Scientist, ARS, AAU, Derol*)
17.2.1.21	**Effect of limited irrigation on production and fibre quality of *desi* cotton**
	The farmers of North-West Gujarat Agro-climatic Zone growing *desi* cotton under limited irrigation are recommended to apply only one irrigation at 20 days after withdrawal of monsoon for obtaining higher seed cotton yield and net return.

	ઉત્તર- પશ્ચિમ ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં મર્યાદિત પિયતથી દેશી કપાસની ખેતી કરતાં ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે ચોમાસુ પુરૂ થયે ૨૦ દિવસે એક પિયત આપવાની ભલામણ કરવામાં આવે છે. **Approved** (**Action:** *Associate Research Scientist, Regional Cotton Research Station, AAU, Viramgam*)
17.2.1.22	**Effect of integrated nitrogen management on yield and quality of mustard (*Brassica juncea* L.)**
	The farmers of middle Gujarat Agro-climatic Zone growing mustard are recommended to adopt any of below given integrated nitrogen management for obtaining higher yield and net return. Besides, apply 50 kg P_2O_5/ha as basal. 1. Out of recommended dose of 50 kg N/ha, apply 12.5 kg N/ha either through castor cake or vermicompost or FYM as basal and 37.5 kg N/ha from chemical fertilizer in three equal splits as basal, at 30 and 60 DAS. 2. Out of recommended dose of 50 kg N/ha, apply 25 kg N/ha through FYM as basal and 25 kg N/ha from chemical fertilizer in two equal splits as basal and at 30 DAS. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં રાઈ નું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા નીચેના પૈકી કોઈપણ એક સંકલિત નાઈટ્રોજન ખાતર વ્યવસ્થાપનને અપનાવવાની ભલામણ કરવામાં આવે છે. વધુમાં ૫૦ કિલોગ્રામ/હેક્ટર ફોસ્ફરસને પાયામાં આપવો. ૧. ભલામણ કરેલ કુલ ૫૦ કિલોગ્રામ/હેક્ટર નાઈટ્રોજન પૈકી ૧૨.૫ કિલોગ્રામ/હેક્ટર નાઈટ્રોજન દિવેલી ખોળ માંથી અથવા વર્મીકંપોસ્ટ માંથી અથવા છાણીયાં ખાતર માંથી પાયામાં આપવો અને ૩૭.૫ કિલોગ્રામ/હેક્ટર નાઈટ્રોજન રાસાયણિક ખાતર માંથી ત્રણ સરખા ભાગે પાયામાં, વાવેતર બાદ ૩૦ અને ૬૦ દિવસે આપવો. ૨. ભલામણ કરેલ કુલ ૫૦ કિલોગ્રામ/હેક્ટર નાઈટ્રોજન પૈકી ૨૫ કિલોગ્રામ/હેક્ટર નાઈટ્રોજન છાણીયાં ખાતર માંથી પાયામાં આપવો અને ૨૫ કિલોગ્રામ/હેક્ટર નાઈટ્રોજન રાસાયણિક ખાતર માંથી બે સરખા ભાગે પાયામાં અને વાવેતર બાદ ૩૦ દિવસે આપવો. **Approved** (**Action**: *Principal, College of Agriculture, AAU, Vaso)*

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17.2.1.23	**Evaluation of various green manure crops under different time of sowing**
	The farmers of South Saurashtra Agro-climatic Zone interested in green manuring are recommended to sow sunnhemp or dhaincha during June-July and incorporate in soil at initiation of flowering for adding higher quantity of green biomass, N, P and K in soil. સૌરાષ્ટ્ર વિસ્તારમાં લીલોપડવાશ કરવામાં રસ ધરાવતાં ખેડૂતોને જમીનમાં વધુ લીલોમાવો, નાઈટ્રોજન, ફોસ્ફરસ તથા પોટાશ ઉમેરવા માટે શણ અથવા ઇક્કડનું વાવેતર જુન-જુલાઈ દરમ્યાન કરવાની અને ફૂલ આવવાની શરૂઆત થયે જમીનમાં ભેળવવાની ભલામણ કરવામાં આવે છે.

	Approved with following suggestions: a) Indicate the time of harvesting b) Check the data of nutrient uptake *(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.1.24	**Weed management in coriander**
	The farmers of Gujarat growing coriander are recommended to keep weed free condition up to 45 DAS by hand weeding as and when required for effective weed management and to obtain higher seed yield and net realization. ગુજરાતમાં ધાણાનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા દાણાંનું વધુ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવેતર બાદ ૪૫ દિવસ સુધી જરૂરિયાત મુજબ હાથ નિંદામણ કરી પાકને નીંદણમુક્ત રાખવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** a) Indicate the date of weeding in weed free treatment *(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.1.25	**Weed management in chickpea**
	The farmers of Gujarat growing irrigated chickpea are recommended to keep weed free condition up to 45 DAS by interculturing and hand weeding as and when required for effective weed management and to obtain higher seed yield and net realization. ગુજરાતમાં પિયત ચણાનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા દાણાંનું વધુ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવેતર બાદ ૪૫ દિવસ સુધી જરૂરિયાત મુજબ આંતરખેડ તથા હાથ નિંદામણ કરી પાકને નીંદણમુક્ત રાખવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions** **a)** Interculturing and hand weeding as and when required up to 45 DAS. *(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.1.26	**Weed management in summer guar**
	The farmers of Gujarat growing summer guar are recommended to keep weed free condition up to 45 DAS by interculturing and hand weeding as and when required for effective weed management and to obtain higher seed yield and net realization. ગુજરાતમાં ઉનાળુ ગુવારનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા દાણાંનું વધુ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવેતર બાદ ૪૫ દિવસ સુધી જરૂરિયાત મુજબ આંતરખેડ તથા હાથ નિંદામણ કરી પાકને નીંદણમુક્ત રાખવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions** **a)** Interculturing and hand weeding as and when required up to 45 DAS. *(**Action**: Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*

17.2.1.27	**Integrated nutrient management in soybean**
	The farmers of South Saurashtra Agro-climatic Zone growing *kharif* soybean are recommended to apply either Biocompost 2 t/ha + FYM 2.5 t/ha + *Rhizobium* 2 L/ha + PSB 2 L/ha or Biocompost 4 t/ha or FYM 5 t/ha as soil application to obtain higher yield and net realization along with maintenance of soil fertility. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ સોયાબીન ઉગાડતાં ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા તેમજ જમીનની ફળદ્રુપતા જાળવવા માટે જમીનમાં બાયોકમ્પોષ્ટ ૨.૦ ટન/હે + છાણિયુ ખાતર ૨.૫ ટન/હે + રાઈઝોબિયમ કલ્ચર ૨.૦ લી./હે + પીએસબી કલ્ચર ૨ લી./હે અથવા બાયોકમ્પોષ્ટ ૪.૦ ટન/હે અથવા છાણિયુ ખાતર ૫.૦ ટન/હે આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** a) Give year-wise data of soil fertility status b) Take INM experiment on fixed site *(**Action**: Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.1.28	**Weed management in green gram**
	The farmers of Gujarat growing *kharif* green gram are recommended to do interculturing and hand weeding at 20 and 40 days after sowing for effective weed management and to obtain higher seed yield and net realization. ગુજરાતમાં ચોમાસુ મગનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા દાણાંનું મહત્તમ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવણી બાદ ૨૦ અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ કરવાની ભલામણ કરવામાં આવે છે. **Approved** *(**Action**: Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.1.29	**Weed management in black gram**
	The farmers of Gujarat growing *kharif* black gram are recommended to do interculturing and hand weeding at 20 and 40 days after sowing for effective weed management and to obtain higher seed yield and net realization. ગુજરાતમાં ચોમાસુ અડદનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા મહત્તમ દાણાંનું ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવણી બાદ ૨૦ અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ કરવાની ભલામણ કરવામાં આવે છે. **Approved** *(**Action**: Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.1.30	**Effect of tillage and post-emergence herbicides on growth and yield of soybean**
	The farmers of Gujarat growing *kharif* soybean are recommended to prepare the field by rotavator and apply pendimethalin 0.9 kg/ha (30% EC @ 60 ml/10 L water) as pre-emergence *fb* pre-mix sodium acifluorfen + clodinafop

propargyl 245 g/ha (16.5% + 8% EC @ 20 ml/10 L water) as post-emergence at 30 DAS for effective weed management and to obtain higher seed yield and net realization.

ગુજરાતમાં ચોમાસુ સોયાબીનનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા દાણાંનું વધુ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે રોટાવેટરથી જમીન તૈયાર કરવી અને વાવણી બાદ પરંતુ પાક તથા નીંદણના ઉગાવા પહેલાં પેન્ડીમેથાલીન ૦.૯ કિ.ગ્રા./હે (૩૦ ટકા ઈસી ૬૦મી.લી./૧૦લી.પાણી) તેમજ વાવણી બાદ ૩૦ દિવસે પૂર્વ-મિશ્રિત સોડીયમ એસીફ્લોરફેન + ક્લોડીનાફોપ પ્રોપાર્જીલ ૨૪૫ ગ્રામ/હે (૧૬.૫ ટકા + ૮ ટકા ઈસી ૨૦ મી.લી./૧૦લી. પાણી) પ્રમાણે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestions:

a) Check WI data

b) Check cost of cultivation data

(**Action**: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*

17.2.1.31 Standardization of potash levels and apportioning time in summer groundnut under drip irrigation

The farmers of South Saurashtra Agro-climatic Zone growing groundnut during summer season are recommended to apply potash @ 40 kg/ha through fertigation in 6 equal splits at 8 days interval (1st split at 20 DAS) along with recommended dose of N and P (25-50 kg N-P_2O_5 /ha) as basal for obtaining higher yield and net return.

Details of drip irrigation system are as under.

Details		Operating time	
		Month	**Minutes**
Lateral spacing	: 60 cm	February	75-80
Dripper spacing	: 45 cm	March	100-110
Dripper discharge rate	: 4 lph	April	120-125
Operating pressure	:1.2 kg/cm^2	May	130-135
Operating frequency	: Alternate day		

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ મગફળીનુ વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે પોટાશ ૪૦ કિ.ગ્રા./હે ૬ સરખા હપ્તામાં ૮ દિવસના અંતરે (પ્રથમ હપ્તો વાવેતર બાદ ૨૦ દિવસે) ટપક પધ્ધતિ દ્વારા આપવો સાથે ભલામણ કરેલ નાઈટ્રોજન અને ફોસ્ફરસ (૨૫-૫૦ ના-ફો કિ.ગ્રા./હે) પાયામાં આપવાની ભલામણ કરવામાં આવે છે.

ટપક પધ્ધતિની વિગત નીચે મુજબ છે.

વિગત		પરીચાલનનો સમય	
		મહિનો	મીનીટ
પાણીની નળીઓનું અંતર	: ૬૦ સે.મી.	ફેબ્રુઆરી	૭૫-૮૦
ટપકણીયાનું અંતર	: ૪૫ સે.મી.	માર્ચ	૧૦૦-૧૧૦
ટપકણીયાનો સ્ત્રાવ ક્ષમતા	: ૪ લીટર પ્રતિ કલાક	એપ્રિલ	૧૨૦-૧૨૫
પરીચાલનનું દબાણ	: ૧.૨ કિગ્રા/સેમી^{૨}	મે	૧૩૦-૧૩૫
પરીચાલનની પૂનરાવૃતિ	: એકાંતરા દિવસે		

	Approved with following Suggestions: a) Write through instead of with in English para (**Action:** *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)*
17.2.1.32	**Application of bio-formulations in summer groundnut production**
	The farmers of South Saurashtra Agro-climatic Zone growing groundnut during summer season are recommended to apply 75% RDF (18.75-37.5-37.5 kg N-P_2O_5-K_2O /ha) with seed treatment of NPK liquid biofertilizer (2 ml + 3 ml water/kg seed) and Zn solubilizing bacteria (1 ml + 4 ml water/kg seed) or 50% RDF (12.5-25-25 kg N-P_2O_5-K_2O /ha) with seed treatment of bio-grow biofertilizer (1 ml + 4 ml water/kg seed) for obtaining higher yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ મગફળીનુ વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે ભલામણ કરેલ ખાતરના ૭૫% (૧૮.૭૫-૩૭.૫-૩૭.૫ ના-ફો-પો કિ.ગ્રા./હે) સાથે નાફોપો પ્રવાહી જૈવિક ખાતર (૨ મી.લી. + ૩ મી.લી. પાણી /કિ.ગ્રા. બીજ) અને ઝીંકના દ્રાવ્ય જીવાણુ ખાતર (૧ મી.લી. + ૪ મી.લી. પાણી /કિ.ગ્રા. બીજ) ની બીજ માવજત આપવી અથવા ભલામણ કરેલ ખાતરના ૫૦% (૧૨.૫ – ૨૫ - ૨૫ ના-ફો-પો કિ.ગ્રા./હે) સાથે બાયો-ગ્રો (૧ મી.લી. + ૪ મી.લી. પાણી /કિ.ગ્રા. બીજ) જૈવિક ખાતરની બીજ માવજત આપવાની ભલામણ કરવામાં આવે છે. **Approved with following Suggestions:** a) Give the method of biofertilizer application (**Action:** *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)*
17.2.1.33	**Effect of foliar application of water soluble fertilizer on growth, yield and nutrient uptake of summer groundnut**
	The farmers of South Saurashtra Agro-climatic Zone growing groundnut during summer season are recommended to apply 75% RDF (18.75-37.5-37.5 kg N-P_2O_5-K_2O /ha) as basal and spray 1.5% water soluble fertilizer (19-19-19% N-P-K) at 45, 60 and 75 DAS for obtaining higher yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ મગફળીનુ વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે ભલામણ કરેલ ખાતરના ૭૫ ટકા (૧૮.૭૫ - ૩૭.૫ - ૩૭.૫ ના-ફો-પો કિ.ગ્રા./હે) પાયામાં અને ૧.૫ ટકા દ્રાવ્ય પ્રવાહી ખાતરનો (૧૯ – ૧૯ – ૧૯ ટકા ના-ફો-પો) વાવેતર બાદ ૪૫, ૬૦ અને ૭૫ દિવસે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** a) Add as basal in English para b) Exchange the data of gross and net return in economics table (**Action:** *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)*
17.2.1.34	**Identification of remunerative groundnut based cropping systems under rainfed situation in India**
	The farmers of South Saurashtra region adopting intercropping system in semi-spreading groundnut during *kharif* season are recommend to grow groundnut + sesame (2:1) intercropping during *kharif* season and onion during *rabi* season

	for obtaining higher groundnut equivalent yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસામાં અર્ધવેલડી મગફળીમાં આંતરપાકનું વાવેતર કરતાં ખેડૂતોને મગફળી સમકક્ષ વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે ચોમાસામાં મગફળી + તલ (૨:૧) આંતર પાકનું અને શિયાળામાં ડુંગળીનું વાવેતર કરવાની ભલામણ કરવામાં આવે છે.. **Approved with following suggestions:** a) Add South in English para b) Delete "Farmers opting low cost are advised to adopt groundnut-coriander cropping system" from recommendation para c) Delete "ખેડૂતો ઓછો ખર્ચ કરવા ઈચ્છતા હોય તેઓને મગફળી -ધાણા પાક પદ્દતિ અપનાવવાની સલાહ આપવામાં આવે છે.) from Gujarati para (**Action:** *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)*
17.2.1.35	**Effect of multi-micronutrient formulations on chickpea**
	The farmers of South Saurashtra Agro-climatic Zone growing chickpea in medium black calcareous soil are recommended to apply micronutrients as per soil test value or multi micronutrients formulation Grade-V 40 kg/ha as basal in addition to recommended dose of fertilizers (20-40-0 N-P_2O_5-K_2O kg/ha) to chickpea for obtaining higher yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં મધ્યમ કાળી ચુનાયુકત જમીનમાં ચણાનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે જમીન ચકાસણીના આધારે સુક્ષ્મતત્વો અથવા મલ્ટીમાઈક્રોન્યુટ્રીઅન્ટ ગ્રેડ- ૫ પાયામાં ૪૦ કિ.ગ્રા./હે ભલામણ કરેલ રાસાયણિક ખાતર (૨૦-૪૦-૦ ના-ફો-પો કિ.ગ્રા./હે.) સાથે આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** a) Keep STV first and Grade – V in second b) Write stover instead of stalk (**Action:** *Professor & Head, Department of Agril. Chem. & Soil Sci., COA, JAU, Junagadhand Research Scientist, Pulses Research Station, JAU, Junagadh)*
17.2.1.36	**Effect of foliar application of various fertilizers on growth, yield and nutrients uptake by onion**
	The farmers of South Saurashtra Agro-climatic Zone growing onion in medium black calcareous soil are recommended to apply 75% RDF (56-45-37.5-15 kg N-P_2O_5-K_2O-S /ha) + 1% (100 g/10 L water) foliar spray of water soluble fertilizer (19-19-19% N-P-K) and 1% Novel organic liquid nutrient at 45 and 60 day after transplanting for getting higher yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં મધ્યમ કાળી ચુનાયુકત જમીનમાં ડુંગળીનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ રાસાયણિક ખાતરના ૭૫ ટકા (૫૬-૪૫-૩૭.૫-૧૫ ના-ફો-પો- સલ્ફર કિ.ગ્રા./હે.) ઉપરાંત ૧ ટકા (૧૦૦ ગ્રામ/૧૦ લીટર પાણી) પાણીમાં દ્રાવ્ય ખાતર (૧૯-૧૯-૧૯ ટકા ના-ફો-પો) તથા ૧ ટકા નોવેલ સેન્દ્રિય પ્રવાહી પોષક તત્વોનો છંટકાવ ફેરરોપણી બાદ ૪૫ અને ૬૦ દિવસે કરવાની ભલામણ કરવામાં આવે છે.

<table>
<tr><td></td><td>Approved with following suggestions:
a) Write novel organic liquid nutrient instead of banana pseudostem sap
a) Separate spray of WSF and novel organic liquid
(Action: Professor & Head, Department of Agril. Chem. & Soil Sci., COA, JAU, Junagadh and Research Scientist, Vegetable Research Station, JAU, Junagadh)</td></tr>
<tr><td>17.2.1.37</td><td>Effect of foliar application of water soluble fertilizer on growth, yield and nutrients uptake by Bt cotton</td></tr>
<tr><td></td><td>The farmers of South Saurashtra Agro-climatic Zone growing Bt cotton in medium black calcareous soil are recommended to apply 75% RDF (180-37.5-112.5 N-P_2O_5-K_2O kg/ha) + two sprays of 2% water soluble fertilizer (19-19-19% N-P-K) at 50 and 75 DAS for getting higher yield and net return.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં મધ્યમ કાળી ચુનાયુકત જમીનમાં બીટી કપાસ વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ રાસાયણિક ખાતરના ૭૫ ટકા (૧૮૦-૩૭.૫-૧૧૨.૫ ના-ફો-પો કિ.ગ્રા./હે) અને ૨ ટકા પાણીમાં દ્રાવ્ય ના-ફો-પો ખાતર (૧૯-૧૯-૧૯ ટકા ના-ફો-પો) ના બે છંટકાવ વાવણી બાદ ૫૦ અને ૭૫ દિવસે કરવાની ભલામણ કરવામાં આવે છે.

Approved with following :
a) Correct RDF of cotton
(Action: Professor & Head, Department of Agril. Chem. & Soil Sci., COA, JAU, Junagadh and Research Scientist, Cotton Research Station, JAU, Junagadh)</td></tr>
<tr><td>17.2.1.38</td><td>Effect of NP fertilization on yield of castor under conserved soil moisture in Ghed area</td></tr>
<tr><td></td><td>The farmers of South Saurashtra Agro-climatic Zone (Ghed area) growing castor under conserved soil moisture are recommended to apply 60 kg N and 20 kg P_2O_5/ha for obtaining higher yield and net return as well as sustaining soil fertility under rainfed conditions. The nitrogen should be applied in two equal splits i.e. 50% as basal at the time of sowing and 50% as top dressing by drilling in 10 cm soil depth at 45-50 days after sowing.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તાર (ઘેડ વિસ્તાર) ના સંગ્રહિત ભેજમાં એરંડાનું વાવેતર કરતાં ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા તેમજ જમીનની ફળદ્રુપતાની જાળવણી માટે પ્રતિ હેકટરે ૬૦ કિ.ગ્રા. નાઈટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ આપવાની ભલામણ કરવામાં આવે છે. નાઈટ્રોજન બે સરખા ભાગમાં એટલે કે ૫૦ટકા પાયાના ખાતર તરીકે વાવેતર સમયે અને ૫૦ટકા પુર્તિ ખાતર તરીકે વાવેતર પછી ૪૫-૫૦ દિવસે જમીનમાં ૧૦ સે.મી.ની ઉંડાઈએ ઓરીને આપવું.

Not approved
(Action: Research Scientist, Main Dry Farming Research Station, JAU, Targhadia and Assistant Research Scientist, Dry Farming Research Station, JAU, Ratia)</td></tr>
</table>

17.2.1.39 **Effect of NP fertilization on yield of sorghum under conserved soil moisture in Ghed area**

The farmers of South Saurashtra Agro-climatic Zone (Ghed area) growing sorghum under conserved soil moisture are recommended to apply 40 kg N and 20 kg P_2O_5/ha for obtaining higher yield and net return as well as sustaining soil fertility. The nitrogen should be applied in two equal splits *i.e.* 50% as basal at the time of sowing and 50% as top dressing by drilling in 10 cm soil depth at 45-50 days after sowing.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તાર (ઘેડ વિસ્તાર) ના સંગ્રહિત ભેજ માં જુવારનું વાવેતર કરતાં ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા તેમજ જમીનની ફળદ્રુપતાની જાળવણી માટે પ્રતિ હેકટરે ૪૦ કિ.ગ્રા. નાઈટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ આપવાની ભલામણ કરવામાં આવે છે. નાઈટ્રોજન બે સરખા ભાગમાં એટલે કે ૫૦ ટકા પાયાના ખાતર તરીકે વાવેતર સમયે અને ૫૦ ટકા પુર્તિ ખાતર તરીકે વાવેતર પછી ૪૫-૫૦ દિવસે જમીનમાં ૧૦ સે.મી.ની ઉંડાઈએ ઓરીને આપવું.

Approved

(**Action**: *Research Scientist, Main Dry Farming Research Station, JAU, Targhadia and Assistant Research Scientist, Dry Farming Research Station, JAU, Ratia)*

17.2.1.40 **Biofortification of Zn and Fe in chickpea through agronomic intervention**

The farmers of South Saurashtra Agro-climatic Zone growing chickpea are recommended to apply $ZnSO_4$ 25 kg/ha as soil application along with recommended dose of fertilizer (20-40-0 N-P_2O_5-K_2O kg/ha) for obtaining higher yield and net return along with biofortification of Zn in seed and straw.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચણાનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખા વળતર સાથે દાણાં તથા ખારીયામાં ઝીંકનું બાયોફોર્ટીફીકિશન કરવા માટે ભલામણ થયેલ રાસાયણિક ખાતર (૨૦-૪૦-૦ ના-ફો-પો કિ.ગ્રા./હે) સાથે ઝીંક સલ્ફેટ ૨૫ કિ.ગ્રા./હે જમીનમાં આપવાની ભલામણ કરવામાં આવે છે.

Differed

(**Action**: *Research Scientist, Pulses Research Station, JAU, Junagadh)*

17.2.1.41 **Effect of land configuration and drip irrigation on productivity of wheat**

The farmers of South Saurashtra Agro-climatic Zone growing wheat are recommended to adopt drip irrigation at 0.8 ETc in flat bed for acquiring higher yield, higher net return and save irrigation water over broad bed furrow and flood irrigation. Drip irrigation system details are as under.

Details of drip system		Operating time	
Lateral spacing	: 90 cm	a) November	: 1 hour
Inline dripper spacing	: 40 cm	b) December	: 1 hour 30 min
Dripper discharge	: 2 lph	c) January	: 2 hours
Operating pressure	:1.2 kg/cm^2	d) February	: 2 hours 15 min
Operating frequency	:Alternate day		

દક્ષિણ સૈારાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં ઘઉંનું વાવેતર કરતાં ખેડૂતોને ભલામણ કરવામાં

આવે છે કે સપાટ કયારામાં ટપક પિયત પધ્ધતિ દ્વારા ઘઉંના પાકમાં ૦.૮ બાષ્પિભવનાંક પિયત આપવાથી પહોળા કયારા અને ચાસ પધ્ધતિ તેમજ રેલાવીને પિયત આપવાની સાપેક્ષમાં વધારે ઉત્પાદન અને વધુ આવક મેળવી શકાય છે તેમજ પાણીની બચત થાય છે.

ટપક પધ્ધતિની વિગત નીચે મુજબ છે.

ટપક પધ્ધતિની વિગત	પરીચાલનનો સમય	
બે લેટરલ વચ્ચેનું અંતર : ૯૦ સે.મી.	નવેમ્બર	૧ કલાક
બે ઈન લાઈન ડ્રીપર વચ્ચેનું અંતર : ૪૦ સે.મી.	ડીસેમ્બર	૧ કલાક ૩૦ મીનીટ
ડ્રીપરનો પ્રવાહ દર : ૨ લીટર પ્રતિ કલાક	જાન્યુઆરી	૨ કલાક
પરીચાલનનું દબાણ : ૧.૨ કિગ્રા/સેમી^{2}	ફેબ્રુઆરી	૨ કલાક ૧૫ મીનીટ
પરીચાલનની પૂનરાવૃતિ : એકાંતરા દિવસે		

Approved with following Suggestions:

a) Calculate water profitability instead of water productivity.

b) Check cost of cultivation.

c) Analyse data in strip plot design.

c) Write પહોળા ક્યારા અને ચાસ instead of ગાદી ક્યારા in Gujarati para.

(**Action**: *Research Scientist, Wheat Research Station, JAU, Junagadh and Research Scientist, Research, Testing & Training Centre, JAU, Junagadh)*

17.2.1.42 Enhancing nitrogen use efficiency in Bt cotton

The farmers of South Saurashtra Agro-climatic Zone growing Bt cotton are recommended to follow spot application of nitrogen 180 kg/ha (75% RDN) in four equal splits at sowing, squaring, flowering and boll development + three foliar sprays of 1% urea at squaring, flowering and boll development along with 25 kg P_2O_5 and 75 kg K_2O/ha as basal dose and 25 kg P_2O_5 and 75 kg K_2O/ha at the time of earthing up for securing higher yield, net return and nitrogen use efficiency.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં બીટી કપાસનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન, ચોખ્ખો નફો અને નાઈટ્રોજનની વધુ ઉપયોગ કાર્યક્ષમતા મેળવવા માટે નાઈટ્રોજન ૧૮૦ કિ.ગ્રા./હે (ભલામણ થયેલ નાઈટ્રોજનના ૭૫%) ચાર સરખા હપ્તામાં વાવેતર વખતે, ચાપવાના સમયે, ફુલ અવસ્થાએ અને જીંડવાના વિકાસની અવસ્થાએ તેમજ ૧% યુરીયાના પાન પર ત્રણ છંટકાવ ચાપવાના સમયે, ફુલ અવસ્થાએ અને જીંડવાના વિકાસની અવસ્થાએ કરવાની સાથે પાયામાં ફોસ્ફરસ ૨૫ કિ.ગ્રા./હે અને પોટાશ ૭૫ કિ.ગ્રા./હે તેમજ પાળા ચડાવતી વખતે ફોસ્ફરસ ૨૫ કિ.ગ્રા./હે અને પોટાશ ૭૫ કિ.ગ્રા./હે આપવાની ભલામણ કરવામાં આવે છે.

Suggestions:

a) Add 75% RDN in English para

b) Technical programme not approved in Combined AGRESCO.

Not approved

(**Action**: *Research Scientist, Cotton Research Station, JAU, Junagadh)*

17.2.1.43	**Performance of different weed management practices on pearl millet productivity**
	The farmers of Gujarat growing pearl millet in *kharif* season are recommended to do hand weeding at 3rd and 5th weeks after sowing for effective weed management and achieving higher grain yield and net realization. ગુજરાતમાં ચોમાસુ બાજરાનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા વધુ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવેતર બાદ ત્રીજા અને પાંચમાં અઠવાડીયાએ હાથ નિંદામણ કરવાની ભલામણ કરવામાં આવે છે.. **Approved with following suggestions:** a) Define weed free *(**Action**: Research Scientist, Main Millet Research Station, JAU, Jamnagar)*
17.2.1.44	***In-situ* moisture conservation in rainfed sesame for higher resource use efficiency, productivity and profitability**
	The farmers of North Saurashtra Agro-climatic Zone growing sesame during *kharif* season under rainfed condition are recommended to sow sesame by broad bed and furrow system (40 cm width and 15 cm depth of furrow and 140 cm bed between two furrows) and apply wheat straw mulch 5t/ha on broad bed at 15 days after sowing for getting higher seed yield and net return. ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં વરસાદ આધારીત ચોમાસુ ઋતુમાં તલ ઉગાડતાં ખેડૂતોને વધારે ઉત્પાદન અને આવક મેળવવા માટે તલનું પહોળા ક્યારા અને ચાસપધ્ધતિ (૪૦ સે.મી. પહોળાઈ તથા ૧૫ સે.મી. ઉંડાઈની બે નીક વચ્ચે ૧૪૦ સે.મી. પહોળાઈ વાળી ગાદી) થી વાવેતર કરવું તેમજ ૧૫ દિવસ પછી પહોળા ક્યારા પર ઘઉંના કુંવળનું મલ્ચીંગ ૫. ૦ ટન/હે કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** a) Check data of harvesting *(**Action**: Research Scientist, Agricultural Research Station, JAU, Amreli)*
17.2.1.45	**Performance of sesame genotypes differing in maturity and plant types and their response to plant geometry in summer season**
	The farmers of North Saurashtra Agro-climatic Zone growing summer sesame are recommended to prefer sesame varieties differing in maturity and plant type for higher seed yield and net return with different plant spacing as shown below. • Variety with profuse branches and late maturity (G.Til 10) at 30 cm x 10 cm spacing. • Variety with few branches and mid late (G.Til 3 and GJT 5) as well as late maturity (AT 308) at 15 cm x 10 cm or 30 cm x 10 cm spacing. ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ તલ ઉગાડતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે પાકવાના દિવસો અને છોડના પ્રકાર પ્રમાણે તલની જાતોનુ વધારે ઉત્પાદન અને આવક મેળવવા માટે નીચે જણાવ્યા મુજબ વાવેતર અંતર રાખવુ.

	• વધુ ડાળીઓ અને મોડી પાકતી જાત (ગુજરાત તલ ૧૦) નું વાવેતર ૩૦ સે.મી. x ૧૦ સે.મી.ના અંતરે કરવું. • ઓછી ડાળીઓ અને મધ્યમ મોડી પાકતી જાતો (ગુજરાત તલ ૩ અને ગુજરાત જૂનાગઢ તલ ૫) નું વાવેતર ૧૫ સે.મી. x ૧૦ સે.મી. અથવા ૩૦ સે.મી. x ૧૦ સે.મી.ના અંતરે કરવું. **Approved with following suggestions:** **a)** Keep Spacing instead of geometry **b)** Check RDF of arborium cotton *(**Action**: Research Scientist, Agricultural Research Station, JAU, Amreli)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.2.1.46	**Spatial distribution of moisture and nutrient under different drip discharge rate and lateral placement in cabbage (*Brassica oleracea L*) grow on clay soil of South Gujarat**
	The farmers' of South Gujarat heavy rainfall zone growing cabbage under drip irrigation are recommended to place inline lateral with 4 lph dripper discharge at 10 cm depth and apply recommended dose of fertilizer 100-50-50 N, P_2O_5, K_2O kg/ha (*i.e.*, urea 217 kg/ha and muriate of potash 84 kg/ha) through fertigation in 8 equal splits at weekly interval starting one week after transplanting and single super phosphate 312 kg/ha as basal for getting higher yield and net profit along with higher irrigation water use efficiency. ***System details:*** Lateral spacing: 1.20 m Dripper spacing: 0.60 m Dripper discharge: 4 lph Operating pressure: 1.20 kg/cm^2 Operating time (alternate day): October: 70 -75 min., November: 80-85 min., December: 90-100 min. દક્ષિણ ગુજરાતનાં ભારે વરસાદીય વિસ્તારમાં રવી ઋતુ દરમ્યાન ટપક પધ્ધતિનો ઉપયોગ કરી કોબીજની ખેતી કરતા ખેડુતોને ૪ લિટર/કલાક ક્ષમતાવાળી ઈનલાઈન લેટરલને ૧૦ સે.મી ઉંડાઇએ જમીનમાં નાખી ભલામણ કરેલ રસાયણિક ખાતર ૧૦૦-૫૦-૫૦ એન.પી. કે. કિ.ગ્રા. પ્રતિ હેક્ટર મુજબ (૨૧૭ કિ.ગ્રા. યુરિયા અને ૮૪ કિ.ગ્રા. મ્યુરેટ ઓફ પોટાશ પ્રતિ હેક્ટર) ફર્ટિગેશનથી ફેરરોપણીના ૮ દિવસથી શરુ કરી દર અઠવાડિએ આઠ સરખા હપ્તામાં આપવાની ભલામણ કરવામાં આવે છે અને સીંગલ સુપર ફોસ્ફેટ ૩૧૨ કિ.ગ્રા. પ્રતિ હેક્ટર પાયામાં આપવાથી વધુ ઉત્પાદન અને ચોખ્ખા નફાની સાથે પિયતની કાર્યક્ષમતામાં વધારો થાય છે. ***પધ્ધતિની વિગત:*** લેટરલ અંતર: ૧.૨૦ મી. ડ્રીપર અંતર: ૦.૬૦ મી. ડ્રીપર દર : ૪ લી/કલાક ચલાવવાનું દબાણ: ૧.૨૦ કિગ્રા/સેમી²

	ચલાવવાનો સમય (એકાંતરા દિવસે) : ઓક્ટોબર: ૭૦-૭૫મીનીટ,નવેમ્બર: ૮૦-૮૫ મીનીટ, ડીસેમ્બર: ૯૦-૧૦૦મીનીટ **Approved with following suggestions:** 1. Remove the bracket from (100-50-50 N, P_2O_5, K_2O kg/ha) and put bracket in fertilizer dose in recommendation para 2. Give month wise drip operating time 3. Mention the time of soil sampling **(Action:** *Research Scientist, SWMRU, NAU, Navsari***)**
17.2.1.47	**Study of inline subsurface drip system with different discharge rate, spacing and lateral depth in sugarcane**
	The farmers of south Gujarat heavy rainfall zone growing sugarcane (paired row 60:120:60 cm) are recommended to place subsurface drip inline lateral of 4 lph dripper discharge and 60 cm dripper spacing at a depth of 7.5 cm in paired row for minimizing lateral damage and dripper clogging over surface placed inline lateral. *System details:* Lateral spacing: 1.80 m Dripper spacing: 0.60 m Dripper discharge: 4 lph Operating pressure: 1.20 kg/cm^2 Operating time (alternate day): December: 70-75 min., January-February: 80-85 min., March: 90-100 min., April-May: 120-140 min., June: 160-180 min. દક્ષિણ ગુજરાતનાં ભારે વરસાદીય વિસ્તારમાં શેરડીની (જોડીયાહાર ૬૦:૧૨૦:૬૦ સે.મી.) ખેતી કરવા ઈચ્છુક ખેડુતોને ભલામણ કરવામાં આવે છે કે, ૬૦ સે.મી.નાં અંતરે ૪ લિટર/કલાક ક્ષમતા વાળી ઈનલાઈન ટપક લેટરલને ૭.૫ સે.મી ઉંડાઈએ બે હાર વચ્ચે જમીનમાં નાખી પિયત આપવાથી જમીન ઉપર રાખવામાં આવતી ઈનલાઈન લેટરલ કરતા લેટરલને થતું નુકસાન અને ડ્રીપર રુંધાવાનું પ્રમાણ ન્યુનતમ થાય છે. **પધ્ધતિનીવિગત:** લેટરલઅંતર: ૧.૮૦મી. ડ્રીપરઅંતર: ૦.૬૦મી. ડ્રીપરદર: ૪ લી/કલાક ચલાવવાનું દબાણ: ૧.૨૦કિગ્રા/સેમી² ચલાવવાનોસમય : (એકાંતરાદિવસે) ડીસેમ્બર: ૭૦-૭૫ મીનીટ, જાન્યુંઆરી- ફેબ્રુઆરી: ૮૦- ૮૫ મીનીટ, માર્ચ: ૯૦-૧૦૦ મીનીટ, અપ્રિલ –મે : ૧૨૦-૧૪૦ મીનીટ, જુન: ૧૬૦-૧૮૦ મીનીટ **Approved with following suggestions:** 1. Write paired row spacing 60:120:60 cm instead of 60:120 cm 2. Give month wise drip operating time **(Action :** Research Scientist, SWMRU, NAU, Navsari**)**

<table>
<tr><td>17.2.1.48</td><td>Effect of land configuration, gypsum and integrated nutrient management on growth and yield of radish</td></tr>
<tr><td></td><td>The farmers of coastal areas of south Gujarat heavy rainfall zone AES- IV growing radish are recommended to sow radish crop on broad bed and furrow (30 cm x 30 cm x 60 cm, bed width: 90 cm, furrow top width: 30 cm) or ridges and furrow (45 cm). Further, they are advised to apply gypsum @ 50 % gypsum requirement one month before sowing the crop. They also advised to fertilized their crop with 100 – 50 - 50 N, P_2O_5, K_2O kg/ha + 5 t FYM/ha or 100-37.5-37.5 N, P_2O_5, K_2O kg/ha + bio fertilizer (Azotobacter + PSB, 10^8CFU/ml, each1.25 l/ha) of which 25% N and full dose of P_2O_5 and K_2O applied through chemical fertilizer and 25 % N through biocompost as basal and remaining 50% N through chemical fertilizer 30 days after sowing for achieving higher yield and net returns with improvement in sodicity of coastal salt affected soils.

દક્ષિણ ગુજરાતના દરિયાકાંઠાનાં ભારે વરસાદવાળા વિસ્તારમાં મૂળાની વાવણી કરતાં ખેડુતોએ પાકની વાવણી ગાદીક્યારા પધ્ધતિથી (30 x 30 સેમી,હાર વચ્ચે x ૬૦ સે.મી, ગાદીક્યારાની પહોળાઇ ૯૦ સેમી અને ચાસની પહોળાઇ 30 સેમી) અથવા નીકપાળા (૪૫ સેમી) પર કરવી. તથા જીપ્સમની જરૂરીયાતના ૫૦ % જીપ્સમ મૂળાની વાવણીના એક માસ પહેલા આપવું. તેમજ પાકને પ્રતિ હેકટર ૧૦૦-૫૦-૫૦ કિ.ગ્રા.ના:ફો:પો + ૫ ટન છાણીયું ખાતર પ્રતિહેકટર અથવા ૧૦૦ - ૩૭.૫ - ૩૭.૫ કિ.ગ્રા.ના:ફો:પો આપવું. જેમાંથી ૨૫ ટકા નાઈટ્રોજન તથા ૧૦૦ ટકા ફોસ્ફરસ અને પોટાશ વાવણી સમયે + ૨૫ ટકા નાઈટોજન બાયોકમ્પોસ્ટથી + એઝેટોબેકટર તથા પી.એસ.બી.કલ્ચર,૧૦૮ સીએફયુ/ મીલી,બંને ૧.૨૫ લી/હે પાયામાં આપવું. બાકીનો ૫૦ ટકા નાઈટ્રોજન રસાયણીક ખાતરના સ્વરુપે વાવણી બાદ ૩૦ દિવસે આપવાની ભલામણ છે. આમ કરવાથી મૂળાનુ વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે તેમજ દરિયાકાંઠાની ક્ષારગ્રસ્ત જમીનની ભાસ્મિકતામાં ઘટાડો થાય છે.

Approved with following suggestions:
1. Include at par treatments in recommendation
2. Remove “should be” from recommendation para
(Action: Research Scientist, SWMRU, NAU, Navsari)</td></tr>
<tr><td>17.2.1.49</td><td>Effect of organic manure on rice based cropping system under coastal salt affected soil</td></tr>
<tr><td></td><td>The farmers of coastal area of South Gujarat heavy rainfall zone following rice based cropping system are recommended to adopt rice (Kharif) – forage sugar beet (Rabi) cropping sequence with application of 120 - 30 - 00 kg N, P_2O_5, K_2O /ha with bio compost @ 10 t/ha to rice crop and 120 - 60 - 60 kg N, P_2O_5, K_2O /ha to forage sugar beet for achieving higher yield and net returns.

દક્ષિણ ગુજરાતના દરિયાકાંઠાનાં ભારે વરસાદ વાળા વિસ્તારમાં ચોમાસું ડાંગર-રવી પાક પધ્ધતિ અપનાવતા ખેડુતોને એકમ વિસ્તારમાંથી વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા ડાંગર (ચોમાસું)– ઘાસચારાની સુગરબીટ (રવી) પાક પધ્ધતિ અપનાવી ચોમાસું ડાંગરની રોપણી પહેલા પ્રતિ હેકટર ૧૦ટન બાયોકમ્પોસ્ટ તેમજ ૧૨૦:૩૦:૦૦ કિ.ગ્રા.ના:ફો:પો અને ઘાસચારાની સુગરબીટ્ને ૧૨૦-૬૦-૬૦ કિ.ગ્રા.ના-ફો-પો પ્રતિ હેકટર આપવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestions:
1. Add word “forage sugar beet” in recommendation para and in</td></tr>
</table>

	treatments **2.** Remove line “The cropping sequence……….salt affected soils and “**આ પાક પધ્ધતિ અપનાવવાથી અંશત નવ સાધ્ય થયેલ ક્ષારગ્રસ્ત જમીનમાં સુધારો થાય છે”** from recommendation para **(Action***:* Research Scientist, SWMRU, NAU, Navsari**)**
17.2.1.50	**Yield performance of rice (*Oryza sativa* L.) varieties in direct seeded condition under organic farming.**
	Farmers of South Gujarat, growing direct seeded drill rice (Purna or GR 5) organically are recommended to apply 37.5 kg N/ha (50% RDN) through FYM for achieving profitable yield. દક્ષિણ ગુજરાતમાં સેન્દ્રિય ખેતીથી ઓરાણ ડાંગર (પુર્ણા અથવા જી.આર ૫) ઉગાડતા ખેડુતોને નફાકારક ઉત્પાદન મેળવવા માટે ૩૭.૫ કિગ્રા નાઈટ્રોજન /હેક્ટર છાણીયા ખાતર દ્વારા (૫૦ ટકા ભલામણ કરેલ નાઈટ્રોજન) આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Give recommended dose *i.e.* 75-25-0 NPK kg/ha in report 2. Write “37.5 kg N/ha (50% RDN) through FYM” instead of “50% RDN (37.5 kg N/ha) through FYM” in recommendation para. 3. Specify sowing condition. **(Action***:* Associate Research Scientist, RRRS, Vyara**)**
17.2.1.51	**Raising fodder maize in soil less culture through foliar application of soluble fertilizers.**
	Farmers of Gujarat state associated with animal husbandry are recommended to grow low cost hydroponic fodder maize @ 500 g seed rate 2 sq./ft area and utilize the green fodder 12 days after sowing for higher green biomass. ગુજરાત રાજ્યના પશુપાલન સાથે સંકળાયેલા ખેડુતોને ઓછી ખર્ચાળ હાઈડ્રોપોનીક ઘાસચારાની મકાઈનું વધારે ઉત્પાદન મેળવવા માટે ૨ સ્કે./ફુટ વિસ્તારમાં ૫૦૦ ગ્રામ બીયારણ દર અને ઉગાવાના ૧૨ દિવસ પછી લીલાચારાને ઉપયોગમાં લેવાની સલાહ આપવામાં આવે છે. **Concluded (Not approved)** **(*Action:*** *Associate Research Scientist, RRRS, Vyara***)**
17.2.1.52	**Studies on irrigation scheduling through drip, nitrogen management and mulch in turmeric**
	The farmers of south Gujarat Agro-climatic zone cultivating drip irrigated turmeric with sugarcane trash mulch (@ 5.0 t/ha) are recommended to schedule drip irrigation at 0.8 PEF. They are further recommended to apply 7.5 t/ha of bio-compost and PSB + *Azotobacter* @ 1.25 lit/ha each along with 30-60-30 kg NPK/ha as a basal and remaining 15-00-30 kg NPK/ha in 9 equal splits through

drip system at an interval of 15 days starting after cessation of monsoon.

Cultural details: Planting should be carried out at 30 cm x 20 cm spacing on BBF having 90 cm top width (3 rows per bed). Broad Bed and Furrow should be prepared by keeping 45 cm space between two beds and opening 30 cm deep furrow in it.

Drip system details

Lateral spacing	: 135 cm (1 lateral per BBF)
Dripper spacing	: 50 cm
Dripper discharge	: 4 Lph
Operating Pressure	: 1.2 kg/cm^2
System operation interval	: 2 days

Operating time

June	2:15 to 2:30 (hrs:min)
July and August	1:10 to 1:15 (hrs:min)
September and October	1:20 to 1: 30 (hrs:min)
November, December and January	1:00 to 1:10 (hrs:min)
February	1:30 to 1: 45 (hrs:min)
March and April	2:15 to 2:30 (hrs:min)

Note: Rainy season drip schedule for dry spells of more than 20 days

દક્ષિણ ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં હળદર પાકમાં ટપક પધ્ધતિથી પિયત તથા શેરડીની પતારીનું આચ્છાદન (૫.૦ ટન/હેકટર) કરતા ખેડૂતોને હળદર પાકને ૦.૮ પી.ઈ.એફ.ના પ્રમાણમાં પિયત આપવાની ભલામણ કરવામાં આવે છે. વધુમાં, ૭.૫ ટન/હેકટર બાયોકમ્પોસ્ટ અને પી.એસ.બી. + એઝેટોબેકટર પ્રત્યેક ૧.૨૫ લી/હેકટરનાં પ્રમાણમાં તેમજ ૩૦-૬૦-૩૦ કિગ્રા ના:ફો:પો/હેકટર પાયામાં અને બાકીનો ૧૫-૦૦-૩૦ કિગ્રા ના:ફો:પો/હેકટર ચોમાસુ પૂર્ણ થયા બાદ નવ સરખા ભાગમાં ટપક પધ્ધતિથી ૧૫ દિવસનાં સમયાંતરે આપવાની ભલામણ કરવામાં આવે છે.

વાવણી પધ્ધતિ :– હળદરનું વાવેતર ૯૦ સેમી પહોળા ગાદી કયારા પર ૩૦ સેમી × ૨૦ સેમી અંતરે કરવું (૩ હાર/ગાદી કયારા). ગાદી કયારા બનાવવા માટે બે ગાદી કયારા વચ્ચે ૪૫ સેમી અંતર રાખી તેમાં ૩૦ સેમી ઉંડાઈના ચાસ ખોલવા.

ટપક પધ્ધતિની વિગત :–

બે નળી વચ્ચેનું અંતર :	૧૩૫ સેમી (દરેક ગાદી કયારામાં એક નળી)
ટપકણીયા વચ્ચેનું અંતર :	૫૦ સેમી
ટપકણીયાનો પ્રવાહ :	૪ લીટર/કલાક
પધ્ધતિનું દબાણ :	૧.૨૦ કિગ્રા/સેમી^{૨}
પધ્ધતિ ચલાવવાનો ગાળો :	દર બે દિવસનાં અંતરે

ટપક પધ્ધતિ ચલાવવાનો સમય :–

૧)	જુન–	૨:૧૫ થી ૨:૩૦ (કલાક : મીનીટ)
૨)	જુલાઈ–ઓગષ્ટ	૧:૧૦ થી ૧:૧૫ (કલાક : મીનીટ)
૩)	સપ્ટેમ્બર–ઓકટોબર	૧:૨૦ થી ૧:૩૦ (કલાક : મીનીટ)
૪)	નવેમ્બર, ડિસેમ્બર અને જાન્યુઆરી	૧:૦૦ થી ૧:૧૦ (કલાક : મીનીટ)
૫)	ફેબ્રુઆરી	૧:૩૦ થી ૧:૪૫ (કલાક : મીનીટ)
૬)	માર્ચ–એપ્રિલ	૨:૧૫ થી ૨:૩૦ (કલાક : મીનીટ)

નોંધ:ચોમાસા દરમ્યાન ટપક પધ્ધતિની સૂચિ ૨૦ દિવસથી વધુ વરસાદ ખેંચાવાની સ્થિતિ માટે

	Approved with following suggestions: **1.** Specify source of mulch **2.** Specify the rainy season drip schedule **(Action:** *Assistant Research Scientist,ARS, Achhalia***)**
17.2.1.53	**Effect of spacing on the performance of sorghum varieties during summer season**
	The farmers of South Gujarat Heavy Rainfall Zone growing sorghum during summer season are recommended to sow the crop at 45 cm x 10 cm, 45 cm x 15 cm or 60 cm x 10 cm spacing for achieving higher yield and net return. દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં ઉનાળુ ઋતુમાં જુવાર ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને આવક મેળવવા જુવારનું વાવેતર ૪૫ સેમી x ૧૦ સેમી, ૪૫ સેમી x ૧૫ સેમી અથવા ૬૦ સેમી x ૧૦ સેમી અંતરે કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Include at par spacing treatments in recommendation para 2. Remove name of variety in recommendation para **(Action:** *Prof. & Head, Dept. of Agronomy, NMCA, Navsari***)**
17.2.1.54	**Response of summer sesamum (*Sesamum indicum* L.) to integrated nutrient management under south Gujarat condition**
	The farmers of South Gujarat Heavy Rainfall Zone growing summer sesamum are recommended to fertilize the crop with 50 kg N/ha (50% as basal and 50% at 30 DAS) + 25 kg P_2O_5/ha (basal), treat the seed with *Azotobacter* + PSB (10 ml/kg each) and spray 1% nauroji organic liquid nutrient at flowering and capsule formation stages for getting higher yield and net return. દક્ષિણ ગુજરાતના વધુ વરસાદ વાળા વિસ્તારમાં ઉનાળુ તલનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને આવક મેળવવા ૫૦ કિલો નાઈટ્રોજન /હે (૫૦% પાયામાં અને ૫૦% વાવણીના ૩૦ દિવસ બાદ) + ૨૫ કિલો ફોસ્ફરસ /હે (પાયામાં) આપવાની, એઝોટોબેક્ટર + પીએસબી (દરેક ૧૦ મીલી/કિગ્રા) ની બીજ માવજત આપવાની તથા ૧% નવરોજી ઓર્ગેનીક લીક્વીડ ન્યુટ્રીયન્ટનો ફૂલ અને શીંગ બેસવાની અવસ્થાએ છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Write "nauroji organic liquid nutrient" instead of "banana pseudostem enriched sap" in recommendation para 2. Mention cultural details in report 3. Remove "after green manuring" from recommendation para **(Action:** *Prof. & Head, Dept. of Agronomy, NMCA, Navsari***)**
17.2.1.55	**Agronomical evaluation of different paddy varieties under organic farming**
	The farmers of south Gujarat heavy rainfall agro-climatic zone growing rice (variety: GNR-7 or GNR-3) organically are recommended to apply 100% RDN (100 kg/ha) through NADEP compost (8.9 t/ha NADEP compost containing 1.12%N) for achieving higher yield and net profit. Further, they have to give root dipping treatment to the seedlings with *Azospirilum* and PSB each of

	0.5% along with three sprays of Novel organic liquid nutrient @ 1% at 15, 45 and 60 DAT. દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા ખેત આબોહવાકીય વિસ્તારમાં સેન્દ્રિય ખેતીથી ડાંગર (જીએનઆર-૭ અથવા જીએનઆર-૩) ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખું વળતર મેળવવા માટે ૧૦૦ ટકા ભલામણ કરેલ નાઈટ્રોજનનો જથ્થો (૧૦૦ કિગ્રા નાઈટ્રોજન/હેક્ટર) નાડેપ કમ્પોસ્ટ (૧.૧૨% નાઈટ્રોજનન ધરાવતું ૮.૯ ટન /હેક્ટર નાડેપ કમ્પોસ્ટ) દ્વારા આપવાની ભલામણ કરવામાં આવે છે. વધુમાં,તેઓએ ફેરરોપણી પહેલાં એઝોસ્પીરીલમ અને પીએસબી દરેકની ૦.૫% પ્રમાણે ધરુના મૂળને માવજત આપવી સાથોસાથ ફેરરોપણીના ૧૫, ૪૫ અને ૬૦ દિવસ બાદ નોવેલ પ્રવાહી પોષક તત્વનો ૧% લેખે ત્રણ વખત છંટકાવ કરવા. **Approved with following suggestions:** **1.** Include important nutrient management item in recommendation para and delete the detail management part from the recommendation **(Action:** *Head, Dept. of SSAC, ACHF, NAU, Navsari***)**
17.2.1.56	**Effect of age of seedling and nutrient management in ragi**
	The farmers of South Gujarat heavy rain fall zone growing finger millet (ragi) during *kharif* season are recommended to transplant 18 to 24 days old seedlings with recommended dose of nitrogen (40 kg N ha^{-1}) through biocompost along with 2 kg/ha *Azatobacter* for getting higher yield and net income. દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં ચોમાસુ ઋતુ દરમ્યાન નાગલીની ખેતી કરતાં ખેડૂતોને વધુ ઉત્પાદન મેળવવા અને નફાકારક ખેતી માટે ૧૮ થી ૨૪ દિવસના ધરૂની ફેરરોપણી કરવાની સાથે ભલામણ મુજબના નાઈટોજન ખાતરનો જથ્થો (૪૦ કિલોગ્રામ પ્રતિ હેક્ટર) બાયોકંપોસ્ટ મારફત અને સાથે ૨ કિલો પ્રતિ હેક્ટર એઝેટોબેક્ટર જૈવિક ખાતર આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** **1.** Include cultural detail in report **2.** Add “ragi” word in recommendation para **3.** Add nutrient content of added manure in report **(*Action: Head , Dept. of Agronomy, CoA, Waghai*)**
17.2.1.57	**Response of cotton to green manuring and different fertility levels under rainfed condition**
	The farmers of South Gujarat Agro-climatic Zone growing cotton (var.G.N.Cot.25) under rainfed condition during *kharif* season are recommended to apply RDF 80 kg N/ha in two equal splits (40 kg N/ha at 30 DAS and 40 kg N/ha at 60 DAS) along with 5 t FYM/ha as basal and seed treatment of biofertilizers (*Azotobactor* and PSB each 10 ml/kg seed) need not to adopt simultaneous green manuring of sunnhemp, dhaincha and cowpea. દક્ષિણ ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ખરીફ ઋતુમા વરસાદ આધારીત દેશીકપાસ (જાત ગુ.ન.ક. ૨૫) ઉગાડતા ખેડૂતોને ભલામણ કરેલ ખાતર ૮૦કિ.ગ્રા. ના./હે. બે સરખા હપ્તામા (૪૦ કિ.ગ્રા. ના./હે. ૩૦ દિવસે અને ૪૦કિ.ગ્રા. ના./હે. ૬૦દિવસે) સાથે ૫ ટન છાણિયુ ખાતર/હે. પાયામા અને જૈવિક ખાતર (એઝોટોબેક્ટર અને પીએસબી દરેક ૧૦મીલી/ કી.ગ્રા. બીયારણ) ની બીજ માવજત આપતા હોય તેમને કપાસ સાથે શણ,ઈક્કડ અને ચોળીનો લીલો પડવાશ ટાળવાની ભલામણ કરવામાં

	આવે છે. **Approved with following suggestions:-** Specify split of N and name and dose of FYM and biofertilizer in recommendation para **(*Action: Professor & Head, Dept. of Agronomy, CoA, Bharuch*)**

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17.2.1.58	**Effect of different organic sources on seed yield of *rabi* fennel (*Foeniculam vulgare* P. Mill.) under organic farming**
	The farmers of North Gujarat Agro-climatic Zone-IV growing *rabi* fennel under organic farming are recommended to apply 75% RDN (67.5 kg N/ha) either through castor cake (1.35 t/ha) or FYM (13.5 t/ha) at the time of sowing along with seed inoculation with Azotobacter and PSB each @ 5 ml/kg seed for obtaining higher seed yield and net return besides improving the soil fertility. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના સજીવખેતી હેઠળ શિયાળુ વરિયાળી ઉગાડતા ખેડૂતોને હેક્ટરદીઠ વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પ્રતિહેક્ટરે ભલામણ કરેલ નાઈટ્રોજનના ૭૫ ટકા (૬૭.૫ કિ.ગ્રા.) દિવેલીખોળ (૧.૩૫ ટન પ્રતિ હેક્ટર) અથવા છાણિયા ખાતર (૧૩.૫ ટન પ્રતિ હેક્ટર) ધ્વારા વાવણી સમયે તેમજ એઝેટોબેક્ટર અને પી.એસ.બી.ની બીજ માવજત ૫.૦ મીલી પ્રતિ કિ.ગ્રા બીજને આપી વાવેતર કરવાની ભલામણ કરવામાં આવે છે તેથી જમીનની ફળદ્રુપતામાં પણ સુધારો થાય છે. **Approved with following suggestions :-** 1. Delete word 'PSB 10' from English and Gujarati version of recommendation. 2. Delete word 'દીઠ'from Guajarati version of recommendation. (**Action**: - *Prof. & Head, Department of Agronomy, CPCA, SDAU. S. K. Nagar*)
17.2.1.59	**Effect of organic manures on productivity of greengram-wheat cropping sequence under organic farming**
	The farmers of North Gujarat Agro-climatic Zone-IV adopting greengram-wheat crop sequence under organic farming are recommended to apply 20 kg N/ha (0.45 t/ha castor cake) to greengram and 90 kg N/ha (2 t/ha castor cake) to succeeding wheat crop through castor cake for obtaining higher greengram equivalent yield and net return. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના સજીવ ખેતી હેઠળ મગ-ઘઉં પાક પધ્ધતિ અપનાવતા ખેડૂતોને હેક્ટર દીઠ વધુ મગ સમકક્ષ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે મગના પાકને ૨૦ કિ.ગ્રા.ના /હે (૦.૪૫ ટન /હે) અને ઘઉંના પાકને ૯૦ કિ.ગ્રા./હે. (૨ ટન/હે) દીવેલી ખોળ દ્વારા આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. As the treatments for greengram are common for first year, the data of treatments T_1 and T_2 as well as T_3 and T_4 shall be common during the first year only and thus rectify it with statistical analysis.

	2. Replace the word ‘q/ha’ with t/ha in English and Gujarati version of recommendation. (**Action**: - *Prof. & Head, Department of Agronomy, CPCA, SDAU. S. K. Nagar*)
17.2.1.60	**Effect of organic manures on productivity of groundnut- wheat cropping sequence under organic farming**
	The farmers of North Gujarat Agro-climatic Zone-IV adopting groundnut-wheat crop sequence under organic farming are recommended to apply 12.5 kg N/ha (0.28 t/ha castor cake) to groundnut and 90 kg N/ha (2.0 t/ha castor cake) to succeeding wheat crop through castor cake for obtaining higher groundnut equivalent yield and net return. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના સજીવ ખેતી હેઠળ મગફળી-ઘઉં પાક પધ્ધતિ અપનાવતા ખેડૂતોને હેક્ટર દીઠ વધુ મગફળી સમકક્ષ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે મગફળીના પાકને ૧૨.૫ કિ.ગ્રા.ના/હે (૦.૨૮ ટન/હે દિવેલી ખોળ) અને ઘઉંના પાકને ૯૦ કિ.ગ્રા.ના/હે (૨ ટન/હે દિવેલી ખોળ) દિવેલી ખોળ ધ્વારા આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. As the treatments for groundnut are common for first year, the data of treatments T_1 and T_2 as well as T_3 and T_4 shall be kept common during the first season only and thus rectify it with statistical analysis. 2. Replace word ‘q/ha’ with t/ha in English and Gujarati version of recommendation. (**Action:** - *Prof. & Head, Department of Agronomy, CPCA, SDAU. S. K. Nagar*)
17.2.1.61	**Integrated nitrogen management in mustard under salt affected soil**
	The farmers of North West Gujarat Agro-climatic Zone-V growing mustard in saline soil are advised to apply 50% RDN (25 kg N/ ha) through FYM (5.0 t / ha) and remaining 50% RDN (25 kg N/ ha) through either mustard cake (0.5 t / ha) or vermicompost (2.5 t / ha) in addition to recommended dose of phosphorus and sulphur (50:40 kg P_2O_5:S / ha) for obtaining higher seed yield and net return besides improving organic carbon and reducing soil salinity. ગુજરાતના ઉત્તર પશ્ચિમ ખેત આબોહવાકીય વિભાગ–૫ ની ક્ષારીય જમીનમાં રાયડાનું વાવેતર કરતા ખેડૂતોએ હેક્ટર દીઠ વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવાની સાથે જમીનની ક્ષારીયતા ઘટાડી તથા સેંદ્રિય તત્વનું પ્રમાણ સુધારવા માટે રાયડાના પાકને ભલામણ કરેલ નાઈટ્રોજનના ૫૦ ટકા (૨૫.૦ કિગ્રા પ્રતિ હેક્ટર) છાણીયા ખાતરના રૂપે (૫.૦ ટન પ્રતિ હેક્ટર) અને બાકીનો ૫૦ ટકા નાઈટ્રોજન (૨૫.૦ કિગ્રા પ્રતિ હેક્ટર) રાયડાના ખોળરૂપે (૦.૫ ટન પ્રતિ હેક્ટર) અથવા અળસિયાના ખાતરરૂપે (૨.૫ ટન પ્રતિ હેક્ટર) આપવાની ભલામણ કરવામાં આવે છે. આ ઉપરાંત ભલામણ કરેલ ફોસ્ફરસ અને ગંધકનો જથ્થો (૫૦:૪૦કિગ્રા ફોસ્ફરસ:ગંધક પ્રતિ હેક્ટર) આપવાની ભલામણ કરવામાં આવે છે. **Approved** (**Action** :- *Prof. & Head, Department of Agricultural Chemistry and Soil Science*)

17.2.1.62 Agronomic approaches for biofortification of wheat grain with zinc and iron in Typic Ustipsamments soils of North Gujarat

The farmers of North Gujarat Agro-climatic Zone-IV growing wheat are recommended to apply three foliar spray of 0.5% $ZnSO_4$ (21% Zn) and $FeSO_4$ (19% Fe) and each neutralized with lime solution @ 0.25% at tillering, flag leaf and flowering stages in addition to recommended dose of fertilizer (120-60-0 kg N-P_2O_5-K_2O/ha) for obtaining higher iron and zinc fortified wheat grain yield and net return.

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ - ૪ ના ઘઉં વાવતા ખેડૂતોએ હેક્ટર દીઠ જસત અને લોહથી સમૃધ્ધ ઘઉંના દાણાનું વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે ઘઉંના પાકને ભલામણ કરેલ ખાતર ૧૨૦:૬૦:૦૦ કિ.ગ્રા. ના : ફોઃ પો./હેક્ટર અને ૨૫ ટકા ચુનાના નિતર્યા દ્રાવણથી તટસ્થ કરેલ ૦.૫ ટકા ઝિંક સલ્ફેટ (૨૧ ટકા જસત) + ફેરસ સલ્ફેટ (૧૯ ટકા લોહ) ના દ્રાવણનો ત્રણ વખત (ફૂટ,ધ્વજ પર્ણ અને ફૂલ અવસ્થાએ) છંટકાવ કરવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestions :-

1. In Sr. No. 9 (9.9): Check the data (1.65) of DTPA extractable Zn for the year 2017-18.
2. Procedure followed 'to neutralize acidity for foliar application of $ZnSO_4$ and $FeSO_4$' should be mentioned in recommendation part.

(**Action**:- *Prof. & Head, Department of Agricultural Chemistry and Soil Science*)

17.2.1.63 Effect of different fortified FYM on growth, yield and quality of wheat and their residual effect on summer greengram

The farmers of North Gujarat Agroclimatic Zone-IV adopting wheat-summer greengram crop sequence are recommended to apply 75 % RDF (90-45-00 kg N-P_2O_5 –K_2O /ha) along with 500 kg fortified cowdung* /ha to wheat crop for obtaining higher wheat equivalent yield, net return and increasing content of iron, zinc and protein in wheat grain and greengram seed besides improving soil fertility. Apply 45 kg N and 45 kg P_2O_5/ha as basal and remaining 45 kg N/ha are applied in two equal split at 21-25 and 35-40 DAS. The summer greengram grown after wheat crop without applying any fertilizer.

*Cowdung is fortified with multi micronutrient formulation grade IV @ 2 kg/t cow dung along with 'bacterial biodecomposer' @ 1 lit/t cow dung and composted for 150 days.

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ઘઉં-ઉનાળુ મગ પાક પધ્ધતિ અપનાવતા ખેડૂતોને વધુ ઉત્પાદન, ચોખ્ખો નફો મેળવવા તથા ઘઉં અને મગના દાણામાં લોહ, જસત અને પ્રોટીનની માત્રા વધારવા તેમજ જમીનની ફળદ્રુપતા સુધારવા માટે ઘઉંના પાકને ભલામણ કરેલ રાસાયણિક ખાતરના ૭૫ ટકા (૯૦:૪૫:૦૦ કિ.ગ્રા./હે ના : ફોઃ પો) ની સાથે ૫૦૦ કિ.ગ્રા. ગાયનુ ફોર્ટીફાઈડ છાણ પ્રતિ હેકટરે આપવાની ભલામણ કરવામાં આવે છે. ઘઉંના પાકને ૪૫ કિ. ગ્રા. નાઈટ્રોજન તથા ૪૫ કિ. ગ્રા. ફોસ્ફરસ /હે પાયામાં તથા બાકીનો ૪૫ કિ. ગ્રા. નાઈટ્રોજન બે સરખા હપ્તામાં વાવણી બાદ ૨૧-૨૫ અને ૩૦-૩૫ દિવસે આપવો. ઘઉં પછી ઉનાળુ મગના પાકને કોઈપણ ખાતર આપ્યા વગર વાવણી કરવી.

*ગાયના છાણમાં ટન દીઠ ૨ કિ.ગ્રા. મલ્ટી માઈક્રોન્યુટ્રીઅન્ટ ફોરર્મ્યુલેશન ગ્રેડ-૪ અને ૧ લીટર બેકટીરીઅલ બાયો ડીકંમ્પોસર મિશ્ર કર્યા બાદ ૧૫૦ દિવસ સુધી કમ્પોસ્ટીંગ કરી ફોર્ટીફાઈડ ગાયનુ છાણ તૈયાર કરવું.

Approved with following suggestions :-

1. Replace word ‘biodegrader’ with ‘bacterial biodecomposer’ and ‘FYM’ with ‘cow dung’ from Guajarati and English version of recommendation.
2. Mention detail of split application of 75% N in recommendation.
3. Mention wheat equivalent yield instead of ‘yield’ in Gujarati and English version of recommendation.

(**Action:-** *Unit Head, Bio Science Research Centre, SDAU, Sardarkrushinagar*)

17.2.1.64 Response of cumin to irrigation schedule and fertigation

The farmers of North Gujarat Agro-climatic Zone-IV growing cumin crop are recommended to irrigate the crop through drip irrigation system with 0.4 PEF as per given schedule and fertilize crop with 20 kg N/ha, i.e. 30 % N (6 kg N/ha) as basal and remaining 70% N (14 kg N/ha) through fertigation in 3 equal splits at 30, 45, and 60 days after sowing in the form of urea in addition to 15 kg P_2O_5/ha as basal to obtain higher yield with saving of 50% nitrogen and 41% of irrigation water.

System Details		Operating schedule (alternate day)	
		Month/stage	**Time(Hr:Min)**
Lateral spacing	60 cm	Immediately after sowing	2:24
Dripper spacing	40 cm	One week after sowing	1:48
Dripper discharge	4 LPH	November	0:11
Frequency	Alternate day	December-January	0:10
Irrigation fraction	0.4 PEF	February	0:11
Operating pressure	1.2 kg/cm^2		

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ માં જીરૂ વાવતા ખેડૂતોને વધુ ઉત્પાદન મેળવવા માટે એકાંતરા દિવસે ટપક પધ્ધતિથી ૦.૪ બાષ્પીભવન ગુણાંકે નીચે મુજબ પિયત તથા ૨૦ કિ. ગ્રા. નાઈટ્રોજન /હેક્ટર જે પૈકી ૩૦ ટકા નાઈટ્રોજન (૬ કિ.ગ્રા./ હેક્ટર) અને ૧૫ કિ. ગ્રા. ફોસ્ફરસ /હેક્ટરે પાયામાં તથા બાકીનો ૭૦ ટકા નાઈટ્રોજન (૧૪ કિ. ગ્રા./હેક્ટર) ત્રણ સરખા હપ્તામાં યુરિયાના રૂપે વાવણી બાદ ૩૦,૪૫ અને ૬૦ દિવસે ટપક પધ્ધતિ મારફત આપવાની ભલામણ કરવામાં આવે છે. જેથી ૫૦ ટકા નાઈટ્રોજન અને ૪૧ ટકા પિયત પાણીની બચત થાય છે.

ટપકપધ્ધતિની વિગત		પિયતનુંપત્રક એકાંતરે દિવસે	
		અવસ્થા / માસ	સમય (કલાક:મિનીટ
પ્રશાખાનું અંતર	૬૦સે.મી.	વાવણી પછી તરત	૨:૨૪
ડ્રિપર અંતર	૪૦સે.મી.	વાવણીથી અઠવાડીયા બાદ	૧:૪૮
ડ્રિપર પ્રવાહદર	૪ લી./કલાક	નવેમ્બર	૦:૧૧
બાષ્પિભવન ગુણાંક	૦.૪	ડિસેમ્બર - જાન્યુઆરી	૦:૧૦
પિયત અંતરાલ	એકાંતરે દિવસ	ફેબ્રુઆરી	૦:૧૧
ટપક સિસ્ટમનું દબાણ	૧.૨ કિ.ગ્રા./સે.મી^{૨}		

Approved with following Suggestions :-

1. Add 'saving of water and nitrogen in Guajarati and English version of recommendation.

Action:-*Research Sci., Center for Natural Resource Management, SDAU, S.K.Nagar*)

17.2.1.65 Evaluation of pigeonpea based intercropping system

The farmers of North Gujarat Agro-climatic Zone-IV growing pigeonpea are recommended to grow either two or three rows of groundnut as intercrop at 30 cm spacing between two rows of pigeonpea sown at 120 cm spacing for obtaining higher pigeonpea equivalent yield and net return.

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના તુવેર ઉગાડતા ખેડૂતોને તુવેર સમકક્ષ વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે તુવેરનું ૧૨૦ સે.મી. અંતરે વાવેતર કરી તેની બે હાર વચ્ચે ૩૦ સે.મી. ના અંતરે બે કે ત્રણ હારમાં મગફળીને આંતર પાક તરીકે વાવવાની ભલામણ કરવામાં આવે છે.

Approved with following Suggestions :-

1. Add '1:2 row ratio of pigeonpea: groundnut' in recommendation part.
2. In cultural operations Sr. No. 8 (8.5), check the date of harvesting of pigeonpea (1-02-2019) and correct it accordingly.

(**Action**:- *Research Scientist, Pulses Research Station, SDAU, S. K. Nagar*)

17.2.1.66 Response of *rajmash* to split application of nitrogen

The farmers of North Gujarat Agro-climatic Zone-IV growing *rajmash* are recommended to apply 120 kg N /ha in three equal splits @ 40 kg/ha at 15, 30 and 45 days after sowing in addition to 40 kg P_2O_5/ha as basal for obtaining higher yield and net return.

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ -૪ ના રાજમા ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ૧૨૦ કિ.ગ્રા. નાઈટ્રોજન ત્રણ સરખા હપ્તામાં (૪૦ કિ.ગ્રા./હે) વાવણી બાદ ૧૫, ૩૦ અને ૪૫ દિવસે આપવો.આ ઉપરાંત ૪૦ કિ.ગ્રા. ફોસ્ફરસ પ્રતિ હેક્ટર પાયાના ખાતર તરીકે આપવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestions :-

1. Delete word 'રાજમાનું' from Guajarati version of recommendation.

(**Action:**- *Research Scientist, Pulses Research Station, SDAU, S. K. Nagar)*

17.2.1.67 Effect of potash and sulphur on yield and quality of *rabi* fennel

The farmers of North Gujarat Agro-climatic Zone-IV growing *rabi* fennel are recommended to apply 40 kg K_2O (K_2SO_4) and 20 kg S (gypsum) /ha as basal in addition to recommended dose of fertilizer (90:30 kg N:P_2O_5/ha) for obtaining higher seed yield and net return.

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના શિયાળું વરિયાળી ઉગાડતા ખેડુતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પ્રતિ હેક્ટરે ૪૦ કિ. ગ્રા. પોટાશ (પોટેશીયમ સલ્ફેટ)

	અને ૨૦ કિ.ગ્રા. સલ્ફર (જીપ્સમ) પાયામાં તેમજ ભલામણ કરેલ ખાતર (૯૦:૩૦ કિ. ગ્રા. ના. ફો./હે) આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. Replace word 'along with' by 'in addition to' from English version of recommendation. 2. Mention the source of K_2O and S in bracket both in English and Guajarati version of recommendation. (**Action**:- *Research Scientist ,Centre of Research on Seed Spices, SDAU, Jagudan*)
17.2.1.68	**Efficacy of pre-emergence herbicides in *rustica* tobacco**
	The farmers of Gujarat growing *Rustica* tobacco are recommended to carry out interculturing followed by hand weeding at 20 and 40 days after transplanting for effective weed control, higher cured leaf yield and net return. ગુજરાતમાં કલકત્તી તમાકુ ઉગાડતા ખેડૂતોને પાકમાં અસરકારક નિંદણ નિયંત્રણ, સુકા પત્તાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ફેરરોપણીના ૨૦ અને ૪૦ દિવસે આંતરખેડ કરી હાથ નિંદામણ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. Add data of 'dry weight of weed' to calculate WCE. If data are not recorded, then WCE should be deleted from Table 4. 2. Keep word 'pre plant incorporation' rather than 'pre-emergence" in treatments. 3. Details of 'weed free treatment' should be provided in methodology. 4. In treatment T_3 replace the word 'sand" with 'sandy soil". (**Action** :- *Assoc. Research Scientist , Agricultural Research Station, SDAU, Ladol*)
17.2.1.69	**Production potential of groundnut under different plant spacing**
	The farmers of North Gujarat Agro-climatic Zone-IV are recommended to grow the bunch type groundnut varieties at 30 cm spacing during *kharif* and 22.5 cm spacing during summer for obtaining higher yield and net return. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના મગફળી (ઉભડી જાતો) ઉગાડતા ખેડુતોને વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ચોમાસું પાકને ૩૦ સે.મી. ના અંતરે જ્યારે ઉનાળામાં ૨૨.૫ સે.મી.ના અંતરે વાવણી કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. Recast the recommendation in English and Guajarati version. 2. Location wise (Talod and Ladol) data should be added. 3. Use word 'TAG' instead of 'Tag" in variety V_3. (**Action:-** *Assoc. Research Scientist, Agricultural Research Station, SDAU, Ladol*)

17.2.1.70	**Integrated weed management in soybean**
	The farmers of Gujarat growing soybean are recommended to carryout interculturing followed by hand weeding at 20 and 40 DAS for effective weed control and securing higher seed yield of soybean. ગુજરાતમાં સોયાબીન ઉગાડતા ખેડૂતોને પાકમાં અસરકારક નિંદણ નિયંત્રણ અને વધુ ઉત્પાદન મેળવવા માટે વાવણી બાદ ૨૦ અને ૪૦ દિવસે આંતરખેડ કરી હાથ નિંદામણ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. Add data of 'dry weight of weed' to calculate WCE. If data are not recorded, then WCE should be deleted from Table 4. 2. Details of 'weed free treatment' should be given in methodology. **(Action :-** *Assoc. Research Scientist, Agricultural Research Station, SDAU, Ladol***)**
17.2.1.71	**Integrated nutrient management in sweet corn**
	The farmers of North Gujarat Agro-climatic Zone-IV growing *rabi* sweet corn are recommended to apply 90-45-00 kg N-P_2O_5- K_2O /ha + vermicompost (2.5 t/ha) along with seed treatment with bio NPK consortium (5 ml/kg seed) or 90-45-00 kg N-P_2O_5- K_2O /ha + FYM (5.0 t/ha) along with seed treatment with bio NPK consortium (5 ml/kg seed) or 120-60-00 kg N-P_2O_5- K_2O /ha for obtaining higher green cob yield. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના શિયાળુ સ્વીટકોર્નની ખેતી કરતા ખેડૂતોને લીલા ડોડાનું વધુ ઉત્પાદન મેળવવા માટે ૯૦:૪૫:૦૦ કિ.ગ્રા. ના. ફો. પો. પ્રતિ હેક્ટર +વર્મીકમ્પોસ્ટ (૨.૫ ટન પ્રતિ હેક્ટર) ની સાથે બાયો એન.પી.કે. કંસોર્ટીયમની ૫ મિલી /કિલો મુજબ બીજ માવજત અથવા ૯૦:૪૫:૦૦ કિ.ગ્રા. ના.ફો.પો. પ્રતિ હેક્ટર + છાણીયું ખાતર (૫ ટન પ્રતિ હેક્ટર) ની સાથે બાયો એન.પી.કે. કંસોર્ટીયમની ૫ મિલી /કિલો બીજ માવજત અથવા ૧૨૦:૬૦:૦૦ કિ.ગ્રા. ના.ફો.પો./હે આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. Use word 'fodder' instead of 'stover' in Table 2. 2. Replace word 'NPK consortium' with "Bio NPK consortium' in entire recommendation. 3. Nutrient content in input viz; FYM and vermicompost used as treatment should be furnished. 4. Treatment 'T_1: 120-60-00 kg NPK/ha' should be added in recommendation part. **(Action :-** *Assoc. Research Scientist, Agricultural Research Station, SDAU, Ladol***)**
17.2.1.72	**Potassium requirement of potato under different irrigation methods**
	The farmers of North Gujarat Agro-climatic Zone-IV growing potato under drip irrigation system are recommended to apply 260 kg K_2O/ha (130 kg as basal and remaining 130 kg in two equal splits at 30 and 45 DAP) along with

recommended dose of N (275 kg/ha) and P_2O_5 (138 kg/ha) for obtaining higher yield and net return.

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ટપક પિયત પધ્ધતિ હેઠળ બટાટા ઉગાડતા ખેડૂતોને બટાટાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ નાઈટ્રોજન (૨૭૫ કિ.ગ્રા./હે.) અને ફોસ્ફરસ (૧૩૮ કિ.ગ્રા./હે.) સાથે ૨૬૦ કિગ્રા પોટાશ પ્રતિ હેક્ટર (૧૩૦ કિ.ગ્રા./હે.) પાયામાં અને બાકીનો ૧૩૦ કિ.ગ્રા. બે સરખા હપ્તામાં વાવણી બાદ ૩૦ અને ૪૫ દિવસે આપવાની ભલામણ કરવામાં આવે છે.

Not Approved (Dropped)

(**Action**:- *Associate Research Scientist , Potato Research Station, SDAU, Deesa*)

17.2.1.73 Response of potato to split application of nitrogen under sprinkler system

The farmers of North Gujarat Agro-climatic Zone-IV growing potato under mini sprinkler irrigation system are recommended to apply 206 kg N/ha. Out of this, 50 % N (103 kg/ha) as basal and remaining 50 % N (103 kg/ha) in two equal splits at 30 and 45 DAP in addition to 110:275 kg P_2O_5:K_2O/ha as basal for obtaining higher tuber yield and net return with saving of 25 % N.

System Details		
Spacing between two lateral	:	8.0 m
Spacing between two sprinkler on lateral	:	8.0 m
Discharge	:	400 liter/hr
Time of operating the mini sprinkler	:	6 hours
Irrigation interval	:	First 4 irrigations at 5 days interval and remaining 8 irrigations at 7 days interval
Operating pressure	:	2.75 kg/cm^2

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના મીની ફુવારા પિયત પધ્ધતિ હેઠળ બટાટા ઉગાડતા ખેડૂતોને બટાટાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ૨૦૬ કિ. ગ્રા. નાઇટ્રોજન પ્રતિ હેક્ટરે આપવાની ભલામણ કરવામાં આવે છે.જે પૈકી ૫૦ ટકા નાઇટ્રોજન (૧૦૩ કિ. ગ્રા. પ્રતિ હેક્ટર) પાયામાં અને બાકીનો ૫૦ ટકા નાઇટ્રોજન (૧૦૩ કિ. ગ્રા. પ્રતિ હેક્ટર) બે સરખા હપ્તામાં વાવણી બાદ ૩૦ અને ૪૫ દિવસે આપવો.જેનાથી ૨૫ ટકા નાઈટ્રોજનની બચત થાય છે. આ ઉપરાંત ૧૧૦ કિ.ગ્રા. ફોસ્ફરસ અને ૨૭૫ કિ.ગ્રા.પોટાશ પ્રતિ હેક્ટરે પાયામાં વાવણી સમયે આપવો.

મીની ફુંવારાની વિગત		
બે લેટરલ લાઇન વચ્ચેનું અંતર	:	૮ મી .
લેટરલ ઉપર બે મીની ફુંવારા વચ્ચેનું અંતર	:	૮ મી.
વિસર્જન દર	:	૪૦૦લિટર પ્રતિ કલાકે
મીની ફુંવારા ચલવવાનો સમય	:	૪ કલાક/પિયત
બે પિયત વચ્ચેનું અંતર(મહિના મુજબ)	:	પ્રથમ ૪ પિયત ૫ દિવસ ના અંતરે અને બાકીના ૮ પિયત ૭ દિવસ ના અંતરે
સિસ્ટમનું દબાણ	:	૨.૭૫ કિ.ગ્રા./સેમી^{૨}

Approved with following suggestions :-

1. Sprinkler system detail should be mentioned in recommendation part.

	2. Replace the word ‘gm’ with ‘g’; ‘sprinkler’ with ‘mini sprinkler’ and ‘50-75 gm’ with ‘>50-75 g’. **(Action:-** *Associate Research Scientist , Potato Research Station, SDAU, Deesa***)**
17.2.1.74	**Effect of split application of nitrogen to dual purpose sorghum**
	The farmers of North Gujarat Agro-climatic Zone-IV growing dual purpose *kharif* sorghum are recommended to apply 60 kg N/ha. Out of this, 25 % N (15 kg/ha) as basal and remaining 75 % N (45 kg/ha) in three equal splits at 20, 40 and 60 DAS in addition to recommended dose of phosphorus (40 kg/ha) as basal for obtaining higher yield and net return with saving of 25 % N. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ચોમાસામાં દ્વિહેતુ જુવારનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પ્રતિ હેક્ટરે ૬૦ કિ.ગ્રા. નાઈટ્રોજન પૈકી ૨૫ ટકા નાઈટ્રોજન (૧૫ કિ.ગ્રા./હે) પાયામાં અને બાકીનો ૭૫ ટકા નાઈટ્રોજન (૪૫ કી.ગ્રા./હે) ત્રણ સરખા હપ્તામાં વાવણી બાદ ૨૦, ૪૦ અને ૬૦ દિવસે આપવો. તદઉપરાંત ૪૦ કિ.ગ્રા. ફોસ્ફરસ/હે.પાયામાં વાવણી સમયે આપવાની ભલામણ કરવામાં આવે છે જેનાથી ૨૫ ટકા નાઈટ્રોજનની બચત થાય છે. **Approved with following suggestions :-** 1. Add word purpose *kharif* after ‘dual’ in recommendation. 2. Replace word ‘along with’ with ‘in addition to’. 3. In cultural details point no. 8 (8.1): use word ‘sowing’ instead of ‘planting’. **(Action:-** *Assistant Research Scientist , Sorghum Research Station,SDAU, Deesa***)**
17.2.1.75	**Effect of biofertilizers on yield of wheat under salt affected soils**
	The farmers of North Gujarat Agro-climatic Zone-V growing wheat under saline soil are recommended to apply 75% RDF (90-45-0 N-P-K kg/ha) as well as PSB and *Azotobacter* (5 liter/ha each) mixed with 125 kg FYM in furrow before sowing and *Azotobacter* @ 5 liter/ha mixed with 125 kg soil given at 20 DAS by broadcasting or 100% RDF (120-60-0 N-P-K kg/ha) along with the seed treatment with *Azotobacter* @ 5 ml/kg seed for getting higher grain yield and net return. The 50% gypsum should be applied on the basis of soil analysis before sowing of wheat. ઉત્તર પશ્ચિમ ગુજરાત ખેત હવામાન વિભાગ-૫ ની ક્ષારીય જમીનમાં ઘઉં ઉગાડતા ખેડુતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ ખાતરના ૭૫ ટકા (૯૦-૪૫-૦ ના-ફો-પો કિ.ગ્રા/.હે) જથ્થા સાથે વાવણી પહેલા પીએસબી અને એઝેટોબેક્ટર (૫ લી /હે)૧૨૫ કિલો ગ્રામ છાણીયા ખાતર સાથે ભેળવીને ચાસમાં આપવાની તેમજ ૫ લી /હે એઝેટોબેક્ટર ૧૨૫ કિલોગ્રામ માટીમાં મિશ્ર કરીને વાવણી બાદ ૨૦ દિવસે પૂંખીને આપવો અથવા ભલામણ કરેલ ખાતરના ૧૦૦ % (૧૨૦-૬૦-૦ ના-ફો-પો કિ.ગ્રા/.હે) આપવાની સાથે બીજને એઝેટોબેક્ટ ૨૫ મી.લી./કિલો ગ્રામ પ્રમાણે પટ આપીને વાવણી કરવાની ભલામણ કરવામાં આવે છે .તેમજ જમીનના રાસાયણિક પૃથ્થકરણના આધારે ૫૦ %જીપ્સનો જથ્થો ઘઉંની વાવણી પહેલા જમીનમાં આપવો. **Not approved(Dropped)** (**Action:-***Assistant Research Scientist, Agricultural Research Station, SDAU, Adiya*)

17.2.1.76	**Integrated nitrogen management on isabgul crop**
	The Farmers of North Gujarat Agro-climatic Zone-IV growing isabgul are recommended to fertilize the crop with 100% RDN(40 kg/ha) through castor cake (940 kg/ha) in addition to 20 kg P_2O_5 /ha as basal **or** 25 % RDN (10 kg/ha) through urea + 25 % RDN (10 kg/ha) through castor cake (235 kg/ha) and 20 kg P_2O_5 /ha as basal and remaining 25 % RDN (10 kg/ha) through urea in two equal splits as top dressing at 30 and 50 DAS for obtaining higher yield, net return besides improving the soil fertility. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ –૪ ના ઈસબગુલનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે અને જમીનની ફળદ્રુપતા સુધારવા ભલામણ કરેલ નાઈટ્રોજન (૪૦ કિ. ગ્રા./હેક્ટર) દિવેલીની ખોળ (૯૪૦ કિ.ગ્રા./હેક્ટર) મારફતે અને ૨૦ કિલોગ્રામ ફોસ્ફરસ/હે. પાયામાં આપવો. અથવા ભલામણ કરેલ નાઈટ્રોજનનો ૨૫ ટકા જથ્થો (૧૦ કિ.ગ્રા./હે.) યુરિયા મારફતે તથા ૨૫ ટકા નાઈટ્રોજન (૧૦ કિ.ગ્રા./હે.) દિવેલી ખોળ મારફતે (૨૩૫ કિ.ગ્રા./હે.) અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ/હે. પાયામાં આપવો જ્યારે બાકીનો ૨૫ ટકા નાઈટ્રોજન (૧૦ કિ.ગ્રા./હે) વાવણી બાદ ૩૦ અને ૫૦ દિવસે બે સરખા હપ્તામાં પુર્તિખાતર તરીકે યુરિયા મારફતે આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. In Gujarati version replace word ‘60’ with ‘50’. **(Action:-** *Assistant Research Scientist, Agricultural Research Station, SDAU, Kholwada***)**
17.2.1.77	**Drought management in mothbean**
	The farmers of Gujarat are recommended to grow the moth bean at 30 cm spacing and foliar spray of 1% urea at pre-flowering stage for obtaining higher yield. ગુજરાતમાં મઠ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન મેળવવા પાકનું વાવેતર ૩૦ સે.મી. ના અંતરે કરવુ અને જ્યારે ફુલ આવવાની શરુઆત થાય તે પહેલા ૧ ટકા યુરિયા દ્રાવણનો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions :-** 1. Delete the words ‘water stress condition’ from recommendation part. **(Action:-***Assistant Research Scientist, Dry Farming Res. Station, SDAU,Radhanpur***)**

17.2.2 RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

17.2.2.1 Effect of *Rajayog* Meditation under organically grown crops

The "*Rajayog*" did not have any significant impact on growth, yield attributes and yield of the crops *viz.,* sesame, green gram and pearl millet grown in summer seasons. The "Rajayog" also did not influence the soil properties and nutrient contents in plant produces under two-years of pot trial.

Not approved (concluded)

(**Action**: *Professor and Head, Department of Agronomy, BACA, AAU, Anand*)

17.2.2.2 Calibration and validation of SUBSTOR model (DSSAT 4.6) for three cultivars of potato under different sowing time

SUBSTOR-potato model of DSSAT family was calibrated and validated for Kufri Badshah, Kufri Pukhraj and Kufri Laukar cultivars of potato. The model simulations of tuber yield of potato were validated with less than 10 percent error. The genetic coefficients are recommended for use in optimization for crop management and yield prediction of potato crop as under.

Symbol	Description	Kufri Badshah	Kufri Pukhraj	Kufri Laukar
G2	Leaf area expansion rate in degree days($cm^2\ m^{-2}\ d^{-1}$)	2000	1910	2000
G3	Potential tuber growth rate (g $m^{-2}\ d^{-1}$)	25.0	22.0	24.0
PD	Index that suppresses tuber growth during the period that immediately follows tuber induction	0.8	0.5	0.6
P2	Index that relates photoperiod responses to tuber initiation	0.7	0.5	0.5
TC	Upper critical temperature for tuber initiation (^{0}C)	15.0	15.0	15.0

Approved

(**Action**: *Professor and Head, Department of Agril. Meteorology, BACA, Anand*)

17.2.2.3 Evaluation of heavy metals tolerant native bacterial culture for bioremediation of heavy metals using multi-cut forage sorghum

Multi-bacterial consortium (combination of *Pseudomonas azotoformans, Bacillus infantis, Bacillus megaterium* and *Micrococcus terreus*) was found beneficial to alleviate the adverse effect of heavy metals in soil and plant thereby, improving growth, dry matter yield and root growth of multi cut forage sorghum.

Approved

(Action: *Associate Research Scientist, Micronutrient Research Project, Anand***)**

17.2.2.4	**Assessment of Nitrate-N and Fluoride content in underground well water of middle Gujarat region**

- The NO_3 and F contents in well water samples of Ahmedabad, Anand, Kheda and Vadodara districts were found higher before monsoon as compared to after monsoon conditions.

% Samples above permissible limit*			
NO_3		F	
Before Monsoon	After Monsoon	Before Monsoon	After Monsoon
19.8	15.1	17.4	10.5

* As per WHO guidelines for drinking purpose

- None of the well water sample was found above the permissible limit for heavy metals in all districts except Cd in few villages of Vadodara district and Cr in few villages of Ahmedabad and Vadodara districts (As shown below).

% Samples above permissible limit					
Vadodara				Ahmedabad	
Cd		Cr		Cr	
Before Monsoon	After Monsoon	Before Monsoon	After Monsoon	Before Monsoon	After Monsoon
47.6	28.6	47.6	47.6	10.0	5.0

- No contamination of pesticide residues was found in well water samples of all districts.
- Majority of well water samples fell under C_3S_1 class (34.9% in before monsoon and 39.5% after monsoon condition). While, none of the well water samples were found suitable for irrigation purpose (C1S1 class).

Approved

(**Action:** *Professor & Head, Dept. of Soil Sci. and Ag. Chem., BACA, Anand*)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

17.2.2.5	**Weed management in coriander**

Under Saurashtra region, effective weed management along with higher seed yield of coriander can be achieved by application of tank-mix pendimethalin 450 g/ha + oxadiargyl 30 g/ha as pre-emergence *fb* HW at 30 DAS or paraquat 500 g/ha as early post-emergence at 7 DAS *fb* HW at 30 DAS or pendimethalin 750 g/ha as pre-emergence *fb* HW at 30 DAS.

Approved

*(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*

17.2.2.6	**Weed management in chickpea**

Under Saurashtra region, effective weed management along with higher seed yield of chickpea and net return can be achieved by application of pendimethalin 750 g/ha as pre-emergence *fb* IC & HW at 30 DAS or pre-mix pendimethalin + imazethapyr 750 g/ha as pre-emergence *fb* IC & HW at 30 DAS.

Approved

*(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*

17.2.2.7	**Weed management in summer guar**
	Under Saurashtra region, effective weed management along with higher seed yield of guar and net return can be achieved by application of tank-mix pendimethalin 450 g/ha + oxadiargyl 30 g/ha as pre-emergence *fb* IC & HW at 30 DAS or pre-mix pendimethalin + imazethapyr 750 g/ha as pre-emergence *fb* IC & HW at 30 DAS. **Approved** (**Action:** *Professor & Head, Department of Agronomy, COA, JAU, Junagadh*)
17.2.2.8	**Weed management in green gram**
	Under South Saurashtra Agro-climatic Zone, effective weed management along with higher seed yield of *kharif* green gram and net return can be achieved by application of pre-mix pendimethalin + imazethapyr 750 g/ha as pre-emergence *fb* IC & HW at 40 DAS or pendimethalin 900 g/ha as pre-emergence *fb* IC & HW at 40 DAS. **Approved** *(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.2.9	**Weed management in black gram**
	Under South Saurashtra Agro-climatic Zone, effective weed management along with higher seed yield of *kharif* black gram and net return can be achieved by application of pre-mix pendimethalin + imazethapyr 750 g/ha as pre-emergence *fb* IC & HW at 40 DAS. **Approved** *(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
17.2.2.10	**Soil test based fertilizer recommendation for targeted yield of wheat**
	The soil testing laboratories are informed that the nutrients requirement for production of one quintal wheat grain was assessed as 3.81, 0.82 and 3.40 kg N, P_2O_5 and K_2O, respectively and the fertilizer prescription equations are: for N: [FN = 6.82 x T - 1.01 x SN - 0.27 x FYM], P: [FP_2O_5 = 1.80 x T - 2.25 x SP - 0.09 x FYM] and K: [FK_2O = 3.14 x T - 0.46 x SK - 0.27 x FYM] with FYM 10 t/ha. While without FYM, nutrients requirement for production of one quintal wheat grain was assessed as 3.52, 0.77 and 3.02 kg N, P_2O_5 and K_2O, respectively and the fertilizer prescription equations are: for N: [FN = 8.53 x T - 1.19 x SN], P: [FP_2O_5 = 2.61 T - 3.07 x SP] and K: [FK_2O = 5.03 x T - 0.68 x SK]. Targeted yield concept could be effectively adopted from 40 to 50 q/ha for site specific fertilizer recommendation to achieve high yield of wheat in the medium black calcareous soils of Saurashtra region of Gujarat. **Approved with following suggestions:** a) Give strip wise available nutrient data *(**Action:** Professor & Head, Department. of Agril. Chem. & Soil Sci., JAU, Junagadh and Research Scientist, Wheat Research Station, JAU, Junagadh)*

17.2.2.11	**Establishment of critical limit of zinc for summer green gram in medium black calcareous soils**
	For recommending Zn application to green gram crop grown in calcareous soils of Saurashtra, STL of Gujarat should consider the critical limit of 0.70 ppm in soil and 47 ppm in green gram plant at 45 DAS. **Approved with following suggestions:** a) Write repetitions instead of replications ***(Action:** Professor & Head, Dept. of Agril. Chem. & Soil Sci., COA, JAU, Junagadh)*
17.2.2.12	**Establishment of critical limit of zinc for pigeonpea crop in medium black calcareous soils**
	For recommending Zn application to pigeonpea crop grown in calcareous soils of Saurashtra, STL of Gujarat should consider the critical limit of 0.63 ppm in soil and 33.9 ppm in pigeonpea plant at 60 DAS. **Approved with following suggestions:** a) Write repetitions instead of replications ***(Action:** Professor & Head, Dept. of Agril. Chem. & Soil Sci., COA, JAU, Junagadh)*
17.2.2.13	**Effect of saline irrigation water on garlic**
	It is for information to scientific community especially for plant breeders that garlic variety GJG-5 recorded superior values of different salt tolerance criteria like higher mean salinity index (77.00%), comparable mean bulb yield (54.78 g/pot), minimum yield decline (43.61%) at EC 5.0 dS/m and 50% yield reduction at EC 9.32 dS/m as well as lower Na/K ratio in bulb (0.157) and straw (0.360). Garlic variety GJG-5 was found more salt tolerant as compared to GG-4, G-282 and GG-2 on the basis of salinity indices. **Approved** ***(Action:** Professor & Head, Dept. of Agril. Chem. & Soil Sci., COA, JAU, Junagadh)*
17.2.2.14	**Effect of saline irrigation water on sesamum**
	It is for information to scientific community especially for plant breeders that sesamum variety Gujarat Til-3 recorded superior value of different salt tolerance criteria like higher mean seed yield (19.69 g/pot), comparable mean salinity index (71.82%), yield decline (38.51%) at 5.0 dS/m and 50% yield reduction at EC 9.47 dS/m as well as lower Na/K ratio in seed (0.253) and straw (0.551). **Approved** ***(Action:** Professor & Head, Dept. of Agril. Chem. & Soil Sci., COA, JAU, Junagadh)*

17.2.2.15	**Evaluation of salt tolerance of onion varieties with and without FYM**
	It is for information to scientific community especially for plant breeders that among the four varieties of onion *viz.*, Pilipatti, Agri. Found Light Red, Talaja Red, GJRO-11, the variety Agri. Found Light Red recorded significantly the highest bulb yield (7290 kg/ha), bulb girth (3.59 cm), bulb length (3.70 cm) and lowest Na/K ratio in straw (0.56) with saline irrigation water having EC 12.70 dS/m. Application of FYM 20 t/ha significantly increased bulb yield of onion. The variety Agri. Found Light Red found superior in salt tolerance up to saline irrigation water EC 12.70 dS/m. **Approved with following suggestions:** a) Keep same word for leaves yield, dry leaves yield and haulm yield ***(Action:** Professor & Head, Department. of Agril. Chem. & Soil Sci., COA, JAU, Junagadh and Assistant Research Scientist, Fruit Research Station, JAU, Mangrol,)*
17.2.2.16	**Performance of different weed management practices on pearl millet productivity**
	Effective weed management along with higher yield and net returns from *kharif* pearl millet can be achieved by application of tembotrione 120 g/ha as post-emergence at 3-4 leaf stage of weeds. **Approved** ***(Action:** Research Scientist, Main Millet Research Station, JAU, Jamnagar)*
17.2.2.17	**Weed management in sugarcane with special reference to *Cynodon dactylon***
	The scientific community is informed that pre-plough application of glyphosate 2.5 kg/ha followed by MB ploughing at 21 days after application of glyphosate and post-emergence directed spray of either glyphosate 2.5 kg/ha or fenoxaprop 75 g/ha at 45 days after planting gave higher cane yield and net returns as well as effective control of *Cynodon dactylon.* **Approved** ***(Action:** Research Scientist, Main Sugarcane Research Station, JAU, Kodinar)*
17.2.2.18	**Evaluation of carrot varieties under different spacings**
	Scientists engaged in vegetable research are informed that higher fresh carrot yield can be obtained by sowing either Madhuvan or Gujarat Carrot-1 variety. Madhuvan can be sown either by broadcasting or at a spacing of 30 cm x 10 cm, while, Gujarat Carrot-1 should be sown at a spacing of 30 cm x 10 cm. **Suggestions:** a) Technical programme not approved by Combined AGRESCO. **Dropped** ***(Action:** Research Scientist, Vegetable Research Station, JAU, Junagadh)*

17.2.2.19	**Performance of sesame genotypes differing in maturity and plant types and their response to plant spacing in summer season**
	In North Saurashtra Agro-climatic Zone, sesame genotypes with few branches and early maturity (AT 375 and AT 377) as well as uniculm variety with late maturity (AT 363 and AT 374) gave higher seed yield and net return at 15 cm x 10 cm spacing. **Approved with following Suggestions:** a) Mention seed rate b) Keep spacing instead of geometry ***(Action:*** *Research Scientist, Agricultural Research Station, JAU, Amreli)*
17.2.2.20	**Evaluation of pre and post emergence herbicide for chemical weed management in sesame**
	In North Saurashtra Agro-climatic Zone, effective weed management along with higher seed yield and net realization in rainfed sesame can be obtained by application of pendimethalin 0.50 kg/ha as pre-emergence *fb* quizalofop-ethyl 50 g/ha at 20 DAS. **Approved with following suggestins:** a) Write *fb* instead of and b) Define weed free Suggestions are accepted and incorporated ***(Action:*** *Research Scientist, Agricultural Research Station, JAU, Amreli)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.2.2.21	**Evaluation of ground water suitability for irrigation in Navsari district**
	In pre monsoon season, the percentage of surveyed samples were found falling in no restriction to medium restriction category of irrigation water followed the order of Vansda (70%) > Chikhli (60%) > Khergam (50%) > Gandevi (50%) > Jalalpore (40%) > Navsari (40%). ➢ In post monsoon season, the percentage of groundwater samples under no restriction to medium restriction category of irrigation water mostly decreased and followed the order of Navsari (65%) > Vansda (45%) > Khergam (30%) > Jalalpore (20%) > Gandevi (15%) > Chikhli (5%). ➢ Overall in Navsari district, 52.49 % and 29.99 % of surveyed samples were found falling in no restriction to medium restriction categoryof irrigation water during pre and post monsoon respectively **Approved** (***Action***: *Research Scientist, Soil Science, NAU, Navsari*)
17.2.2.22	**Carbon crediting and GHG emission in IFS models**
	It is inferred from the carbon crediting and GHG emission studies in IFS models that the paddy component (Transplanted) emits more GHGs in terms of CO2-e kg followed by horticulture component. Further, Rice-Cabbage-Green gram crop sequence recorded higher emission as compared to Rice-Linseed-Sorghum (fodder)

<table>
<tr><td></td><td>and Rice-Indian bean (vegetable)-Pearl millet. The maximum sink of GHGs was observed in border plantation of agroforestry tree component followed by crop residue incorporation.
Approved
(Action: Professor and Head, Dept. of Agronomy, NMCA, NAU, Navsari)</td></tr>
<tr><td>17.2.2.23</td><td>Allelopathy evaluation of facultative weed species</td></tr>
<tr><td></td><td>The present investigation has observed that selected different four weed species for different location possess some of allelochemicals, which having two different effects, positive and negative on selected crops.
<table>
<tr><th>Reco. No.</th><th>Location</th><th>Recommendation</th></tr>
<tr><td>1.</td><td>College of Agriculture, NAU, Bharuch</td><td>Allelopathic active weed species i.e. Parthenium hysterophorus, Alternanthera sessilis, Euphorbia geniculata, Achyranthes aspera produced allelochemicals, that reduced germination, vigour and subsequent growth of wheat plant, hence required attention to identify the allelochemicals responsible for negative interaction.</td></tr>
<tr><td>2.</td><td>College of Agriculture, NAU, Waghai</td><td>Presence of Cassia tora and Sphaeranthus indicus having positive influenced on paddy growth and vigour, hence required attention to identify the potential of weeds as bio-stimulant. While Alternanthera sessilis and Chrozophora tinctoria having direct negative impact on germination and vigour of crop paddy seedlings required attention to identify the allelochemicals.</td></tr>
<tr><td>3.</td><td>N M College of Agriculture, NAU, Navsari</td><td>Facultative weeds i.e.Abutilon indicum, Euphorbia hirta, Achyranthes aspera and Alternanthera sessilisproduced allelochemicals, that reduced germination, vigour and subsequent growth of greengram seedling, hence required attention to identify the allelochemicals responsible for negative interaction.</td></tr>
</table>
Dropped (Not approved)
(Action: Professor of Agronomy, CoA, Bharuch)</td></tr>
</table>

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

<table>
<tr><td>17.2.2.24</td><td>Efficacy of pre emergence herbicides in rustica tobacco</td></tr>
<tr><td></td><td>Apply Pendimethalin 38.7CS @ 0.5 kg/ha as pre-emergence spray on dry soil 3 days before transplanting for effective weed control and yield of rustica tobacco.
Approved
(Action :- Assoc. Research scientist, Agricultural Research Station, SDAU, Ladol)</td></tr>
</table>

17.2.3 NEW TECHNICAL PROGRAMMES

SUMMARY

Name of University	New Technical programmes	
	Proposed	Approved
AAU, Anand	17	16
JAU, Junagadh	24	14
NAU, Navsari	51	41
SDAU, SKNagar	23	15

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title of Experiment	Suggestion/s
17.2.3.1.	Response of nutrient management on sweet corn- amaranthus - clusterbean cropping sequence under organic farming	**Approved with following suggestion/s** 1. Include physical properties of soil (BD and WHC) 2. Add treatment T_{13}: 10 t FYM/ha without mulching T_{14}: 15 t FYM/ha without mulching 3. Take 3 replication instead of 4 4. Take clusterbean variety Anand Bahar 5. Workout the C:N ratio after harvest of waste material before mulching 6. Reframe the title as "Nutrient mgt. in …………". 7. Add observation on 'sweet corn equivalent yield'
	(**Action**: *Professor and Head, Department of Agronomy, BACA, AAU, Anand*)	
17.2.3.2.	Effect of crop geometry, intercropping and nutrient management in cotton and their residual effect on the succeeding groundnut	**Approved with following suggestion/s** 1. In title mention *Bt.* cotton 2. Expt. Design for groundnut crop is SPD 3. Delete the word quality from title and objective 4. Spacing 60-180-60 instead of 90-180-90 5. Add cotton equivalent yield in observation 6. Apply fertilizer in intercrop as per area base 7. Delete the treatment N_3 8. Nutrient content and uptake by plant
	(**Action**: *Professor and Head, Department of Agronomy, BACA, AAU, Anand*)	
17.2.3.3.	Evaluation and intercomparison of CROPGRO, InfoCrop- and WOFOST models for cotton growth and yield simulation	**Approved with following suggestion/s** Reduce net plot size i.e. 2.4 mX 3.6 m in place of 4.8 m x 3.6 m
	(**Action:** *Professor and Head, Department of Agril. Meteorology, BACA, AAU,*	

	Anand)	
17.2.3.4.	Weed management in direct dry seeded rice under irrigated condition	**Approved with following suggestion/s** 1. Add IC in treatment T_9 2. In objective write microbial population instead of microbial properties 3. In objective add direct dry seeded rice 4. Take variety GAR 14 instead of GAR 13
	(**Action**: *Agronomist & PI, AICRP-WM, BACA, AAU, Anand*)	
17.2.3.5.	Effect of sowing interval and ethephone on fresh dormancy in groundnut (*Arachis hypogeae* L.) *var.* GG 34	**Approved with following suggestion/s** 1. E_0 : Control treatment in sub plot 2. Mention water volume and methodology for seed treatment 3. Take 3 replication instead of 4 4. Expt. Design FRBD instead of Split Plot 5.Add treatment D_4 : 28 DAH
	(**Action**: *Research Scientist, RRS, AAU, Anand*)	
17.2.3.6.	Effect of Nano Zn on crop growth, yield and its content in maize-wheat cropping sequence	**Approved with following suggestion/s** 1. Add maize equivalent yield in observation 2. In maize 5 t FYM/ha as common application 3. Treatment T_{12}: T_1 + 8 kg $ZnSO_4$/ha 4.Treatment imposition to both the crop 5.T_7 : T_6 + soil application of Zn NPs at 0.50 kg ha^{-1} T_8 : T_6 + soil application of Zn NPs at 0.25 kg ha^{-1} T_9 : T_6 + soil application of Zn NPs at 0.75 kg ha^{-1}
	(**Action:** *Associate Research Scientist, Micronutrient Research Project, AAU, Anand*)	
17.2.3.7.	Role of organic manure in maintenance of micronutrient status under continuous cropping in loamy sand soils of Anand **New title:** Role of FYM in maintenance of soil fertility under continuous cropping in loamy sand soils of Anand	**Approved with following suggestion/s** 1. Mention soil fertilizer status in objective No. 3 instead of micronutrient status 2. Add more observation in soil analysis Sr. No. 3 EC, pH and S 3. Replace the word "organic manure" with FYM in title 4. Add observation on " measure soil physical properties" at every five years intervals
	(**Action**: *Associate Research Scientist, Micronutrient Research Project, AAU, Anand*)	
17.2.3.8.	Delineation of micro- and	**Approved**

	secondary nutrients deficient areas of middle Gujarat region	
	(**Action**: *Associate Research Scientist, Micronutrient Research Project, AAU, Anand)*	
17.2.3.9.	Response of sweet corn maize hybrid to irrigation in sandy loam soil	**Approved with following suggestion/s** 1. Delete the word maize from the title and objective 2. Add observation of water use efficiency New treatment T_1: 0.4 IW/CPE T_2: 0.6 IW/CPE T_3: 0.8 IW/CPE T_4: 1.0 IW/CPE T_5: As such treatment T_6: As such treatment
	(**Action**: *Associate Research Scientist, MMRS, AAU, Godhra*)	
17.2.3.10.	Effect of potassium application on the yield of *Kharif* maize	**Approved with following suggestion/s** 1. Add observation of K content and uptake by grain and stover 2. Delete seed treatment 3. KMB 1 L/ha enriched with FYM
	(**Action**: *Associate Research Scientist, MMRS, AAU, Godhra*)	
17.2.3.11.	Effect of potassium application on the yield of *Rabi* maize	**Approved with following suggestion/s** 1. Add observation of K content and uptake by grain and stover 2. No application of 5 t FYM/ha in rabi maize hence, delete 3. KMB 1 L/ha with irrigation and also seed treatment of KMB
	(**Action**: *Associate Research Scientist, MMRS, AAU, Godhra*)	
17.2.3.12.	Effect of integrated nutrient management in summer groundnut **New title:** Nutrient management in summer groundnut	**Approved with following suggestion/s** 1. Delete effect of integrated from the title 2. Add observation N, P and K content and uptake by kernel and haulm 3. New treatment as below Nitrogen level (kg/ha) N_1: 12.5 N_2: 25 Phosphorous level (kg/ha)

		P_1: 25 P_2: 50 Potash level (kg/ha) K_1: 0 K_2: 25 K_3: 50 4. Delete the word quality from objective
	(**Action:** *Principal, ARS, COA, AAU, Jabugam*)	
17.2.3.13.	Effect of integrated nutrient management in summer sesame **New title:** Nutrient management in summer sesame	**Approved with following suggestion/s** 1. Delete effect of integrated from the title 2. Add observation of N, P and K content and uptake by seed and stalk 3. New treatment as below Nitrogen level (kg/ha) N_1: 25 N_2: 37.5 N_3 50 Phosphorous level (kg/ha) P_1: 12.5 P_2: 25 Potash level (kg/ha) K_1: 0 K_2: 10 K_3: 20 4. Change the word stalk instead of stover in observation 5. Delete the word quality from objective 6.Topping should be done at 25 DAS
	(**Action**: *Principal, ARS, COA, AAU, Jabugam*)	
17.2.3.14	Effect of spacing and nutrient management in summer blackgram	**Appoved with following suggestion/s** 1. Add observation of number of seeds/pod 2. Add content and uptake of N, P and K by seed and straw 3. Change the treatment as below Spacing S_1: 30 cm S_2: 45 cm Nitrogen level (kg/ha) N_1: 20 N2: 30 Phosphorous level (kg/ha) P_1: 20 P_2: 40

		Potash level (kg/ha) K_1: 0 K_2: 20
	(**Action**: *Principal, ARS, COA, AAU, Jabugam*)	
17.2.3.15.	Effect of soil and foliar application of multimicronutrient mixture on growth, yield and nutrient content of drilled paddy	**Approved with following suggestion/s** 1. Add treatment T_{13}: RDF + micronutrient as per STV 2. Add 10 t FYM/ha in RDF 3. Take variety AAUDR 1 instead of Mahisagar 4. Take fertilizer dose of 50:25:0 instead of 100:25:0 kg NPK/ha
	(**Action**: *Associate Research Scientist, Agricultural Research Station, AAU, Derol*)	
17.2.3.16.	Effect of Nano Zn on crop growth, green fodder yield and its content in fodder sorghum-oat-fodder bajra cropping sequence	**Approved with following suggestion/s** 1. Add equivalent yield in observation 2. In maize 5 t FYM/ha as common application 3. Treatment T_{12}: T_1 + 8 kg $ZnSO_4$/ha 4. Treatment imposition to both the crops
	(**Action**: *Research Scientist, MFRS, AAU, Anand*)	
17.2.3.17.	Assessment of crop management module in pearl millet + blackgram – wheat + chickpea intercropping systems	**Dropped**
	(**Action** : *Principal, College of AIT, Anand*)	

<u>JUNAGADH AGRICULTURAL UNIVERSITY</u>

Sr. No.	Title	Suggestion/s
17.2.3.18.	Real time nitrogen fertilization using leaf colour chart in wheat	**Approved with following suggestion/s** 1. Apply potash in two splits as 50% N as basal and 50% at 30 DAS. 2. Analyse N content of particular leaf. **3.** Sow maize or sorghum as exhaustive crop in previous season.
	(**Action**:- *Professor and Head, Department of Agronomy, COA, JAU, Junagadh)*	

17.2.3.19	Effect of drip irrigation schedules and plastic mulch on yield of *rabi* sweet corn	**Approved with following suggestion/s** 1. Keep variety Madhuram instead of Sugar-75. 2. Add straw mulch treatment. 3. Add observation on mulch coverage (%). 4. Delete no. of grain rows/cob, test weight of fresh kernel and crude protein yield from observation. 5. Delete economics and NPK from soil from observation and add EC.
	(**Action** - *Professor and Head, Department of Agronomy, COA, JAU, Junagadh)*	
17.2.3.20	Dynamics and depletion of soil weed seedbank in wheat	**Approved with following suggestion/s** 1. Delete economics from observation. 2. In T_3, apply waste decomposer at pre-sowing irrigation. 3. HW at 20 & 40 DAS. 4. Specify weed free treatment. 5. In tray, grow weed seed and take count in 2-3 replications. 6. Add observations on Bio assay test and herbicide reside analysis
	(**Action** - *Professor and Head, Department of Agronomy, COA, JAU, Junagadh*)	
17.2.3.21	Bio-efficacy evaluation of pre-mix herbicides in summer soybean	**Approved with following suggestion/s** 1. In T_3, T_4, $T_5$and T_6 keep only POE herbicides, delete HW at 15 DAS. 2. Spray POE herbicides at 15-20 DAS and do IC & HW at 30 DAS. 3. Add phytotoxicity observation in soybean. 4. Estimate herbicide residues from seeds, straw and soil
	(**Action** - *Professor and Head, Department of Agronomy, COA, JAU, Junagadh*)	
17.2.3.22	Evaluation of *Go-Krupa Amrutam* in chickpea (Feeler trial)	**Dropped** (Consider as private project)
	(**Action**- *Professor and Head, Department of Agronomy, COA, JAU, Junagadh*)	
17.2.3.23	Dynamics of soil weed seedbank in *kharif* groundnut	**Approved with following suggestion/s** 1. Delete M_2 treatment. 2. In M_4, apply waste decomposer with pre-sowing irrigation. 3. Bio assay test and estimate herbicide residues from seed, straw and soil

	(**Action** - *Professor and Head, Department of Agronomy, COA, JAU, Junagadh*)	
17.2.3.24	Bio-efficacy evaluation of different herbicides in Bt cotton	**Approved with following suggestion/s** 1. Define weed free check 2. Mention blanket application of Paraquat dichloride at 10 DAS in T_4. 3. Bio assay test and herbicide reside analysis
	(**Action** - *Professor and Head, Department of Agronomy, COA, JAU, Junagadh*)	
17.2.3.25	Response of castor to subsoiling and furrow irrigation	**Approved with following suggestion/s** 1. Mention the 30 cm depth of sub soiling. 1. Mention the depth of irrigation. 2. Apply irrigation at 0.6 IW: CPE. 3. Write field WUE instead of WUE.
	(**Action** - *Professor and Head, Department of Agronomy, COA, JAU, Junagadh*)	
17.2.3.26	Response of summer groundnut to limited irrigation under drip system (AICRP only)	**Noted (AICRP trial)**
	(**Action** - *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh*)	
17.2.3.27	Effect of foliar application of water soluble macro and micro nutrients fertilizers on growth, yield and quality of *kharif* groundnut	**Approved with following suggestion/s** 1. Delete T_3 and T_6 treatments. 2. Check time of multi micronutrients spray. 3. Take SPAD meter reading at 75 DAS. 4. Add uptake of S and B.
	(**Action** - *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh*)	
17.2.3.28	Effect of nitrogen and multi-micronutrients on yield and chlorosis of *kharif* groundnut	**Dropped**
	(**Action** - *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh*)	
17.2.3.29	Effect of plant growth retardants on growth and yield of *kharif* groundnut	**Approved**
	(**Action** - *Research Scientist, Main Oilseeds Research Station, JAU, Junagadh*)	

<table>
<tr><td rowspan="2">17.2.3.30</td><td>Effect of cow dung on yield and nutrients uptake by wheat</td><td>Approved with following suggestion/s
1. Recast treatments and objectives as per suggestion.
2. Design ‘RBD with factorial concept’</td></tr>
<tr><td colspan="2">(Action - Professor and Head, Department of Agril. Chem. & Soil Science, COA, JAU, Junagadh)</td></tr>
<tr><td rowspan="2">17.2.3.31</td><td>Evaluation of garlic varieties with and without FYM under saline irrigation water condition</td><td>Approved with following suggestion/s
1. Keep FYM levels as F_1: 5 t/ha, F_2: 7.5 t/ha and F_3: 10 t/ha.
2. Add physical properties BD and WHC in observation.
3. Recast title and objectives.
4. Recast the title as “ Evaluation of garlic varieties and FYM levels under saline irrigation water”</td></tr>
<tr><td colspan="2">(Action - Professor and Head, Department of Agril. Chem. & Soil Science, COA, JAU, Junagadh)</td></tr>
<tr><td rowspan="2">17.2.3.32</td><td>Management of iron chlorosis in groundnut</td><td>Approved with following suggestion/s
1. Add treatment of Urea spray from Experiment No. 11.</td></tr>
<tr><td colspan="2">(Action - Professor and Head, Department of Agril. Chem. & Soil Science, COA, JAU, Junagadh)</td></tr>
<tr><td rowspan="2">17.2.3.33</td><td>Establishment of critical limit of zinc for soybean in medium black calcareous soils</td><td>Approved with following suggestion/s
1. Mention plants/pot.</td></tr>
<tr><td colspan="2">(Action - Professor and Head, Department of Agril. Chem. & Soil Science, COA, JAU, Junagadh)</td></tr>
<tr><td rowspan="2">17.2.3.34</td><td>Cropping geometry of groundnut with different intercrops for increasing productivity and rain water use efficiency under groundnut-fodder sorghum sequence in rainfed condition</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action-Research Scientist, Main Dry Farming Research Station JAU,Targhadia)</td></tr>
</table>

<table>
<tr><td rowspan="2">17.2.3.35</td><td>Bio-efficacy of different post-emergence herbicides for broad spectrum weed management in chickpea</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action - Research Scientist, Pulses Research Station, JAU, Junagadh)</td></tr>
<tr><td rowspan="2">17.2.3.36</td><td>Effect of crop residue and polymers on moisture conservation and productivity of pearl millet</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action : Research Scientist, Main Millet Research Station, JAU, Jamnagar)</td></tr>
<tr><td rowspan="2">17.2.3.37</td><td>Effect of tillage and nutrient management on pearl millet (AICRP only)</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action : Research Scientist, Main Millet Research Station, JAU, Jamnagar)</td></tr>
<tr><td rowspan="2">17.2.3.38</td><td>Nutrient management through nano fertilizers in groundnut</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action : Research Scientist, Main Millet Research Station, JAU, Jamnagar)</td></tr>
<tr><td rowspan="2">17.2.3.39</td><td>Evaluation of Go-Krupa Amrutam in wheat (Feeler trial)</td><td>Dropped (Consider as private project)</td></tr>
<tr><td colspan="2">(Action: Research Scientist, Wheat Research Station, JAU, Junagadh)</td></tr>
<tr><td rowspan="2">17.2.3.40</td><td>Effect of bio-enhancers on sugarcane productivity</td><td>Approved with following suggestion/s
1. Delete T_8.
2. Add T_8: Panchagavya 3%, T_9: Panchagavya 4% andT_{10}: Cow urine 5%.
3. Specify species of seaweed.
4. Keep seaweed extract 4% instead of 5%.
5. Correct banana pseudo stem sap spray as Novel organic liquid nutrient.
6. Take observation on no. of tillers at 120 DAP and no. of millable canes at 300 DAP and harvest.</td></tr>
<tr><td colspan="2">(Action : Research Scientist, Main Sugarcane Research Station, JAU, Kodinar)</td></tr>
</table>

17.2.3.41	Multi-tier cropping system to enhance resource utilization, profitability and sustainability of Bt cotton (*Gossypium hirsutum*) production system (AICRP only)	**Noted (AICRP trial)**
	(**Action** : *Research Scientist, Cotton Research Station, JAU, Junagadh*)	

NAVSARI AGRICULTURAL UNIVERSITY

Sr.	Title of Experiment	Suggestion/s
17.2.3.42	Study on intercrops and drip irrigation levels in banana under South Gujarat condition	**Approved with following suggestions:** 1. Modify title as: "Study on intercrops and irrigation levels under drip irrigation system". 2. Add methodology to calculate ETc. 3. Replace the observation of WEE with WUE.
	(***Action***: *Resrarch Scientist, SWMRU,NAU, Navsari*)	
17.2.3.43	Response of sugarcane crop to different row spacing and drip irrigation levels under South Gujarat condition	**Approved with following suggestions**: 1. Remove "Crop" from the title. 2. Keep same gross plot size.
	(***Action*** *: Resrarch Scientist., SWMRU, NAU, Navsari*)	
17.2.3.44	Soil moisture tension, release and transmission characteristics in different soils of South Gujarat	**Approved with following suggestions:** 1. Title should be "Study on soil hydraulic properties of soils of south Gujarat. 2. Increase the sample size.
	(***Action***: *Resrarch Scientist, SWMRU, NAU, Navsari*)	
17.2.3.45	Effect of land configuration and irrigation level for beetroot grown after *kharif* rice	**Approved with following suggestions:** 1. L_3 treatment should be BBF 2. Design is strip plot therefore write horizontal and vertical plot instead of main plot and sub plot. 3. Mention 30 cm sowing in L_3 4. Remove the name of variety from the crop and variety column.
	(***Action***: *Resrarch Scientist, SWMRU, NAU, Navsari*)	

17.2.3.46	Evaluating the performance of rice variety in different intercropping systems under aerobic rice cultivation	**Approved with following suggestions:** 1. Drop NAUR-1 and add 4:2 ratio in the treatments.
	(***Action***: *Resrarch Scientist, SWMRU,NAU, Navsari*)	
17.2.3.47	Effect of foliar application of nitrogen on yield and protein content in different varieties of rice	**Approved with following suggestions:** 1. Replace the word “nutrient” with “nitrogen” 2. Mention the protein content in varieties taken in the treatments. 3. Write design as RBD with factorial concept. 4. Verify the seed rate of rice.
	(***Action***: *Resrarch Scientist, SWMRU, NAU, Navsari*)	
17.2.3.48	Enhancing productivity of rice- pulse cropping system under aerobic rice cultivation	**Approved with following suggestions:** 1. Replace word “pulse” with ‘based’ from title. 2. Remove the name of variety from treatment but mention in crop and variety column.
	(***Action***: *Resrarch Scientist, SWMRU, NAU,Navsari*)	
17.2.3.49	Sustainable weed management in aerobic rice system -AICRP trial	**Noted (AICRP trial)**
	(***Action***: *Resrarch Scientist, SWMRU, NAU,Navsari*)	
17.2.3.50	Studies on changes in soil properties under anaerobic rice cultivation in coastal areas of South Gujarat	**Approved with following suggestions:** 1. Record the observation of AWC.
	(***Action*** : *Resrarch Scientist, SWMRU, NAU,Navsari*)	
17.2.3.51	Evaluation of dual amendment reclamation effect on saline-sodic soil under rice and its residual effect on wheat crop	**Approved with following suggestions:** 1. Title should be “Effect of dual amendments on reclamation of saline-sodic soils under rice and its residual effect on wheat. 2. Add treatment of 66% GR through gypsum + 9% GR through $CaCl_2$. 3. Add observation of $CaCO_3$. 4. Confirm seed rate of rice.
	(***Action***: *Resrarch Scientist, SWMRU, NAU,Navsari*)	

17.2.3.52	Integrated weed management in sugarcane planted through single eye budded settling under south Gujarat condition	**Approved with following suggestions:** 1. T_1 treatment should be of weed free 2. T_3 treatment should be of IC fb HW 3. Record phyto-toxicity observation at 7, 14 and 21 days after application of herbicides. 4. Add observation of dry weight of weeds. 5. Add observation of herbicide residue analysis.
	(***Action*** *: Resrarch Scientist (Agronomy), MSRS, NAU,Navsari*)	
17.2.3.53	Status of different forms of Nitrogen in soils of Navsari district of South Gujarat	**Approved with following suggestions:** 1. Title of experiment should be "Status of different forms of Nitrogen, Potassium and Sulphur in soils of Navsari district of South Gujarat".
	(***Action*** *: Resrarch Scientist, SS, NAU,Navsari*)	
17.2.3.54	Status of different forms of Potassium in soils of Navsari district of South Gujarat	**Merged** 1. Merge with "Status of different forms of Nitrogen in soils of Navsari district of South Gujarat" (Sr. No. 12).
	(***Action*** *: Resrarch Scientist, SS, NAU,Navsari*)	
17.2.3.55	Effect of topping in pigeonpea *var.* GT 104 under different spacing.	**Accepted as filler trial**.
	(***Action****: Nodal officer, Pulse & Castor Research Station NAU,Navsari*)	
17.2.3.56	Performance of deeply sown gram (*Cicer arientinum* L.) under different Level of irrigation and weed management in Organic farming.	**Approved with following suggestions:** 1. Define weed free treatment. 2. W_2 treatment should be IC and HW at 30-35 DAS. 3. W_3 treatment should be IC and HW at 20 and 40 DAS. 4. Specify the observation of plant population. 5. Irrigation schedule should be based on crop growth stage instead of days in irrigation treatments.
	(***Action****: Asso. Res. Sci., RRRS, NAU, Vyara*)	
17.2.3.57	Weed management practices in Aerobic rice (*Oryza sativa* L.)	**Approved with following suggestions:** 1. Take two rows of the crops after paddy for bioassay study. 2. Record plant stand at 10 DAS and plant height and dry biomass at 20 DAS. 3. Remove "hand hoe" from treatment. 4. Add observation of herbicide residue analysis. 5. PoE herbicide should be applied at 20-25 DAS.
	(***Action****: Asso. Res. Sci., RRRS, & Scientist(Agronomy), KVK, NAU, Vyara)*	

<table>
<tr><td rowspan="2">17.2.3.58</td><td>Effect of nitrogen levels and growth retardants on cotton under HDPS</td><td>Approved with following suggestions:
1. N dose should be 75, 100 and 125% of RDN.
2. Variety should be GTHH 49.
3. Apply growth retardant at 60 and 75 DAS.
4. Rate of Mapiquat Chloride should be 37.5 g ai/ha.
5. Spacing 60x45 cm
6. Add observation of stalk yield.
7. Verify the dose of RDN</td></tr>
<tr><td colspan="2">(Action : Resrarch Scientist, MCRS, NAU, Surat)</td></tr>
<tr><td rowspan="2">17.2.3.59</td><td>Feasibility of different Intercrops on Bt cotton hybrid</td><td>Approved with following suggestions:
1. Inter crops spacing should be 45 cm of which one line should be at centre.
2. Add sole crops treatments.
3. Replication should be 3.
4. Add observation of LER.</td></tr>
<tr><td colspan="2">(Action: Resrarch Scientist, MCRS, NAU, Surat)</td></tr>
<tr><td rowspan="2">17.2.3.60</td><td>Effect of different spacing and nitrogen levels on arboreum cotton under rainfed condition</td><td>Not approved.</td></tr>
<tr><td colspan="2">(Action : Resrarch Scientist, MCRS, NAU, Surat)</td></tr>
<tr><td rowspan="2">17.2.3.61</td><td>Effect of different age of seedling for transplanting of kharif grain sorghum</td><td>Approved with following suggestions:
1. D_7 treatment should be drilling at onset of monsoon.</td></tr>
<tr><td colspan="2">(Action: Resrarch Scientist, MSRS, NAU, Surat)</td></tr>
<tr><td rowspan="2">17.2.3.62</td><td>Response of different irrigation levels, row and lateral spacing on yield of drip irrigated sugarcane</td><td>Approved with following suggestions:
1. Modify title as ”Response of irrigation levels, method of planting and lateral spacing on yield of drip irrigated sugarcane”.
2. Place the drip at 7.5 cm depth.
3. Add observation of WEE.
4. Treatment A should be method of planting instead of spacing.</td></tr>
<tr><td colspan="2">(Action: Asso. Res. Sci., ARS, NAU, Achhalia)</td></tr>
</table>

17.2.3.63	Studies on fertilizer application methods and nitrogen splits on growth and yield of rainfed cotton	**Approved with following suggestions:** 1. Add observation of per cent plant damage.
	(***Action**: Asso. Res. Sci., ARS, NAU, Achhalia)*	
17.2.3.64	Studies on sowing dates, spacing and irrigation methods on growth and yield of cotton	**Approved with following suggestions:** 1. Remove the sowing date factor and modify the irrigation treatment by including IW/CPE ratio of 0.6 and 0.8 in every furrow and alternate furrow methods.
	(**Action***: Asso. Res. Sci., ARS, NAU, Achhalia)*	
17.2.3.65	Effect of spacing and topping on *Bt* cotton hybrid G. Cot Hy-12 (BG-II)	**Approved with following suggestions:** 1. Topping treatments should be No topping and topping at 65, 80 and 95 DAS. 2. Record the plant stand at 20 DAS. 3. Remove the observation of No. of bolls/m^2 and sympodial length at 50% height.
	(**Action***: Asstt. Res. Sci., ARS, NAU,* Tanchha*)*	
17.2.3.66	Effect of different irrigation levels on the performance of various late sown wheat cultivars under different location of south Gujarat	**Approved with following suggestions:** 1. Remove "different" and "location" from the title. 2. Specify the depth of irrigation. 3. Replace the treatment M_1 with IW/CPE treatment. 4. Replace variety GW 173 with GW 11. 5. Remove the observation of No. of plant/m at harvest.
	(**Action***: Assit. Res. Sci., ARS, NAU,Mangrol)*	
17.2.3.67	Effect of spacing on the performance of sweet corn	**Approved with following suggestions:** 1. Use variety "madhuram" instead of "sugar 75" in experiment. 2. Add 45x30 cm and 45x20 cm treatments. 3. Add observation of plant population, picking dates and sugar. 4. Remove S_5 and S_6 treatments. 5. Source of bio-fertilizer may be Anubhav consortia of AAU.
	(**Action**: *Professor & Head, Agronomy, NMCA, NAU, Navsari)*	

<table>
<tr><td rowspan="2">17.2.3.68</td><td>Integrated weed management in chickpea (Cicer arietinum L.) under south Gujarat condition</td><td>Approved with following suggestions:
1. Add observation of bioassay and herbicide residue study.
2. Specify dates of plant height observation.</td></tr>
<tr><td colspan="2">(Action: Professor & Head, Agronomy, NMCA, NAU, Navsari)</td></tr>
<tr><td rowspan="2">17.2.3.69</td><td>Nutrient management in fodder sunflower (Helianthus annuus L.) under south Gujarat condition</td><td>Approved with following suggestions:
1. Remove the observation of dry fodder yield.
2. Replace word ‘fodder’ with ‘forage’</td></tr>
<tr><td colspan="2">(Action : Professor & Head, Agronomy, NMCA, NAU, Navsari)</td></tr>
<tr><td rowspan="2">17.2.3.70</td><td>Identification of cropping systems module for different farming systems – AICRP trial</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action: Professor & Head, Agronomy, NMCA, NAU, Navsari)</td></tr>
<tr><td rowspan="2">17.2.3.71</td><td>A comparative study of Humus, Nitrogen and Sulphur dynamics of organically and conventionally managed arable soils in different crops</td><td>Approved with following suggestions:
1. Title should be “Study on dynamics of Humus, Nitrogen and Sulphur under organically and conventionally managed crops”.</td></tr>
<tr><td colspan="2">(Action: Professor & Head, SSAC, NMCA, NAU, Navsari)</td></tr>
<tr><td rowspan="2">17.2.3.72</td><td>Status of different forms of sulphur in soils of Navsari district of South Gujarat</td><td>Merged
Merged with “Status of different forms of Nitrogen in soils of Navsari district of South Gujarat” (Sr. No.12)</td></tr>
<tr><td colspan="2">(Action: Professor & Head, SSAC, NMCA, NAU, Navsari)</td></tr>
<tr><td rowspan="2">17.2.3.73</td><td>Calibration and validation of DSSAT-CROPGRO model for Mungbean crop under South Gujarat region</td><td>Approved with following suggestions:
1. Design should be split plot. Date of sowing should be in main-plot and varieties in sub-plot.
2. Maintain regular interval of sowing i.e. 15 days to first sowing.
3. Add more observation required for minimum data set.
4. Replication should be 4</td></tr>
<tr><td colspan="2">(Action: Assit. Prof., Agril. Meteorology, NMCA, NAU, Navsari)</td></tr>
</table>

17.2.3.74	Persistence and dissipation behaviour of pyroxasulfone in maize	**Approved with following suggestions:** 1. Specify the season and date of sowing. 2. Record the observation of pesticide residue from stalk at 40-50 DAS.
	(**Action**: *In-charge, FQTL, NAU, Navsari)*	
17.2.3.75	Persistence and dissipation behaviour of pyrazosulfuron ethyl in soil and water in transplanted rice field	**Approved with following suggestions:** 1. Specify the season and date of sowing. 2. Record the observation of pesticide residue from straw at 40-50 DAS.
	(**Action** : *In-charge, FQTL, NAU, Navsari)*	
17.2.3.76	Effect of different organic nutrient sources on summer black gram(*Vigna mungo* L. Hepper)	**Not approved**
	(**Action:** *Assoc. Prof., SSAC, ACHF, NAU, Navsari)*	
17.2.3.77	Influence of different organics on fruiting, yield and quality of mango (*Mangifera indica* L.) cv. Kesar	**Approved with following suggestions:** 1. Give the method of Glyricidia leaf extraction. 2. Record the water volume in spray treatments. 3. Use 2, 4 and 6% concentration in spray treatments.
	(**Action:** *Assoc. Prof., SSAC, ACHF, NAU, Navsari)*	
17.2.3.78	Effect of manure and foliar spray of different liquid organic formulations on growth, yield and quality of banana	**Approved with following suggestions:** 1. Use 100, 90, 80, 70, 60 and 50% RDN in NADEP compost treatments. 2. Keep only Novel organic liquid nutrient and control in spray treatment. 3. Add observation of total microbial count.
	(**Action:** *Assoc. Prof., SSAC, ACHF, NAU, Navsari)*	
17.2.3.79	Analysis of medium range weather forecasting under South Gujarat region	**Not approved**
	(**Action**: *Assoc. Prof., SSAC, ACHF, NAU, Navsari)*	

17.2.3.80	Optimization of organic nutrient sources for summer greengram (*Vigna radiata*) under south Gujarat conditions	**Merged** 1. This expt be merged with" Response of barnyard millet to organics".
	(**Action:** *Assoc. Prof.& Head, Dept. of Agronomy, CoA, NAU, Waghai)*	
17.2.3.81	Response of chickpea (*Cicer arietinum* L.) to cow-based bio enhancers and botanicals under south Gujarat condition	**Not approved**
	(**Action***: Assoc. Prof.& Head , Dept. of Agronomy, CoA, NAU, Waghai)*	
17.2.3.82	Response of barnyard millet to organics	**Approved with following suggestions:** 1. Revised as "Response of Barnyard millet to organics and their residual effect in *rabi* green gram" .
	(**Action:** *Assoc. Prof.& Head, Dept. of Agronomy, CoA, NAU, Waghai)*	
17.2.3.83	Response of paddy to foliar spray of organic liquid under hilly region of south Gujarat	**Approved with following suggestions:** 1. Give the methodology of BDLM, Panchgavya and vermibed wash methods. 2. Modify the treatment as two spray of 2% organic liquid at 15 and 30 DAT and three spray of 2% organic liquid at 15, 30 and 45 DAT. 3. Keep 3 % Panchgavya foliar spray instead of 2%. 4. Composition of diff bioenhancers should be take. 5. Add observation on Microbial count.
	(**Action:** *Assoc. Prof.& Head, Dept. of Agronomy, CoA, NAU, Waghai)*	
17.2.3.84	Influence of Glufosinate ammonium on cotton yield and soil microbes	**Approved with following suggestions:** 1. Keep first two treatments as such. 2. Modify the treatment W_3: W_1+ HW and IC at 50 DAS, W_4: W_2+ HW and IC at 50 DAS and W_6:IC *fb* HW at 20, 40 and 60 DAS . 3. Keep the treatments W_4 and W_6 as W_5 and W_7. 4. Remove the treatment of Glufosinate ammonium 550g/ha. 5. Check the RDF 6. Record phytotoxic observation up to 30 days. 7. Remove the observation of suppression of soil borne pathogens. 8. Add the bioassay observation. 9. Replication should be 3.
	(**Action:** *Professor & Head , Dept of Agronomy , CoA, NAU, Bharuch)*	

17.2.3.85	Determine the effect of defoliants on cotton yield and quality	**Approved with following suggestions:** 1. Title should be "Effect of defoliants on cotton yield and quality". 2. Add one CIBRC approved chemical in treatment. 3. Check the RDF
	(**Action**: *Professor, Agronomy, CoA, NAU, Bharuch)*	
17.2.3.86	Effect of different growth retardants on pigeonpea under rainfed condition	**Approved with following suggestions:** 1. Take any one CIBRC approved chemical in treatment. 2. Remove the treatment of nipping (T_2).
	(**Action:** *Professor& Head, Dept. of Agronomy,CoA, NAU, Bharuch)*	
17.2.3.87	Feasibility of Mustard (*Brassica juncea* L.) under varying fertilizer levels in south Gujarat condition.	**Approved with following suggestions:** 1. Modify the treatment as N levels: 25, 50, 75 kg/ha, P_2O_5 levels: 25, 50 kg/ha, S levels 0, 20, 40 kg/ha. 2. Sowing of the crop should be done before 1^{st}November.
	(**Action** : *Professor & Head , Dept of Agronomy,CoA, NAU, Bharuch)*	
17.2.3.88	Quantification of agro-meteorological indices in relation to crop phenology and yield under varying weather for soybean (*Glycine max* L. Merrill)	**Approved with following suggestions:** 1. Title should be "Determination of heat unit indices and crop weather relationship of soybean". 2. Take variety NRC 127 instead of KDS 344 3. Take 4 sowing dates at an interval of 10 days. 4. Design should be split plot, date of sowing as main plot and variety as sub plot treatment. 5. Record the phenological events.
	(**Action** : *Professor& Head, Dept. of Agronomy, CoA, NAU, Bharuch)*	
17.2.3.89	Effect of sulphur and zinc levels on yield and quality of sweet corn (*Zea mays* L. saccharata Sturt) and soil fertility status.	**Approved with following suggestions:** 1. Modify the treatment as S levels: 0, 10, 20, 30 kg/ha, Zn levels: 0, 2.5, 5.0 kg/ha, S levels 0, 20, 40 kg/ha. 2. Use Bentonite as S source. 3. Verify the seed rate. 4. Remove the observation of No. of leaves/plant at 60 DAP and grain row/cob.
	(**Action**: *Assoc. Prof.& Head, Dept. of SSAC,CoA, NAU, Bharuch)*	

17.2.3.90	Effect of pre and post-emergence herbicides in soybean.	**Approved with following suggestions:** 1. Treatment T_9should be IC fb HW at 20 and 40 DAS 2. Add observation of bioassay with three crops in one row and herbicide residue in soil, grain and stover. 3. Pendimethaline dose should be 900 g ai/ha in each treatment. 4. Use abbreviation PE instead of PRE.
	*(***Action*** : Principal, Agril. Poly., NAU, Vyara)*	
17.2.3.91	Evaluation of efficacy of two epigeic earthworm species for vermicomposting using different substrates	**Approved with following suggestions:** 1. Record the days of composting. 2. Design: CRD 3. Mention the earthworm in kg instead of numbers.
	(**Action***: Principal, Horti. Poly., NAU, Navsari)*	
17.2.3.92	Evalution of different time of sowing of *rabi* Sorghum.	**Approved with following suggestions:** Remove the "grain" word from objective. 1. Remove the observation of soil analysis. 2. Remove the treatment D_1 and D_2. 3. Replication should be 6.
	(**Action** : *Res. Sci., MSRS &Scientist(Agronomy), KVK, NAU, Surat)*	

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

Sr. No.	Title of Experiment	Suggestions
17.2.3.93	Effect of sowing time and topping on seed production of sunhemp	**Approved with following suggestions** 1. Use word 'yield' instead of 'production' in experiment title and objective no. 1. 2. Take obsrvation of 'Plant population per meter row length' 3. Take observation of "Days to maturity' instead of "Days to physiological maturity 4. Delete intrarow spacing i.e. 10 cm and observation of 'Days to 50% flowering'. 5. Recast topping treatments as under T_1: No topping, T_2: Topping at 25 DAS, T_3: Topping at 35 DAS Mention in foot note "Topping will be done by manual labour"
	(Action: *Professor & Head, Agronomy Department, CPCA, SDAU, S. K. Nagar***)**	

217.2.3.94	Effect of potassium and sulphur on growth, yield and quality of wheat – green gram sequence	**Approved with following suggestions** 1. Recast experiment title as 'Effect of potassium and sulphur on wheat – green gram crop sequence'. 2. Recast treatment T_2 for greengram as "75% RDF + Seed treatment with *Rhizobium* and PSB @ 5.0 ml/kg seed 3. Recast foot note of treatments as under i. RDF will be applied as common dose to wheat crop {RDF: 90-60-00 kg N-P-K/ha + 10 t FYM/ha + NPK consortium @ 5.0 ml/kg seed. In RDF, 50% N and 100% P will be applied as basal and remaining 50% N will be applied in two equal splits each at 21-25 DAS and 35-40 DAS. ii. Potash in treatment K_1 and K_2 will be applied in two equal splits as basal and 30 DAS from MOP. iii. S will be applied through Cossavet to wheat at the time of sowing. 4. Delete observation of Soil pH, Available N and P_2O_5 from chemical study.
	(Action: *Professor and Head, Agronomy Department, CPCA, SDAU, S. K. Nagar***)**	
317.2.3.95	Nutrient management in chickpea–fodder sorghum cropping sequence under organic farming	**Approved with following suggestions** 1. Replace word 'fodder' by 'forage' in title and objective no. 1 2. Recast treatments as under A. Levels of FYM: F_1: 2.5 t/ha, F_2: 5.0 t/ha F_3: 7.5 t/ha B. Bioenhancers: B_1: *Panchagavya* spray @ 3.0% at branching and flowering B_2: Cow urine spray @ 5.0% at branching and flowering B_3: Seed inoculation with *Rhizobium* and PSB @ 5.0 ml/kg seed B_4: Water spray (500 lit/ha) 3. Design: RBD with factorial concept 4. Change title of experiment as 'Effect of FYM and bio-enhancer on chickpea and its residual effect on succeeding forage sorghum under organic farming' 5. Recast the objectives of experiment accordingly. 6. 1.0 t castor cake/ha + Cow urine spray @ 5 % will be made before flowering to forage sorghum as common application.
	(Action: *Professor and Head, Agronomy Department, CPCA, SDAU, S. K. Nagar***)**	

17.2.3.96	Effect of weather on growth and seed yield of cumin	**Approved with following suggestions** 1. Add observations of i. Volatile oil content (%) and ii. Pheno phase of cumin i.e. Emergence, Vegetative stage, 50 % flowering and grain development stage (only date will be noted for each stage). 2. Take obsrvation of 'Plant population per meter row length' 3.Delete Name of Co-Investigator(Dr. Sweta A. Patel, Research Associate)
	(Action: *Professor and Head, Agronomy Department, CPCA, SDAU, S. K. Nagar***)**	
17.2.3.97	Assessment of ground water quality in north and north -west Gujarat	**Approved with following suggestions** 1. Delete word 'seven districts' from objectives. 2.In Location mention: Seven districts of North and North West Gujarat 3. Delete Name of Co-Investigator (Dimpal A. Patel, SRF) 4. Estimate Pesticide residue in water sample (10% of total samples). 5. Nickle and Cobalt be measured from water samples (contact Ground Water Board in this regard).
	(Action: *Professor& Hed, Department of Agril. Chem. and Soil Sci., CPCA, SDAU, S. K. Nagar***)**	
17.2.3.98	Performance evaluation of agrivoltaic system for crop productivity and power generation	**Approved with following suggestions** 1. Delete word 'orientation' from objective no. 1. 2. Add observation on 'Power generation'
	(Action: *Research Scientist, Centre for Research on IFS, SDAU, S. K. Nagar***)**	
17.2.3.99	(Revised):- Estimation of green house gases (GHGS) emission (CO_2-e kg) in different cropping systems of IFS Model.	**Noted (AICRP trial)**
	(Action: *Research Scientist, Centre for Research on IFS, SDAU, S. K. Nagar***)**	
17.2.3.100	Intercropping in Amaranth with different leafy vegetable crop (AICRP trial)	**Noted (AICRP trial)**
	(Action: *Associate Res. Sci., Center for Crop Improvement, SDAU, S. K. Nagar***)**	

17.2.3.101	Performance of pigeon pea based inter cropping system under rainfed condition	**Noted (AICRP trial)**
	(Action: *Res. Sci., Centre for Natural Resource Management, SDAU, S. K. Nagar***)**	
17.2.3.102	Effect of nutrient management on "sunhemp –potato-groundnut and groundnut –potato-groundnut cropping sequence under organic farming	**Approved with following suggestions** 1. Recast title of experiment as 'Nutrient management in sunhemp (GM) –potato-groundnut and groundnut –potato-groundnut cropping sequence under organic farming'. 2. Mention plot size of Main plot. 3. Recast objectives as 1. To study effect of nutrient management on yield attributes and yield of potato and groundnut. 2. To find out suitable source of organic manure for sunhemp–potato-groundnut and groundnut–potato-groundnut cropping sequence. 4. Recast Note 1. Common application of 5 t FYM/ha will be given to both the crops.
	(Action: *Res. Sci., Centre for Natural Resource Management, SDAU, S. K. Nagar)*	
17.2.3.103	Effect of fertilizer levels and bio-fertilizers on mustard	**Noted (AICRP trial)**
	(Action: *Research. Sci., Castor and Mustard Research Station, SDAU, S. K. Nagar*)	
17.2.3.104	Development of fast and reliable soil testing method using FTNIR	**Approved**
	(Action: *Research Sci., Castor and Mustard Research Station, SDAU, S. K. Nagar***)**	
17.2.3.105	Response of seed rate and spacing to groundnut for seed production	**Approved with following suggestions** 1. Use word 'Row spacing' instead of 'Spacing' in Main plot and objective no. 1.
	(Action: *Research Sci., Seed Technology, SDAU, S. K. Nagar***)**	

<table>
<tr><td rowspan="2">17.2.3.106</td><td>Response of iron and zinc on growth, yield and quality of rabi fennel</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action: Research. Sci., Seed Spices Research Station, SDAU, Jagudan)</td></tr>
<tr><td rowspan="2">17.2.3.107</td><td>Study on Intercropping of vegetables with seed spices</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action: Research Sci., Seed Spices Research Station, SDAU, Jagudan)</td></tr>
<tr><td rowspan="2">17.2.3.108</td><td>Effect of fertilizer levels and cow based bio-enhancer on rabi fennel</td><td>Approved with following suggestions
1. Recast treatments as under
T₁: 100% RDF (90 - 30 kg NP/ha)
T₂: 75% RDF
T₃: 75% RDF + Panchgavya 3 % foliar spray at 30, 60 and 90 DAS
T₄: 75% RDF + Jivamrut 5 % foliar spray at 30, 60 and 90 DAS
T₅: 75% RDF + Cow urine 5 % foliar spray at 30, 60 and 90 DAS
T₆: 75% RDF + Panchgavya 3 % and Jivamrut 5 % foliar spray at 30, 60 and 90 DAS
T₇: 75% RDF +Jivamrut as soil application @ 500 lit/ha at 15, 30 and 45 DAS along with irrigation.
2. Design: RBD
3. Add observation on content and uptake of nutrients by nnel</td></tr>
<tr><td colspan="2">(Action: Research Sci., Seed Spices Research Station, SDAU, Jagudan)</td></tr>
<tr><td rowspan="2">17.2.3.109</td><td>Integrated nutrient management in wheat and its residual effect on succeeding green gram</td><td>Approved with following suggestions
1. Delete word ‘quality’ from objective no. 1.
2. Add one treatment in Inorganic fertilizers i.e. F₃: 100 % RDF
3. Detail of RDF: 90-60-00 kg NPK/ha + 10 t FYM/ha + Bio NPK consortium @ 5.0 ml/kg seed as seed treatment.
4. Replication: 3 (Three)
5. Delete EC and pH from soil status and add observation of OC (organic carbon)
6. Take observation of Effective tillers/ metre row length
7. Delete word ‘Integrated’ from title of experiment.</td></tr>
<tr><td colspan="2">(Action: Research Sci., Wheat Research Station, SDAU, Vijapur)</td></tr>
</table>

<table>
<tr><td rowspan="2">17.2.3.110</td><td>Management of broom rape (Orobanche Sp.) in rustica tobacco</td><td>Approved with following suggestions
1. Recast treatments as under
T_1: Imazethapyr @ 0.2 kg/ha with irrigation water at 40 DAT
T_2: Imazethapyr @ 0.2 kg/ha with irrigation water at 60 DAT
T_3: T_1 + uprooting of broom rape at 80 DAS
T_4: T_2 + uprooting of broom rape at 80 DAS
T_5: Imazethapyr @ 0.2 kg /ha at 40 DAT with 100 kg soil 2nd day after of irrigation
T_6: Mustard cake @ 0.5 t/ha at the time of transplanting
T_7: Mustard cake @ 1.0 t/ha at the time of transplanting
T_8: Castor cake @ 1.0 t/ha at the time of transplanting
T_9: Uprooting of broom rape at 60 and 80 DAT
T_{10}: Weedy Check
2. Record the following observations
i. Plant population/net plot
ii. Fresh weight of broom rape at 60, 80 and 100 DAT (g/net plot)
iii. Dry weight of broom rape at 60, 80 and 100 DAT (g/net plot)
iv. Residue of herbicide in grain, straw and soil at harvest</td></tr>
<tr><td colspan="2">(Action: Associate Research Sci., Agricultural Research Station, SDAU, Ladol)</td></tr>
<tr><td rowspan="2">17.2.3.111</td><td>Performance of soybean varieties under various spacing</td><td>Approved with following suggestions
1. Recast treatments as under
Row spacing (Main plot)
S_1: 30 cm, S_2: 45 cm, S_3: 60 cm
Varieties (Sub plot)
V_1: NRC 37, V_2: JS 335, S_3: GJS 3
2. Replication: 4 (Four)
3. Change Gross and Net plot size accordingly.
4. Common application of RDF, FYM: 5.0 t/ha and 20 kg S/ha.
5. Recast objective as: To find out the best soybean variety and suitable row spacing for soybean cultivation under North Gujarat condition.</td></tr>
<tr><td colspan="2">(Action: Assoc. Res. Sci., Agricultural Research Station, SDAU, Ladol)</td></tr>
<tr><td rowspan="2">17.2.3.112</td><td>Effect of zinc and magnesium on yield and quality of potato</td><td>Not Approved</td></tr>
<tr><td colspan="2">(Action: Associate Research Sci., Potato Research Station, SDAU, Deesa)</td></tr>
</table>

<table>
<tr><td rowspan="2">17.2.3.113</td><td>Standardizing macro-nutrient requirement of newly released potato variety (Kufri Ganga)</td><td>Noted (AICRP trial)</td></tr>
<tr><td colspan="2">(Action: Associate Research Sci., Potato Research Station, SDAU, Deesa)</td></tr>
<tr><td rowspan="2">17.2.3.114</td><td>Effect of micronutrient on yield of sorghum-fenugreek cropping sequence</td><td>Approved with following suggestions
1. Recast treatments as under
T1: RDF (60 + 40 kg NP/ha)
T2: RDF + Soil application of micronutrients as per STV
T3: RDF + Foliar spray of 1 % multi micronutrient Grade- I at 30, 45 and 60 DAS
T4: RDF + Foliar spray of 1 % multi micronutrient Grade-II at 30, 45 and 60 DAS
T5: RDF + Foliar spray of 1 % multi micronutrient Grade-III at 30, 45 and 60 DAS
T6: RDF + Foliar spray of 1 % multi micronutrient Grade-IV at 30, 45 and 60 DAS
T7: RDF + Soil application of multi micronutrient Grade-V (20 kg/ha)
2. Only foliar spray of micronutrient treatments will be applied to succeeding fenugreek crop.
3. Change the objectives of the experiment accordingly.
4. Add observations on growth and yield attributes and yield of fenugreek.
5. Add observation on ‘Sorghum equivalent yield’.</td></tr>
<tr><td colspan="2">(Action :- Assistant Res. Sci., Sorghum Research Station, SDAU, Deesa)</td></tr>
<tr><td rowspan="2">17.2.3.115</td><td>Effect of fertilizer levels on growth, yield and quality of Broccoli</td><td>Approved with following suggestions
1. Title of experiment ‘Effect of fertilizer levels on growth and yield of Broccoli (Brassica oleracea var. italica)’
2. Recast treatments as under
A. Nitrogen levels
N1: 120 kg/ha, N2: 150 kg/ha, N3: 180 kg/ha
B. Phosphorus levels
P1: 60 kg/ha, P2: 75 kg/ha, P3: 90 kg/ha
C. Potash levels (K2O)
K1: 0 kg/ha, K2: 25 kg/ha, K3: 50 kg/ha
3. Run drip system either at 0.8 or 1.0 PEF (determine after referring the past research work done on broccoli with respect to drip irrigation).
4. Replication: 3 (Three)
5. Add observations of i. Equitorial and radial curd diameter (cm) and ii. N, P, K and Ca content (%) and uptake (kg/ha) by broccoli.</td></tr>
<tr><td colspan="2">(Action: Principal, College of Horticulture, SDAU, Jagudan)</td></tr>
</table>

General points discussed

1. For weed control/ management experiment following two observations should be compulsorily recorded.

   A. Bioassay test:-

i. Plant stand at 10 DAS
ii. Plant height at 30 DAS
iii. Plant dry matter accumulation at 30 DAS and
iv. Phytotoxicity, if any at 10 days after sowing (0-10 scale)

B. Residue of herbicide in grain, straw and soil at harvest

2. AICRP experiments which was conducted/ undertaken during previous season/year will be presented only in AGRESCO meeting of respective University and need not to bring it in Combine AGRESCO of SAUs.
3. State trial which was conducted/ undertaken during previous year/ season will not be allowed to present in combine AGRESCO of SAUs.
4. All protocols/ recommended agronomic practices should be used in all experiment by default except treatments.

****

17.3 CROP PROTECTION

Virtual Meeting date: 10th-13th May 2021

Chairman	Dr. Z.P. Patel, Vice Chancellor, NAU, Navsari
Co-Chairman	1) Dr. A.G. Desai, Res. Scientist, SDAU, Sardarkrushinar 2) Dr. L.F. Akbari, Prof. and Head (Pl. Patho), JAU, Junagadh
Rapporteurs	1) Dr. P. S. Patel, SDAU, Sardarkrushinar 2) Dr. D. B. Sisodiya, AAU, Anand 3) Dr. C. U. Shinde, NAU, Navsari 4) Dr. M. K. Ghelani, JAU, Junagadh
Statistician	1) Dr. D.V. Patel, Asso. Prof., JAU, Junagadh

At the outset Dr. Z.P. Patel Hon'ble Vice Chancellor and Chairman of the Combined Joint AGRESCO meeting of Plant Protection Sub-committee welcomed Dr. R.M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar; Dr. K.B. Kathiria, Hon'ble Vice Chancellor, AAU, Anand; Dr. V. P. Chovatia, Hon'ble Vice Chancellor, JAU, Junagadh, both the Co-Chairman's of the sub-committee meeting, the Rapporteurs, Statistician, the conveners of sub-committee of the respective SAU and other senior scientists who have attended the virtual meeting. The chairman in his introductory remarks emphasized the need of such an important meeting through virtual mode due to Covid-19 pandemic since last year and requested all the conveners and members for their active participation in fruitful discussion on the recommendations and new technical programmes to get sustainable technology for the farmers of Gujarat. The chairman pointed out that plant protection has a very important role in successful crop production and this group of all the SAU's is always dedicated to solving the problem of farmers. He also explained the devastating role of invasive insect pests and diseases in our state and to act upon urgently for proper strategies to guide the farmers in time. He further emphasized that this is a very important group as farmers have to completely rely upon the scientist or the University for proper guidance to manage the crop pests and diseases. In recent years, the scientists of this group have faced the problem of locust, fall armyworm in maize and South American pinworm in tomato and under such a challenging situation our role is very crucial as the entire farming community looking towards us. Plant protection scientists need to critically explore the new areas to manage invasive pests and diseases in effective and economic ways. The chairman urged all the scientists to transform today's challenges into opportunities by developing cost-effective, easily adaptable, and farmer-oriented technologies. Further, the chairman suggested that this group will work to minimize the problems of hazardous pesticides by adopting some eco-friendly approaches and work on some other alternative ways of pest management. He emphasized that our recommendations must be easy to understand and crystal-clear in the language without any ambiguity. University has to guide the farmers properly and make them realize and sensitize about the losses caused by various insect pests and diseases. We must guide our farmers so that they will implement the plant protection measures in time thereby losses can be minimized. Lastly, the chairman also gives emphasis to strengthen new technical programmes by giving scientific and valid suggestions instead of asking undue questions. This was followed by the presentation of recommendations and new technical programmes by conveners of SAU's.

SUMMARY OF RECOMMENDATIONS

Name of SAU's	Recommendations								
	Proposed				Approved				
	Agricultural Entomology		Pathology/ Nematology		Agricultural Entomology		Pathology/ Nematology		Total
	Farmers	Scientific	Farmers	Scientific	Farmers	Scientific	Farmers	Scientific	
AAU, Anand	**08**	**19**	**06**	**06**	**06** (8-1# - 1$=06)	**19** (19+1#-1**= 19)	**05** (6-1#= 05)	**06** (6+1# - 1** =06)	**36**
JAU, Junagadh	**08**	**03**	**07**	**01**	**08**	**03**	**07**	**01**	**19**
NAU, Navsari	**06**	**09**	**05**	**06**	**06** (6-1#= +1*= 06)	**09** (9+1#-1* = 09)	**04** (5-1# = 04)	**05** [6+1# = 7-2**= 05)	**24**
SDAU, SKnagar	**03**	**05**	**03**	**08**	**03**	**05** (5+1¥ - 1$= 05)	**03**	**09**	**20**
Total	**25**	**36**	**21**	**21**	**23**	**36**	**19**	**21**	**99**

Note:

*** Shifted from 'information to scientific community' to 'farming community'**

 # Shifted from 'farming community' to 'information to scientific community'

**** Not approved**

¥ The scientific recommendation is separated from farming community

$ Continue one more year

17.3.1. RECOMMENDATION FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

AGRICULTURAL ENTOMOLOGY

17.3.1.1 Bio-rational management of mango hoppers

Mango orchardists of Gujarat are recommended to apply neem seed kernel extract 5% (500 g/10 litre water) or neem oil 0.5% (50 ml + 10 g detergent powder/10 litre water) or neem leaf extract 10% (1000 g/10 litre water) first when hopper population crosses ETL (*i.e.* 5 hoppers/panicle) and second at 10 days after first spray for effective management of hoppers in mango.

As per CIBRC format:

Year	Crop	Pest	Bio-pesticides	Dosage				Application schedule	Waiting period/ PHI (days)
				Conc. (%)	Dose/ 10 lit	Quantity of formulation / ha	Dilution in water (litre/ha)		
2021	Mango	Hoppers	Neem seed kernel extract	5	500 g	25 kg	500	First spray when the pest crosses ETL (*i.e.*, 5 hoppers/ panicle) and second at 10 days after the first spray	--
			Neem oil	0.5	50 ml	2.5 litre			--
			Neem leaf extract	10	1 kg	50 kg			--

	ગુજરાતમા આંબાની વાડી ધરાવતા ખેડૂતોને મધીયાના અસરકારક વ્યવસ્થાપન માટે લીંબોળીના મીંજનો ૫% અર્ક (૫૦૦ ગ્રામ/૧૦ લિટર પાણીમાં) અથવા લીમડાનુ તેલ ૦.૫% (૫૦ મિ.લિ. + ૧૦ ગ્રામ કપડા ધોવાનો પાઉડર/ ૧૦ લિટર પાણીમા) અથવા લીમડાના પાનનો ૧૦% અર્ક (૧૦૦૦ ગ્રામ/૧૦ લિટર પાણીમાં)નો પ્રથમ છંટકાવ જીવાત ક્ષમ્યમાત્રા (૫ મધીયા/ પુષ્પવિન્યાસ અથવા મોર) વટાવે ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૦ દિવસ બાદ કરવાની ભલામણ કરાવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	જૈવિક કીટનાશકો	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય/ પી.એચ.આઈ. (દિવસ)
				સાંદ્રતા (%)	માત્રા/ ૧૦ લિટર	જૈવિક કીટનાશક નું પ્રમાણ/હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	આંબો	મધીયો	લીંબોળીના મીંજનો અર્ક	૫	૫૦૦ ગ્રામ	૨૫ કિ.ગ્રા.	૫૦૦	જીવાત ક્ષમ્યમાત્રા વટાવે (૫ મધીયા/ મોર) ત્યારે પ્રથમ છંટકાવ અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૦ દિવસ બાદ કરવો	---
			લીમડાનું તેલ	૦.૫	૫૦ મિ.લિ.	૨.૫ લિટર			---
			લીમડાના પાનનો અર્ક	૧૦	૧ કિ.ગ્રા.	૫૦ કિ.ગ્રા.			---

Approved with following Suggestions:

1. Approved for entire Gujarat state
2. Recast recommendation language in English and Gujarati draft.
3. Remove word "Agro-climatic Zone" from English draft and "ખેત-આબોહવાકીય વિસ્તાર" from Gujarati draft

(Action: Professor & Head, Department of Entomology, BACA, AAU, Anand)

17.3.1.2	**Bio-efficacy of botanicals against aphids on coriander**

Farmers growing coriander in Gujarat and interested in non-chemical control are recommended to spray aqueous bidi tobacco dust extract 2% (200 g/10 litre water) or aqueous ginger rhizome extract 5% (500 g/10 litre water) first when aphid population start building up and forming colony on branches and second after 10 days after first spray for effective management of aphids in coriander. For preparation of 5% ginger rhizome aqueous extract, 500 g ginger rhizome to be crushed in required quantity of water followed by filtration and dilution in 10 litres of water.

As per CIBRC format:

Year	Crop	Pest	Biopesticides	Dosage				Application schedule	Waiting period/ PHI (days)
				Conc. (%)	Dose/ 10 litre	Quantity of formulation/ha	Dilution in water (litre/ha)		
2021	Coriander	Aphid	Aqueous bidi tobacco dust extract	2	200 g	8 kg	400	First when started to build up and formed colony on branches second at 10 days interval	-
			Aqueous ginger rhizome extract	5	500 g	20 kg			-

ગુજરાતમા ધાણાની બિનરાસાયણિક ખેતી કરતા ખેડૂતોને મોલો-મશીના અસરકારક વ્યવસ્થાપન માટે

બીડી તમાકુના દળનો અર્ક ૨% (૨૦૦ ગ્રામ/૧૦ લિટર પાણીમાં) અથવા આદુની ગાંઠનો અર્ક ૫% (૫૦૦ ગ્રામ/ ૧૦ લિટર પાણીમાં)નો પ્રથમ છંટકાવ જ્યારે મોલોનો ઉપદ્રવ વધવાની સાથે ડાળી ઉપર વસાહત બનાવવાની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૦ દિવસ બાદ કરવાની ભલામણ કરવામાં આવે છે. આદુની ગાંઠનો ૫% અર્ક બનાવવા માટે ૫૦૦ ગ્રામ આદુની ગાંઠોને જરૂરી પાણી લઈ છુંદીને ગાળ્યા બાદ ૧૦ લિટર પાણીમા ઓગાળવુ.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	જૈવિક કીટનાશકો	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય/ પી.એચ.આઈ. (દિવસ)
				સાંદ્રતા (%)	માત્રા/ ૧૦ લિટર	જૈવિક કીટનાશકનું પ્રમાણ/હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	ધાણા	મોલો	બીડી તમાકુના દળનો અર્ક	૨	૨૦૦ ગ્રામ	૮ કિ.ગ્રા.	૪૦૦	પ્રથમ છંટકાવ જ્યારે ઉપદ્રવની શરૂઆત થાય અને ડાળી પર નાના જથ્થા જોવા મળે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૦ દિવસ બાદ કરવો	--
			આદુની ગાંઠનો અર્ક	૫	૫૦૦ ગ્રામ	૨૦ કિ.ગ્રા.			--

Approved with following Suggestions:

1. Approved for entire Gujarat state
2. Recast recommendation language in English and Gujarati draft.
3. Mention the word “Aqueous bidi tobacco dust extract” instead of word “tobacco decoction” in English draft and recast recommendation language in English and Gujarati graft accordingly and also in CIB & RC table.
4. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft.

(Action: Professor & Head, Department of Entomology, BACA, AAU, Anand)

17.3.1.3 Evaluation of insecticides against *Callosobruchus maculatus* (Fabricius) infesting green gram seed during storage

The farmers and seed producers of Gujarat are recommended to smear green gram seeds with spinosad 45 SC, 0.0004% (0.13 ml in 15 litre water for 1000 kg seed) or fipronil 5 SC, 0.0004% (1.20 ml in 15 litre water for 1000 kg seed) or deltamethrin 2.8 EC, 0.0004% (2.15 ml in 15 litre water for 1000 kg seeds) to protect seeds from pulse beetle infestation up to six months.

ગુજરાતના ખેડૂતો તથા બીજ ઉત્પાદકોને ભલામણ કરવામા આવે છે કે મગના બીજને સ્પિનોસાડ ૪૫ એસસી, ૦.૦૦૦૪% (૦.૧૩ મિ.લિ. ને ૧૫ લિટર પાણીમા મિશ્રણ કરી ૧૦૦૦ કિ.ગ્રા. બીજ માટે) અથવા ફ્રિપ્રોનીલ ૫ એસસી, ૦.૦૦૦૪% (૧.૨૦ મિ.લિ. ને ૧૫ લિટર પાણીમા મિશ્રણ કરી ૧૦૦૦ કિ.ગ્રા. બીજ માટે) અથવા ડેલ્ટામેથ્રિન ૨.૮ ઈ.સી., ૦.૦૦૦૪% (૨.૧૫ મિ.લિ. ને ૧૫ લિટર પાણીમાં મિશ્રણ કરી ૧૦૦૦ કિ.ગ્રા. બીજ માટે)ની બીજ માવજત આપવાથી સંગ્રહિત બિયારણને ૬ મહીના સુધી ભોટવા સામે રક્ષણ મળે છે.

Approved with following Suggestions:

1. Remove ‘short duration storage’ from recommendation draft.
2. Remove word “up to 3 months” from both English and “૩ મહીના સુધી” from Gujarati drafts.

(Action: Assistant Research Scientist (Ento.), Regional Research Station, AAU, Anand)

17.3.1.4	**Evaluation of insecticides against yellow stem borer and leaf folder in rice**

The rice growers of Gujarat are recommended to apply two sprays of chlorantraniliprole 18.5 SC, 0.006% (3 ml/10 litre water) 47 days PHI or cartap hydrochloride 75 SG, 0.075% (10 g/10 litre water) 35 days PHI or ready-mix insecticide flubendiamide 4% + buprofezin 20% SC, 0.042% (17.5 ml/10 litre water) 30 days PHI, first at the initiation of insect-pests and second after 15 days for effective management of yellow stem borer and leaf folder.

As per CIBRC format:

Year	Crop	Pests	Insecticides	Dosage				Application Schedule	Waiting period/ PHI (days)
				g a.i./ ha	Conc. (%)	Quantity of formulation/ha	Dilution in water (litre/ha)		
2021	Rice	Yellow stem borer and leaf folder	Chlorantraniliprole 18.5 SC	30	0.006	150 ml	500	First spray at initiation of incidence of yellow stem borer and leaf folder and second after 15 days	47
			Cartap hydrochloride 75 SG	375	0.075	500 g	500		35
			Flubendiamide 4% + buprofezin 20% SC	210	0.042	875 ml	500		30

ગુજરાતમા ડાંગરની ખેતી કરતા ખેડૂતોને ગાભમારાની ઈયળ અને પાન વાળનાર ઈયળના અસરકારક વ્યવસ્થાપન માટે ક્લોરાન્ટ્રાનિલિપ્રોલ ૧૮.૫ એસસી, ૦.૦૦૬% (૩ મિલી/ ૧૦ લિટર પાણી) (છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામા ૪૭ દિવસ રાખવો) અથવા કાર્ટેપ હાઈડ્રોક્લોરાઈડ ૭૫ એસજી, ૦.૦૭૫% (૧૦ ગ્રામ/૧૦ લિટર પાણી) (છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામા ઓછો ૩૫ દિવસ રાખવો) અથવા કીટનાશકના તૈયાર મિશ્રણ ફ્લુબેન્ડીયામાઈડ ૪% + બુપ્રોફેઝીન ૨૦% એસસી, ૦.૦૪૨% (૧૭.૫ મિલી/ ૧૦ લિટર પાણી) (છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામા ઓછો ૩૦ દિવસ રાખવો) ના બે છંટકાવ, પ્રથમ ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો ૧૫ દિવસે કરવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાતો	કીટનાશકો	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય/ પી.એચ.આઈ. (દિવસ)
				સ.ત. ગ્રામ/હે.	સાંદ્રતા (%)	કીટનાશકનું પ્રમાણ/ હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	ડાંગર	ગાભમારાની ઈયળ અને પાન વાળનાર ઈયળ	ક્લોરાન્ટ્રાનિલિપ્રોલ ૧૮.૫ એસસી	૩૦	૦.૦૦૬	૧૫૦ મિ.લી.	૫૦૦	પ્રથમ છંટકાવ ગાભમારાની ઈયળ અને પાન વાળનાર ઈયળના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો તેના ૧૫ દિવસે	૪૭
			કાર્ટેપ હાઈડ્રોક્લોરાઈડ ૭૫ એસજી	૩૭૫	૦.૦૭૫	૫૦૦ ગ્રામ	૫૦૦		૩૫
			ફ્લુબેન્ડીયામાઈડ ૪% + બુપ્રોફેઝીન ૨૦% એસસી	૨૧૦	૦.૦૪૨	૮૭૫ મિ.લી.	૫૦૦		૩૦

Approved with following Suggestions:

1. Recast the PHI sentence in both drafts
2. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action:Research Scientist, Main Rice Research Station, AAU, Nawagam)

17.3.1.5 Evaluation of local practices for management of fall armyworm, *Spodoptera frugiperda* (J.E. Smith) in maize

Farmers of Gujarat growing maize and interested in non-chemical management are recommended to apply soil or sand 5 g/plant in whorl at 30 and 45 days after sowing for reducing the damage of fall armyworm.

As per CIBRC format:

Year	Crop	Pest	Local practices	Dosage			Application Schedule	Waiting period/PHI (days)
				Dose (g/plant)	Quantity of formulation	Dilution in water (litre/ha)		
2021	Maize	Fall army worm	Soil	5	--	NA	Whorl application at 30 and 45 days after sowing	NA
			Sand	5	--			

ગુજરાતમા મકાઈની ખેતી કરતા તેમજ બિન-રાસાયણિક ખેતીમા રસ ધરાવતા ખેડૂતોને પૂંછડે ચાર ટપકાવાળી ઈયળના નુકસાનને ઘટાડવા માટે માટી અથવા રેતી ૫ ગ્રામ/છોડ વાવણીના ૩૦ અને ૪૫ દિવસ પછી ભૂંગળીમા આપવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	ઘટક	પ્રમાણ			આપવાની રીત	પ્રતીક્ષા સમય/ પી.એચ.આઈ. (દિવસ)
				માત્રા (ગ્રામ/ છોડ)	ઘટકનું પ્રમાણ /હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	મકાઈ	પૂંછડે ચાર ટપકાવાળી ઈયળ	માટી	૫	--	લાગુ પડતુ નથી	વાવણીના ૩૦ અને ૪૫ દિવસ પછી ભૂંગળીમાં આપવી	લાગુ પડતુ નથી
			રેતી	૫	--			

Approved with following Suggestions:

1. Approved for entire Gujarat state
2. Recast recommendation language of English and Gujarati draft.
3. Change sentence “effective management of fall armyworm” with “reducing the damage of fall armyworm” in English draft.
4. Write “નુકશાનને ઘટાડવા” instead of “અસરકારક વ્યવસ્થાપન” in Gujarati draft
5. Write “પૂંછડે ચાર ટપકાવાળી ઈયળ” instead of “ટપકાવાળી લશ્કરી ઈયળ” in Gujarati draft
6. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft.

(Action: Res.Scientist, Main Maize Research Station, AAU, Godhra)

17.3.1.6 Efficacy of different botanicals against pod borer complex of pigeonpea

Farmers of Gujarat are recommended to spray azadirachtin 0.15 EC, 0.0006% (40 ml/10 litre water) or neem seed kernel extract 5% (500 g/10 litre water) at initiation of pest and subsequent two sprays at 10 days interval for effective management of pod borer complex (*Helicoverpa armigera*, plume moth and pod fly) in pigeonpea.

As per CIBRC format:

Year	Crop	Pest	Biopesticides	Dosage				Application schedule	Waiting period /PHI (Days)
				Conc. (%)	Dose/ 10 litre	Quantity of formulation/ ha	Dilution in water (litre/ha)		
2021	Pigeonpea	Pod borer complex (*H.armigera*, *E. atomosa*, and *M. obtusa*	Azadirachtin 0.15 EC	0.0006	40 ml	2.4 litre	600	First spray at initiation of pest and subsequent two sprays at 10 days interval.	-
			Neem seed kernel extract	5	500 g	30 kg	600		-

ગુજરાતમા તુવેરની ખેતી કરતા ખેડૂતોને તુવેર શીંગ કોરી ખાનાર જીવાતો (લીલી ઈયળ, પિંછીયા ફૂદાની

ઈયળ અને શીંગમાખી)ના અસરકારક વ્યવસ્થાપન માટે એઝાડીરેક્ટીન ૦.૧૫ ઈ.સી., ૦.૦૦૦૬% (૪૦ મિ.લિ./૧૦ લિટર પાણી) અથવા લીમડાની લીંબોળીના મીંજનો અર્ક ૫% (૫૦૦ ગ્રામ/૧૦ લિટર પાણી) નો પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થયે ત્યાર બાદ બીજો અને ત્રીજો છંટકાવ ૧૦ દિવસના આંતરે કરવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	જૈવિક કીટનાશક	પ્રમાણ				છંટકાવ	પ્રતીક્ષા સમય/ પી.એચ .આઈ. (દિવસ)
				સાંદ્રતા (%)	માત્રા/ ૧૦ લિટર	જૈવિક કીટનાશક/ હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	તુવેર	શીંગ કોરી ખાનાર જીવાતો (લીલી ઈયળ, પિંછીયા ફૂદાની ઈયળ અને શીંગમાખી)	એઝાડીરેક્ટીન ૦.૧૫ ઈ.સી.	૦.૦૦૦૬	૪૦ મિ.લિ.	૨.૪ લિટર	૬૦૦	પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થયે અને ત્યારબાદ બીજો તથા ત્રીજો છંટકાવ ૧૦ દિવસના આંતરે	-
			લીમડાની લીંબોળીના મીંજનો અર્ક	૫	૫૦૦ ગ્રામ	૩૦ કિ.ગ્રા.	૬૦૦		-

Approved with following Suggestions:

1. Approved for entire Gujarat state
2. Recast recommendation language of English and Gujarati draft
3. Change word “શિંગ” with “શીંગ” in Gujarati recommendation
4. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Assoc. Research Scientist, Agricultural Research Station, AAU, Derol)

17.3.1.7 Effect of sowing periods on the incidence of castor capsule borer, *Dichocrosis punctiferalis* Guenee

Farmers of Gujarat growing castor are recommended to sow the crop during 4th week of August to 2nd week of September to minimize the incidence of capsule borer, *Dichocrosis punctiferalis*, securing higher yield.

ગુજરાતમા દિવેલાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામા આવે છે કે દિવેલાની વાવણી ઓગષ્ટના ચોથા અઠવાડિયાથી સપ્ટેમ્બરના બીજા અઠવાડિયા સુધીમા કરવાથી ડોડવા કોરી ખાનાર ઈયળનો ઉપદ્રવ ઓછો રહે છે તથા ઉત્પાદન વધુ મેળવી શકાય છે.

Suggestions: Extend the experiment for one more year

1. Extend the experiment for one more year
2. Correlate the pest data with abiotic factors
3. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Assoc. Research Scientist, Agricultural Research Station, AAU, Sansoli)

PLANT PATHOLOGY

17.3.1.8 Management of root rot caused by *Macrophomina phaseolina* in mungbean through seed treatment of *Trichoderma viride* and *Glomus intraradices*

Farmers of Gujarat growing mungbean are recommended to give soil application of *Trichoderma viride* 1% WP (2×10^8 cfu/g) enriched FYM (10 kg *T. viride*/ ton FYM), 1 ton/ha in soil prior to 10 days of sowing as well as seed treatment with *T. viride*, 10 g/kg seeds and with mycorrhiza *Glomus intraradices* 3000 IP/g, 17 g/kg seeds at the time of sowing for effective management of root rot disease.

As per CIBRC format:

Year	Crop	Disease	Biocontrol agents	Dosage				Application schedule	Waiting period/ PHI (days)
				cfu	Conc. (%)	Quantity of formulation/ha	Dilution in water (litre/ha)		
2021	Mung bean	Root rot	*T. viride* + *G. intraradices*	$2x10^8$ cfu /g + 3000 IP/g	1% WP	-	-	Soil application of *Trichoderma viride* 1% WP ($2×10^8$ cfu/g) enriched FYM (10 kg *T. viride*/ ton FYM), 1 ton/ha in soil prior to 10 days of sowing as well as seed treatment with *T. viride*, 10 g/kg seeds and with *Glomus intraradices* 3000 IP/g, 17 g/kg seeds at the time of sowing	Not applicable

ગુજરાતના મગની ખેતી કરતા ખેડૂતોને મૂળખાઇ રોગના અસરકારક વ્યવસ્થાપન માટે *ટ્રાયકોડર્મા વીરીડી* ૧% વેપા (૨x૧૦૮ સીએફયુ/ગ્રામ) સંવર્ધિત છાણીયુ ખાતર (૧૦ કિ.ગ્રા. *ટ્રાયકોડર્મા વીરીડી* / ટન છાણીયુ ખાતર) ૧ ટન/હેક્ટર પ્રમાણે જમીનમા વાવણીના ૧૦ દિવસ પહેલા આપવુ તેમજ વાવણી વખતે બીજને *ટ્રાયકોડર્મા વીરીડી* ૧૦ ગ્રામ/કિ.ગ્રા. તથા માઈકોરાયઝા *ગ્લોમસ ઈન્ટ્રારેડાઈસીસ* ૩૦૦૦ આઈપી/ગ્રામ, ૧૭ ગ્રામ/કિ.ગ્રા. પ્રમાણે બીજ માવજત આપી વાવણી કરવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	રોગ	જૈવિક નિયંત્રકો	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય/ પી.એચ.આઈ. (દિવસ)
				સીએફયુ	સાંદ્રતા (%)	જૈવિક નિયંત્રકનું પ્રમાણ/હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	મગ	મૂળખાઇ	*ટ્રાયકોડર્મા વીરીડી* અને *ગ્લોમસ ઈન્ટ્રારેડાઈસીસ*	૨x૧૦૮ સીએફયુ/ગ્રામ + ૩૦૦૦ આઈ.પી./ ગ્રામ	૧% વેપા	--	--	*ટ્રાયકોડર્મા વીરીડી* ૧% વેપા (૨x૧૦૮ સીએફયુ/ગ્રામ) સંવર્ધિત છાણીયુ ખાતર (૧૦ કિ.ગ્રા. *ટ્રાયકોડર્મા વીરીડી* / ટન છાણીયુ ખાતર) ૧ ટન/હેક્ટર પ્રમાણે જમીનમાં વાવણીનાં ૧૦ દિવસ પહેલા આપવુ તેમજ વાવણી વખતે બીજને *ટ્રાયકોડર્મા વીરીડી* ૧૦ ગ્રામ/કિ.ગ્રા. તથા *ગ્લોમસ ઈન્ટ્રારેડાઈસીસ* ૩૦૦૦ આઈપી/ગ્રામ, ૧૭ ગ્રામ/કિ.ગ્રા. પ્રમાણે બીજ માવજત આપવી	લાગુ પડતું નથી

Approved with following Suggestions:

1. Add mycorrhiza before *Glomus intraradices* in recommendation
2. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Professor & Head, Department of Plant Pathology, BACA, Anand

17.3.1.9	**Management of foliar diseases of turmeric through fungicides**

Farmers of Gujarat growing turmeric are recommended to spray ready-mix fungicide, azoxystrobin 18.2% + difenoconazole 11.4% SC, 0.03% (10 ml/ 10 litre of water) along with commercially available sticker, 0.1% (10 ml/ 10 litre of water) first at the initiation of the disease and subsequent two sprays at 15 days interval for effective management of foliar (leaf blotch and leaf spot) diseases. PHI minimum of 60 days should be kept.

As per CIBRC format:

Year	Crop	Diseases	Ready-mix fungicides	Dosage				Application schedule	Waiting period/ PHI (days)
				g a.i./ ha	Conc. (%)	Quantity of formulation/ ha	Dilution in water (litre/ha)		
2021	Turmeric	Leaf blotch and leaf spot	Azoxystrobin 18.2% + difenoconazole 11.4% SC and commercially available sticker	150	0.030 0.1	500 ml 500 ml	500	First spray at the initiation of the disease and subsequent two sprays at 15 days interval	60

ગુજરાતમા હળદરની ખેતી કરતા ખેડૂતોને પાનના રોગો (પાનનો બ્લોચ અને પાનના ટપકાં/કાલવ્રણ)ના અસરકારક વ્યવસ્થાપન માટે ફૂગનાશકના તૈયાર મિશ્રણ એઝોક્સિસ્ટ્રોબિન ૧૮.૨% + ડાયફેનોકોનાઝોલ ૧૧.૪% એસસી, ૦.૦૩% (૧૦ મિ.લિ./૧૦ લિટર પાણી)ના દ્રાવણમાં વ્યાપારી ધોરણે ઉપલબ્ધ સ્ટીકર, ૦.૧% (૧૦ મિ.લિ./૧૦ લિટર પાણી) પ્રમાણે ભેળવી, પ્રથમ છંટકાવ રોગની શરૂઆત થયે અને ત્યાર બાદ બીજા બે છંટકાવ ૧૫ દિવસના આંતરે કરવાની ભલામણ કરવામા આવે છે. છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામા ઓછો ૬૦ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	રોગો	ફૂગનાશકનું તૈયાર મિશ્રણ	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય/ પી.એચ.આઈ. (દિવસ)
				સ.ત. ગ્રામ/હે.	સાંદ્રતા (%)	ફૂગનાશકનું પ્રમાણ/ હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	હળદર	પાનના રોગો (પાનનો બ્લોચ અને પાનનાં ટપકાં/ કાલવ્રણ)	એઝોક્સિસ્ટ્રોબિન ૧૮.૨% + ડાયફેનોકોનાઝોલ ૧૧.૪% એસસી અને વ્યાપારી ધોરણે ઉપલબ્ધ સ્ટીકર	૧૫૦	૦.૦૩૦ ૦.૧	૫૦૦ મિ.લિ. ૫૦૦ મિ.લિ.	૫૦૦	પ્રથમ છંટકાવ રોગની શરૂઆત થયે અને ત્યાર બાદ બીજા બે છંટકાવ ૧૫ દિવસના આંતરે કરવા	૬૦

Approved with following Suggestions:

1. Mention the word ‘minimum’ in English draft & ‘ઓછામાં-ઓછો’ before PHI in Gujarati draft

(Action: Professor & Head, Department of Plant Pathology, BACA, Anand)

17.3.1.10 Effect of date of planting on root-knot nematodes in tomato

The farmers of Gujarat cultivating tomato are recommended to transplant tomato seedlings during the first-week of November for the management of root-knot nematodes.

ગુજરાતમા ટામેટાની ખેતી કરતા ખેડૂતોને ગંઠવા કૃમિના વ્યવસ્થાપન માટે ટામેટાના ધરૂની ફેરરોપણી નવેમ્બર માસના પહેલા અઠવાડિયામાં કરવાની ભલામણ કરવામા આવે છે.

Approved with following Suggestions:

1. Mention the yield data in 'q/ha'
2. Mention the sowing date of nursery in methodology
3. Remove word "Agro-climatic Zone" from English draft and "ખેત-આબોહવાકીય વિસ્તાર" from Gujarati draft

(Action: Professor & Head, Department of Nematology, BACA, Anand)

17.3.1.11 Efficacy of different oils for the management of damping-off disease caused by *Pythium aphanidermatum* in bidi tobacco nursery

Farmers of Gujarat are recommended to apply neem oil or castor oil, 1% (100 ml oil and 10 ml commercially available sticker/10 litre of water) at pre-seeding followed by three applications after germination at 10 days interval as spray drench for management of damping-off disease and increase healthy transplantable seedlings in bidi tobacco nursery.

ગુજરાતમા બીડી તમાકુના ધરૂવાડીયામા કોહવારાના અસરકારક વ્યવસ્થાપન અને તંદુરસ્ત ધરૂ મેળવવા માટે લીંબોળીનુ તેલ અથવા દિવેલીનુ તેલ ૧% (૧૦૦ મિ.લિ. તેલ અને ૧૦ મિ.લિ. વ્યાપારી ધોરણે ઉપલબ્ધ સ્ટીકર/૧૦ લિટર પાણી) પ્રમાણે બીજની વાવણી કરતા પહેલા અને ધરૂના ઉગાવા બાદ ૧૦ દિવસના આંતરે ત્રણ છંટકાવ રેલાવીને કરવાની ભલામણ કરવામા આવે છે.

Approved with following Suggestions:

1. Quantity of drenching fluid should be mentioned in recommendation draft
2. Mention the time of application in both drafts.
3. Carryout control v/s rest analysis and interpret the data accordingly
4. Remove word "Agro-climatic Zone" from English draft and "ખેત-આબોહવાકીય વિસ્તાર" from Gujarati draft

(Action:Res.Scientist, Bidi Tobacco Research Station,AAU, Anand)

17.3.1.12 Management of false smut of rice

Rice growers of Gujarat are recommended to apply two sprays of ready-mix fungicides, tebuconazole 50% + trifloxystrobin 25% WG, 0.060% (8 g/ 10 litre of water) (PHI 35 days) OR picoxystrobin 7.05% + propiconazole 11.7% SC, 0.037% (20 ml/ 10 litre of water) (PHI minimum of 24 days), first at 50% flowering stage and second at the time of 100% flowering stage for effective management of false smut.

As per CIBRC format:

Year	Crop	Disease	Ready-mix fungicides	Dosage				Application schedule	Waiting period/ PHI (days)
				g a.i./ ha	Conc. (%)	Quantity of formulation / ha	Dilution in water (litre/ha)		
2021	Rice	False smut	Tebuconazole 50% + trifloxystrobin 25% WG	300	0.060	400 g	500	First spray at 50% flowering stage and second at the time of 100% flowering stage	35
			Picoxystrobin 7.05% + propiconazole 11.7% SC	187.5	0.037	1000 ml	500		24

ગુજરાતમા ડાંગરની ખેતી કરતા ખેડૂતોને ગલત અંગારીયાના અસરકારક વ્યવસ્થાપન માટે ફૂગનાશકોના તૈયાર મિશ્રણ, ટેબુકોનાઝોલ ૫૦% + ટ્રાઇફ્લોક્સિસ્ટ્રોબિન ૨૫% ડબલ્યુજી, ૦.૦૬% (૮ ગ્રામ/૧૦ લિટર પાણી) (છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામાં ઓછો ૩૫ દિવસ) અથવા પીકોક્સીસ્ટ્રોબિન ૭.૦૫% + પ્રોપીકોનાઝોલ ૧૧.૭% એસસી, ૦.૦૩૭% (૨૦ મિ.લિ./૧૦ લિટર પાણી) (છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ૨૪ દિવસ) ના બે છંટકાવ, પ્રથમ ૫૦% નીંઘલ પડે ત્યારે અને બીજો ૧૦૦% નીંઘલ થાય ત્યારે કરવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઇડ બોર્ડની ગાઇડલાઇન મુજબ:

વર્ષ	પાક	રોગ	ફૂગનાશકોના તૈયાર મિશ્રણ	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય / પી.એચ.આઈ. (દિવસ)
				સ.ત. ગ્રામ/હે.	સાંદ્રતા (%)	ફૂગનાશકનું પ્રમાણ /હે.	પાણી સાથે ડાયલ્યુશન (લિટર/હે.)		
૨૦૨૧	ડાંગર	ગલત અંગારીયો	ટેબુકોનાઝોલ ૫૦% + ટ્રાઇફ્લોક્સિસ્ટ્રોબિન ૨૫% ડબલ્યુજી	૩૦૦	૦.૦૬૦	૪૦૦ ગ્રામ	૫૦૦	પ્રથમ છંટકાવ ૫૦% નીંઘલ પડે ત્યારે અને બીજો ૧૦૦% નીંઘલ પડે ત્યારે કરવો	૩૫
			પીકોક્સીસ્ટ્રોબિન ૭.૦૫% + પ્રોપીકોનાઝોલ ૧૧.૭% એસસી	૧૮૭.૫	૦.૦૩૭	૧૦૦૦ મિ.લિ.	૫૦૦		૨૪

Approved with following Suggestions:

1. Mention the word ‘minimum’ in English draft & ‘ઓછામાં-ઓછો’ before PHI in Gujarati
2. Check the dose in ‘g ai/ha’ & verify it with CIB & RC label claim
3. Remove word “Agro-climatic Zone” from English draft and “ખેત-આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Res. Scientist, Main Rice Research Station, AAU, Nawagam)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

AGRICULTURAL ENTOMOLOGY	
17.3.1.13	**Comparison of different colour sticky traps for monitoring of sucking pests in brinjal**
	The farmers of Gujarat are recommended to install yellow (RGB-255,255,0) or dark green (RGB-0,128,0) sticky traps (15 cm x 21 cm) @ 25/ha at crop height for the effective monitoring of jassid and whitefly in brinjal. The sticky trap is to be installed at one week after transplanting and it should be changed at weekly interval.Grease should be used as an adhesive material.
	ગુજરાતના રીંગણની ખેતી કરતા ખેડૂતોને ભલામણ કરવામા આવે છે કે, આ પાકમા તડતડીયા અને સફેદમાખીની અસરકારક મોજણી માટે પીળા (આરજીબી-૨૫૫,૨૫૫,૦) અથવા ઘેરા લીલા (આરજીબી-૦,૧૨૮,૦) ચીકણા પિંજર (૧૫ સે.મી. x૨૧ સે.મી.) ૨૫ પ્રતિ હેક્ટર છોડની ઊંચાઈએ મુકવા. આ ચીકણા પિંજરને ફેરરોપણી ના એક અઠવાડિયા પછી લગાવવા તથા એક અઠવાડિયાના અંતરે બદલવા. ચીકાસ માટે ગ્રીસનો ઉપયોગ કરવો.

	Approved with following Suggestions: 1. Check standard colour code of sticky trap (T_1 to T_4) 2. Add ICBR in table 3. Mentionstick material (adhesive) in recommendation draft 4. Mention ‘installation of traps at one weak after transplanting’ in recommendation draft 5. Replace word “advised” with “recommended” in English draft 6. Replace word “સલાહ આપવામાં” with“ભલામણ કરવામાં” in Gujarati draft 7. Approved for entire Gujarat state
	(Action: Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.1.14	**Comparison of different colour sticky traps for monitoring of sucking pests in seed spices**
	The farmers of Gujarat growing seed spices are recommended to install yellow (RGB-255, 255, 0) or dark green (RGB-0, 128, 0) sticky traps (15 cm x 21 cm) @ 25 traps/ha at crop height for the effective monitoring of aphids in coriander, cumin, fenugreek and fennel, while dark blue (RGB-0, 0, 255) and yellow (RGB-255, 255, 0) sticky traps (15 cm x 21 cm) @ 25 traps/ha at crop height for the effective monitoring of thrips in cumin, fennel and ajwain. The sticky trap is to be installed at at one week after transplanting and it should be changed at weekly interval. Grease should be used as an adhesive material.
	ગુજરાતના બીજ મસાલાની ખેતી કરતા ખેડૂતોને ધાણા, જીરૂ, મેથી અને વરીયાળીમાં મોલોની અસરકારક મોજણી માટે પીળા (આરજીબી-૨૫૫,૨૫૫,૦) અથવા ઘાટો લીલા (આરજીબી-૦,૧૨૮,૦) ચીકણા પિંજર (૧૫ સે.મી. x ૨૧ સે.મી.) ૨૫પ્રતિ હેક્ટર છોડની ઊંચાઈએ જયારે જીરૂ, વરીયાળી અને અજમામાં થ્રીપ્સની અસરકારક મોજણી માટે ઘાટો વાદળી (આરજીબી-૦,૦,૨૫૫) અથવા પીળા (આરજીબી-૨૫૫,૨૫૫,૦) ચીકણા પિંજર (૧૫ સે.મી. x ૨૧ સે.મી.) ૨૫ નંગ પ્રતિ હેક્ટર છોડની ઊંચાઈએ મુજબ મુકવા. આ ચીકણા પિંજરને જીવાતના ઉપદ્રવની શરૂઆતમા લગાવવા તથા એક અઠવાડિયાના અંતરે બદલવા. ચીકાસ માટે ગ્રીસનો ઉપયોગ કરવો.
	Approved with following Suggestions: 1. Check standard colour code of sticky trap (T_1 to T_4) 2. Add ICBR in table 3. Mention stick material (adhesive) in recommendation draft 4. Mention ‘installation of traps at one weak after transplanting’ in recommendation draft 5. Replace word “advised” with “recommended” in English draft 6. Mention Ajwain seed rate @ 2.0 to 2.5 kg/ha 7. In gujarati draft, write ‘બીજ મસાલા’instead of ‘મરી મસાલા’ 8. In gujaratidraft, write ‘ઘાટો’ instead of ‘ઘેરો’ and ‘વાદળી’ instead of ‘બ્લુ’ 9. Approved for entire Gujarat state
	(Action: Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.1.15	**Bio-efficacy of different biopesticides against rugose spiralling whitefly in coconut** **(Adhoc recommendation)**

The farmers of Gujarat having coconut orchards are recommended to apply three sprays of *Beauveria bassiana* 1.15 WP (Min. 1 x 10^8 cfu/g) 0.009% (80 g/10 litre of water) or *Isaria fumosorosea* 1.15 WP (Min. 1 x 10^8 cfu/g) 0.009% (80 g/10 litre of water) along with starch 1% (10 g/lit), first spray at initiation of pest infestation, second and third spray at 10 days interval after first spray for effective management of rugose spiralling whitefly.

As per CIBRC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/PHI (days)
				g.a.i./ha	Qty. of formulation /ha	Conc. (%)	Dilution in water (10 lit.)			
2020-21	Coconut	Rugose Spiralling Whitefly	*Beauveria bassiana*1.15 WP	46	4 kg	0.009 %	80 g	500 litre	First spray at initiation of pest infestation, second and third spray at 10 days interval after first spray	-
			*Isariafumosorosea*1.15 WP	46	4 kg	0.009 %	80 g			-

ગુજરાતમા નાળિયેરીના બગીચા ધરાવતા ખેડૂતોને ભલામણ કરવામા આવે છે કે, રૂગોસ સ્પાયરલિંગ સફેદમાખીના અસરકારક નિયંત્રણ માટે બ્યુવેરિયા બાસીયાના ૧.૧૫ ડબલ્યુ. પી. (ન્યુનતમ ૧ x ૧૦^{૮} સીએફયુ/ગ્રા.) ૦.૦૦૯% (૮૦ ગ્રા./૧૦ લીટર પાણી) અથવા આયસેરિયા ફૂમોસોરોસિયા ૧.૧૫ ડબલ્યુ. પી. (ન્યુનતમ ૧ x ૧૦^{૮} સીએફયુ/ગ્રા.) ૦.૦૦૯% (૮૦ ગ્રા./૧૦ લીટર પાણી) સ્ટાર્ચ ૧% (૧૦ ગ્રા./લીટર પાણી) સાથે, પ્રથમ છંટકાવ જીવાતનો ઉપદ્રવ શરુ થયે અને ત્યારબાદ બીજો અને ત્રીજો છંટકાવ, પ્રથમ છંટકાવના ૧૦ દિવસના અંતરે કરવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવા અનેતેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવા અનેપાણીનાંદ્રાવણનીકુલજરૂરીયાતપ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ. આઈ (દિવસ)
				સક્રિયતત્વ પ્રતિહેક્ટર(ગ્રામ/હેક્ટર)	ફોર્મ્યુલેશનની માત્રાપ્રતિહેક્ટર	સાંદ્રતા(%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦-૨૧	નાળિયેરી	નાળિયેરીનીસફેદ માખી	બ્યુવેરિયાબાસીયાના૧.૧૫ડબલ્યુ. પી.	૪૬	૪કિગ્રા	૦.૦૦૯%	૮૦ગ્રા.	૫૦૦ લીટર	પ્રથમછંટકાવજીવાતનોઉપદ્રવશરુથયેઅનેત્યારબાદબીજોઅને ત્રીજોછંટકાવ, પ્રથમછંટકાવના૧૦દિવસનાઅંતરે	--
			આયસેરિયાફૂમોસોરોસિયા ૧.૧૫ડબલ્યુ. પી.	૪૬	૪ કિગ્રા	૦.૦૦૯%	૮૦ ગ્રા.			--

Approved with following Suggestions:

1. Approved for entire Gujarat state as an **Ad-hoc recommendation**
2. Recast the recommendation language of both English and Gujarati drafts
3. Mention the quantity of starch in 'g/liter' of water instead of '1%' in draft
4. In recommendation, delete 1-3 year old palm
5. Remove word "South Saurashtra Agro-climatic Zone" from English draft and "દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તાર" from Gujarati draft

(Action: Professor & Head, Department of Entomology, JAU, Junagadh)

17.3.1.16 **Bio-efficacy of different insecticides against rugose spiralling whitefly in coconut (Adhoc recommendation)**

The farmers of Gujarat having coconut orchards (1 to 3 year old palms) are recommended to apply three sprays of pyriproxyfen 10% + bifenthrin 10% EC 0.02% (10 ml/10 litre of water) or spiromesifen 22.9 SC 0.027% (12 ml/10 litre of water) or diafenthiuron 50 WP 0.05% (10 g/10 litre of water) along with 1% starch (10 g/litre of water), first spray at initiation of pest infestation, second and third spray at 10 days interval after first spray for effective management of rugose spiralling whitefly.

As per CIBRC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/PHI (days)
				g.a.i./ha	Qty. of formulation /ha	Conc. (%)	Dilution in water (10 lit.)			
2020-21	Coconut	Rugose Spiralling White fly	Pyriproxyfen 10% + Bifenthrin 10% EC	100	0.50 lit.	0.02	10 ml	500 lit.	First spray at initiation of pest infestation, second and third spray at 10 days interval after first spray	-
			Spiromesifen 22.9 SC	137	0.60 lit.	0.027	12 ml			-
			Diafenthiuron 50 WP	250	0.50 kg	0.05	10 g			-

ગુજરાતના નાળિયેરીના બગીચા (૧ થી ૩ વર્ષના ઝાડ) ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, રૂગોસ સ્પાયરલિંગ સફેદમાખીના અસરકારક નિયંત્રણ માટે પાયરીપ્રોક્સીફેન ૧૦% + બાયફેન્થ્રીન ૧૦% ઈ.સી. ૦.૦૨% (૧૦ મિલી/૧૦ લીટર પાણી) અથવા સ્પાયરોમેસીફેન ૨૨.૯ એસ.સી. ૦.૦૨૭% (૧૨ મિલી/૧૦ લીટર પાણી) અથવા ડાયાફેન્થીયુરોન ૫૦% ડબ્લ્યુ.પી. ૦.૦૫% (૧૦ ગ્રામ/૧૦ લીટર પાણી) ૧% સ્ટાર્ચ સાથે (૧૦ ગ્રા/લીટર પાણી), પ્રથમ છંટકાવ જીવાતનો ઉપદ્રવ શરુ થયે અને ત્યારબાદ બીજો અને ત્રીજો છંટકાવ, પ્રથમ છંટકાવના ૧૦ દિવસના અંતરે કરવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવાઅનેતેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવાઅનેપાણીનાંદ્રાવણનીકુલજરૂરીયાતપ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ. આઈ (દિવસ)
				સક્રિયતત્વપ્રતિહેક્ટર(ગ્રામ/હેક્ટર)	ફોર્મ્યુલેશનનીમાત્રાપ્રતિહેક્ટર	સાંદ્રતા(%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦-૨૧	નાળિયેરી	નાળિયેરીનીસફેદમાખી	પાયરીપ્રોક્સીફેન૧૦% + બાયફેન્થ્રીન૧૦% ઈ.સી.	૧૦૦	૦.૫૦લી.	૦.૦૨	૧૦મિ.લી	૫૦૦લીટર	પ્રથમછંટકાવજીવાતનોઉપદ્રવશરુથયેઅનેત્યારબાદબીજોઅનેત્રીજોછંટકાવ, પ્રથમછંટકાવના૧૦દિવસનાઅંતરે	--
			સ્પાયરોમેસીફેન૨૨.૯એસ.સી.	૧૩૭	૦.૬૦લી.	૦.૦૨૭	૧૨મિ.લી			--
			ડાયાફેન્થીયુરોન૫૦% ડબ્લ્યુ.પી.	૨૫૦	૦.૫૦કિ.ગ્રા.	૦.૦૫	૧૦ગ્રા.			--

Approved with following Suggestions:

1. Approved for entire Gujarat state as an **Ad-hoc recommendation**
2. Recast the recommendation language of both English and Gujarati drafts.
3. Mention the quantity of starch in g/liter of water instead of 1% in draft.
4. Remove word "South Saurashtra Agro-climatic Zone" from English draft and "દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તાર" from Gujarati draft

(Action: Professor & Head, Department of Entomology, JAU, Junagadh)

17.3.1.17	**Management of rugose spiralling whitefly through root feeding of insecticides in coconut (Adhoc recommendation)**

The farmers of Gujarat having coconut orchards (>5 year old palms) are recommended to give root feeding (pencil size root) application of monocrotophos 36 SL @ 10 ml with 10 ml of water per palm, first at initiation of pest infestation and second at one month after first application for management of rugose spiralling whitefly. The interval between root feeding and harvesting of coconut should be 30 days.

As per CIB-RC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Qty. of Chemical suspension required/ha	Application schedule	Waiting period/PHI (days)
				g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)			
2020-21	Coconut	Rugose Spiralling Whitefly	Monocrotophos 36 SL	0.637	1.77 lit.	-	-	-	First root feeding at initiation of pest infestation, and second at 1 month interval after first root feeding	30

ગુજરાતના નાળિયેરીના બગીચા (૫ વર્ષથી વધારે ઉંમરના ઝાડ) ધરાવતા ખેડૂતોને ભલામણ કરવામા આવે છે કે, રૂગોસ સ્પાયરલિંગ સફેદમાખીના નિયંત્રણ માટે મૂળ શોષણ (પેન્સીલ જેટલી જાડાઈ ધરાવતુ મૂળ) પધ્ધતિથી પ્રતિ ઝાડ દીઠ ૧૦ મિ.લી. પાણી સાથે મોનોક્રોટોફોસ ૩૬ એસ. એલ, ૧૦ મિ.લી. દવા ભેળવી, પ્રથમ માવજત જીવાતનો ઉપદ્રવ શરુ થયે અને બીજી માવજત પ્રથમ માવજતના એક મહિનાના અંતરે કરવી. મૂળ શોષણની માવજત અને નાળિયેરને ઉતારવા વચ્ચે નો ગાળો ૩૦ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવા અનેતેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવાઅનેપાણીનાંદ્રાવણનીકુલજરૂરીયાત પ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ.આઈ (દિવસ)
				સક્રિયતત્વ પ્રતિ હેક્ટર (ગ્રામ/ હેક્ટર)	ફોમ્યુલેશનની માત્રાપ્રતિહેક્ટર	સાંદ્રતા (%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦-૨૧	નાળિયેરી	નાળિયેરીનીસફેદ માખી	મોનોક્રોટોફોસ ૩૬એસ. એલ	૦.૬૩૭	૧.૭૭લી.	-	-	-	મૂળશોષણપધ્ધતિથીપ્રથમ માવજતજીવાતનોઉપદ્રવ શરુથયેઅનેત્યારબાદબીજી માવજતપ્રથમમાવજતના એકમહિનાનાઅંતરે	૩૦

Approved with following Suggestions:

1. Approved for entire Gujarat state as an **Ad-hoc recommendation**
2. Mention PHI in recommendation
3. Add the procedure of root selection and application method in both the recommendation drafts (English & Gujarati)
4. Delete word 'Effective' from recommendation

(Action: Professor & Head, Department of Entomology, JAU, Junagadh)

Special remarks

Point No. 17.2.3, 17.2.4 and 17.2.5 are passed as an Adhoc recommendation by considering the following situations:

1. Due to invasive nature of Rugose spiralling whitefly (*Aleurodicus rugioperculatus*) in coconut, first time appeared in Gujarat state. The damage due to this invasive pest ranges between 70 to 80 per cent in the costal belt of Saurashtra.

2. This was noted by the Agriculture, Farmers Welfare and Co-operation Department of Gujarat Govt. as well as public representatives of the region. The details are as follow;
   - i) Letter from the office of Member of Parliament (Lok Sabha), Junagadh જા.ન.એમપી/૧૩-જુનાગઢ/૮૯૬/૨૦૨૦ તા. ૦૬/૦૮/૨૦૨૦.
   - ii) Letter from the office of Hon'ble Minister of Agriculture, Fisheries, Animal Husbandry, and Transport of Gujarat જા.ન. કૃ.ગ્રા.વિ.અને વા.વ્ય./૩૭૨૧/૨૦૨૦ તા. ૨૫/૦૮/૨૦૨૦.
   - iii) Letter from the office of Section Officer (Section-2), Agriculture, Farmers Welfare and Co-operation Department of Gujarat જા.ન. બગત/૨૦૨૦/મંત્રી -૮૧/ક-૮ તા. ૦૨/૦૮/૨૦૨૦.
   - iv) As the question [Legislative Assembly Question (LAQ) No. 33651] regarding the infestation of this pest was raised in the Assembly. An email was received from the office of Joint Director of Horticulture (B-6 Branch), Directorate of Horticulture, Gujarat State on dated: 15/02/2021.
   - v) Farmers meet organized by JAU, Junagadh regarding the status of this pest (Letter from the office of Director of Extension Education, JAU, Junagadh (જન. જૂ.કૃ.યુ./ વિ.વિ.વન./સીઓસી/ટેક૧/૫૪૮૪-૫૪૯૧/૨૦૨૦ તા. ૦૩/૦૯/૨૦૨૦)
3. By considering the above facts and urgent need of the farmers, the Department of Entomology, College of Agriculture, Junagadh Agricultural University, Junagadh has conducted the multi-location research on management of Rugose spiralling whitefly (*Aleurodicus rugioperculatus*) by application of biopesticides and chemical insecticides (for 1-3 year old palms) as well as root feeding of insecticide (> 5 years old palms). Therefore, the house suggested to approve the three ad-hoc recommendations for the benefit of farmers of Gujarat.

(Action: All Conveners (PPSC), SAU's of Gujarat)

17.3.1.18 Effect of different schedule based insecticides and biopesticides spray against fall army worm S*podoptera frugiperda* (J. E. Smith) infesting maize

The farmers of Gujarat growing maize are recommended to apply schedule spraying of chlorantraniliprole 18.5 SC 0.005% (3 ml/10 litre of water), emamectin benzoate 5 SG 0.0025% (5 g/10 litre of water) and thiodicarb 75 SP 0.09% (10 g/10 litre of water) at ten days interval after pest crosses ETL (5 egg masses or 1 mass of first instar larvae/20 plants) for the effective management of fall armyworm in maize. The interval between last spraying and harvesting of cobs should be 30 days.

The farmers interested in organic maize are recommended to apply schedule spraying of *Beauveria bassiana* 1.15 WP (1 x 10^8 cfu/g) 0.007 % (60 g/10 l of water), first at ETL and subsequent two sprays at 10 days interval for the effective management of fall armyworm in maize.

As per CIB-RC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/ PHI (days)
				g.a.i./ha	Qty. of formulation /ha	Conc. (%)	Dilution in water (10 lit.)			
2020-21	Maize	Fall army	Chlorantraniliprole 18.5 SC	28	0.150 lit.	0.005%	3 ml	500 lit.	First spray at initiation of	30

		worm	Emamectin benzoate 5 SG	13	0.250 kg	0.0025%	5 g		pest infestation, subsequent second and third at 10 day interval	30
			Thiodicarb 75 SP	375	0.5 kg	0.09%	10 g			30
			Beauveria bassiana 1.15 WP (1 x 10^8cfu/g)	35	3.0 kg	0.007%	60 g			-

ગુજરાતના મકાઈની ખેતી કરતા ખેડૂતોને ભલામણ કરવામા આવે છે કે, પુંછડે ચાર ટપકાવાળી ઈયળ (ફોલ આર્મીવોર્મ) ના અસરકારક નિયંત્રણ માટે ક્રમ અનુસાર દવાઓ જેવી કે, ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી, ૦.૦૦૫% (૩ મિ. લી./૧૦ લી. પાણીમા), એમામેકટીન બેનઝોએટ ૫ એસ. જી., ૦.૦૦૨૫% (૫ ગ્રા./૧૦ લી. પાણીમાં) અને થાયોડીકાર્બ ૭૫ એસ. પી., ૦.૦૯% (૧૦ ગ્રા./૧૦ લી. પાણીમાં) નો છંટકાવ જીવાત ક્ષમ્યમાત્રા (૫ ઈંડાનો સમૂહ અથવા પ્રથમ અવસ્થાના ઈયળનો એક સમૂહ/૨૦ છોડ) વટાવે ત્યારે ૧૦ દિવસના અંતરે કરવો. છેલ્લો છંટકાવ અને મકાઈના ડોડા ઉતારવા વચ્ચે નો સમયગાળો ૩૦ દિવસ રાખવો.

મકાઈની સજીવ ખેતીમાં રસ ધરાવતા ખેડૂતોને ભલામણ કરવામા આવે છે કે, પુંછડે ચાર ટપકાવાળી ઈયળ (ફોલ આર્મીવોર્મ) ના અસરકારક નિયંત્રણ માટે ક્રમાનુસાર બ્યુવેરીયા બાસીયાના ૧.૧૫ % વે.પા. (ન્યુનતમ ૧ x ૧૦૮ સી.એફ.યુ./ગ્રા) ૦.૦૦૭% (૬૦ ગ્રા/૧૦ લી. પાણીમાં) નો પ્રથમ છંટકાવ જીવાત ક્ષમ્યમાત્રા વટાવે ત્યારે તથા બીજા બે છંટકાવ, પ્રથમ છંટકાવના ૧૦ દિવસના અંતરે કરવા.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવા અનેતેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવાએનેપાણીનાંદ્રાવણનીકુલજરૂરીયાત પ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ. આઈ (દિવસ)
				સક્રિયતત્વપ્રતિહેક્ટર(ગ્રામ/હેક્ટર)	ફોર્મ્યુલેશનની માત્રાપ્રતિહેક્ટર	સાંદ્રતા(%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦-૨૧	મકાઇ	પુંછડે ચાર ટપકાવાળીઈયળ (ફોલઆર્મીવોર્મ)	ક્લોરાન્ટ્રાનીલીપ્રોલ૧૮.૫એસસી	૨૮	૦.૧૫૦લી.	૦.૦૦૫%	૩મિ.લી.	૫૦૦લીટર	પ્રથમછંટકાવજીવાતદેખાયત્યારેઅને ત્યારબાદબીજોઅનેત્રીજોછંટકાવ, પ્રથમછંટકાવના૧૦દિવસનાઅંતરે	૩૦
૨૦૨૦-૨૧	મકાઇ	પુંછડે ચાર ટપકાવાળીઈયળ (ફોલઆર્મીવોર્મ)	એમામેકટીનબેનઝોએટ૫એસ. જી.	૧૩	૦.૨૫૦કિ.ગ્રા.	૦.૦૦૨૫%	૫ગ્રા.	૫૦૦લીટર	પ્રથમછંટકાવજીવાતદેખાયત્યારેઅને ત્યારબાદબીજોઅનેત્રીજોછંટકાવ, પ્રથમછંટકાવના૧૦દિવસનાઅંતરે	૩૦
૨૦૨૦-૨૧	મકાઇ	પુંછડે ચાર ટપકાવાળીઈયળ (ફોલઆર્મીવોર્મ)	થાયોડીકાર્બ૭૫ એસ. પી.	૩૭૫	૦.૫કિ.ગ્રા.	૦.૦૯%	૧૦ગ્રા.	૫૦૦લીટર	પ્રથમછંટકાવજીવાતદેખાયત્યારેઅને ત્યારબાદબીજોઅનેત્રીજોછંટકાવ, પ્રથમછંટકાવના૧૦દિવસનાઅંતરે	૩૦
૨૦૨૦-૨૧	મકાઇ	પુંછડે ચાર ટપકાવાળીઈયળ (ફોલઆર્મીવોર્મ)	બ્યુવેરીયાબાસીયાના૧.૧૫ % વે.પા. (ન્યુનતમ૧x ૧૦૮સી.એફ.યુ./ગ્રા)	૩૫	૩.૦કિ.ગ્રા.	૦.૦૦૭%	૬૦ગ્રા.	૫૦૦લીટર	પ્રથમછંટકાવજીવાતદેખાયત્યારેઅને ત્યારબાદબીજોઅનેત્રીજોછંટકાવ, પ્રથમછંટકાવના૧૦દિવસનાઅંતરે	--

Approved with following Suggestions:

1. Add PHI in recommendation draft
2. Delete ‘and economical’ word from organic recommendation
3. Delete ‘અને અર્થક્ષમ’word from organic gujarati language
4. Write ‘ETL as per the pest’ instead of initiation of pest
5. In gujarati draft, write ‘પુંછડે ચાર ટપકાવાળી ઈયળ’ instead of ‘ચાર ટપકાવાળી ઈયળ’
6. Correct the year of recommendation in CIB & RC table as 2020-21 (Gujarati table)
7. Remove word “South Saurashtra Agro-climatic Zone” from English draft and “દક્ષિણ સૌરાષ્ટ્ર ખેતઆબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Professor & Head, Department of Entomology, JAU, Junagadh)

17.3.1.19	**Validationof IPM module for pink bollworm on cotton**

The cotton growers of Gujarat are recommended to implement the following IPM module for management of pink bollworm.

1. Timely sowing(15thJune to 15thJuly)
2. Installation of pheromone traps at 45 DAS @ 10/ha
3. Neem based formulation 1500 ppm (40ml/10lit.water) at 45 DAS
4. Release of *Trichogramma bactrae* 1.5 lakh/ha (thrice at weekly intervals) starting 50 DAS
5. ETL (10% fruiting body damage) based application of recommended insecticides (Lambda cyhalothrin 2.5 EC@ 0.0025% (10 ml/10 lit. of water) and Deltamethrin 2.8 EC @ 0.0028% (10 ml/10 lit. of water))
6. Timely termination of crop at 180-190 DAS

As per CIB-RC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/PHI (days)
				g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)			
2020-21	Cotton	Pinkbollworm	Lambdacyhalothrin2.5EC	12.5	500	0.0025	10 ml	500 l	FirstsprayatpinkbollwormcrosstheETL(10 % damage ingreenboll)andsecondspray after15 days offirstsprayforeffectivecontrolofpink bollworm.	21
			Deltamethrin 2.8EC	14	500	0.0028	10 ml			-

ગુજરાતના કપાસ ઉગાડતા ખેડૂતોને ગુલાબી ઈયળના નિયંત્રણ માટે નીચે મુજબની સંકલિત જીવાત નિયંત્રણ પદ્ધતિની ભલામણ કરવામા આવે છે.

૧. સમયસર વાવેતર કરવું. (૧૫ જુન થી ૧૫ જુલાઈ)
૨. વાવેતરના ૪૫ દિવસબાદ ૧૦ ફેરોમોન ટ્રેપ/ હે. લગાવવા.
૩. વાવેતરના ૪૫ દિવસ બાદ લીમડાયુક્ત દવા ૧૫૦૦ પીપીએમ (૪૦ મી.લી./૧૦ લીટર પાણી) માં ભેળવી છંટકાવ કરવો.
૪. પરજીવી ભમરી ટ્રાઈકોગામા બેકટરી ૧.૫ લાખ/હે. (ત્રણ વખત અઠવાડિયાના અંતરે) વાવેતરના ૫૦ દિવસ પછી છોડવી.
૫. જીવાત જયારે ક્ષમ્યમાત્રા (૧૦% જીંડવામાં નુકશાન) વટાવે ત્યારે ભલામણ મુજબ લેમડા સાયહેલોથ્રીન ૨.૫ ઈસી ૦.૦૦૨૫% (૧૦ મીલી/ ૧૦ લી. પાણી) અને ડેલ્ટામેથ્રીન ૨.૮ ઈસી ૦.૦૦૨૮% (૧૦ મીલી/ ૧૦ લી. પાણી) માં ભેળવી છંટકાવ કરવો.
૬. પાકને સમયસર ૧૮૦-૧૯૦ દિવસે પૂરો કરવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશક દવા અને તેનું ફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશક દવાઅને પાણીનાં દ્રાવણની કુલ જરૂરીયાત પ્રતિહેક્ટર	વાપરવાની પધ્ધતિ	વેઈટીંગ પીરીયડ/પી. એચ. આઈ (દિવસ)
				સક્રિય તત્વ પ્રતિ હેક્ટર(ગ્રામ/હેક્ટર)	ફોમ્યુલેશનની માત્રા પ્રતિ હેક્ટર	સાંદ્રતા(%)	પાણી સાથે ડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦-૨૧	કપાસ	ગુલાબી ઈયળ	લેમડાસાયહેલોથ્રીન૨.૫ઈસી	૧૨.૫	૫૦૦	૦.૦૦૨૫	૧૦મિલી	૫૦૦લિ. ૫૦૦લિ.	પ્રથમછંટકાવગુલાબીઈયળક્ષમ્યમાત્રા (૧૦ % લીલાજીંડવામાંનુકશાન) કરવોઅનેત્યારબાદ૧૫દિવસપ	૨૧
			ડેલ્ટામેથ્રીન૨.૮ઈસી	૧૪	૫૦૦	૦.૦૦૨૮	૧૦મિલી			-

									છીબીજોછંટકાવ	

Approved with following Suggestions:

1. Remove word “South Saurashtra Agro-climatic Zone” from English draft and “દક્ષિણ સૌરાષ્ટ્ર ખેતઆબોહવાકીય વિસ્તાર” from Gujarati draft
2. Harvesting range should be ‘180-190 days’ instead of ‘180 days’
3. Correct the spelling of *Trichogramma bactrae* in recommendation draft.
4. Correct the year of recommendation in CIB & RC table
5. Replace word “advised” with “recommended” in English draft
6. Replace word “સલાહ આપવામાં” with “ભલામણ કરવામાં” in Gujarati draft
7. Mention ICBR for farming practices

(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)

17.3.1.20 Estimation of yield losses for cotton pink bollworm

The Bt cotton growers of Saurashtra are recommended to apply, thiodicarb 75 WP @ 0.015 % (2 gm/10 lit. of water) at 60 days after sowing, chlorpyriphos 20 EC @ 0.04 % (20 ml/10 lit. of water) at 90 days after sowing and lamda cyhalothrin 2.5 EC @ 0.0025% (10 ml/10 lit. of water) at 120 days after sowing to avoid the yield loss of 41.5% from pink bollworm in cotton.

As per CIBRC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/PHI (days)
				g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)			
2020-21	Cotton	Pink Bollworm	Thiodicarb 75 WP	750	1000	0.015	02 gm	500 litre	First spray at 60 days after sowing and second and third spray after 90 and 120 days of sowing for Effective control of pink bollworm.	30
			Chlorpyriphos20 EC	250	1250	0.04	20 ml			-
			Lambda Cyhalothrin 2.5 EC	12.5	500	0.0025	10 ml			21

સૌરાષ્ટ્રના બીટી કપાસ ઉગાડતા ખેડુતોને સલાહ આપવામા આવે છે કે, થાયોડીકાર્બ ૭૫ ડબલ્યુ પી ૦.૦૧૫% (૦૨ ગ્રામ/ ૧૦ લી. પાણી) કીટકનાશકનો છંટકાવ વાવણી બાદ ૬૦ દિવસે, ક્લોરોપાયરીફોસ ૨૦ ઈસી ૦.૦૪% (૨૦ મીલી/ ૧૦ લી. પાણી) વાવણી બાદ ૯૦ દિવસે અને લેમડાસાયહેલોથ્રીન ૨.૫ ઈસી ૦.૦૦૨૫% (૧૦ મીલી/૧૦ લી. પાણી) વાવણી બાદ ૧૨૦ દિવસે કરવાથી ગુલાબી ઈયળથી થતા ૪૧.૫% જેટલા ઉત્પાદનનો ઘટાડો અટકાવી શકાય છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવા અનેતેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવાએનેપાણીનાંદ્રાવણનીકુલજરૂરીયાત પ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ. આઈ (દિવસ)
				સક્રિયતત્વપ્રતિહેક્ટર(ગ્રામ/હેક્ટર)	ફોમ્યુલેશનની માત્રાપ્રતિહેક્ટર	સાંદ્રતા(%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦-૨૧	કપાસ	ગુલાબી ઈયળ	થાયોડીકાર્બ ૭૫ડબલ્યુપી	૭૫૦	૧૦૦૦	૦.૦૦૧૫	૦૨ગ્રામ	૫૦૦લિ.	ગુલાબીઈયળનાં અસરકારકનિયંત્રણમાટેપ્રથમછંટ	૩૦
			ક્લોરોપાયરી	૨૫૦	૧૨૫૦	૦.૦૪	૨૦મિલી	૫૦૦લિ.		-

			ફોસ૨૦ઈસી						
			લેમડાસાયહેલોથ્રીન૨.૫ઈસી	૧૨.૫	૫૦૦	૦.૦૦૨૫	૧૦મિલી	૫૦૦લિ.	કાવકપાસનીવાવણીબાદ૬૦દિવસેત્યારબાદબીજોઅનેત્રીજોછંટકાવઅનુક્રમે૯૦અને૧૨૦દિવસેકરવો	૨૧

Approved with following Suggestions:

1. Correct the year of recommendation in CIB & RC table

(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)

PLANT PATHOLOGY

17.3.1.21 Efficacy of fluorescens producing *pseudomonas* against collar rot (*Aspergillus niger*) of groundnut

Farmers of Gujarat growing *kharif* groundnut are recommended to treat the seed with *Pseudomonas fluorescens* 0.5% WP (TNAU Strain Accession No. ITCC BE 0005) (2 x 10^6cfu/g) @ 20 g/kg seed and soil application of *P. fluorescens*0.5% WP (2 x 10^6cfu/g) @ 2.5 kg in 250 kg of castor cake/ha at the time of sowing and 250 kg sand at one month after germination for effective management of collar rot of groundnut.

As per CIBRC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/ PHI (days)
				g.a.i./ ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)			
2020	Ground nut	Collar rot	*Pseudomonas fluorescens* 0.5% WP (TNAU Strain Accession No. ITCC BE 0005) (2 x 10^6cfu/g)	--	20 g/kg seed + 1.5 kg + 2.5 kg	2 x 10^6 cfu/g	-	-	As a seed treatment and soil application with 250 kg castor cake at the time sowing and 2.5 kg sand at one month after sowing	--

ગુજરાતમા ચોમાસુ મગફળી ઉગાડતા ખેડૂતોને ઉગસુકરોગના અસરકારક વ્યવસ્થાપન માટે બીજને ટાલ્કમ પાવડર આધારિત સ્યુડોમોનાસ ફ્લુરોસન્સ ૦.૫ %વે.પા) .ટી.એન.એ.યુ. સ્ટ્રેન એક્સેસન નંબર આઈટીટીસી બીઈ ૦૦૦૫) (૨ x ૧૦૬ જીવંત કોષો (૨૦ ગ્રામ/કિલોબિયારણ દીઠ માવજત અને સ્યુડોમોનાસ ફ્લુરોસન્સ૦.૫ %વે.પા) .ટી.એન.એ.યુ. સ્ટ્રેન એક્સેસન નંબર આઈટીટીસી બીઈ ૦૦૦૫ ( )૨ x ૧૦૬ જીવંત કોષો (૨.૫ કિલો ને ૨૫૦ કિલો એરંડાના ખોળમા મિશ્ર કરીને વાવણી સમયે ૨૫૦ કિલો રેતીમા મિશ્ર કરીને અને બીજના ઉગવા બાદ એક મહિને જમીનમા આપવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવાઅનેતેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશક દવા અને પાણીનાં દ્રાવણની કુલ જરૂરીયાતપ્રતિ હેક્ટર	વાપરવાની પધ્ધતિ	વેઈટીંગ પીરીયડ / પી.એચ.આઈ (દિવસ)
				સક્રિય તત્વ પ્રતિ હેક્ટર (ગ્રામ /હેક્ટર)	ફોર્મ્યુલેશનની માત્રા પ્રતિ હેક્ટર	સાંદ્રતા(%)	પાણી સાથેડાયલ્યુશન (૧૦લીટર)			

૨૦૨૦	મગફળી	ઊગસુકના રોગમાટે	સ્યુડોમોનાસ ફ્લુરોસન્સ૦.૫% વે.પા. (ટી.એન.એ.યુ. સ્ટ્રેન એક્સેસન નંબર આઈટીટીસી બીઈ ૦૦૦૫) (૨ x $૧૦^{૬}$જીવંત કોષો)	-	૨૦ગ્રામ/કિલો બીજ + ૨.૫કિ.ગ્રા. + ૨.૫કિ.ગ્રા.	૨ x $૧૦^{૬}$જીવંત કોષો/ગ્રામ	-	-	બીજમાવજતઅને૨૫૦ કિ .ગ્રા. એરંડાનાખોળમાંમિશ્રકરીનેવાવણીસમયેઅનેબીજનાઊગવાબાદએકમહિનેજમીનમાં ૨૫૦ કિલો રેતીમાં આપવું	--

Approved with following Suggestions:

1. Check the transformed data.
2. Mention strain of *P. fluorescens* in recommendation draft
3. Remove “and economical” from English draft and “અને અર્થક્ષમ” from Gujarati draft
4. Replace word “advised” with “recommended” in English draft
5. Replace word “સલાહ આપવામાં” with “ભલામણ કરવામાં” in Gujarati draft

(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)

17.3.1.22 Efficacy of fluorescens producing pseudomonas against foliar diseases (leaf spots and rust) of groundnut

The farmers of Gujarat growing *kharif* groundnut are recommended for foliar spray of hexaconazole 5% SC (10 ml/10 lit water) at 40 DAS + foliar spray of talcum powder based *Pseudomonas fluorescens* 0.5% WP (TNAU Strain Accession No. ITCC BE 0005) (2 x 10^6 cfu/g) (100 g/10 lit. water) at 60 and 80 DAS OR foliar spray of hexaconazole 5% SC (10 ml/10 litre water) at 40, 60 and 80 DAS for effective management of leaf spots of groundnut.

As per CIB-RC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Qty. of Chemical suspension /ha	Application schedule	Waiting period/PHI (days)
				g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)			
2020	Groundnut	Leaf spot of groundnut	Hexaconazole 5 % SC	25	0.5 l	0.005	10 ml	500 l	Foliar spray at 40 DAS	30
			Pseudomonas fluorescens 0.5% WP (TNAU Strain Accession No. ITCC BE 0005) (2 x 10^6cfu/g)	-	5 kg	2 x 10^6cfu/ml	100 g	500 l	Foliar spray at 60 and 80 DAS	-
			OR							
			Hexaconazole 5 % SC	25	0.5 l	0.005	10 ml	500 l	Foliar spray at 40, 60 and 80 DAS	30

ગુજરાતમા ચોમાસુ મગફળી ઉગાડતા ખેડૂતોને મગફળીમા આવતા પાનના ટપકાના અસરકારક અને અર્થક્ષમ વ્યવસ્થાપન માટે વાવેતર બાદ ૪૦ દિવસે હેક્ઝાકોનાઝોલ ૫% એસ.સી. (૧૦ મિલી/૧૦ લીટર પાણીમાં) અને ૬૦ અને ૮૦ દિવસે ટાલ્કમ પાવડર આધારિત સ્યુડોમોનાસ ફ્લુરોસન્સ ૦.૫% વે.પા. (ટી.એન.એ.યુ. સ્ટ્રેન એક્સેસન નંબર આઈટીટીસી બીઈ ૦૦૦૫) (૨ x $૧૦^{૬}$ જીવંત કોષો (૧૦૦ ગ્રામ/૧૦ લીટર પાણીમા) છાંટવાની અથવા હેક્ઝાકોનાઝોલ ૫% એસ.સી. (૧૦ મિલી/૧૦ લીટર પાણીમા) વાવેતર બાદ ૪૦, ૬૦ અને ૮૦ દિવસે છાંટવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશક દવા અને તેનું ફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવા અને પાણીનાં દ્રાવણની કુલ જરૂરીયાત પ્રતિ હેક્ટર	વાપરવાની પધ્ધતિ	વેઈટીંગ પીરીયડ/પી. એચ. આઈ (દિવસ)
				સક્રિય તત્વ પ્રતિ હેક્ટર(ગ્રામ/ હેક્ટર)	ફોર્મ્યુલેશનની માત્રા પ્રતિહેક્ટર	સાંદ્રતા (%)	પાણી સાથે ડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦	મગફળી	મગફળી નાપાન નાટપકાં	હેક્ઝાકોનાઝોલ૫% એસ.સી.	૨૫	૦.૫લીટર	૦.૦૦૫	૧૦મિલી	૫૦૦લીટર	વાવણી બાદ ૪૦ દિવસે છંટકાવ કરવો	૩
			સ્યુડોમોનાસ ફ્લુરોસન્સ૦.૫% વે.પા.(ટી.એન.એ.યુ. સ્ટ્રેન એક્સેસન નંબર આઈટીટીસી બીઈ ૦૦૦૫) (૨ x $૧૦^{૬}$જીવંત કોષો)	-	૫.૦કિ .ગ્રા.	૨x$૧૦^{૬}$ જીવંતકોષો	૧૦૦ગ્રામ	૫૦૦લીટર	વાવણી બાદ ૬૦અને૮૦ દિવસે છંટકાવ કરવા	-
			અથવા							
			હેક્ઝાકોનાઝોલ૫% એસ.સી.	૨૫	૦.૫લિટર	૦.૦૦૫	૧૦મિલી	૫૦૦લીટર	વાવણી બાદ ૪૦,૬૦ અને ૮૦ દિવસે છંટકાવ કરવા	૩૦

Approved with following Suggestions:

1. Mention PHI in recommendation draft.
2. Remove “and economical” from English draft and “અને અર્થક્ષમ” from Gujarati draft
3. Check the formulation of Hexaconazole SC or EC
4. Mention strain of *P. fluorescens* in recommendation draft
5. Write ‘ખેડૂતોને’instead of ‘ખેડૂત ભાઈઓને’ in Gujarati draft
6. Replace word “advised” with “recommended” in English draft
7. Remove word “South Saurashtra Agro-climatic Zone” from English draft and “દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)

17.3.1.23 Chemical control of early and late leaf spot and rust diseases of groundnut

The farmers of Gujarat growing *kharif* groundnut are recommended to spray pyraclostrobin 12.5% + epoxiconazole 4.7% SE 0.025% (15 ml/10 litre of water) or carbendazim 12% + mancozeb 63% WP 0.15% (20 g/10 litre of water), first spray at disease initiation and subsequent two at 20 days interval for managing the early and late leaf spot and rust diseases.

As per CIB-RC format:

Year	Crop	Target	Pesticides with formulation	Dosage				Total Qty. of Chemical suspension required/	Application schedule	Waiting period/PHI (days)	Remarks
				g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)				

								ha			
2021	Ground nut	Early and late leaf spot and rust	Carben-dazim 12% + Mancozeb 63% WP	750.0	1.000 kg	0.15	20 g	500	First spray at 50 days after sowing and subsequent two sprays at 20 days interval.	-	These fungicides are registered in CIB & RC for groundnut crop for management of leaf spot diseases.
			Pyracl-ostrobin 12.5% + Epoxi-conazole 4.7% SE	129.0	0.750 l	0.025	15 ml			21	

ગુજરાતના ચોમાસુ મગફળી વાવતા ખેડૂતોને આગોતરા અને પાછોતરા આવતા પાનના ટપકા અને ગેરૂ રોગના નિયંત્રણ માટે પાયરેક્લોસ્ટ્રોબિન ૧૨.૫% + એપોક્સિકોનાઝોલ ૪.૭% એસઈ ૦.૦૨૫% (૧૫ મિલી/૧૦ લી.પાણીમા) અથવા કાર્બેન્ડાઝીમ ૧૨% + મેન્કોઝેબ ૬૩% વે. પા. ૦.૧૫% (૨૦ ગ્રામ/ ૧૦ લી.પાણીમા), પ્રથમ છંટકાવ રોગની શરૂઆત થયે અને બાકીના બે છંટકાવ ૨૦ દિવસના અંતરે કરવાની ભલામણ કરવામા આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશક દવા અને તેનું ફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવા અનેપાણીનાંદ્રાવણનીકુલજરૂરીયાતપ્રતિહેક્ટર	વાપરવાની પધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ. આઈ (દિવસ)	રીમાર્કસ
				સક્રિય તત્વ પ્રતિ હેક્ટર(ગ્રામ/હેક્ટર)	ફોમ્યુલેશનની માત્રાપ્રતિહેક્ટર	સાંદ્રતા (%)	પાણીસાથે ડાયલ્યુશન (૧૦લીટર)				
૨૦૨૧	મગફળી	વહેલાઅનેમોડા આવતો પાનનાટપકાનોરોગઅનેગેરુ	કાર્બેન્ડાઝીમ ૧૨%+ મેન્કોઝેબ૬૩ % વે. પા.	૭૫૦	૧.૦૦૦કિલો	૦.૧૫	૨૦ગ્રામ	૫૦૦	પહેલોછંટકાવવાવેતરના ૫૦દિવસ બાદઅનેત્યારપછીનાબે છંટકાવ૨૦ દિવસનાઅંતરે	-	મગફળીમાં ટીક્કારોગના નીયંત્રણમાટે આદવાઓ સીઆઈબી અનેઆરસી માનોંધાયેલ છે.
			પાયરેક્લોસ્ટ્રોબિન૧૨.૫ % + ઈપોકઝીકોનાઝોલ૪.૭% એસ.ઈ.	૧૨૯	૦.૭૫૦લીટર	૦.૦૨૫	૧૫મીલી			૨૧	

Approved with following Suggestions:

1. Write first spray at iniation of disease in recommendation and correct in both drafts
2. Check the PHI in CIB & RC table guideline
3. Remove word “South Saurashtra Agro-climatic Zone” from English draft and “દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)

17.3.1.24 Effect of biofertilizers on the yield of oyster mushroom (*Pleurotussajorcaju*)

The Oyster mushroom (*Pleurotussajor-caju*) growers of Gujarat are recommended to treat wheat straw substrate with Azotobacter (1 X 10^8cfu) and PSB (1 X 10^8cfu) each at 0.2 per cent using spawn rate of three per cent in three kg of substrate for higher sporophore production and biological efficiency.

ગુજરાતના ઓઈસ્ટર મશરૂમ (પ્લુરોટસસ જોર-કાજુ) ઉગાડતા ખેડૂતોએ એસ્પોરોફોરના વધુ ઉત્પાદન અને જૈવિક કાર્યક્ષમતા મેળવવા માટે, ત્રણ ટકા સ્પાન દર સાથે ત્રણ કિલો ઘઉંના પરાળને જૈવિક ખાતર જેવા કે

	એઝોટોબેક્ટર (૧X૧૦^{૮} સીએફયુ) અને પીએસબી (૧X૧૦^{૮} સીએફયુ) દરેકની ૦.૨ ટકા મુજબ માવજત આપવી.
	Approved with following Suggestions: 1. Approved for entire Gujarat state 2. Recast the recommendation language of both English and Gujarati drafts. 3. Add mushroom price in economics 4. Remove 'પરાળના માધ્યમને' with 'પરાળને' in Gujarati draft 5. Mention CFU in proper format
	(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)
17.3.1.25	**Effect of different substrates on nutritional and biochemical properties of oyster mushroom (*Pleurotussajor caju*)**
	The Oyster mushroom growers of Gujarat are recommended to use wheat straw or chickpea substrate for higher production, better nutritional and biochemical properties.
	ગુજરાતના ઓઈસ્ટર મશરૂમના ઉગાડતા ખેડૂતોએ વધુ ઉત્પાદન, સારા પોષક અને જૈવરાસાયણીક ગુણવતાયુક્ત સ્પોરોફોર મેળવવા માટે ઘઉંના પરાળનો અથવા ચણાની કુશકીનો માધ્યમ તરીકે ઉપયોગ કરવો.
	Approved with following Suggestions: 1. Approved for entire Gujarat state 2. Recast the recommendation language of both English and Gujarati drafts. 3. Replace word "advised" with "recommended" in English draft 4. Replace word "advocate" with "use" in English draft 5. In Table 13.1, correct unit of yield 'g/bag' instead of 'kg/bag' 6. Write word 'ઘઉંનો પરાળ' instead of 'ઘઉં'in Gujarati draft 7. Write word 'ચણાની કુશકી'instead of 'ચણા' in Gujarati draft 8. Write 'wheat straw' or 'chickpea substrate' instead of 'wheat or chickpea substrate'
	(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)
17.3.1.26	**Integrated management of foliar diseases in high density planting of cotton**
	The farmers of Gujarat growing high density (60 cm x 45 cm) Bt cotton are recommended to apply (Fluxapyroxad 167 g/l +Pyraclostorbin 333 g/l SC) + Streptocycline at 7.5 + 0.75 g/10 liter of water, first spray at initiation of diseases and second spray at 20 days after first spray for effective management of bacterial blight and fungal leaf spots. Maintain Pre harvest interval of 27 days. **As per CIBRC format:**

Year	Crop	Target	Pesticides	Dosage	Total Qty.	Application	Waiting	Remarks

Year	Crop	Target	Pesticides with formulation	g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)	Total Qty. of Chemical suspension required/ha	Application schedule	Waiting period/PHI (days)	Remarks
2020	Cotton	Foliar diseases	Fluxapyroxad 167 g/l + Pyraclostorbin 333g/l SC	187.5	0.375 lit.	0.0374	7.5 ml	500lit	First spray at initiation of diseases & second sprayafter 20 days	27	Registered in CIB-RC
			Streptocycline	37.5	0.0375 kg	0.075	0.75 g			-	-

ગુજરાતમા બીટી કપાસની ઘનિષ્ઠ ખેતી (૬૦ x ૪૫ સેમી) કરતા ખેડૂતોને સલાહ આપવામા આવે છે કે ફુગજન્ય પાનના ટપકાં અને જીવાણુંજન્ય ખુણિયા ટપકાના અસરકારક નિયંત્રણ મેળવવા માટે (ફ્લુક્ઝાપયરોક્ઝેડ ૧૬૭ ગ્રામ/લી.+પાયરાક્લોસ્ટ્રોબિન ૩૩૩ ગ્રામ/લી.) + સ્ટ્રેપ્ટોસાયક્લીન (૭.૫ ગ્રામ+૦.૭૫ ગ્રામ/૧૦ લીટર પાણીમાં) નો પ્રથમ છંટકાવ રોગની શરુઆત થયે તુરંત અને ત્યારબાદ ૨૦ દિવસ પછી બીજો છંટકાવ કરવો. છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ૨૭ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવાઅને તેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવાઅને પાણીનાંદ્રાવણનીકુલ જરૂરીયાતપ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/પી.એચ.આઈ (દિવસ)	રીમાર્કસ
				સક્રિયતત્વપ્રતિહેક્ટર(ગ્રામ/હેક્ટર)	ફોર્મ્યુલેશનનીમાત્રાપ્રતિહેક્ટર	સાંદ્રતા(%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)				
૨૦૨૦	કપાસ	પાનપરઆવતારોગ	લુક્ઝાપયરોક્ઝેડ૧૬૭ગ્રામ/લી+ . યરાક્લોસ્ટ્રોબિન૩૩ગ્રામ/લી.	૧૮૭.૫	૦.૩૧૫લી.	૦.૦૩૧૫	૭.૫મીલી	૫૦૦લિટર	પ્રથમછંટકાવરોગ ખાય ત્યારેઅનેત્યારપછ નાં છંટકાવ૨૦દિવસ	૨૭	સીઆઈબી-આરસીમાં નોધાયેલછે.
			સ્ટ્રેપ્ટોસાયક્લીન	૩૭.૫	૦.૦૩૧૫કિગ્રા	૦.૦૭૫	૦.૭૫ગ્રામ	૫૦૦લિટર			પ્રુથ્થકરણની જરૂરનથી.

Approved with following Suggestions:

1. Mention PHI and High Density Planting spacing in recommendation draft.
2. Delete " and grey mildew disease" from recommendation
3. Remove "and economical" from English draft and "અને અર્થક્ષમ" from Gujarati draft

(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)

17.3.1.27 Management of sooty mould in cotton

The farmers of Gujarat growing Bt cotton are recommended to spray flonicamid 50 WG 0.15 % (3 g/10 liter of water)or Flonicamid 50 WG and (fluxapyroxad 167 g/lit + pyraclostrobin 333 g/lit SC) 0.15 & 0.375% (3g and 7.5 ml/10 lit of water) when aphid crosses ETL (10 aphids/leaf) and second spray at 15 days interval after first spray for effective management of sooty mould. The secretion of honeydew like substances is medium for saprophytic fungi.Maintain Pre Harvest Interval of 25 and 27 days for flonicamid 50 WG and Flonicamid 50 WG + (fluxapyroxad 167 g/lit + pyraclostrobin 333 g/lit SC), respectively.

As per CIB-RC format:

Year	Crop	Target	Pesticides with	Dosage	Total Qty. of	Application	Waiting

			formulation	g.a.i./ha	Qty. of formulation/ha	Conc. (%)	Dilution in water (10 lit.)	Chemical suspension required/ha	schedule	period/PHI (days)
2020	Cotton	Aphids, Jassids, Thrips & Whiteflie	Flonicamid 50WG	75 g	0.150 kg	0.15	3 g	500lit	First spray at when aphis population is crossed ETL & next sprays at interval of 15 days	25
			Flonicamid 50 WG and (fluxapyroxad 167 g/lit + pyraclostrobin 333 g/lit SC)	75 g & 187.5 g	0.150 kg & 0.375 lit	0.15 & 0.375	3g and 7.5 ml			27

ગુજરાતમા બીટી કપાસ ઉગાડતા ખેડૂતોને સલાહ આપવામાં આવે છે કે સૂટી મોલ્ડના અસરકારક નિયંત્રણ મેળવવા માટે ફ્લોનીકામીડ ૫૦ ડબલ્યુ. જી. ૦.૧૫% (3 ગ્રામ / ૧૦ લિટર પાણીમાં) અથવા ફ્લોનીકામીડ ૫૦ ડબલ્યુ. જી. અને ફ્લુપાયરોક્ઝાડ ૧૬૭ ગ્રા./લીટર + પાયરોકલોસ્ટોબિન ૩૩૩ ગ્રા/લીટર એસ.સી.૦.૧૫% + ૦.૦૩૭૫ (3 ગ્રામ અને ૭.૫ મિલી/૧૦ લિટર પાણીમાં), પ્રથમ છંટકાવ મોલોમશી આર્થિક ક્ષમ્ય માત્રા (૧૦ મોલોમશી/પાન) વટાવે તુરંત અને ત્યારબાદ ૧૫ દિવસ ના અંતરે બીજો છંટકાવ કરવો. મોલોમશી દ્વારા ઉત્પન્ન થતો ચિકણો પદાર્થ નિર્જીવ ફુગનું માધ્યમ છે. ફ્લોનીકામીડ ૫૦ ડબલ્યુ. જી. અને ફ્લોનીકામીડ ૫૦ ડબલ્યુ. જી. + (ફ્લુપાયરોક્ઝાડ ૧૬૭ ગ્રા./લીટર + પાયરોકલોસ્ટોબિન ૩૩૩ ગ્રા/લીટર એસ.સી.) માટે છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો અનુક્રમે ૨૫ અને ૨૭ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	ટાર્ગેટ	જંતુનાશકદવાઅને તેનુંફોર્મ્યુલેશન	પ્રમાણ				જંતુનાશકદવાઅને પાણીનાંદ્રાવણનીકુલજરૂરીયાતપ્રતિહેક્ટર	વાપરવાનીપધ્ધતિ	વેઈટીંગપીરીયડ/ પી.એચ. આઈ (દિવસ)
				સક્રિયતત્વપ્રતિહેક્ટર(ગ્રામ/હેક્ટર)	ફોર્મ્યુલેશનનીમાત્રાપ્રતિહેક્ટર	સાંદ્રતા(%)	પાણીસાથેડાયલ્યુશન (૧૦લીટર)			
૨૦૨૦	કપાસ	મોલોમશી	લોનીકામીડ૫૦ડબલ્યુ .જી.	૭૫	૦.૧૫૦ કિગ્રા	૦.૧૫	૩ગ્રામ	૫૦૦લિટર	પ્રથમછંટકાવજ્યારેમોલમશીઆર્થીકક્ષમ્યમાત્રાટાવેત્યારેઅનેત્યારપછીનોછંટકાવ૧૫દિવસે	૨૫
			ફ્લોનીકામીડ ૫૦ ડબલ્યુ. જી. +(ફ્લુપાયરોક્ઝાડ ૧૬૭ ગ્રા./લીટર + પાયરોકલોસ્ટોબિન ૩૩૩ ગ્રા/લીટર એસ.સી.)	૭૫ અને ૧૮૭.૫	૦.૧૫૦ કિગ્રા અને ૦.૩૭૫ લીટર	૦.૧૫ + ૦.૩૭૫	૩ગ્રામ+ ૭.૫ મિલી			૨૭

Approved with following Suggestions:

1. Mention the PHI in recommendation.
2. Add T_7 in recommendation and recast the draft accordingly.
3. Remove "and economical" from English draft and "અને અર્થક્ષમ" from Gujarati draft

(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

AGRICULTURAL ENTOMOLOGY	
17.3.1.28	**Management of the two spotted spider mite, *Tetranychus urticae* Koch on gerbera with the use of biopesticides and the predatory mite, *Amblyseius*(*Neoseiulus*) *longispinosus* (Evans)**
	Farmers of south Gujarat growing gerbera in polyhouse are recommended to apply first spray of neem oil 0.5% @ 50 ml/ 10 litre of water at bud initiation stage, second spray of neem oil 0.5% @ 50 ml/ 10 litre of water after fifteen days of first

spray and release of predatory mite, *Amblyseius (Neoseiulus) longispinosus* @ 20 gravid female/plant after fifteen days of second spray for the effective control of two spotted spider mite, *Tetranychus urticae* to gain higher flower production.

દક્ષિણ ગુજરાતમા પોલીહાઉસમા જરબેરાની ખેતી કરતા ખેડૂતોને બે ટપકાંવાળી પાનકથીરી (ટેટ્રાનીકસ અર્ટીકીનુ અસરકારક નિયંત્રણ કરી ફુલોનુ વધુ ઉત્પાદન લેવા માટે લીમડાના તેલ ૦.૫ ટકા (૫૦ મીલી પ્રતિ ૧૦ લિટર પાણી)નો પ્રથમ છંટકાવ કળી બેસવાની અવસ્થાએ અને બીજો છંટકાવ પ્રથમ છંટકાવના પંદર દિવસ બાદ કરવો તેમજ બીજા છંટકાવના પંદર દિવસ બાદ પરભક્ષી કથીરી, એમ્બ્લીસીયસ (નીયોસીલસ) લોન્જીસ્પીનોસસ (૨૦ માદા પ્રતિ છોડ) છોડવાની ભલામણ કરવામાં આવે છે.

Approved with following Suggestions:

1. Recast the recommendation language of both English and Gujarati drafts.
2. Add protected condition in methodology.
3. Remove the word ‘નંગ’ from Gujarati draft.

(Action: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)

17.3.1.29 Effect of various leaf defoliation levels on castor yield for rearing of eri silkworm, *Samiacynthia ricini* Hutt

The eri silkworm rearers of Gujarat are recommended to pluck 25-30 per cent leaves of castor at 15 days interval (45 DAS) to obtain additional income along with castor seed production.

ગુજરાતમાં દિવેલાના રેશમના કીડાનો ઉછેર કરતા ખેડૂતોને દિવેલાના બીજ ઉત્પાદન સાથે વધારાની આવક મેળવવા માટે દિવેલાના પાન ૧૫ દિવસના અંતરે (વાવણીના ૪૫ દિવસ બાદ) ૨૫-૩૦ ટકા સુધી તોડવા ભલામણ કરવામાં આવે છે.

Approved with following Suggestions:

1. Do not consider the increase in castor seed yield for the recommendation.
2. Recast the recommendation language of both English and Gujarati drafts.

(Action: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)

17.3.1.30 Evaluation of insecticides against important insect pests of mango

Mango growing farmers of Gujarat are recommended to apply two sprays of thiamethoxam 25 WG 0.0084 % (3.36 g/10 litre water) or imidacloprid 17.8 SL 0.005% (2.8 ml/10 litre water) for effective control of mango hopper and thrips, first spray at panicle initiation and second spray at 28 days after first spray.

As per CIBRC format:

Year	Crop	Pest	Pesticide with formulation	Dosage/ha			Waiting period (days)	Residue in the fruit sample
				a.i (gm)	Quantity of formulation (g or ml)	Dilution in water (liter)		
2021	Mango	Hopper, Thrips	Thiamethoxam 25 WG	84	336	1000	30	BDL
2021	Mango	Hopper, Thrips	Imidacloprid 17.8 SL	49.84	280	1000	45	BDL

	ગુજરાતમા આંબાની ખેતી કરતા ખેડૂતોને આંબાના મધીયા અને થ્રીપ્સના અસરકારક નિયંત્રણ માટે બે છંટકાવ થાયોમેથોક્ઝામ ૨૫ ડબલ્યુ.જી. ૦.૦૦૮૪% (૩.૩૬ ગ્રામ/૧૦ લીટર) અથવા ઈમીડાક્લોપ્રીડ ૧૭.૮ એસ.એલ. ૦.૦૦૫% (૨.૮૦ મિલી/ ૧૦ લીટર) ના કરવાની ભલામણ કરવામા આવે છે, પહેલો છંટકાવ મોર આવવાના સમયે અને બીજો છંટકાવ પહેલા છંટકાવના ૨૮ દિવસ પછી કરવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	જંતુનાશકની રચના	માત્રા/હે.			પ્રતીક્ષા સમય (દિવસ)	ફળમાં જંતુનાશના અવશેષ
				સ. ત. (ગ્રામ)	જંતુનાશકની માત્રા (ગ્રામ અથવા મિલી)	પાણીમાંમિશ્રણ (લીટર)		
૨૦૨૧	આંબો	મધીયો, થ્રીપ્સ	થાયોમેથોક્સામ ૨૫ ડબલ્યુજી	૮૪	૩૩૬	૧૦૦૦	૩૦	શોધની મર્યાદા નીચે
૨૦૨૧	આંબો	મધીયો, થ્રીપ્સ	ઈમીડાક્લોપ્રીડ ૧૭.૮ એસએલ	૪૯.૮૪	૨૮૦	૧૦૦૦	૪૫	શોધની મર્યાદા નીચે

Approved with following Suggestions:

1. Add PHI in recommendation draft.
2. Remove Lamda cyhalothrin from the recommendation and recast it.
3. Check PxT interaction for 21 DAS instead of 28 DAS and make changes accordingly.

(Action: Principal, CoA, Waghai, NAU)

17.3.1.31	**Validation of IPM module for Pink bollworm**

Farmers of Gujarat cultivating *Bt* cotton are recommended to adopt following effective and economic IPM module for management of pink bollworm as well as sucking pests (thrips, leafhopper, aphid and whitefly).

IPM Module for cotton pests

1. Timely sowing of the crop (15th June to 15th July of the year)
2. Installation of yellow sticky trap @ 20 traps/ha at 30 DAS
3. Stem application of flonicamid 50 WG @ 60g/ha each at 30, 45 and 60 DAS
4. Installation of Phero-sensor TM-SP trap @ 5 traps/ha at 45 DAS and change the Pectino-lure thrice at 40 days interval having viability of 30-40 days
5. Spraying of Azadirachtin 1500 PPM @ 2.5 lit/ha at 60 DAS (50 ml/10 lit. of water at spray volume of 500 lit/ha)
6. Three inundative release of egg parasitoid, *Trichogrammatoidae bactrae* @ 1.5 lakh/ha at weekly interval initiating 7 days after application of neem insecticide
7. ETL (10% fruiting body damage) based application of recommended insecticides (Indoxacarb 14.5SC @ 5 ml/ 10 lit. or Emamectin benzoate 5 SG @ 5 g/10 lit. or Spinosad 45 SC @ 3 ml/10 lit.)
8. Timely termination of crop (By January 15th of the year)

As per CIBRC format:

Year	Crop	Pests	Pesticides with formulation	Dosage/ha			Waiting Period (days)*
				Quantity of formulation	Conc. (%)	Dilution in water (L)	
2021	Cotton	Sucking pests & Bollworms	Azadirachtin 1500 PPM	2500 ml	0.00075	500	5
		Sucking pests(Thrips, Leafhopper, Aphid,	Flonicamid 50 WG	150 g	0.015	500	25

		Whitefly)				
		Pink bollworm	Indoxacarb 14.5 SC	500 ml	0.0145	500	16
			Emamectin benzoate 5 SG	250 g	0.0025	500	10
			Spinosad 45 SC	150 ml	0.014	500	10

*Note: Ministry of Agriculture and Farmers Welfare, GOI, DPPQS, CIBRC, Faridabad, Major uses of pesticides- 31/10/2019 and 31/01/2020

ગુજરાતમા બીટી કપાસની ખેતી કરતા ખેડુતોને ગુલાબી ઈયળ તેમજ ચૂસિયા પ્રકારની જીવાતો (થ્રીપ્સ, તડતડીયા, મોલોમશી અને સફેદમાખી)ના વ્યવસ્થાપન માટે નીચે મુજબની અસરકારક અને અર્થક્ષમ સંકલિત કીટ વ્યવ્થાપન પધ્ધતિ અપનાવવાની ભલામણ છે.

કપાસની જીવાતોનુ સંકલિત વ્યવસ્થાપન પધ્ધતિ :

૧.	પાકની સમયસર વાવણી કરવી (૧૫ જુન થી ૧૫ જુલાઈ)
૨.	વાવણીના ૩૦ દિવસ બાદ પીળાં ચીકણાં પિંજર ૨૦ પ્રતિ હેકટર મુજબ લગાડવા
૩.	વાવણીના ૩૦, ૪૫ અને ૬૦ દિવસ બાદ કપાસના થડ ઉપર ફ્લોનીકામીડ ૫૦ ડબલ્યુજી ૬૦ ગ્રામ/હે દવાની માવજત
૪.	વાવણીના ૪૫ દિવસ બાદ ગુલાબી ઈયળ માટે ફેરો-સેન્સર ટીએમ-એસપી ટ્રેપ પ્રતિ હેકટરે ૫ મુજબ લગાડવા અને આ ફેરોમોન ટ્રેપ માં ૪૦ દિવસનાં આંતરે ૩ વખત પેકટીનો-લ્યુર (૩૦ થી ૪૦ દિવસની અસરકારકતાવાળી) ઉપયોગમાં લેવી.
૫.	વાવણીના ૬૦ દિવસ બાદ લીમડા આધારીત દવા, એઝાડીરેકટીન ૧૫૦૦ પીપીએમ ૫૦ મિલિ પ્રતિ ૧૦ લિટર પાણીમાં ભેળવી ૫૦૦ લિટર પ્રતિ હેકટર મુજબનુ દ્રાવણ વાપરવુ.
૬.	લીમડા આધારીત દવા છંટકાવના૭ દિવસ બાદ ગુલાબી ઈયળનાં ઈંડાની પરજીવી ભમરી, *ટ્રાયકોગામેટોયડી બેકટરી* ૧.૫ લાખ પ્રતિ હેકટર મુજબ અઠવાડિયાના અંતરે ૩ વખત છોડવા.
૭.	ગુલાબી ઈયળની આર્થિક ક્ષમ્યમાત્રાએ (૧૦ ટકા ફળાઉ ભાગોમા નુકશાન) ભલામણ કરેલી દવાઓનો છંટકાવ (ઈન્ડોકઝાકાર્બ ૧૪.૫ એસસી ૫ મિલિ પ્રતિ ૧૦ લિટર અથવા ઈમામેકટીન બેન્ઝોએટ ૫ એસજી ૫ ગ્રામ પ્રતિ ૧૦ લિટર અથવા સ્પીનોસાડ ૪૫ એસસી ૩ મિલિ/૧૦ લિટર)
૮.	પાક સમયસર પુર્ણ કરી ખેતર ચોખ્ખુ કરવુ (૧૫ જાન્યુઆરી સુધીમાં)

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાતો	કીટનાશકો	માત્રા.હે /			પ્રતિક્ષા સમય (દિવસ)
				જથ્થો	સાંદ્રતા (%)	પાણીમાં મિક્ષણ (લી.)	
૨૦૨૧	કપાસ	ચુસીયા પ્રકારની જીવાતો/જીંડવા કોરી ખાનારી ઈયળો	એઝાડીરેકટીન ૧૫૦૦ પીપીએમ	૨૫૦૦ મિલિ	૦.૦૦૦૭૫	૫૦૦	૫
		ચુસીયા પ્રકારની જીવાતો (થ્રીપ્સ, તડતડીયા, મોલોમશી, સફેદમાખી)	ફ્લોનીકામીડ ૫૦ ડબલ્યુજી	૧૫૦ ગ્રામ	૦.૦૧૫	૫૦૦	૨૫
		ગુલાબી ઈયળ	ઈન્ડોકઝાકાર્બ ૧૪.૫ એસસી	૫૦૦ મિલિ	૦.૦૧૪૫	૫૦૦	૧૬
			ઈમામેકટીન બેન્ઝોએટ ૫ એસજી	૨૫૦ ગ્રામ	૦.૦૦૨૫	૫૦૦	૧૦
			સ્પીનોસાડ ૪૫ એસસી	૧૫૦ મિલિ	૦.૦૧૪	૫૦૦	૧૦

***Note**: Ministry of Agriculture and Farmers Welfare, GOI, DPPQS, CIBRC, Faridabad, Major uses of pesticides- 31/10/2019 and 31/01/2020

Approved with following Suggestions:

1. Delete the address of company from recommendation draft.
2. Check the dose of Flonicamid 50 WG in recommendation drafts and CIB & RC table.

(Action: Res. Scientist, MCRS, NAU, Surat

17.3.1.32 Management of pod fly, *Melanagromyza obtusa* (Mollach) in pigeonpea

The pigeon pea growers are recommended to follow the following IPM strategy for reducing pod fly infestation as well as in gaining higher grain yield with low input cost.

- Interspersing of sorghum and maize @ 1%
- Installation of trap baited with 20 ml ethanol @ 20/ha during 50% flowering up to maturity and during this duration recharge traps at 15 days interval
- Application of NSKE @ 5% at 5 day old age pod period followed by emamectin benzoate 5 SG @ 0.0011% (2.2g /10 lit.) and acetamiprid 20SP @ 0.004 (2.0g /10 lit) at 10 days interval

Trap Details:

For preparing a trap 1 litre plastic water bottle will be used and underside of it will be wrapped with white paper. The middle portion of bottle is to be cut in 2x2 inch size for inserting a 20 ml ethanol suspended plywood block which remains hang in the bottle.

તુવેરની ખેતી કરતા ખેડુતોને ઓછા ખર્ચે શીંગમાખીના ઉપદ્રવને નિયંત્રણમા રાખી વધુ ઉત્પાદન મેળવવા નીચે દર્શાવેલ સંકલિત કિટ વ્યવસ્થા અપનાવવાની ભલામણ છે.

- તુવેરના પાકમા જુવાર અને મકાઈના છોડ ૧% ના દરે છૂટાછવાયા ઉગાડવા.
- ૨૦ મી.લી. ઈથેનોલ દ્રાવણ થી બનાવેલ પિંજર હેક્ટર દીઠ ૨૦ મુજબ પાકની ફૂલ અવસ્થાથી શીંગ પરિપક્વ અવસ્થા સુધી ગોઠવવા તેમજ ઉપરોક્ત સમયગાળા દરમ્યાન ૧૫ દિવસ ના અંતરે ટ્રેપ રિચાર્જ કરવા.
- જંતુનાશક દવાઓ પૈકી પ્રથમ છંટકાવ લીંબોળીના મીજના ૫% દ્રાવણનો શીંગ બેસવના ૫ દિવસ બાદ અને ત્યાર બાદ ઈમામેક્ટીન બેન્ઝોએટ ૫ એસ. જી. , ૦.૦૦૧૧% (૨.૨ ગ્રામ/૧૦ લી) અને એસીટામીપ્રીડ ૨૦ એસ.પી., ૦.૦૦૪% (૨ ગ્રામ/૧૦ લી.) ના ૧૦ દિવસ ના અંતરે કરવા.

ટ્રેપ બનાવવાની રીત:

૧ લીટર ક્ષમતવાળી ખાલી પાણીની બોટલ લઈ અને તેના મધ્ય ભાગમા ૨ ઈચ નો કાપ મૂકો. આ કાપમાથી સફેદ કાગળ દાખલ કરી બોટલના અંદરના ભાગને કવર કરો ત્યારબાદ ૨૦ મીલી ઈથેનોલ દ્રાવણથી સંત્રૃપ્ત પ્લાય બ્લોક બોટલમા લટકતો રહે તે રીતે દાખલ કરો.

Approved with following Suggestions:

1. Recommend the module II instead of module III.
2. Recast the recommendation language of both English and Gujarati drafts.

(Action: Res.Sci, NARP, NAU, Bharuch)

17.3.1.33 Estimation of yield losses for cotton pink bollworm

Cotton farmers of Gujarat cultivating *Bt* cotton are recommended to apply, thiodicarb 75 WP @ 0.15% (20 gm/10 lit. of water) at 60 days after sowing, chlorpyriphos 20 EC @ 0.05% (25 ml/10 lit. of water) at 90 days after sowing and lambda-cyhalothrin 5 EC @ 0.005% (10 ml/10 lit. of water) at 120 days after sowing to avoid the yield loss of 48.86% from pink bollworm in cotton.

AS PER CIBRC format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule (Days after sowing)	Waiting Period / PHI (days) *
				Conc. (%)	Dose/ 10 lit.	Quantity of formulation /ha	Dilution in water (L)		
2021	Cotton	Pink bollwor	Thiodicarb 75 WP	0.15	20 g	1000 g	500	60	30

		m	Chlorpyriphos 20 EC	0.05	25 ml	1250 ml		90	-
			Lambda-cyhalothrin 5 EC	0.005	10 ml	500 ml		120	21

ગુજરાતમા બીટી કપાસની ખેતી કરતા ખેડુતોને સલાહ આપવામા આવે છે કે, થાયોડીકાર્બ ૭૫ ડબલ્યુપી, ૦.૧૫% (૨૦ ગ્રામ/૧૦ લિટર પાણી) કીટનાશકનો છંટકાવ વાવણી બાદ ૬૦ દિવસે, ક્લોરપાયરીફોસ ૨૦ ઈસી, ૦.૦૫% (૨૫ મિલિ/૧૦ લિટર પાણી) વાવણી બાદ ૯૦ દિવસે અને લેમ્ડા-સાયહેલોથ્રીન ૫ ઈસી, ૦.૦૦૫% (૧૦ મિલિ/૧૦ લિટર પાણી) વાવણી બાદ ૧૨૦ દિવસે કરવાથી ગુલાબી ઈયળથી થતી ૪૮.૮૬% જેટલી ઉત્પાદનનો ઘટાડો અટકાવી શકાય છે.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ :

વર્ષ	પાક	જીવાત	કીટનાશકો	પ્રમાણ				છંટકાવ માટે વાવણીનાં દિવસો	પ્રતિક્ષા સમય (દિવસ)
				સાંદ્રતા (%)	માત્રા/૧૦ લિટર	કીટનાશકોનુ પ્રમાણ (હે.)	પાણીમાં મિક્ષણ (લિટર)		
૨૦૨૧	કપાસ	ગુલાબી ઈયળ	થાયોડીકાર્બ ૭૫ ડબલ્યુપી	૦.૧૫	૨૦ ગ્રામ	૧૦૦૦ ગ્રામ	૫૦૦	૬૦	૩૦
			ક્લોરપાયરીફોસ ૨૦ ઈસી	૦.૦૫	૨૫ મિલિ	૧૨૫૦ મિલિ		૯૦	-
			લેમ્ડા સાયહેલોથ્રીન ૫ ઈસી	૦.૦૦૫	૧૦ મિલિ	૫૦૦ મિલિ		૧૨૦	૨૧

Approved with following Suggestions:

1. **Approved for farming community recommendation**
2. Recast the recommendation language of both English and Gujarati drafts.

(Action: Res. Scientist, MCRS, NAU, Surat)

PLANT PATHOLOGY

17.3.1.34 Evaluation of fungicides against the sheath rot of rice

The Paddy growers of Gujarat are recommended to apply two sprays of azoxystrobin 11 + tebuconazole 18.3 (29.3 SC) 0.045 per cent (15 ml/10 L) or azoxystrobin 18.2 + difenoconazole 11.4 (29.6 SC), 0.030 per cent (10 ml/10 L) for effective control of sheath rot. The first spray should be given at appearance of disease and second spray at booting stage. Pre harvest interval 21 days for azoxystrobin 11 + tebuconazole 18.3 (29.3 SC) and 31 days for azoxystrobin 18.2 + difenoconazole 11.4 (29.6 SC).

As per CIBRC format:

Year	Crop	Disease	Fungicide with formulation	Doses			Waiting Period as per CIB record (days)
				Quantity of formulation g/ a.i./ha	Conc. (%)	Dilution in water	
2021	Paddy	Sheath rot	azoxystrobin 11 + tebuconazole 18.3 (29.3 SC)	137.25 a.i./ha	0.045	500 L	21
			azoxystrobin 18.2 + difenoconazole 11.4 (29.6 SC)	0.03 or 0.3g/l	0.030	500 L	31

ગુજરાતમા ડાંગર ઉગાડતા ખેડૂતોને ડાંગરના પર્ણચ્છેદનો કોહવારો (શીથ રોટ) રોગના અસરકારક નિયંત્રણ માટે એઝોકસીસ્ટ્રોબીન ૧૧ + ટેબુકોનાઝોલ ૧૮.૩ (૨૯.૩ એસસી) ૦.૦૪૫ ટકા (૧૫ મી.લી. પ્રતિ ૧૦ લિટર) અથવા એઝોકસીસ્ટ્રોબીન ૧૮.૨ + ડાયફેનકોનાઝોલ ૧૧.૪ (૨૯.૬ એસસી), ૦.૦૩૦ ટકા (૧૦ મી.લી. પ્રતિ ૧૦ લિટર) ના બે છંટકાવ કરવાની ભલામણ કરવામા આવે છે. પહેલો છંટકાવ રોગની શરૂઆત થાય ત્યારે અને ત્યારબાદ બીજો છંટકાવ ધ્વજ પર્ણદંડ અવસ્થાએ કરવો. એઝોકસીસ્ટ્રોબીન ૧૧ + ટેબુકોનાઝોલ ૧૮.૩ (૨૯.૩ એસસી) નો છેલ્લા છાંટકાવ અને કાપણી પહેલાનો અંતરાળ ૨૧ દિવસ

રાખવો અથવા એઝોક્સીસ્ટ્રોબીન ૧૮.૨ + ડાયફેનકોનાઝોલ ૧૧.૪ (૨૯.૬ એસસી) નો છેલ્લા છાંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ૩૧ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ :

વર્ષ	પાક	રોગ	ફુગનાશક	માત્રા			વેઈટીંગ પીરીયડ (દિવસ)
				સ.ત/ હે	સાંદ્રતા %	પાણીમાં મિશ્રણ	
૨૦૨૧	ડાંગર	પર્ણચ્છેદનો કહોવારો	એઝોક્સીસ્ટ્રોબીન ૧૧ +ટેબુકોનાઝોલ ૧૮.૩ (૨૯.૩SC)	૧૩૭.૨૫ ગ્રામ	૦.૦૪૫	૫૦૦લિ.	૨૧
			એઝોક્સીસ્ટ્રોબીન ૧૮.૨ + ડાયફેનકોનાઝોલ ૧૧.૪ (૨૯.૬SC)	૦.૦૩ અથવા ૦.૩ગ્રામ	૦.૦૩૦	૫૦૦લિ.	૩૧

Approved with following Suggestions:

1. Write “and 31 days” instead of “or 31 days” in recommendation language of both English and Gujarati drafts.
2. Check quantity of fungicide and formulation in recommendation and CIB & RC table.
3. For ready mix fungicide, use word ‘**મિશ્ર ફૂગનાશક**’ instead of ‘**દવાનો**’

(Action: Res. Sci., MRRC farm, NAU, Navsari)

17.3.1.35 Biological management of chickpea wilt

Chick pea growing farmers of Gujarat are recommended to treat seed with *Trichoderma viride* 1.5% WP (2x10^6cfu/g) @ 10g/kg of seeds + two soil applications of *Trichoderma viride* 1.5% WP @ 2.5 kg /ha in 250 kg FYM at sowing and at 50% flowering or to treat seed with *Pseudomonas fluorescence* 1.5% liquid form (2x10^8cfu/ml) @ 10ml/kg of seeds + two soil applications of *Pseudomonas fluorescence* 1.5% liquid form @ 2.5 l /ha in 250 kg FYM at sowing and at 50% flowering for effective management of wilt.

As per CIBRC format:

Year	Crop	Disease	Biopesticide with formulation	Dosage/ha				Quantity of water/soil amendments/ ha	Waiting period (days)	Residue in sample
				a.i (gm)	Quantity of formulation (g or ml)	Conc. (%)	Dilution in water (liter)			
2021	Chickpea	wilt	*Trichoderma viride*1.5% WP	--	10 gm/kg seed treatment + 2.5 kg /hasoil application at sowing and 50% flowering	(2x 10^6cfu/g)	--	250kg FYM /ha at sowing and 50% flowering respectively	--	--
			Pseudomonas fluorescence 1.5% liquid	--	10 ml /kg seed treatment +2.5 kg /ha soil application at sowing and 50% flowering	(2x 10^8cfu/ml	--	250kg FYM /ha at sowing and 50% flowering respectively	--	--

ગુજરાતના ચણા ઉગાડતા ખેડૂતોને સુકારા રોગના અસરકારક નિયંત્રણ મેળવવા માટે ટ્રાઈકોડર્મા વિરીડી ૧.૫ % વેટેબલ પાવડર (૨x$૧૦^૬$ સીએફયુ/ગ્રામ) ૧૦ ગ્રામ/કિ.ગ્રા. બીજ માવજત આપવી અને ત્યારબાદ બે વખત ટ્રાઈકોડર્મા વિરીડી ૧.૫% વેટેબલ પાવડર ૨.૫ કિ.ગ્રા./૨૫૦ કિલો છાણિયા ખાતરમાં ભેળવી

પાકની વાવણી અને ૫૦ ટકા ફૂલ આવે ત્યારે જમીનમાં આપવાની અથવા સુડોમોનસ ફ્લુરોસેન્સ ૧.૫% પ્રવાહી (૨x૧૦૮ સીએફ્યુ/મિલી) ૧૦ મિલી/ કિ.ગ્રા. બીજ માવજત આપવી અને ત્યારબાદ બે વખત સુડોમોનસ ફ્લુરોસેન્સ ૧.૫% પ્રવાહી ૨.૫ કિ. ગ્રા./૨૫૦ કિલો છાણિયા ખાતરમાં ભેળવી પાકની વાવણી અને ૫૦ ટકા ફૂલ આવે ત્યારે જમીનમાં આપવાની ભલામણ કરવામાં આવે છે.

સેન્ટ્રલ ઈન્સેકટીસાઇડ બોર્ડની ગાઇડલાઇન મુજબ:

વર્ષ	પાક	રોગ	જંતુનાશકની રચના	માત્રા/હે.				પાણી અથવા જમીનમાં સુધારકોનો જથ્થો પ્રતિ હે.	પ્રતીક્ષાના દિવસ	જંતુનાશકના અવશેષ
				સ.ત. (ગ્રામ)	જંતુનાશકની માત્રા (ગ્રામ અથવા મિલી)	સાંદ્રતા (%)	પાણીમાં મિશ્રણ (લીટર)			
૨૦૨૧	ચણા	સુકારા	ટ્રાઈકોડર્મા વિરીડી૧.૫ % વેટેબલ પાવડર	--	૧૦ ગ્રામ/ કિ.ગ્રા. બીજ માવજત + ૨.૫ કિ. ગ્રા. પાકની વાવણી અને ૫૦ ટકા ફૂલ આવે ત્યારે	(૨×૧૦૬સીએફ્યુ/ગ્રામ)	--	૨૫૦ કિલો છાણિયા ખાતર પાકની વાવણી અને ૫૦ ટકા ફૂલ આવે ત્યારે જમીન માવજત	--	--
			સુડોમોનસ ફ્લુરોસેન્સ ૧.૫ % પ્રવાહી	--	૧૦ મિલી/ કિ.ગ્રા. બીજ માવજત + ૨.૫ કિ. ગ્રા. પાકની વાવણી અને ૫૦ ટકા ફૂલ આવેત્યારે	(૨×૧૦૮ સીએફ્યુ/મિલી)	--	૨૫૦ કિલો છાણિયા ખાતર પાકની વાવણી અને ૫૦ ટકા ફૂલ આવે ત્યારે જમીન માવજત	--	--

Approved with following Suggestions:

1. Check CFU of *Pseudomonas fluorescence* in recommendation language of both English and Gujarati drafts& CIB & RC table.
2. Mention the name of biopesticide strain.

(Action: Principal, CoA, NAU,Waghai)

17.3.1.36 Management of stem rot disease of groundnut under rice based cropping system

Summer groundnut growers of South Gujarat are advised to treat seeds with any of the following treatment to manage stem rot disease of groundnut under rice based cropping system to get maximum yield with highest return. Azoxystrobin 23 SC @ 1 ml mixed in 50 ml water/kg seed + soil application with *Trichoderma harzianum* (2×10^6cfu/g) @ 2.5 kg/ha mixed in 100 kg FYM at the time of sowing. OR Azoxystrobin 23 SC @ 1ml mixed in 50 ml water/kg seed. OR Azoxystrobin 18.2 %+ Difenconazole 11.4 % SC @1ml mixed in 50 ml water/kg seed. OR *Trichoderma harzianum*(2×10^6cfu/g) @ 10 g mixed in 50 ml water/kg seed.

દક્ષિણ ગુજરાતમા ડાંગર પછી ઉનાળુ મગફળીની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે મગફળીના થડના સડા રોગના નિયંત્રણ માટે બીજને નીચેની મુજબ કોઈપણ એક માવજત આપી વાવેતર કરવામાં આવે તો વધારે ઉત્પાદન અને વધુ આવક મેળવી શકાય. એઝોકસીસ્ટ્રોબીન ૨૩ એસ.સી. ૧ મીલી/કિ.ગ્રા. બીજને ૫૦ મીલી પાણી સાથે મીશ્ર કરી પટ આપી અને જમીનમા ટ્રાયકોડર્મા હરજીયાનમ (૨×૧૦૬ સીએફ્યુ/ગ્રામ) ૨.૫ કિ.ગ્રા./હે.૧૦૦ કિલો છાણીયા ખાતરમાં મીક્ષ કરી વાવણીના સમયે આપવુ. અથવા એઝોકસીસ્ટ્રોબીન ૧ મીલી/કિ.ગ્રા. બીજને ૫૦ મીલી પાણી સાથે મીશ્રણ કરી પટ આપીને વાવેતર કરવુ. અથવા એઝોકસીસ્ટ્રોબીન ૧૮.૨% + ડાઈફિનાકોનાઝોલ ૧૧.૪% એસ.સી. ૧ મીલી/કિ.ગ્રા. બીજને ૫૦ મીલી પાણી સાથે મીશ્રણ કરી પટ આપીને વાવેતર કરવુ. અથવા ટ્રાયકોડર્મા હરજીયાનમ (૨×૧૦૬ સીએફ્યુ/ગ્રામ) ની ૧૦ ગ્રામ/કિ.ગ્રા. બીજને ૫૦ મીલી પાણી સાથે મીશ્રણ કરી બીજ માવજત આપીને વાવેતર કરવાની ભલામણ કરવામાં આવે છે.

Approved with following Suggestions:

1. Recommend only T_3 and T_6 treatment and recast the recommendation accordingly.

2. Mention Y x T interaction in tables
3. Check the methodology of seed treatment
4. Write '**માવજત**' instead of '**ટ્રીટમેન્ટ**' in Gujarati draft.

(Action:Res. Scientist, RRRS, N.A.U., Vyara)

17.3.1.37 Management of post-harvest diseases of mango using hot water treatment

Farmers, consumer and entrepreneurs are recommended to manage postharvest diseases and pest *viz;* anthracnose, stem end rot and fruit fly by dipping mango fruits after the harvesting in hot water at 48ºC for 60 min or 50ºC for 20 min, or 52ºC for 10 min without any adverse effect on fruit.

ખેડુતો, ઉપભોક્તાઓ અને ઉદ્યોગ સાહસિકોને કેરી ઉતાર્યા બાદ આવતા રોગો અને જીવાત જેવા કે કાલવર્ણ અને ફળના ડીંચાના સડો તેમજ ફળમાખીની ફળોની ગુણવત્તા પર આડઅસર વગર વ્યવાસ્થાપન કરવા માટે ફળોને ગરમ પાણીમાં ૪૮°સે તાપમાને ૬૦ મીનીટ અથવા ૫૦°સે તાપમાને ૨૦ મીનીટ અથવા ૫૨°સે તાપમાને ૧૦ મીનીટ સુધી ડુબાડી રાખવાની ભલામણ કરવામા આવે છે.

Approved with following Suggestions:

1. Write "without any adverse effect on fruit" instead of "without adversely affecting the quality of the fruits" from recommendation.
2. Recast the Gujarati draft accordingly
3. Mention Y x T interaction in tables and interprete accordingly
4. Mention the source of fruit collection.

(Action: Prof & Head, Department of Plant Protection, ACHF, NAU, Navsari)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SKNAGAR

AGRICULTURAL ENTOMOLOGY

17.3.1.38 Management of Lepidopterous pests infesting cabbage

The Farmers of Gujarat growing cabbage are recommended to apply two foliar sprays of chlorantraniliprole 18.5 SC 0.006%, 3 mL/ 10 L water, first at appearance of pests and second at 15 days after first spray for effective management of diamond back moth and leaf eating caterpillar. A minimum pre-harvest interval (PHI) of 3 days should be kept.

As per CIBRC format:

Year	Crop	Pest	Pesticide with formulation	Dosage/ha			Formulation in 10 lit. water	Application schedule	Waiting period/PHI (days)	Remarks- Toxicity level*
				a.i. (g)	Formulation (g/ml)	water requirement litre				
2019 - 20	Cabbage	Diamond back moth and leaf eating caterpillar	Chlorantraniliprole 18.5 SC	27.75	150.0	500	3	First spray at pest appearance and second at 15 days after first spray	03	BDL*

*BDL- Below Determination Level

ગુજરાતમા કોબિજ ઉગાડતા ખેડૂતોને હીરાફુદુ અને લશ્કરી ઈયળના અસરકારક નિયંત્રણ માટે ક્લોરાન્ટ્રાનિલિપ્રોલ ૧૮.૫ એસસી ૦.૦૦૬%, ૩ મિ.લિ./૧૦લિટર પાણીના બે છંટકાવ કરવા, પ્રથમ

છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ તેના ૧૫ દિવસ પછી કરવાની ભલામણ કરવામાં આવે છે. છંટકાવ અને ઉતાર વચ્ચેનો સમયગાળો ઓછામા ઓછો ૩ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	કીટનાશક	પ્રમાણ			માત્રા / ૧૦ લિટર પાણી	છંટકાવનો સમય	પ્રતીક્ષા સમય (દિવસ)	રીમાર્કસ- Toxicity level*
				સ .ત. (ગ્રામ/હે.)	કીટનાશકનુંપ્રમાણ (ગ્રામ/ મિ.લિ./હે)	પાણી (લિટર)				
૨૦૧૯-૨૦	કોબિજ	હીરા ફુદુ અને લશ્કરી ઈયળના	ક્લોરાન્ટ્રાનિલિપ્રોલ ૧૮.૫ એસ સી	૨૭.૭૫	૧૫૦.૦	૫૦૦	૦૩	પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ તેના ૧૫ દિવસ પછી	૦૩	BDL*

Approved with following Suggestions:

1. Recommendation is approved for entire Gujarat state.
2. Write “minimum” word in English draft, and “ઓછામા ઓછો” in Gujarati draft.
3. Add pooled yield instead of third year yield in economics table.
4. Correct BDL = Below Determination Level.
5. Correct Azadirachtin 10000 ppm dose as 3 lit/ha instead of 2 lit/ha in economics
6. Add CIB & RC table (after English & Gujarati draft) in recommendation
7. Remove word “North Gujarat Agro-climatic Zone” from English draft and “ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Prof. & Head (Ento.), C. P. College of Agriculture, SDAU, Sardarkrushinagar)

17.3.1.39 Eco-safe management of white grub in groundnut

The farmers of Gujarat growing groundnut are recommended to apply *Metarhizium anisopliae* 1.15 WP (1 x 10^8cfu/g), 2 kg/ha in combination with vermicompost or castor cake or neem cake, 1 t/ha before sowing in soil for effective and eco-friendly management of white grub. Enrich *Metarhizium anisopliae* 1.15 WP with vermicompost or castor cake or neem cake 20 days before sowing under shade.

As per CIBRC format:

Year	Crop	Pest	Pesticide with formulation	Dosage				Total qty./ha	Application schedule	PHI (Days)
				g a.i./ha	Qty. of formulation /ha	Conc. (%)	water (10 lit.)			
2021	Groundnut	White grub	vermicompost1 t + *Metarhizium anisopliae* 1.15 WP (1 x 10^8 cfu/g) 2 kg/ha	- 23	1 t + 2 kg	-	-	-	Enrich *Metarhizium anisopliae* 1.15 WP with vermicompost or castor cake or neem cake before 20 days of sowing under shade and apply in soil before sowing.	-
			neem cake 1 t + *Metarhizium anisopliae* 1.15 WP (1 x 10^8 cfu/g) 2 kg/ha	- 23	1 t+ 2 kg	-	-			
			castor cake 1 t+ *Metarhizium anisopliae* 1.15 WP (1 x 10^8 cfu/g) 2 kg/ha	- 23	1 t+ 2 kg	-	-			

ગુજરાતમા મગફળીની ખેતી કરતા ખેડૂતોને ડોળ (ધૈણ)ના અસરકારક નિયંત્રણ અને પર્યાવરણીય સલામતી માટે મેટારીજીયમ એનીસોપ્લી ૧.૧૫ ડબ્લ્યુપી (૧x૧૦^૮ બીજાણું/ગ્રા) ૨ કિગ્રા/હે. ને વર્મીકમ્પોસ્ટ અથવા દિવેલી ખોળ અથવા લીમડાનો ખોળ ૧ ટન પ્રતિ હે. પ્રમાણે ભેળવી વાવણી પહેલા જમીનમા આપવાની ભલામણ કરવામાં આવે છે. વાવણીના ૨૦ દિવસ પહેલા મેટારીજીયમ એનીસોપ્લી ૧.૧૫ ડબ્લ્યુપીને વર્મીકમ્પોસ્ટ અથવા દિવેલી ખોળ અથવા લીમડાના ખોળ સાથે છાયડે રાખીને સંવર્ધિત કરવુ.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	જંતુનાશક દવા અને તેનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણ પ્રતિ હેક્ટર	વાપરવાની પધ્ધતિ	વેઈટીંગ પીરીયડ
				સક્રિય તત્વ પ્રતિ હેક્ટર (ગ્રામ/ હેક્ટર)	ફોર્મ્યુલેશન ની માત્રા પ્રતિ હેક્ટર	સાંદ્રતા (%)	પાણી સાથે ડાયલ્યુંશન (૧૦ લીટર)			
૨૦૨૧	મગફળી	ડોળ (ધૈણ)	વર્મીકમ્પોસ્ટ ૧ ટન + મેટારીજીયમ એનીસોપ્લી ૧.૧૫ ડબલ્યુ પી.(૧ x ૧૦^૮ સી.એફ.યુ/ગ્રામ) ૨ કિગ્રા/હે.	- ૨૩	૧ ટન + ૨ કિગ્રા	-	-	-	વાવણીના ૨૦ દિવસ પહેલા મેટારીજીયમ એનીસોપ્લી ૧.૧૫ ડબ્લ્યુ પી ને વર્મીકમ્પોસ્ટ અથવા દિવેલી ખોળ અથવા લીમડાના ખોળ સાથે ભેળવી છાયડે રાખી વાવણી પહેલા જમીનમા આપવું.	-
			લીમડાના ખોળ ૧ ટન + મેટારીજીયમ એનીસોપ્લી ૧.૧૫ ડબલ્યુ પી.(૧ x ૧૦^૮ સી.એફ.યુ/ગ્રામ) ૨ કિગ્રા/હે.	- ૨૩	૧ ટન + ૨ કિગ્રા	-	-			
			દિવેલી ખોળ ૧ ટન + મેટારીજીયમ એનીસોપ્લી ૧.૧૫ ડબલ્યુ પી.(૧ x ૧૦^૮ સી.એફ.યુ/ગ્રામ) ૨ કિગ્રા/હે.	- ૨૩	૧ ટન + ૨ કિગ્રા	-	-			

Approved with following Suggestions:

1. ગુજરાતી ભલામણમાં"ભેળવી છાયડે રાખવું " તેની જગ્યાએ "સાથે છાયડે રાખીને સંવર્ધિત કરવુ."
2. Delete word "Net" from Net realization over control in economics table.
3. Add CIB & RC table (after English & Gujarati draft) in recommendation

(Action: Prof. & Head (Ento.), C. P. College of Agriculture, SDAU, Sardarkrushinagar)

17.3.1.40 Evaluation of insecticides against lepidopteran pests in okra

Farmers of Gujarat growing okra are recommended to apply two sprays of emamectin benzoate 5SG, 0.0025% (5g/10L), first at initiation of damage and second at 15 days after the first spray for the effective management of fruit borer and shoot and fruit borer. A pre-harvest interval of 5 days should be kept.

As per CIBRC format:

Year	Crop	Pest	Pesticide with formu-Lation	Dose/ha			Formu-tion in 10 . water	Application schedule	Weighting period/PHI days)	Remarks-Toxicity level*
				a.i. (g)	Formulation /ml)	water (itre)				
020-21	Okra	fruit borer (*Heliocoverpa armigera*) and shoot and fruit borer (*Earias vittella*)	Emamectin benzoate 5SG 0.0025%	12.50g	50g	500	5g	1st spray at initiation of damage and second at 15 days after 1st spray	5	-

ગુજરાતના ભીંડાની ખેતી કરતા ખેડૂતોને લીલી ઈયળ તથા ડુંખ અને ફળકોરી ખાનારી ઈયળ (કાબરી ઈયળ)ના અસરકારક નિયંત્રણ માટે એમામેક્ટિન બેંજોએટ ૫ એસજી, ૦.૦૦૨૫% (૫ ગ્રામ /૧૦લિટર પાણી)ના બે છંટકાવ કરવા ભલામણ કરવામાં આવે છે. જે પૈકી પ્રથમ છંટકાવ ભીંડામા નુકસાન જોવા મળે ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવ બાદ ૧૫ દિવસે કરવો. છંટકાવ અને ઉતાર વચ્ચેનો સમયગાળો ૫ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	જીવાત	જંતુનાશક દવા અને તેનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણ પ્રતિ હેક્ટર	વાપરવાની પધ્ધતિ	વેઈટીંગ પીરીયડ
				સક્રિય તત્વ પ્રતિ હેક્ટર (ગ્રામ/ હેક્ટર)	ફોર્મ્યુલેશન ની માત્રા પ્રતિ હેક્ટર	સાંદ્રતા (%)	પાણી સાથે ડાયલ્યુંશન (૧૦ લીટર)			
૨૦૨૧	ભીંડા	લીલી ઈયળ તથા ડુંખ અને ફળકોરી ખાનારી ઈયળ	એમામેક્ટિન બેંજોએટ ૫ એસજી, ૦.૦૦૨૫%	૧૨.૫૦ ગ્રામ	૨૫૦ ગ્રામ		૫ ગ્રામ	૫૦૦ લિટર	પ્રથમ છંટકાવ ભીંડામા નુકસાન જોવા મળે ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવ બાદ ૧૫ દિવસે કરવો.	૫ દિવસ

Approved with following Suggestions:

1. Delete 'shoot damage' from draft and recast language and delete "ડુંખો" from Gujarati draft.
2. First spray to be recommended at initiation of damage rather than ETL (5%).
3. Remove ETL from methodology
4. Remove 'and economical' word from English draft and 'અને અર્થક્ષમ' word from Gujarati draft
5. Remove word "North Gujarat Agro-climatic Zone" from English draft and "ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર" from Gujarati draft
6. Add CIB & RC table (after English & Gujarati draft) in recommendation

(Action: Assoc. Res. Sci., Vegetable Res. Station, SDAU, Ladol)

PLANT PATHOLOGY

17.3.1.41 Management of foot rot of papaya

Farmers of Gujarat growing papaya are recommended to treat the seed with *Trichoderma harzianum* 1 WP (1 X 10^8 cfu/g) @ 10 g/ kg seed followed by soil application of *T. harzianum* 2.5 kg enrich with FYM 100 kg/ha at the time of transplanting. Soil drenching of *T. harzianum* @ 50 g/10 L (2 L/plant) water at initiation of the disease and second drenching after one month of first drenching for effective management of foot rot in papaya.

As per CIBRC format:

Year	Crop	Common name of the disease	Fungicide with formulation	Dosage per ha			Waiting period (in days)
				a. i. (g)	Formulation (g/ml)/%	Dilution in water (L)	
2020-21	Papaya	Foot rot	Metalaxyl 8 %+ mancozeb 64 %	2 g	3 g	-	-
			Trichoderma harzianum	2.5 Kg.	2.5 Kg.	-	-
			Trichoderma harzianum	50 g	50 g	10 Ltr.	-

ગુજરાતના ખેડૂતોને પપૈયાના થડના કોહવારાના અસરકારક નિયંત્રણ માટે બીજને ટ્રાઈકોડર્મા હર્ઝિઅનમ ૧ ડબ્લ્યુ પી (૧ X ૧૦^૮ સીએફ્યુ/ગ્રામ),૧૦ ગ્રામ પ્રતિ ૧ કિલો બીજની માવજત આપવી અને ત્યારબાદ ટ્રાઈકોડર્મા હર્ઝિઅનમ ૨.૫ કિ.ગ્રા.ને ૧૦૦ કિ.ગ્રા. છાણીયા ખાતર સાથે મેળવી ફેરરોપણી વખતે જમીનમા આપવુ. રોગની શરુઆત થાય ત્યારે ટ્રાઈકોડર્મા હર્ઝિઅનમ ૫૦ ગ્રામ પ્રતિ ૧૦ લિટર પાણી (૨

લીટર/છોડ)મા મિશ્ર કરી અને ત્યારબાદ એક માસ પછી જમીનમા થડની ફરતે આપવુ.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	રોગનું નામ	ફુગનાશક	પ્રમાણ			પ્રતીક્ષા સમય (દિવસ)
				સ .ત .(ગ્રામ / હેક્ટર)	ફુગનાશક નુ પ્રમાણ (ગ્રામ / મિ.લિ /.હેક્ટર)	પાણી (લિટર)	
૨૦૨૦-૨૧	પપૈયા	પપૈયાના થડનો કોહવારો	મેટાલેક્સીલ ૮% + મેન્કોજેબ ૬૪%	૨ ગ્રામ	૩ ગ્રામ	-	-
			ટ્રાઈકોડર્મા હર્ઝિઅનમ	૨.૫ કિ.ગ્રા.	૨.૫ કિ.ગ્રા.	-	-
			ટ્રાઈકોડર્મા હર્ઝિઅનમ	૫૦ ગ્રામ	૫૦ ગ્રામ	૧૦ લિટર	

Approved with following Suggestions:

1. Mention the formulation of *Trichoderma* used along with strain in both drafts of recommendation.
2. Mention the volume of spray per plant for drenching.
3. Write recommendation as per CIB & RC format.
4. Add CIB & RC table (after English & Gujarati draft) in recommendation

(Action: Principal,College of Horticulture, SDAU, Jagudan)

17.3.1.42 Management of Chilli Anthracnose/die-back or fruit rot by systemic acquired resistance activators

Farmers of Gujarat growing chilli are recommended to soak the seed in Azoxystrobin 23% SC @ 1ml/ L or salicylic acid 100 mg/L solution for 30 minutes before sowing and after transplanting, apply two sprays of Azoxystrobin 23% SC 10 ml or salicylic acid 1 g in 10 L of water first at disease initiation and second 15 days after first spray for effective management of anthracnose/die-back or fruit rot of chilli. Pre Harvest Interval of 5 days should be kept.

As per CIBRC format:

Year	Crop	Common name of the disease	Fungicide with formulation	Dosage per ha			Waiting period from last application to harvest (in days)
				a. i. (g)	Formulation (g/ml) /%	Dilution in water (L)	
2020-21	Chilli	Anthracnose/die-back or fruit rot	Azoxystrobin 23% SC	119 ml	500 ml	500	5
			Salicylic Acid	50 g	50 g	500	

ગુજરાતના મરચી ઉગાડતા ખેડૂતોને મરચાના કાલવર્ણ/ડાઈબેક/ફળના સડાના અસરકારક નિયંત્રણ માટે બીજને એઝોક્સિસ્ટ્રોબિન ૨૩ એસસી ૧ ગ્રામ અથવા સેલિસિલિક એસિડ ૧૦૦ મિલી/લિટર પાણીના દ્રાવણમા ૩૦ મિનીટ બોળીને વાવવુ અને ફેરરોપણી પછી રોગની શરૂઆત થાય ત્યારે એઝોક્સિસ્ટ્રોબિન એસસી ૧૦ મિલી અથવા સેલિસિલિક એસિડ ૧ ગ્રામ ૧૦ લિટર પાણીમા ભેળવી પ્રથમ છંટકાવ કરવો અને બીજો છંટકાવ પ્રથમ છંટકાવ પછી ૧૫ દિવસ બાદ કરવો. છેલ્લા છંટકાવ અને વીણી વચ્ચેનો સમયગાળો ૫ દિવસ રાખવો.

સેન્ટ્રલ ઈન્સેકટીસાઈડ બોર્ડની ગાઈડલાઈન મુજબ:

વર્ષ	પાક	રોગનું નામ	ફુગનાશક	પ્રમાણ			પ્રતીક્ષા સમય)દિવસ(
				સ .ત .)ગ્રામ / હેક્ટર(	ફુગનાશક નુ પ્રમાણ (ગ્રામ / મિ.લિ /.હેક્ટર	પાણી)લિટર(	
૨૦૨૦-૨૧	મરચાં	કાલવર્ણ/ડાઈબેક /ફળનાં સડો	એઝોક્સિસ્ટ્રોબિન ૨૩ એસ સી.	૧૧૯ મિ.લિ.	૫૦૦ મિ.લિ.	૫૦૦	૫
			સેલીસીલીક એસીડ	૫૦	૫૦	૫૦૦	

Approved with following Suggestions:

1. Recommendation is approved for farmers of Gujarat
2. Mention the formulation of *Trichoderma* in text
3. Write dose and concentration uniformly in all the treatment.
4. Add seed soaking time in methodology and time of sowing.
5. Add CIB & RC table (after English & Gujarati draft) in recommendation

(Action: Principal, College of Horticulture, SDAU, Jagudan)

17.3.1.43 Studies on rate of degeneration of potato varieties due to virus incidence

The farmers of North Gujarat growing seed potato varieties Kufri Khyati or Kufri Pukhraj or Kufri Chipsona-3 are recommended to multiply the seed tubers up to three consecutive years, starting from breeder seed and then by adopting seed plot technique. The crop raised using these seed tubers produced higher tuber yield with low viral disease incidence.

ઉત્તર ગુજરાત વિસ્તારના બટાટાની કુફરી ખ્યાતી અથવા કુફરી પુખરાજ અથવા કુફરી ચીપસોના-૩ જાતનુ બીજ ઉત્પાદન કરતા ખેડૂતોને શરૂઆતમા બ્રીડર બીજમાંથી અને ત્યાર પછી બીજ ઉત્પાદન પધ્ધતિ દ્વારા સળંગ ત્રણ વર્ષ સુધી બીજ કંદ ઉત્પન્ન કરવાની ભલામણ કરવામા આવે છે. આ બીજ કંદથી વાવેલ પાકમા વધારે ઉત્પાદન અને વિષાણુજન્ય રોગોનુ પ્રમાણ ઓછુ જોવા મળે છે.

Approved with following Suggestions:

3. Correct in Table 4,5 and 6 as “Aphid at 40 days after” instead of “Aphid at 45 days after”.
4. Delete “commercial” from English and “જનરલ” from Gujarati draft.
5. Write full name of all varieties.
6. Remove word “Agro-climatic Zone” from English draft and “ખેત આબોહવાકીય વિસ્તાર” from Gujarati draft

(Action: Assoc. Res. Sci., Potato Res. Station, SDAU, Deesa)

17.3.2 INFORMATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

AGRICULTURAL ENTOMOLOY	
17.3.2.1	**Evaluation of different bio-pesticides against fall armyworm, *Spodoptera frugiperda* (J.E.Smith) (Lepidoptera: Noctuidae) in maize**
	Application of *Bacillus thuringiensis* NBAIR strain –*Bt*G4 (1% WP - 2x10^8 cfu/g), 50 g/10 litre water or *Bacillus thuringiensis* AAU strain -AAU*Bt*1 (1% WP - 2x10^8 cfu/g), 50 g/10 litre for three times at ten days interval, with the initiation of the pest found effective for the management of fall armyworm, *Spodoptera frugiperda* in maize. **Suggestion:** Approved **(Action: Principal Res.Sci., AICRP on Biological Control of Crop Pests, AAU, Anand)**
17.3.2.2	**Assessment of Rose-ringed parakeet (*Psittacula krameri*) depredations to guava fruits**
	Yield loss due to parakeet depredation recorded was 11.66 per cent in guava orchard of Gujarat. Fruit damage and number of parakeet bird was higher in morning hours than evening hours. **Approved with following Suggestions:** 1. Change the language of recommendation draft 2. Delete sentence “Guava orchard is needed……. economically" 3. Consult to the statistician for analysis and finalize it accordingly. 4. Remove word “Middle Gujarat Agro-climatic Zone” from English draft **(Action: Ornithologist, AINPVM: Agril. Ornithology, AAU, Anand)**
17.3.2.3	**Role of insectivorous birds in suppression of fruit borer, *Helicoverpa armigera* (Hubner) Hardwick in tomato**
	The insectivorous bird community i.e. red vented bulbul in tomato crop found effective in suppression of larval population of tomato fruit borer, *Helicoverpa armigera* (Hubner). The mean larval population observed in treatment plots was lower, perch plot (6.00 larva/10 plant) and open plot (7.24 larva/10 plant) and resulted in increase the yield. It is recommended to install “T” shaped bird perches to promote birds activity. **Approved with following Suggestions:** 1. Remove word ‘100/ha’ T shaped perches from recommendation 2. Remove ‘Economics Table’ from recommendation 3. Add the name of insectivorous bird in draft & Recast the language accordingly **(Action: Ornithologist, AINPVM: Agril. Ornithology, AAU, Anand)**
17.3.2.4	**Decontamination study of pesticides in green chilli**
	Dipping green chilli fruits in 5% aqueous solution of sodium bicarbonate for 10 min effectively removed acephate (17.9%), cypermethrin (53.52%), acetamiprid (20.51%), imidacloprid (27.10%), thiamethoxam (30.49%), carbendazim (81.07%)

	and fipronil (92.71%). Even IIHR product, Arka Herbiwash was found effective as dipping green chilli fruits for 15 seconds in 0.02% aqueous solution, followed by washing under running tap water for 1 min. removed cypermethrin (93.66%), acetamiprid (15.38%), profenophos (23.18%), chlorpyriphos (39.15%), carbendazim (90.85%) and fipronil (92.71%). **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.5	**Residues and persistence of fluopyram 250 g/L + trifloxystrobin 250 g/L SC in chilli**
	Two foliar applications of ready-mix fungicide fluopyram 250 g/L + trifloxystrobin 250 g/L SC in chilli @ 150 + 150 g a.i./ha starting at fruiting stage followed by 10 days resulted in the residues below the fluopyram MRL of 3.0 mg/kg (CODEX) in green chilli fruits 3rd day after the last spray. As MRL for trifloxystrobin in chilli fruits is 0.40 mg/kg (FSSAI) and 3rd day value of the last application is exceeding the MRL, the mixture cannot be recommended in chilli. However, residues of both the fungicides were below their MRLs in dry red chilli. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.6	**Residues and persistence of fluopyram 400 g/L SC in chilli**
	Single soil drench application of fluopyram 400 g/L SC in chilli @ 500 g a.i./ha at 3 days after transplanting resulted residue below the Codex MRL (CODEX) of 3.0 mg/kg in chilli fruits if harvested 81 days after the last application. Therefore, PHI of 81 days could be suggested if fluopyram is registered in chilli. **OR** First soil drench application of fluopyram 400 g/L SC in chilli @ 250 g a.i./ha at 3 days after transplanting followed by 21 days after first application resulted residue below the Codex MRL (CODEX) of 3.0 mg/kg in chilli fruits if harvested 60 days after the last application. Therefore, PHI of 60 days could be suggested if fluopyram is registered in chilli. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.7	**Residues and persistence of fosetyl-aluminium 80 WP in banana**
	Five applications of fosetyl-aluminum 80 WP as soil drenching in banana at one month interval starting from two months of planting @ 1.2 g/liter water/plant resulted in its residue below the limit of quantitation of 0.05 mg/kg and/or EU MRL of 2.0 mg/kg in banana fruits if harvested from 67 days after the last application. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.8	**Residues and persistence of cyantraniliprole 7.3% + diafenthiuron 36.4% SC in okra**
	Two foliar applications of the ready-mix insecticide cyantraniliprole 7.3% + diafenthiuron 36.4% SC in okra at 10-day interval @ 60 + 300 g a.i./ha at fruiting stage resulted in cyantraniliprole and diafenthiuron residues below their MRLs (FSSAI) of 0.5 and 0.6 mg/kg in okra fruits if harvested one day after the last

	application. Therefore, PHI of 1-day could be proposed if cyantraniliprole 7.3% + diafenthiuron 36.4% SC is registered for okra. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.9	**Residues and persistence of fluopyram 200 g/L + tebuconazole 200g/L SC in banana**
	Three foliar applications of the ready-mix fungicide fluopyram 200 g/L + tebuconazole 200g/L SC in banana at 10-day interval @ 120 + 120 g a.i./ha at fruit development stage resulted in its residue below the MRLs 0.8 (CODEX) and 1.5 (FSSAI) mg/kg in immature and mature banana as well as pulp of mature banana for fluopyram and tebuconazole, respectively, if harvested from the day of last application. Therefore, PHI of 1-day could be proposed if fluopyram 200 g/L + tebuconazole 200 g/L SC is registered for banana. **Approved with following Suggestions:** 1. Write ‘fungicide’ instead of ‘insecticide’ in draft **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.10	**Residues and persistence of fosetyl-aluminium 80 WP in/on chickpea**
	Two applications of fosetyl-aluminium 80% WP at 15 days interval as soil drenching @ 2400 g a.i./ha in chickpea one month after sowing resulted in the residues of fosetyl-aluminium and phosphonic acid below limit of quantification of 0.05 mg/kg in immature pods on the day of last application. The fosetyl-aluminium 80% WP application in chickpea 45 days after sowing as soil drench was found safe from residue point of view. Therefore, PHI of 45-day could be suggested if fosetyl-aluminium 80% WP is registered in chickpea. **Approved with following Suggestions:** 1. Correct ‘15 days’ instead of ’15 day’ in draft **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.11	**Residues and persistence of thiodicarb 75 WP in maize**
	Three foliar sprays of thiodicarb 75 WP in maize at 7 days interval @ 750 g a.i./ha starting from 50% cob formation stage resulted in its residue below the CODEX MRL of 0.02 mg/kg in maize from 1st day after the last application. Therefore, PHI of 1-day could be suggested if thiodicarb 75 WP is registered in maize. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.12	**Residues and persistence of tetraniliprole 200 g/L SC in maize**
	Three foliar sprays of tetraniliprole 200 g/L SC in maize at 7 days interval @ 50 g a.i./ha starting from 50% cob formation stage resulted in its residue below the limit of quantitation of 0.01 mg/kg in maize cob from 1st day after the last application. Therefore, PHI of 1-day could be suggested if tetraniliprole 200 g/L SC is registered in maize. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**

17.3.2.13	**Residues and persistence of flubendiamide 90 g/L + deltamethrin 60 g/L SC in maize**
	Three foliar sprays of ready-mix insecticide flubendiamide 90 g/L + deltamethrin 60 g/L SC in maize at 7-day interval @ 36 + 24 g a.i./ha starting from 50% cob formation stage resulted their residues below the CODEX MRLs of 0.02 and 2.0 mg/kg for flubendiamide and deltamethrin, respectively, in maize cob from 1st day after the last application. Therefore, PHI of 1-day could be suggested if flubendiamide 90 g/L + deltamethrin 60 g/L SC is recommended in maize. **Suggestion:** Approved **(Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand)**
17.3.2.14	**Bio-efficacy of ready-mix insecticides against pest complex of Indian bean, *Lablab purpureus* (L.) Walp.**
	Application of one foliar spray of ready-mix insecticide thiamethoxam 12.6 %+ lambda cyhalothrin 9.5 % ZC 0.005%, 2.5 ml/ 10 L water (27.63 g a.i./ha) when it cross ETL of aphid index-1 found effective against aphids infesting Indian bean. Application of one foliar spray of ready-mix insecticide chlorantraniliprole 9.3% + lambda cyhalothrin 4.6% ZC 0.006%, 4 ml/ 10 L water (27.80 g a.i./ha) when it cross ETL of 1 larva per plant found effective against pod borer complex *i.e.* *Helicoverpa armigera* and *Maruca vitrata* infesting Indian bean. **Approved with following Suggestions:** 1. Mention ‘aphid index’ only & remove ‘number of aphids’ from draft **(Action: Res. Scientist, Main Vegetable Research Station, AAU, Anand)**
17.3.2.15	**Evaluation of insecticides against aphid infesting chrysanthemum**
	Application of flonicamid 50 WG 0.019 % (3.75 g / 10 litre of water), first at appearance of the pest and second at 15 days after first spray found effective against aphid in chrysanthemum. **Suggestion:** Approved **(Action: Principal, College of Horticulture, AAU, Anand)**
17.3.2.16	**Screening of inbreds, hybrids, released varieties as well as sweet corn hybrids of maize for resistance against fall armyworm, *Spodoptera frugiperda* (J.E. Smith)**
	Among 24 maize inbreeds, hybrids and varieties screened, GAYMH-1 and GAYMH-3 found resistant against fall armyworm, *Spodoptera frugiperda* under field condition of middle Gujarat region. **Approved with following Suggestions:** 1. Use word ‘field condition’ instead of ‘under natural condition’ in recommendation. 2. Remove word “Agro-climatic Zone” from the draft **(Action: Res. Scientist, Main Maize Research Station, AAU, Godhra)**
17.3.2.17	**Screening of pigeonpea genotypes against insect pests and diseases under natural conditions**
	Out of 24 pigeonpea genotypes/cultivars screened, the genotype VPG-39 found moderately resistant against *Helicoverpa armigera* while, VPG-297 found moderately resistant against pod fly, *Melanagromyza obtusa*. The varieties AGT-2 and Vaishali still remained moderately resistant by remaining at par with the VPG-

	39 and VPG-297 against insect pests (*H. armigera* and *M. obtusa*). **Approved with following Suggestions:** 1. Instead of 'resistant' use word 'moderately resistant' & recast it accordingly 2. Remove 'wilt' & 'SMD' data from recommendation 3. Remove sentence "These genotypes can be used ……. resistant varieties" from draft **(Action: Research Scientist, Main Pulse Research Station, AAU, Vadodara and Assoc. Research Scientist, Agricultural Research Station, AAU, Derol)**
17.3.2.18	**Screening of pigeonpea genotypes against sterility mosaic disease**
	Out of 21 pigeonpea genotypes/cultivars, AAUVT-18-1 and VPG-126 (1324) were found resistant against *Helicoverpa armigera* and *Maruca vitrata* whereas, VPG-126 (1324) against *Melanagromyza obtusa.* These genotypes can be used in breeding programme for developing resistant varieties. **Suggestion: Not approved** **(Action: Research Scientist, Main Pulse Research Station, AAU, Vadodara and Assoc. Research Scientist, Agricultural Research Station, AAU, Derol)**
17.3.2.19	**Management of melon fruit fly, *Bactrocera cucurbitae* Coquillett infesting cucumber in river-bed area of Orsang**
	Field sanitation at weekly interval + installation of cue lure traps 16/ha at flowering stage of crop + application of bait 8 litre/ha consisting of black jiggery, 5 % , 400 gram at five meter distance + spinosad 0.004 %, 3 ml at weekly interval starting from fruit setting (four sprays) was found effective against melon fruit fly, *Bactrocera cucurbitae* infesting cucumber grown in river-bed area. **Approved with following Suggestions:** 1. Check the spray fluid in spinosad treatment 2. Mention the quantity of black jaggary in 'g' & spinosad in 'ml' separately 3. Recast the recommendation language. **(Action: Principal, College of Agriculture, AAU, Jabugam)**
17.3.2.20	**Effect of different organic manures on incidence of gram pod borer, *Helicoverpa armigera* (Hubner) Hardwick infesting chickpea under *Bhal* region**
	Application of well decomposed FYM (2.0 t/ha) + castor cake (0.25 t/ha) as basal for minimizing the infestation of gram pod borer in the chickpea variety GJG-3, under an unirrigation condition. **Approved with following Suggestions:** 1. **Approved for information to the Scientific community from farming community** **(Action: Research Scientist, Agricultural Research Station, AAU, Arnej)**
PLANT PATHOLOGY	
17.3.2.21	**Evaluation of efficient *Trichoderma asperellum* (Ta1 AAU isolate) against wilt and root rot in chickpea**
	Application of solid talc-based bioformulation of *Trichoderma asperellum* ($2x10^8$ cfu/g) enriched FYM (10 kg/ ton) in furrow @ 1 ton/ha prior to 10 days of sowing in soil found effective in management of wilt and root rot in chickpea.

	Approved with following Suggestions: 1. Mention the time of application in methodology 2. Add Year wise cultural practices 3. Recommend only T_2 4. Check the spore load & method for T_5 and T_6 **(Action: Professor & Head, Department of Plant Pathology, BACA, Anand)**
17.3.2.22	**Evaluation of new chemical molecules against *Meloidogyne* spp. infecting cucumber in polyhouse**
	Drenching of fluazaindolizine 500 SC, 0.025% (10 ml/ 20 litre of water) at one day before transplanting (200 ml/ plant hole) found effective for management of root-knot nematodes, *Meloidogyne* spp. infecting cucumber in polyhouse. **Suggestion:** Approved **(Action: Professor & Head, Department of Nematology, BACA, Anand)**
17.3.2.23	**Source of resistant against grain discolouration of rice**
	Rice genotypes *viz*., NWGR-11048 and NWGR-12016 found resistant against grain discolouration under natural conditions in the field. **Approved with following Suggestions:** 1. Mention resistance scale 2. Remove sentence "These genotypes can be … resistant varieties" from draft **(Action: Res. Scientist, Main Rice Research Station,AAU,Nawagam)**
17.3.2.24	**Source of resistance against bacterial leaf blight of rice**
	Rice genotypes *viz*., NWGR-14035, NWGR-14084 and NWGR-11002 shown resistant reaction against bacterial leaf blight (*Xanthomonas oryzae* pv. *oryzae*) under artificial inoculation and high disease pressure conditions in the field. **Approved with following Suggestions:** 1. Remove sentence "These genotypes can be … resistant varieties" from draft **(Action: Res. Scientist, Main Rice Research Station,AAU,Nawagam)**
17.3.2.25	**Efficacy of fungicides in management of charcoal rot (*Macrophomina phaseolina*) disease of maize in pot experiment**
	Seed treatment with carbendazim 50 WP @ 3 g/kg seeds followed by soil drenching, first application before sowing with ready-mix fungicides, tebuconazole 50% + trifloxystrobin 25% WG (10 g/10 litre of water) OR azoxystrobin 18.2% + difenoconazole 11.4% SC (10 ml/10 litre of water) and second at 30 days after sowing near root zone found effective for management of charcoal rot of maize in *rabi* season under pot culture study. **Suggestion: Not approved** **(Action:Res.Scientist, Main Maize Research Station, AAU, Godhra)**
17.3.2.26	**Management of powdery mildew and Cercospora leaf spot in black gram**
	Foliar spray of hexaconazole 5 EC, 0.1% OR azoxystrobin 23 SC, 0.023% first at the initiation of disease and second at 15 days after first spray found effective for the management of Cercospora leaf spot in black gram.

	Approved with following Suggestions: 1. Correct the concentration of fungicides in recommendation draft **(Action: Principal, College of Agriculture, AAU, Jabugam)**
17.3.2.27	**Management of tikka disease of groundnut through fungicides**
	Spray ready-mix fungicide, pyraclostrobin 13.3% + epoxiconazole 5% SE, 0.025% (14 ml/10 litre of water) first at the initiation of the disease and second at 15 days after first spray for effective management of tikka (early and late leaf spot) disease of groundnut. PHI should be kept as 21 days. **Approved with following Suggestions:** 1. **Approved for information to the Scientific community from farming community** 2. Recast the recommendation draft in english languages **(Action: Professor & Head, Department of Plant Pathology, BACA, Anand)**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

AGRICULTURAL ENTOMOLOGY	
17.3.2.28	**Management of rugose spiralling whitefly through root feeding of insecticides in coconut**
	For effective management of rugose spiralling whitefly in coconut (>5 year old palms), root feeding (pencil size root) application of spiromesifen 22.9 SC @ 5 ml with 10 ml of water per palm, first at initiation of pest infestation and second at one month after first application.
	Approved with following Suggestions: 1. Add the procedure of root selection and application method in recommendation drafts.
	(Action: Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.2.29	**Monitoring of fall army worm, S*podoptera frugiperda*(J. E. Smith) infesting maize in saurashtra region**
	The infestation of fall armyworm, *Spodoptera frugiperda* (J. E. Smith) was monitored in different districts of North and South Saurashtra region of Gujarat in maize and the highest infestation was observed in Amreli (46.67-60.13%) followed by Rajkot (19.33-35.00%) and Junagadh (22.15-24.50%) districts. The infestation was comparatively higher in *Kharif* season (3.33-60.13%) as compared to *Rabi* season (3.79-58.33%).
	Approved with following Suggestions: 1. Mentionthe type of maize in recommendation draft 2. Give per cent infestation in '*kharif*' as well as '*Rabi season*'
	(Action: Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.2.30	**Testing the bio-efficacy of insecticides against thrips in castor**
	Application of two sprays of spinosad 45 SC 0.009% (2 ml/10 l of water) or dinotefuran 20 SG 0.008% (4 g/10 L of water) or flonicamid 50 WG 0.02% (4 g/10 L of water) or cyantraniliprole 10 OD 0.01% (10 ml/10 L of water) at 7 days interval starting from pest infestation for effective management of castor thrips.
	Approved with following Suggestions: 1. Resowing date should be considered as sowing date 2. Delete word "and economical from draft

	3. Remove ICBR from recommendation draft
	(Action: Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)
PLANT PATHOLOGY	
17.3.2.31	**Viability of girsawaj-brand biofertilizers: Azotobacter, Rhizobium and PSM under different storage conditions in commercial packing**
	GIR SAWAJ brand Azotobacter, Rhizobium and PSM remain viable up to 13 months from date of packaging in different storage conditions i.e. storage at ambient temperature, storage at 28° C and storage in refrigerator at 10° C.
	Suggestion: Approved
	(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

AGRICULTURAL ENTOMOLOGY	
17.3.2.32	**Survey of Acari associated with different stored grains and by-products**
	The order Astigmata is the dominant among three orders *viz*., Astigmata, Prostigmata and Mesostigmata while family acaridae is most diverse and dominant family which attack most of the stored grain commodities and its value added products. Among twenty nine mite species, *Tyrophagus putrescentiae* (Schrank, 1781) (Family: Acaridae) is most abundant species attacking twenty two stored products.
	Suggestion: Approved
	(Action: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.2.33	**Survey of soil oribatidmites fauna.**
	Nine species of soil Oribatid mites are belonging to five dominant families *i.e.* Scheloribatidae, Haplozetidae, Oppiidae, Lohmanidae and Mochlozetidae. Among nine species of soil oribatid mite, *Scheloribates curvialatus* Hammer is most abundant and occurring throughout the year in various agro-ecosystems.
	Suggestion: Approved
	(Action: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.2.34	**Screening of mango varieties against shoot borer, *Chlumetia transversa* (Walker)**
	The infestation of mango shoot borer, *Chlumetia transversa* (Walker) was maximum in Kesar and Alphonso, whereas minimum infestation was recorded in Banarasi Langra, Dashehari and Amrapali varieties of mango.
	Approved with following Suggestions: 1. Mention no. of tree/replication in methodology 2. Add “Ratna and Neelphanso”in recommendation draft as minimum infested varieties.
	(Action: Prof. & Head (Pl. Prot.)Horticulture Polytechnic,ACHF,NAU,Navsari)
17.3.2.35	**Estimation of yield losses caused by insect pests on pigeonpea (*Cajanuscajan* (L.) Millsp.)**
	The avoidable yield loss in pigeonpea is recorded up to 38.48 per cent (35-40 %) by insect- pests when no plant protection measures are taken. The maximum damage is recorded due to pod borer (*Helicoverpa armigera*) followed by pod sucking bugs (*Clavigralla gibbosa*) and pod fly (*Melanogromyza obtusa*).
	Approved with following Suggestions: 1. Use avaidable yield loss instead of yield loss in recommendation.
	(Action: Principal, CoA, NAU Bharuch)

17.3.2.36	**Screening of *Gossypium hirsutum* cotton varieties/genotypes for resistance to insect pests under rainfed conditions**
	Five varieties/genotypes of *Gossypium hirsutum* cotton *viz*., NH-615, GBHV-201, GBHV-209, GBHV-204 and G.N.Cot-26 were found moderately resistant to jassids under rainfed conditions.
	Approved with following Suggestions: 1. Recast the recommendation for jassid only
	(Action: Scientist, KVK, NAU, Surat)
17.3.2.37	**Crop loss assessment by major insect pests and diseases of mango**
	Avoidable yield losses up to 49.61 per cent was observed due to major insect-pests (hopper, thrips and fruit fly) and diseases (powdery mildew, anthracnose and stem end rot) of mango.
	Suggestion: Approved
	(Action: Res. Scientist, AES, NAU, Paria)
17.3.2.38	**Dissipation of insecticides in tomatoes grown under open field and greenhouse under South Gujarat conditions**
	The tomato fruits are safer for consumption with respect to residues of chlorantraniprole, flubendiamide, indoxacarb and thiamethoxam applied at the recommended doses [Chlorantraniprole 18.5 SC (30.0g a.i/ha), Flubendiamide 20% WG (48.0 g a.i/ha), Indoxacarb 14.5 SC (60.0 g a.i/ha), Thiamethoxam 25% WG (50.0 g a.i/ha)] either grown in open field or under polyhouse condition when harvested after prescribed waiting periods [Chlorantraniprole 18.5 SC (3days), Flubendiamide 20% WG (5 days), Indoxacarb 14.5 SC (5 days), Thiamethoxam 25% WG (days)] as their terminal residues were less than Codex MRL values.
	Approved with following Suggestions: 1. Mention waiting period of thiamethoxam in recommendation draft. 2. Remove word “toxic” from recommendation.
	(Action: Head, FQTL, NMCA., NAU, Navsari)
17.3.2.39	**Seasonal incidence and pest activity of two spotted spider mite, *Tetranychu surticae* Koch. on Adenium [*Adenium obesum* (Forssk.) Roem & Schult.]**
	The population of two spotted spider mite, *Tetranychus urticae* Koch. infesting adenium, *Adenium obesum* (Forssk.) Roem & Schult. is significantly higher in polyhouse as compared to open condition. In open condition, the population of two spotted spider mite, *Tetranychus urticae* Koch. has significant positive correlation with minimum temperature, morning relative humidity and evening relative humidity while maximum temperature shows significant negative correlation with mite population in adenium.
	Approved with following Suggestions: 1. Correct as “significant” instead of “significantly” and “correlation” instead of “correlated” in recommendation draft.
	(Action: Prof.& Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.2.40	**Management of seed borer in sapota**
	Sequential application of deltamethrin 2.8 EC @ 10 ml/ 10 lit water and *Bt* powder (*Bacillus thuringiensis* var. *kurstaki* - 1 x 10^{11} CFU/gm) @ 10 g/ 10 lit water at 15 days interval at marble stage of fruit (October onwards) to minimize fruit damage of seed borer (*Trymalitis margaritas* Meyrick) in sapota.
	Approved with following Suggestions: 1. **Shift this from ‘Farming community’ to ‘Information for Scientific community’** 2. Mention number of sprays in recommendation language of English drafts.

	3. Check the CFU of *Bt.* 4. Revise the CIB & RC table as per standard format.
	(Action: Assoc. Res. Sci., Fruit Research Station, NAU, Gandevi)
PLANT PATHOLOGY	
17.3.2.41	**Study of root knot nematode in major crops of South Gujarat**
	Severe incidence of root knot nematode (*Meloidogyne incognita* L.) was recorded in garmar (*Plectranthus barbatus* Andrews) at Valsad district of South Gujarat.
	Suggestion: Not Approved
	(Action: Prof & Head, Dept. of Pl.Patho.,NMCA, NAU, Navsari)
17.3.2.42	**Screening of sugarcane varieties for resistance to red rot.**
	Sugarcane varieties *viz.*, Co 11001, Co 11004, CoM 11084, Co 11007, Co 11019, Co 94008, Co 99004 and CoN 05071 were found moderately resistant to red rot disease.
	Approved with following Suggestions: 1. Mention CFU and suspension quantity in methodology. 2. Mention reference of scale. 3. Incorporate highly susceptible varieties in recommendation 4. Delete check varieties from recommendation.
	(Action: Res. Sci., MSRS, NAU, Navsari)
17.3.2.43	**Screening of Sugarcane varieties for resistance to whip smut**
	Sugarcane varieties *viz.*, Co 11001, CoM 11082, Co 11005, CoM 11085, Co 6806 and Co 94008 were showed resistant reaction against whip smut disease.
	Approved with following Suggestions: 1. Mention CFU and suspension quantity in methodology. 2. Mention reference of scale. 3. Incorporate highly susceptible varieties in recommendation 4. Delete check varieties from recommendation.
	(Action: Res. Sci., MSRS, NAU, Navsari)
17.3.2.44	**Screening of *Gossypium hirsutum* varieties/breeding materials for resistance to Wilt, Alternaria leaf spot and bacterial leaf blight diseases under natural and rainfed condition.**
	GBHV 209 proved as most promising entry as it showed disease free and resistant against Alternaria leaf spot and bacterial leaf blight, respectively. Promising and most common *Gossypium hirsutum* entries *viz.*, GBHV 186, GBHV 201 and GBHV 204 were found resistant against Alternaria leaf spot and bacterial leaf blight. Biochemical analysis also revealed the correlation of constitutes *viz.*, chlorophyll, phenol and total soluble sugar with diseases as it shows the differences in the amount of disease free, resistant and susceptible entries and varieties.
	Suggestion: Not Approved
	(Action: Res. Sci., RCRS, NAU, Bharuch)
17.3.2.45	**Evaluation and multiplication of groundnut genotypes to identify the sources of resistance against stem rot caused by *Sclerotium rolfsii***
	Eight genotypes of groundnut *viz.*, GJG-32, ICGV-07222, Phule Vijya, GG-13, Jawan, NRCGCS-19, GAUG-1 and R-9281 found moderately susceptible against stem rot disease under sick plot condition.
	Approved with following Suggestions: 1. Remove moderate resistant varieties from recommendation and recast it. 2. Remove recommended check from draft.
	(Action: Res. Sci, RRRS, NAU,Vyara.)

17.3.2.46	**Dynamics of diseases in gerbera under protected cultivation**
	Under the protected cultivation of gerbera, leaf blight disease (*Alternaria alternata)* was observed from July to August (29th to 35th SMW) with its maximum intensity.
	Approved with following Suggestions: 1. Add the correlation data in recommendation and recast it.
	(Action: Prof. and Head (Plant Protection), ACHF, NAU, Navsari)
17.3.2.47	**Susceptibility of medicinal plants to Garmar (*Plectranthus barbatus* Andrews.) Root Knot Nematode (*Meloidogyne* sp.)**
	Medicinal plants *viz*., Garo, Kalijiri and Black basil were found highly resistant against root knot nematode (*Meloidogyne incognita*) whereas, Bhoyaringani, Senna and Garmar found highly susceptible.
	Approved with following Suggestions: 1. Recast the recommendation for **Information to the scientific community**. 2. Mention details of experiment 3. Mention Initial Nematode Population (INP) in methodology 4. Recast the recommendation draft.
	(Action: Prof. & Head, Dept. of Pl. Patho, NMCA., NAU, Navsari)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SKNAGAR

AGRICULTURAL ENTOMOLOGY	
17.3.2.48	**Management of spotted pod borer, *Maruca vitrata* (Geyer) on cowpea**
	Application of two sprays of chlorantraniliprole 18.5 SC, 0.004% (2.25ml /10 L of water) or flubendiamide 480 SC, 0.009% (2.25ml /10 L of water), first at flower initiation stage and second spray at 15 days after first spray for effective management of spotted pod borer in cowpea.
	Approved with following Suggestions: 1. Mention seed yield in table 2 2. Write pod borer damage (%) in In Table 1 3. PHI should be 26 days
	(Action: Res. Sci., Pulse Research Station, SDAU, Sardarkrushinagar)
17.3.2.49	**Population dynamics of major pests of ber**
	The population of white grub on ber shown a significant positive correlation with minimum temperature, morning and evening relative humidity and rainfall while, a significant negative correlation was observed for these weather parameters for fruit fly, fruit borer and twig spittle bug population on ber under North West Agro-climatic zone IV.
	Approved with following Suggestions: 1. A committee consists of four conveners of SAUs and Statistician of JAU and SDAU will finalize the recommendation. 2. Mention the unit of fruit fly, fruit borer, spittle bug and white grub in all tables. 3. As per the minutes of the meeting consisting four conveners of SAUs and Statistician of JAU and SDAU on 28th may on virtual mode unanimously approved the recommendation for scientific community with following suggestion (ACN/ENTO/PPSC/101-104/2020-21 dt 20-5-2021)

	a) Four recommendations approved on the basis of correlation for scientific community b) Data presented in the report on regression analysis should be deleted c) The concern scientist has to explore the possibility of making crop pest calendar based on the data available with them.
	(Action: Res. Sci., Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.50	**Survey and identification of insect pests of Aonla (*Emblica officinalis Gaertn*.) and its natural enemies**
	The population of yellow caterpillar on aonla exhibited a significant negative correlation with minimum temperature, while, population of gall caterpillar shown a significant positive correlation with evening relative humidity and a significant negative correlation with morning relative humidity. The weather parameters under study have not shown any influence on population of bark eating caterpillar, leaf roller and thrips on aonla under North West Agro-climatic zone IV.
	Approved with following Suggestions: 1. A committee consists of four conveners of SAUs and Statistician of JAU and SDAU will finalize the recommendation. 2. Mention the unit of fruit fly, fruit borer, spittle bug and white grub in all tables. 3. As per the minutes of the meeting consisting four conveners of SAUs and Statistician of JAU and SDAU on 28th may on virtual mode unanimously approved the recommendation for scientific community with following suggestion (ACN/ENTO/PPSC/101-104/2020-21 dt 20-5-2021) a) Four recommendations approved on the basis of correlation for scientific community b) Data presented in the report on regression analysis should be deleted c) The concern scientist has to explore the possibility of making crop pest calendar based on the data available with them.
	(Action: Res. Sci., Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.51	**Screening of germplasm against major pests of ber in field**
	Out of sixty-five varieties/germplasm of ber screened against major pests of ber, 50 (Fifty) varieties/germplasm were reported less than 3 holes per plant by bark eating cater pillar infestation. Nineteen varieties/germplasm *viz.* Jhajjar selection, Banarasi pewandi, Selection-5, Sandhur narma, Mehrun, Deshi alwar, Reshmi, Safeda rohtaki, Akhrota, Selection-6, Gurgaon-gola, Surti Kantha, Surti, Banarasi, Dharaki, Chonchal, Kadaka, Sukwani were found less than 10 per cent fruit fly infestation. Twenty eight varieties/germplasm such as, Safeda-1, Dharaki, Akhrota, Selection-6, Tasbtaso, Selection-5, Chinese, Seb, Mehrun, Banarasi, Deshi, Manukhi, Gola, Bhavnagari, Illaichi, Deshi alwar, Laddu, Mundia, Banarasi karka, Safeda rohtaki, Badami, Vikas, Jhajjar selection, Sanur-1, Chonchal, Seo, Reshmi, Sukwani were recorded less than 10 per cent fruit borer infestation.
	Approved with following Suggestions: 1. Write ‘nineteen’ varieties/germplasms instead of ‘eighteen’.
	(Action: Res. Sci.,Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.52	**Bio-efficacy of newer acaricides and botanicals against red spider mite,**

	***Tetranychus urticae* in *summer* okra**
	Application of two sprays of propargite 57 EC, 0.057%, first at pest initiation and second at 15 days after the first spray for effective management of red spider mite in okra.
	Suggestions:Extended for one more year for residue analysis **1. This recommendation will be approved after getting residue analysis at recommended dose in next year** 2. Write 'first spray at pest initiation' instead of 'pest incidence'. 3. Mention the dose of insecticide in recommendation. 4. Check the residue data and confirm with Residue analyst of AAU, Anand.
	(Action: Principal, Polytechnic in Agriculture, SDAU, Khedbrahma)
17.3.2.53	**Evaluation of insecticides against lepidopteran pests in okra**
	Application of two sprays of spinosad 45 SC, 0.0169%, first at initiation of damage and second at 15 days after the first spray for effective management of fruit and shoot borer and fruit borer in okra.
	Approved with following Suggestions: 1. **This scientific recommendation is separated from farming community because spinosad is not registered in okra crop in CIBRC** 2. Delete "shoot damage" from text and recast language. 3. First spray at initiation of damage. 4. Write Spinosyn instead of Spinosad A+D in pesticide residue analysis table. 5. Remove ETL from methodology
	(Action: Assoc. Res. Sci., Vegetable Res. Station, SDAU, Ladol)
PLANT PATHOLOGY	
17.3.2.54	**Epidemiological studies on major diseases of Arid Zone fruits: Powdery mildew in ber**
	The maximum and minimum temperature, evening relative humidity and evaporation have shown a significant negative correlation with powdery mildew disease intensity in ber, whereas bright sun shine hours exhibit significant positive correlation with disease intensity under North West Agro climatic zone IV.
	Approved with following Suggestions: 1. A committee consists of four conveners of SAUs and Statistician of JAU and SDAU will finalize the recommendation. 2. As per the minutes of the meeting consisting four conveners of SAUs and Statistician of JAU and SDAU on 28th may on virtual mode unanimously approved the recommendation for scientific community with following suggestion (ACN/ENTO/PPSC/101-104/2020-21 dt 20-5-2021) a) Four recommendations approved on the basis of correlation for scientific community b) Data presented in the report on regression analysis should be deleted c) The concern scientist has to explore the possibility of making crop disease calendar based on the data available with them.
	(Action: Res. Sci.,Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.55	**Epidemiological studies on major diseases of Arid Zone Fruits: Leaf and fruit spot diseases in pomegranate**
	The minimum temperature, morning and evening relative humidity, rainfall and wind velocity have shown a significant negative correlation with fruit spot disease intensity in pomegranate, whereas maximum temperature, bright sun shine hours and evaporation revealed a significant positive correlation with disease intensity in under North West Agro climatic zone IV

	Approved with following Suggestions: 1. A committee consists of four conveners of SAUs and Statistician of JAU and SDAU will finalize the recommendation. 2. As per the minutes of the meeting consisting four conveners of SAUs and Statistician of JAU and SDAU on 28th may on virtual mode unanimously approved the recommendation for scientific community with following suggestion (ACN/ENTO/PPSC/101-104/2020-21 dt 20-5-2021) a) Four recommendations approved on the basis of correlation for scientific community b) Data presented in the report on regression analysis should be deleted c) The concern scientist has to explore the possibility of making crop disease calendar based on the data available with them.
	(Action: Res. Sci.,Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.56	**Screening of varieties/ germplasms of arid zone fruits for resistance against different diseases: (a) Powdery mildew of Ber**
	Sixty five ber varieties/germplasms were screened against powdery mildew in ber. One (1) variety *i.e.* Apple ber is found highly resistant (HR); Two (2) varieties i.e. Mehrun, Sukwani are found moderate resistant (R);Fifty two (52) varieties i.e. Mundia mahera, Kaithli, Gola, Seb, Seo, Mundia, Banarasi karka, Tasbtaso, Laddu, Jhajjar selection, Chinese, Manukhi, Dandan, Safeda-1, Badami, Bhavnagari, Sandhur narma, Shamber, Ajmeri, Banarasi, Sanur-1, Chonchal, Rama, Vikas, Deshi, Jogia, Surti kantha, Selection-2, Selection-6, Selection-7, Selection-8, Selection-12, Noki, Surti, Dharaki, Banarasi pewandi, Gurgaon-gola, Akhrota, Reshmi, Kadaka, Illaichi, Glori, Kala gola, Mirchia, Jollundh, Kakrola gola, Narikeli, BS-75-3-1, Deshi Alwar, Chhuhara, Jhajjar special, Safeda rohtaki are found moderately resistant and Ten (10) varieties i.e. Kharek, Narma, Selection-1, Selection-3, Selection-4, Selection-5, Selection-9, Selection-10, Selection-11 and Umran are found susceptible (S) against powdery mildew disease in ber.
	Approved with following Suggestions: 1. Correct the name of varieties. 2. Check year wise germplasm reaction.
	(Action: Res. Sci.,Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.57	**Screening of germplasm of arid zone fruits for resistance against different diseases: (b) Fruit spot disease in pomegranate**
	Among forty-five (45) germplasms / varieties of pomegranate screened for resistant against fruit spot disease in pomegranate. All the forty-five (45) germplasms / varieties found susceptible to fruit spot disease in pomegranate. *i.e.* Abhor Seedless, AK Anar, Achik dana, Afghan Kandhari, Badanasur, Basakhalinaski, Bedana sedana, Bedanabesk, Banipur selection, Country large red, Country large White, Chawala, Dholka, EK Anar, Guleshah, Jodhpur red, Jodhpur white, Kazil anar, Kandhari, P-26, Russian seedling, GKVK, Uthukula, Surkh anar, GP-1, GP-2, GP-3, GP-4, GP-5, GP-6, GP-8, GP-9, GP-10, GP-11, GP-12, GP-13, GP-14, GP-15, GP-16, GP-137, Jyoti, Speensakar, Alandi, Ganesh and Mrudula.
	Suggestion: Approved
	(Action: Res. Sci.,Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.58	**Cost effective control of powdery mildew of ber**
	Application of three sprays of either myclobutanil 10% WP, 0.04% (4 g /L.) or dinocap 48 EC , 0.1 % (2 ml/L), first spray at the initiation of the disease and subsequent two sprays at 15 days intervals after first spray for effective management of powdery mildew disease in ber.

	Approved with following Suggestions: 1. In tables, DNMRT alphabet should be superscript. 2. Design 'CRD' instead of 'RBD'. 3. Mention date of spraying, harvesting in methodology. 4. Mention the interval between two sprays.
	(Action: Res. Sci.,Arid fruit Res. Station, SDAU, Sardarkrushinagar)
17.3.2.59	**Management of *ramularia* blight in fennel**
	Removal of lower leaves at 50 % flowering and seed setting stage and application of two sprays of chlorothalonil 75WP, 0.15% (20 g/ 10 L water), first spray at initiation of disease and second at 15 days after first spray found effective for the management of ramularia blight in fennel. PHI should be kept 41 days.
	Approved with following Suggestions: 1. Write "Removal of" word instead of "Remove". 2. Write "application of" word instead of "apply". 3. Add word "found" instead of "for". 4. Include PHI in recommendation and recast the language accordingly. 5. Check the Codex MRL.
	(Action: Principal, College of Horticulture, SDAU, Jagudan)
17.3.2.60	**Identification of wheat entries for resistance against black and brown rusts**
	Based on stem and leaf rust severities as well as AUDPC (Area Under Disease Progress Curve) values, following wheat genotypes found resistant and slow rusters.

Sr. No.	Type of Reaction	No. of genotypes	Name of genotypes
1.	Resistant (<100 AUDPC)	48	VA 2017-03, VA 2017-04, VA 2017-05, VA 2017-07, VA 2017-09, VA 2017-10, VA 2017-12, VA 2017-14, VA 2017-16, VA 2017-22, VA 2018-03, VA 2018-04, VA 2018-05, VA 2018-06, VA 2018-08, VA 2018-09, VA 2018-10, VA 2018-11, VA 2018-12, VA 2018-13, VA 2018-14, VA 2018-15, VA 2018-17, VA 2018-21, VA 2018-22, VA 2018-28, VA 2018-30, VD 2017-01, VD 2017-04, VD 2017-08, VD 2017-09, VD 2017-10, VD 2017-17, VD 2018-7, VD 2018-9, VD 2018-12, VD 2018-13, VD 2018-16, GW 513, GW 495, GW 496, GW 499, GW 509, GW 511, GW 366, GW 451, GDW 1255 and GW 1348
2.	Slow Rusters (101-200AUDPC)	05	VA 2017-08, VD 2018-14, GW 11, GW 173, GW 322

	Approved with following Suggestions: 1. Recast the recommendation after removing the word "resistant breeding programme" from recommendation draft.
	(Action: Res. Sci., Wheat Res. Station, SDAU, Vijapur)
17.3.2.61	**Management of leaf spots of groundnut by different fungicides and their impact on yield**
	Application of three sprays of tebuconazole 50% + trifloxystrobin 25% WG, 0.25% (3.33 g/L), first at the time of initiation of the disease and subsequent two sprays at 15 days interval after 1st spray for reducing the disease intensity of early and late leaf spot of groundnut.
	Approved with following Suggestions: 1. Delete word "concentration" and "15 days interval" and recast the draft. 2. Check the fungicide price. 3. Check the dose of tebuconazole 50% + trifloxystrobin 25% WG. 4. Include MRL of FASSAI.
	(Action: Assoc. Res. Sci., Vegetable Res. Station, SDAU, Ladol)

17.3.3. NEW TECHNICAL PROGRAMME(2021-22) CROP PROTECTION

SUMMARY

Name of SAU's	New Technical Programme				
	Proposed		Approved		
	Agricultural Entomology	Pathology/ Nematology	Agricultural Entomology	Pathology/ Nematology	Total
AAU, Anand	53	12	53	12	**65**
JAU, Junagadh	14	13	14	11 (13-2@)	**25**
NAU, Navsari	38	41	34 (38-2@=36) (36-2+=34)	41 (1@)	**75**
SDAU, SKnagar	06	08	06	08	**14**
Total	**111**	**74**	**107**	**72**	**179**

Note:

@ Merged with other trial/s and formulated as one trial

+ Presented for information to house only

17.3.3. NEW TECHNICAL PROGRAMME (2021-22)

ANAND AGRICULTURAL UNIVERSITY, ANAND

AGRICULTURAL ENTOMOLOGY		
Sr. No.	**Title**	**Suggestions**
17.3.3.1	Bio-efficacy of insecticides against earhead worm, *Helicoverpa armigera* (Hubner) Hardwick infesting pearlmillet	**Approved with following suggestions:** 1. Include the ancillary observation on 'No. of honeybees/ear heads' in methodology 2. Take three concentration of emamectin benzoate in methodology (**Action:** Professor & Head, Department of Entomology, BACA, AAU, Anand)
17.3.3.2	Evaluation of various insecticides as lure toxicants for fruit fly in mango orchard	**Approved with following suggestions:** 1. Delete 'Management' word from title of experiment 2. Recast the objective as per revised title 3. Experimental design should be CRD (**Action**: Professor & Head, Department of Entomology, BACA, AAU, Anand)

17.3.3.3	Development of bio-intensive pest management module for the management of shoot and fruit borer, *Leucinodes orbonalis* (Guenee) in brinjal	**Approved with following suggestions:** 1. In treatment T_1 BIPM module delete release of *Trichgramma chilonis* 2. Correct the year of commencement (**Action:** Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand)
17.3.3.4	Influence of habitat manipulation on incidence and severity of pest damage in cabbage	**Approved with following suggestions:** 1. Correct the year of commencement (**Action:** Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand)
17.3.3.5	Evaluation of different bio-pesticides for the management of onion thrips, *Thrips tabaci* L.	**Approved with following suggestions:** 1. Mention the methodology of thrips count 2. Take four replications 3. Correct the year of commencement (**Action:** Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand)
17.3.3.6	Development of low cost production medium of bio-pesticide *Metarhizium anisopliae*, using spent larval medium of *Corcyra cephalonica*	**Approved with following suggestions:** 1. Check the dose in treatments 2. Use CRD design 3. Repetition should be 4 instead 3 4. Correct the dose per 10 litre of water (**Action**: Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand)
17.3.3.7	Estimation of rodent infestation in wheat crop agro ecosystem	**Approved with following suggestions:** 1. Minimum sample size should be 100. 2. Date of irrigation should be recorded. (**Action:** Ornithologist, AINPVPM: Agril. Ornithology, AAU, Anand)
17.3.3.8	Effectiveness of fruit bagging on Rose-Ringed Parakeet (*Psittacula krameri*) damage in guava	**Approved with following suggestions:** 1. Mention bag size 2. Percent fruit damage should also be weight basis

		3. Add one more treatment as butter paper bag 4. Calculate economics (**Action:** Ornithologist, AINPVPM: Agril. Ornithology, AAU, Anand)
17.3.3.9	Bio-efficacy of insecticides against leaf eating caterpillar, *Spodoptera litura* (F) in tobacco	**Approved with following suggestions:** 1. Correct season and year of commencement as "*Kharif* 2021". 2. Mention the nursery trial in methodology 3. Incorporate seed treatment of 'Tetraniliprole 240 + Fipronil 240 FS' (**Action:** Research Scientist, Bidi Tobacco Research Station, AAU, Anand)
17.3.3.10	Residues and persistence of tetraniliprole 240 g/L + fipronil 240 g/L FS in maize	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.11	Residues and persistence of fluxapyroxad 167 g/L + pyraclostrobin 333 g/L 500 SC in cumin	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.12	Residues and persistence of spirotetramat 30 g/L + diafenthiuron 120 g/L SC in chilli	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.13	Residues and persistence of zineb 75 WP in chilli	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.14	Residues and persistence of tetraniliprole 120 g/L + spirotetramat 240 g/L SC in cabbage	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)

17.3.3.15	Residues and persistence of beta-cyfluthrin 90 g/L + imidacloprid 210 g/L OD in maize	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.16	Residues and persistence of tetraniliprole 200 g/L SC in chilli	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.17	Residues and persistence of tetraniliprole 120 g/L + spirotetramat 240 g/L SC in chilli	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.18	Development and validation of quick multi-class method for the various antibiotics and veterinary drugs in milk by LC-MS/MS	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.19	Residues and persistence of mancozeb75% WP in paddy	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.20	Residues and persistence of fluopyram 400 g/L SC in tomato (Drip application)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.21	Residues and persistence of fluopyram 400 g/L SC in pomegranate (Soil drench)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.22	Residues and persistence of fluoxapiprolin 20 g/L SC in tomato	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.23	Residues and persistence of tetraniliprole 200 g/L SC in red gram	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)

17.3.3.24	Residues and persistence of spirotetramat 120 g/L + imidacloprid 120 g/L SC in cucumber	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.25	Residues and persistence of fluoxapiprolin 30 g/L + fluopicolide 200 g/L SC in cucumber	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.26	Residues and persistence of fluopyram 400 g/L SC in cucumber (Drip application)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.27	Residues and persistence of iprovalicarb 8.4 + copper oxychloride 40.6% WG in cucumber	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.28	Residues and persistence of fluoxapiprolin 20% SC in cucumber	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.29	Residues and persistence of fluopyram 400 g/L SC in pomegranate (Drip application)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.30	Residues and persistence of spirotetramat 120 g/L + imidacloprid 120 g/L SC in potato	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.31	Residues and persistence of fluopyram 400 g/L SC in potato (Soil drench)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.32	Residues and persistence of fluopyram 400 g/L SC in okra (Drip application)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)

17.3.3.33	Residues and persistence of fluopyram 400 g/L SC in okra (Soil Drenching)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.34	Residues and persistence of tetraniliprole 120 g/L + spirotetramat 240 g/L SC in tomato	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.35	Residues and persistence of fluoxapiprolin 30 g/L + fluopicolode 200 g/L SC in tomato	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.36	Residues of trinexapac ethyl 25% EC in rice and soil	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.37	Residues and persistence of fluopyram 400 g/L SC in brinjal (Soil drench)	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.38	Residues and persistence of tetraniliprole 120 g/L + thiacloprid 360 g/L SC in brinjal	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.39	Residues and persistence of tetraniliprole 120 g/L + spirotetramat 240 g/L SC in brinjal	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.40	Residues and persistence of tetraniliprole 200 g/L SC in brinjal	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.41	Residues and persistence of iprovalicarb 8.4 + copper oxychloride 40.6% WG in tomato	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.42	Harvest time residues of zineb 75% WP in potato	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)

17.3.3.43	Residues and persistence of mancozeb 75% WP in cumin	**Approved** 1. Correct year of commencement as 2021-22 (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.44	Residues and persistence of propanil 60 + propyrisulfuron 2.0 WG in paddy	**Approved** (**Action:** Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand)
17.3.3.45	Evaluation of organic inputs against pest complex infesting cucumber	**Approved with following suggestions:** 1. Mention in 'Tobacco aqueous solution' instead of 'Tobacco decoction' in T_2. 2. Record mite population in observations 3. Write procedure of preparation of different treatments 4. Check the concentration & dose of T_7, T_8 and T_9 5. Mention the name of biopesticide strain to be used (**Action:** Research Scientist, Main Vegetable Research Station, AAU, Anand)
17.3.3.46	Evaluation of eco-friendly inputs against sucking pests of potato	**Approved with following suggestions:** 1. Take three sprays at fortnight interval 2. Mention the name of biopesticide strain to be used (**Action:** Principal, College of Horticulture, AAU, Anand)
17.3.3.47	Efficacy of granular insecticides against major pests of rice	**Approved** (**Action:** Research Scientist, Main Rice Research Station, AAU, Nawagam)
17.3.3.48	Impact of date of sowing on incidence of fall armyworm infesting sweet corn	**Approved with following suggestions:** 1. The treatment interval of sowing should be kept as "15 days" and go upto "15th August" 2. Take fortnightly observations (**Action:** Research Scientist, Main Maize Research Station, AAU, Godhra)

17.3.3.49	Evaluation of insecticides as a seed treatment against thrips in summer green gram	**Approved** (**Action:** Assoc. Research Scientist, Agricultural Research Station, AAU, Derol)
17.3.3.50	Evaluation of eco-friendly inputs against aphid in dillseed in Bhal region	**Approved with following suggestions:** 1. Mention the name of biopesticide strain to be used 2. Correct the concentrations of treatments *viz*., T_2 & T_5 3. Write the CFU in biocontrol agents 4. Write 'Tobacco aqueous extract' instead of 'Tobacco decoction' 5. Replace neem oil concentration '1%' with '0.5%' (**Action:** Associate Research Scientist, Agricultural Research Station, AAU, Arnej)
17.3.3.51	Management of fall armywarm *Spodoptera frugiperda* (J. E. Smith) in fodder maize	**Approved with following suggestions:** 1. Take 'Acephate + imidacloprid' instead of 'imidacloprid' in seed treatment 2. Correct the factors & combinations in treatment details (**Action:** Assoc. Research Scientist, Agricultural Research Station, AAU, Sansoli)
17.3.3.52	Isolation and characterization of endophytes from tomato plants grown in Anand district	**Approved with following suggestions:** 1. Include molecular identification of endophytes in methodology (**Action:** Training Associate (Pl. Prot.), DEE, AAU, Anand)
17.3.3.53	Impact of storage bag container, application methods and insecticide against *Callosobruchus maculatus* (Fabricius) infesting green gram during storage	**Approved with following suggestions:** 1. Add summer season in experiment. 2. Take total treatment combinations 24 3. Evaluate control alone (**Action:** Res. Scientist (Ento.), RRS AAU, Anand)

17.3.3.54	Screening of potato varieties against foliar diseases	**Approved** (**Action:** Professor & Head, Department of Plant Pathology, BACA, AAU, Anand and Assoc. Research Scientist, AHRS, Khambholaj)
17.3.3.55	Bio-efficacy of ready-mix fungicides against powdery mildew of Indian mustard	**Approved with following suggestions:** 1. Correct the seed rate of mustard 2. Correct plot size as 5 m x 3.6 m with 6 rows (**Action:** Professor & Head, Department of Plant Pathology, BACA, AAU, Anand**)**
17.3.3.56	Evaluation of eco-friendly inputs against powdery mildew of okra	**Approved with following suggestions:** 1. Take phytotoxicity data in cow urine treatment 10% 2. Mention the name of biopesticide strain to be used 3. Mention 'Desi' as prefix (**Action:** Professor & Head, Department of Plant Pathology, BACA, AAU, Anand)
17.3.3.57	Evaluation of organic materials against root-knot nematodes in tomato	**Approved with following suggestions:** 1. Recast the title and objective by changing word 'organic inputs' with 'organic materials' (**Action:** Prof. & Head, Department of Nematology, BACA, AAU, Anand)
17.3.3.58	Bio-efficacy of fungicidal schedule for management of damping-off in bidi tobacco nursery	**Approved with following suggestions:** 1. Mention metalaxyl MZ technical with concentration 2. Write *a.i.* & formulation for each fungicide 3. Write the dose for 10 litres of water 4. Give the treatments in standard format (**Action:** Research Scientist, Bidi Tobacco Research Station, AAU, Anand)

17.3.3.59	Bio-efficacy of different bioagents against early blight of tomato	**Approved with following suggestions:** 1. Mention treatment details as per standard format by using full name /forms 2. Take ancillary observations on other diseases, if any. 3. Write CFU in treatment details (**Action:** Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand and Prof. & Head, Department of Plant Pathology, BACA, AAU, Anand)
17.3.3.60	Bio-efficacy of different bioagents against early blight of of potato	**Approved with following suggestions:** 1. Mention treatment details as per standard format by using full name /forms 2. Take ancillary observations on other diseases, if any. 3. Write CFU in treatment details (**Action:** Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand and Prof. & Head, Department of Plant Pathology, BACA, AAU, Anand)
17.3.3.61	Bio-efficacy of ready-mix fungicides against powdery mildew of fenugreek	**Approved with following suggestions:** 1. Take observations on phytotoxicity in the treatment of T_4 & T_6 (**Action:** Principal, College of Horticulture, AAU, Anand)
17.3.3.62	Efficacy of biological agents in management of charcoal rot (*Macrophomina phaseolina*) disease of maize	**Approved with following suggestions:** 1. Mention artificial inoculation method 2. Conduct this trial in *Kharif* season 3. Take experiment at Main Maize Research Station, Godhra instead of farmers field 4. Correct CFU in Trichoderma 5. Check the ratio of bioagents for soil application 6. Mention the name of biopesticide strain to be used (**Action:** Research Scientist, Main Maize

		Research Station, Godhra)
17.3.3.63	Screening of promising entries of rice selected from advance generation breeding material for multiple disease resistance	**Approved with following suggestions:** 1. Recast the title and objective by adding the crop name 2. Mention the culture load in CFU/ml in artificial inoculation 3. Record the observations on grain discolouration & sheath blight (**Action:** Research Scientist, Main Rice Research Station, AAU, Nawagam)
17.3.3.64	Screening of promising entries of rice selected from advance generation breeding material against bacterial leaf blight	**Approved with following suggestions:** 1. Recast the title and objective by adding the crop name 2. Mention the culture load in CFU/ml in artificial inoculation (**Action:** Research Scientist, Main Rice Research Station, AAU, Nawagam)
17.3.3.65	Bio-efficacy of ready-mix fungicides against purple blotch of onion	**Approved** (**Action:** Principal, College of Agriculture, AAU, Jabugam)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

AGRICULTURAL ENTOMOLOGY		
Sr. No.	**Title**	**Suggestions**
17.3.3.66	Effect of different poison baits against fall army worm S*podoptera frugiperda* (J. E. Smith) infesting maize	**Approved with following suggestions:** 1. Mention name of variety 2. Take grain yield & straw yield 3. Take this trial as new trial 4. Observations to be taken at 5, 10, 15 and 20 days of application 5. Delete the word broadcasting from methodology 6. Correct the year of commencement 7. Take ‘rice’ or ‘maize’ flour instead of ‘wheat bran’ (**Action:** Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.3.67	Standardization of number of pheromone traps for mango fruit fly, *Bactrocera dorsalis* (Hendel)	**Approved with following suggestions:** 1. Add ‘Management’ word from title 2. Trap should be installed at equal distance

		3. Mention the lure toxicant in methodology (**Action**:Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.3.68	Effect of date of sowing and miticides against mite, *Polyphagotarsonemus latus* (banks) infesting cluster bean	**Approved with following suggestions:** 1. Check the dose of Propargite 57 EC 2. Mite observation to be recorded in 1 X 1 cm^2 area of terminal buds 3. Check the plot size 4. Observations taken on 1, 3, 5, 7, 10 and 14 DAS 5. Recast title by adding word 'yellow mite' and 'acaricide' 6. Recast objective as per revised title (**Action:** Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.3.69	Bio-efficacy of newer insecticides against leaf eating caterpillar, *Spodoptera litura* Fab. Infesting soybean	**Approved with following suggestions:** 1. Write dose '72 g ai/ha' instead of '59 g ai/ha' in T_1 2. Mention dose '30 g ai/ha' instead of '28 g ai/ha' in T_7 3. Write dose '56 g ai/ha' in Spinosad 45 SC 4. Delete 'newer' word from title and revise the title & objective accordingly 5. Take seed and straw yield 6. Include 14th day observation 7. Check the dose of Flubendiamide, Spinosad, Chlorantraniliprole& indoxacarb as per CIB & RC label claim 8. Check seed rate & fertilizer dose (**Action:** Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.3.70	Molecular identification and seasonal incidence of chilli gall midge	**Approved with following suggestions:** 1. Recast title as per title and objective 2. Record number of damaged/malformed fruits/plant 3. Add molecular identification in word (**Action:** Professor & Head, Department of Entomology, JAU, Junagadh)
17.3.3.71	Evaluation of different insecticides against thrips in *summer* groundnut	**Approved with following suggestions:** 1. Replace the treatment T_7 insecticide with 'Fipronil 80WG' 2. Delete 'summer' word from title. 3. Take common seed treatment in all treatments

		4. Check the insecticide formulation and dose as per CIB & RC 5. Check plot size 6. Take 'afidopyropen 5 DC @ 50 g ai/ha as a new treatment 7. Add 1 & 14 DAS in observation (**Action**: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)
17.3.3.72	Testing of ready mix insecticides against capsule borer *Dichocrosis punctiferalis* infesting in castor	**Approved with following suggestions:** 1. Recast title as "Bio-efficacy of ready mix insecticides against capsule borer *Dichocrosis punctiferalis* infesting castor" 2. Recast the objective as per revised title 3. Add 14th day observation 4. Write dose '77.5 ai g/ha' instead of '73 g ai/ha' in T_4 5. Mention dose '44 g ai/ha' in T_5 6. Record no. of healthy & damaged capsules per plant 7. Check the dose of T_4 & T_5 as per CIB & RC label claim (**Action:** Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)
17.3.3.73	Evaluation of different biorationals against *Spodoptera litura* Fab. Infesting soybean	**Approved with following suggestions:** 1. Take dose '20 g ai/ha' instead of '15 g ai/ha' in T_7 2. Delete the treatment T_9 3. Take Neem oil 0.5% 4. Take Seed and straw yield 5. Check net plot size 6. Take observations on no. of damaged and healthy leaves per plants 7. Add '14 DAS' observation 8. Add observations on natural enemies 9. Check dose of T_7 as per CIB & RC label claim (**Action:** Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)
17.3.3.74	Management of sucking pests in cotton. (AICRP trial)	**Approved with following suggestions:** 1. Take observation as before treatment and 1, 3, 7 and 14 days after each spray. 2. Mention name of sucking pests 3. Take observations on sucking pest as

		'per leaf' instead of 'per plant' 4. Mention imidacloprid as treated check 5. Take 'afidopyropen 5 DC' and 'Fipronil 80WG' 6. Check plot size 7. Experiment is approved in AICRP group meeting and presented herein CJA meeting for information to the house (**Action:** Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)
17.3.3.75	Testing of IPM modules against pest complex of pearl millet (Aicrp trial)	**Approved with following suggestions:** 1. Experiment is approved in AICRP group meeting and presented herein CJA meeting for information to the house **(Action:** Research Scientist, Pearl Millet Research Station, JAU, Junagadh)
17.3.3.76	Studies on the effect of insecticidal seed treatment on seed viability during storage in pearl millet (AICRP Trial).	**Approved with following suggestions:** 1. Experiment is approved in AICRP group meeting and presented herein CJA meeting for information to the house (**Action:** Research Scientist, Pearl Millet Research Station, JAU, Junagadh)
17.3.3.77	Integrated approach for management of pulse beetle (*Callosobruchus sp*.) In green gram. (AICRP Trial).	**Approved with following suggestions:** 1. Experiment is approved in AICRP group meeting and presented herein CJA meeting for information to the house (**Action**: Research Scientist, Pearl Millet Research Station, JAU, Junagadh)
17.3.3.78	Application of microwave technology for disinfestations of groundnut kernels	**Approved with following suggestions:** 1. Mention the duration of storage 2. Record the observation of pest population as well as kernel damage at monthly interval (**Action:** Research Scientist, Department of processing & Food Engg. EAET, JAU, Junagadh)
17.3.3.79	Management of sucking pest in cumin	**Approved with following suggestions:** 1. Recast the title by removing 'management' word from title. 2. Recast the objective as per revised title 3. Check the dose of Asafoetida 4. Add neem oil '0.5 %' 5. Mention the quantity of chill and garlic extract in T_3 6. Write the CFU in T_8

		7. Aphid and thrips count/leaves to be recorded 8. Check the plot size and price of T_1 (**Action:** Agril. Research Station, JAU, Halvad)
PLANT PATHOLOGY		
17.3.3.80	Management of post harvest diseases of mango	**Approved with following suggestions:** 1. Change the objective as "To evaluate the treatment for the management of post-harvest diseases of mango" 2. Recast objective as per revised title 3. Reframe treatment for swabbing by cotton 4. Take observations from 20 fruits 5. Add biochemical analysis 6. Include Fruit fly damage observation 7. Take observation of per cent ripening 8. Take observation on fruit shelf life (**Action:** Professor & Head, Department of Plant Pathology, JAU, Junagadh)
17.3.3.81	Downy mildew (*Peronospora plantaginis*) of isabgol and its management.	**Approved with following suggestions:** 1. Change title as "Evaluation of fungicides against downy mildew in isabgol" 2. Mention No. of spray and spray interval in methodology. 3. Correct spacing details & method of sowing 4. Add two new treatments as per discussion in house (**Action:** Professor & Head, Department of Plant Pathology, JAU, Junagadh)
17.3.3.82	Effect of different substrate mixture on growth, yield and nutritional value of oyster mushroom (*Pleurotus* sp.).	**Approved with following suggestions:** 1. Add growth parameters in observation and objective 2. Add biochemical analysis 3. Mention species of mushroom in title 4. Take spawn rate @ 3% (**Action:** Professor & Head, Department of Plant Pathology, JAU, Junagadh)
17.3.3.83	Morpho-cultural, molecular and pathogenic variability present among the isolates of *Sclerotium rolfsii*- causing Stem rot of groundnut in Saurashtra region.	**Approved with following suggestions:** 1. Change the year of commencement as 2021-22 (**Action:** Research Scientist, Groundnut, Main Oilseed Research Station, JAU, Junagadh)

17.3.3.84	Morpho-cultural, molecular and pathogenic variability present among the isolates of *Fusarium oxysporum*-causing wilt of castor in Saurashtra region.	**Approved with following suggestions:** 1. Merge experiment no. **17.3.3.84** and **17.3.3.85** (**Action:** Research Scientist, Groundnut, Main Oilseed Research Station, JAU, Junagadh)
17.3.3.85	Morpho-cultural, molecular and pathogenic variability present among the isolates of *Macrophomina phaseolina*-causing root rot of castor in Saurashtra region.	**Approved with following suggestions:** 2. Merge experiment no. **17.3.3.84** and **17.3.3.85** (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.86	Morpho-cultural, molecular and antagonistic variability present among the isolates of *Trichoderma* sp. In Saurashtra region.	**Approved with following suggestions:** 1. Merge experiment no. **17.3.3.86** and **17.3.3.87** (**Action:** Research Scientist, Groundnut, Main Oilseed Research Station, JAU, Junagadh)
17.3.3.87	Morpho-cultural, molecular and antagonistic variability present among the isolates of *Pseudomonas* sp. In Saurashtra region.	**Approved with following suggestions:** 1. Merge experiment no. **17.3.3.86** and **17.3.3.87** (**Action:** Research Scientist, Groundnut, Main Oilseed Research Station, JAU, Junagadh)
17.3.3.88	Integrated wilt management of Chickpea under artificially inoculated pot condition	**Approved with following suggestions:** 1. Take as 'field trial' instead of 'pot trial' 2. Take moderately susceptible variety in experiment 3. Remove word 'integrated' from title & Recast title as per objective 4. Remove 'bioagents' & keep only 'fungicides' 5. Add another control of without artificial inoculation of pathogen (**Action:** Research Scientist, Pulse Research Station, JAU, Junagadh)
17.3.3.89	Integrated management of foliar fungal diseases of *kharif* mungbean	**Approved with following suggestions:** 1. Delete '*Kharif*' word from title 2. Mention the name of disease in observation to be recorded 3. Include yellow vein mosaic disease in observation (ancillary) 4. Check the plot size 5. Record the yield data (**Action:** Research Scientist, Pulse Research

		Station, JAU, Junagadh)
17.3.3.90	Integrated management of foliar fungal diseases of *kharif* Urdbean	**Approved with following suggestions:** 1. Delete '*Kharif*' word from title 2. Mention the name of disease in observation to be recorded 3. Include yellow vein mosaic disease in observation (ancillary) 4. Check the plot size 5. Record the yield data (**Action:** Research Scientist, Pulse Research Station, JAU, Junagadh)
17.3.3.91	Bio intensive management of soil-borne diseases particularly root rot, collar rot and wilt caused by *Fusarium* spp., *Phytophthora* spp., *Acremonium* spp. and *Pythium* spp. in cucumber	**Approved with following suggestions:** 1. Check plot size 2. Experiment is approved in AICRP group meeting and presented herein CJA meeting for information to the house 3. One treatment from JAU added. (**Action:** Research Scientist, Vegetable Research Station, JAU, Junagadh)
17.3.3.92	Integrated management of gummy stem blight/stem splitting disease caused by *Didymella bryoniae* (Sexual stage) and *Phoma cucurbitacearum* (Asexual stage) in Cucurbits (Bottlegourd)	**Approved with following suggestions:** 1. Add word 'enriched' instead of 'fortified' in treatment details 2. One treatment from JAU added. (**Action:** Research Scientist, Vegetable Research Station, JAU, Junagadh)

<u>NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI</u>

AGRICULTURAL ENTOMOLOGY		
Sr. No.	**Title**	**Suggestions**
17.3.3.93	Biodiversity of mites associated with date palm	**Approved with following suggestions:** 1. Add Kutch region in title (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.94	Damage potential of yellow mite, *Polyphago tarsonemus latus* (Banks) on capsicum under protected cultivation	**Approved with following suggestions:** 1. Mention the season and year 2. Take observations on fruit also. (**Action**: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.95	Estimation of crop loss due to spider mite on okra in field condition	**Approved with following suggestions:** 1. Mention season and year. 2. Take observation on fruits. 3. Mite population observed in 1 X 1 cm leaf area. (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)

17.3.3.96	Management of rice sheath mite using acaro-fungal pathogen	**Approved with following suggestions:** 1. Use standard methodology as per format and add replication and design. 2. Check the dose of $T_{5.}$ 3. Remove Propargite 57EC from PPSC trial. (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.97	Monitoring of mite pest status in organic vegetable growing system vis-à-vis non-orgnic system in brinjal and okra crops	**Approved with following suggestions:** 1. Mention season and year. 2. Observe no. of mites per leaves from 1 x 1 cm leaf bit. 3. Mention the details as per standard format. (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.98	Population dynamics of mites infesting marigold	**Approved with following suggestions:** 1. Use word 'leaf trifoliate'. 2. Write impact of biotic and abiotic factors. 3. Correct the name of variety. 4. Take ancillary observations on other insect pests. (**Action**: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.99	Management of spider mite in marigold	**Approved with following suggestions:** 1. Correct the name of variety. (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.100	Survey of coconut rugose spiralling whitefly (RSWF), *Aleurodicus rugioperculatus* Martin and its natural enemies in Valsad and Navsari district of South Gujarat	**Approved** (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.101	Management of rugose spiralling whitefly, *Aleurodicus rugioperculatus* Martin in coconut under south Gujarat condition	**Approved with following suggestions:** 1. Total no. of spray should be three in case of organic experiment. 2. Take observations at 3,7 and 9 days. 3. Second spray at 10 days after first spray. 4. Take recommendation of JAU as recommended check. (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)

17.3.3.102	Survey of fruit fly infesting major fruits and cucurbit vegetable crops of south Gujarat	**Approved with following suggestions:** 2. Take observations from 5 fruits for fruit fly damage at fortnight interval. 3. Species of fruit fly should be recorded. 4. Mention the name of host plants. **(Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.103	Evaluation of various insecticides as lure toxicant against fruit fly in mango orchard	**Approved with following suggestions:** 2. Time for installation of trap must be at marble size fruits in mango orchard. 3. Observation should be recorded at fortnightly interval (**Action:** Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.104	*In vitro* compatibility of *Lecanicillium lecanii* with insecticides	**Approved with following suggestions:** 1. Mention the name of strain in methodology. (**Action**: Prof. & Head, Dept. of Ento, NMCA, NAU, Navsari)
17.3.3.105	Survey and surveillance of natural enemies in organic mango orchard	**Approved with following suggestions:** 1. Recast title as “Status of insect pests and natural enemies in organic mango orchard”. 2. Recast the objective as per revised title. (**Action:** Prof. & Head, Dept of Pl. Prot. ACHF, NAU, Navsari)
17.3.3.106	Survey and surveillance of natural enemies of okra under field condition	**Approved with following suggestions:** 1. Change title as “Status of insect pests and natural enemies of okra under field condition” 2. Recast the objective as per revised title. (**Action:** Prof. & Head, Dept of Pl. Prot. ACHF, NAU, Navsari)
17.3.3.107	Evaluation of ardu (*Ailanthus excelsa* Roxb.) germplam against web worm	**Approved with following suggestions:** 1. Design should be CRD. 2. Take observations on number of webs/branches from four branches of four directions of tree. (**Action:** Professor of Entomology, CoF, NAU, Navsari)

17.3.3.108	Management of yellow stem borer of paddy under south Gujarat Conditions	**Approved with following suggestions:** 1. Mention factor A & factor B in treatment detail. 2. Take ancillary observations of other pests. (**Action:** Research Scientist MRRC, SWMRU, NAU Navsari)
17.3.3.109	Non chemical management of mango hopper under south Gujarat condition.	**Approved with following suggestions:** 1. Total no. of spray should be three in case of organic experiment. 2. Take observations at 3,7 and 9 days. 3. Second spray at 10 days after first spray. 4. Add surfactant in need oil treatment (**Action:** Principal, Hort. Polytechnic, , ACHF, NAU, Navsari)
17.3.3.110	Morphological basis of resistance in pigeonpea (*Cajanus cajan* (L.) Millspaugh) against pod borer complex	**Approved with following suggestions:** 1. Mention the determinate and indeterminate type in varieties. 2. Replace 'grain yield' with 'seed yield'. 3. Record the observations on ovipositional preference. 4. Increase the no. of varieties/germplasm. (**Action**: Principal, CoA, NAU, Bharuch)
17.3.3.111	Evaluation of biopesticides against pod borers infesting green gram	**Approved with following suggestions:** 1. Add NSKE 5 % instead of T5. 2. Add name of variety GM-6. 3. Total no. of spray should be three in case of organic experiment. 4. Second spray to be given at 10 days after first spray. 5. Take observations at 3,7 and 9 days. 6. Incorporate observations on no. of damaged pods per 100 pods. 7. Mention the name of biopesticide strain. (**Action:** Principal, CoA, NAU, Bharuch)
17.3.3.112	Studies on effect of augmentation of pollination by bees (*Apis cerana* F.) on yield of bitter gourd	**Approved with following suggestions:** 1. Change title as "Effect on augmentation of pollination by bees (*Apiscerana* F.) on yield of bitter gourd". 2. Recast objective accordingly as per

		revised title. 3. Take ancillary observations on fruit fly infested fruit drop. 4. Mention the minimum size for large plot design. (**Action:** Principal, CoA, NAU, Waghai)
17.3.3.113	Survey and surveillance of mango hoppers in Surat district	**Approved with following suggestions:** 1. Merge trials **17.3.3.113, 17.3.3.114** & **17.3.3.170** as one trial 2. Correct the title as "Survey of insect pests, their natural enemies and diseases of mango in Surat district". 3. Recast objectives as per revised trial. 4. Recast the methodology as per revised trial. 5. Minimum sample size should be 100. 6. Take observations of all pests, diseases and natural enemies. **(Action:** Principal, ASBI, NAU, Surat)
17.3.3.114	Survey of natural enemies of insect pest of mango in Surat district	**Approved with following suggestions:** 1. Merge trials **17.3.3.113, 17.3.3.114** & **17.3.3.170** as one trial 2. Correct the title as "Survey of insect pests, their natural enemies and diseases of mango in Surat district". 3. Recast objectives as per revised trial. 4. Recast the methodology as per revised trial. 5. Minimum sample size should be 100. 6. Take observations of all pests, diseases and natural enemies. (**Action:** Principal, ASBI, NAU, Surat)
17.3.3.115	Evaluation of different modules against pink bollworm in *Bt* cotton	**Approved with following suggestions:** 1. Mention date of sowing. 2. Mention 'observations to be recorded' separately in methodology. 3. Recast objective as per title. (**Action:** Research Scientist MCRS, NAU, Surat)
17.3.3.116	Investigation on pre mature dropping of reproductive parts of cotton due to biotic stress	**Approved** (**Action:** Research Scientist, MCRS, NAU, Surat)
17.3.3.117	Evaluation of different insecticides against sucking pests in *Bt* cotton	**Approved with following suggestions:** 1. Approved 2. Presented for information to the house as already one year completed.

		(**Action:** Research Scientist., MCRS, NAU, Surat)
17.3.3.118	Evaluation of different oils for the management of rice weevil, *Sitophilus oryzae* (Linnaeus) against stored sorghum	**Approved with following suggestions:** 1. Take 500 gm seeds instead of 100g. 2. Design CRD with factorial concept. 3. Add germination percentage in observation. 4. Write 'in' instead of 'against' in title. (**Action:** Research Scientist, MSRS, NAU, Surat)
17.3.3.119	Seasonal incidence with different dates of sowing on incidence of insect pests of finger millet	**Approved with following suggestions:** 1. Mention date of sowing in treatment details as per title & objective. 2. Mention the season and year of investigation. 3. Mention the observation time of grasshopper. 4. Increase the plot size. (**Action:** Research Scientist, HMRS, NAU, Waghai (Dang))
17.3.3.120	Evaluation of little millet (*Panicum miliare*) initial advanced varieties to shoot fly (LIAVT)	**Approved with following suggestions:** 1. Correct the formula of level of resistance as it creates confusion. 2. Mention the name of entries/genotypes to be evaluated. 3. Use standard scale for evaluation (X+SD). (**Action**: Research Scientist, HMRS, NAU, Waghai (Dang))
17.3.3.121	Evaluation of finger millet initial varieties against insect pests (FMIVT)	**Approved with following suggestions:** 1. Mention the name of entries/genotypes. 2. Mention the observation time of grasshopper. 3. Revise objective as per title. (**Action:** Research Scientist, HMRS, NAU, Waghai (Dang))
17.3.3.122	Evaluation of finger millet advanced varieties against insect pests (FMAVT)	**Approved with following suggestions:** 1. Mention the name of entries/genotypes. 2. Mention the observation time of grasshopper. 3. Revise objective as per title. **(Action**: Research Scientist, HMRS, NAU, Waghai (Dang))

17.3.3.123	Population dynamics of mango hopper and its natural enemies under Ultra High-Density Plantation	**Approved with following suggestions:** 1. Mention the starting date of observation (**Action:** Research Scientist, AES, NAU, Paria)
17.3.3.124	Studies on the foraging behaviour of pollinators in Cashew (*Anacardium occidentale* L)	**Approved with following suggestions:** 1. Correct the title as "Population dynamics and foraging behaviour of pollinators in Cashew (*Anacardium occidentale* L) 2. Correct the year of commencement 3. Mention 'observations to be recorded' separately in methodology (**Action:** Research Scientist, AES, NAU, Paria)
17.3.3.125	Study the activity period of honeybees in muskmelon (*Cucumis melo*)	**Approved with following suggestions:** 1. Correct title as "Foraging activity of honey bee in muskmelon **(*Cucumis melo*)".** 2. Correct the objective accordingly as per title. 3. Correct the year of commencement. 4. Mention 'observations to be recorded' separately in methodology (**Action:** Principal, Hort. Polytechnic, NAU, Paria)
17.3.3.126	Management of thrips complex in banana by using botanicals and biopesticides	**Approved with following suggestions:** 1. Correct title as "Evaluation of botanicals and biopesticides against thrips complex in banana". 2. Correct the objective as per revised title. 3. Delete T_8. 4. Mention strain of bio pesticides. 5. Add sticker in all treatments. 6. Correct the concentrations of T_1 and$T_{3.}$ 7. Mention the quantity of drenching fluid per plant in T_6 and $T_{7.}$ 8. Mention the plot size in experiment. (**Action:** Research Scientist, FRS, Gandevi)
17.3.3.127	Knowledge and adoption of recommended plant protection measures by mango growers in Navsari district	**Approved with following suggestions:** 1. Approved 2. Presented for information to the house. (**Action:** Scientist (Plant Protection), KVK, NAU, Navsari)

17.3.3.128	Awareness and adoption of plant protection measures among pigeonpea growers in tribal belt of Surat district	**Approved with following suggestions:** 1. Approved 2. Presented for information to the house. (**Action:** Scientist, KVK, Surat)
17.3.3.129	Survey of Fall Army Worm Infesting Maize in Narmada district	**Approved with following suggestions:** 1. Take this trial for both *Kharif* and *Rabi* season (**Action:** Scientist (Plant Protection), KVK, Dediyapada)
17.3.3.130	Dissipation behaviour and safety assessment of afidopyropen residues in/on brinjal	**Approved** **(Action:** Professor (Residue Chemistry) FQTL, NAU, Navsari)
PLANT PATHOLOGY		
17.3.3.131	Compatibility of NAUROJI Azotobacter [*Azotobacter chroococcum* (DLRA-Chro-1)] with different agrochemicals	**Approved with following suggestions:** 1. Add "Evaluation" in title and objective. 2. Include germination per cent, root and shoot length in observation. 3. Design CRD with factorial concept. 4. Add 'ammonium sulphate' in treatment. 5. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.132	Compatibility of NAUROJI PSB (*Bacillus megaterium*) with different agrochemicals	**Approved with following suggestions:** 1. Add "Evaluation" in title and objective. 2. Include germination per cent, root and shoot length in observation. 3. Design CRD with factorial concept. 4. Add 'ammonium sulphate' in treatment. 5. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.133	Compatibility of NAUROJI KMB (*Frateuria aurantia*) with different agrochemicals	**Approved with following suggestions:** 1. Add "Evaluation" in title and objective. 2. Include germination per cent, root and shoot length in observation.

		3. Design CRD with factorial concept. 4. Add 'ammonium sulphate' in treatment. 5. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.134	Compatibility of NAUROJI Acetobacter (*Gluconacetobacter diazotrophicus*) with different agrochemicals	**Approved with following suggestions:** 2. Add "Evaluation" in title and objective. 3. Include germination per cent, root and shoot length in observation. 4. Design CRD with factorial concept. 5. Add 'ammonium sulphate' in treatment. 6. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.135	Compatibility of NAUROJI Azospirillum [*Azospirillim lipoferum*] with different agrochemicals	**Approved with following suggestions:** 2. Add "Evaluation" in title and objective. 3. Include germination per cent, root and shoot length in observation. 4. Design CRD with factorial concept. 5. Add 'ammonium sulphate' in treatment. 6. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.136	Compatibility of NAUROJI Rhizobium (*Rhizobium leguminosarum*) with different agrochemicals	**Approved with following suggestions:** 1. Add "Evaluation" in title and objective. 2. Include germination per cent, root and shoot length in observation. 3. Design CRD with factorial concept. 4. Add 'ammonium sulphate' in treatment. 5. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)

17.3.3.137	Compatibility of NAUROJI *Pseudomonas* (*Pseudomonas fluorescens*) with different agrochemicals	**Approved with following suggestions:** 1. Add "Evaluation" in title and objective. 2. Include germination per cent, root and shoot length in observation. 3. Design CRD with factorial concept. 4. Add 'ammonium sulphate' in treatment. 5. Delete 'Methyl parathion 2 DP' and 'Phorate 10 SG/CG' from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.138	Management of bacterial wilt of brinjal	**Approved with following suggestions:** 1. Correct the title as Ecofriendly management of bacterial wilt of brinjal. 2. Recast title and objective. 3. Delete $T_{4,}$ T_8 and $T_{9.}$ 4. Replication should be four. 5. Mention the method of artificial inoculation. 6. Mention the name of strain of biopesticide. 7. Check the doses in all the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA,NAU, Navsari)
17.3.3.139	Compatibility of fungicides and insecticides with *Trichoderma viride*"	**Approved with following suggestions:** 1. Mention treatment detail in methodology. 2. Remove treatment T11. 3. Delete Methyl parathion 2DP and Phorate 10SG/CG from the treatments. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.140	Management of damping off of tomato in greenhouse condition	**Approved with following suggestions:** 1. Change title as "Management of damping off of tomato in field condition". 2. Recast objective accordingly as per title. 3. Design RBD. 4. Mention plot size and name of the isolate/strain. 5. Record observation on diseased and healthy seedlings. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)

17.3.3.141	Eco-friendly Management of Mango Post harvest diseases	**Approved with following suggestions:** 1. Check the quantity of leaves/kg fruits as treatment. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.142	Prevalence and Loss Assessment of Mango Post harvest diseases	**Approved** (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.143	Management of Stemphylium blight of onion	**Approved with following suggestions:** 1. Correct the title as Management of leaf blight complex in onion. 2. Replace T_6 and T_7. 3. Include purple blotch observation. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.144	Spore harvesting techniques of *Trichoderma viride* Pers.ex.Fr.	**Approved with following suggestions:** 1. Correct title as "Evaluation of different spore harvesting methods of *Trichoderma viride* Pers. Ex.fr.". 2. Recast the objective as per revised title. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.145	Screening of Tomato and Brinjal Genotypes/Cultivars against Damping off	**Approved with following suggestions:** 1. Increase the genotypes/cultivars in an experiment (**Action:** Prof. & Head, Dept. of Pl. Path. NMCA, NAU, Navsari)
17.3.3.146	Diversity of fungal endophytic communities from paddy (*Oryza sativa* L.) and their antagonistic activities in *in vitro*	**Approved with following suggestions:** 1. Molecular identification should be performed. (**Action:** Prof. & Head, Dept. of Pl. Path., NMCA, NAU, Navsari)
17.3.3.147	Evaluation of okra varieties for their reaction to Okra yellow vein mosaic virus (OYVMV) and whitefly, *Bemisia tabaci* in polyhouse condition	**Approved with following suggestions:** 1. Record whitefly population per leaf. 2. Observation of ennation leaf curling to be recorded. 3. Record the observation on other major disease. (**Action:** Prof. & Head, Dept. of Plant Protection. ACHF, NAU, Navsari**)**

17.3.3.148	Evaluation of Ardu (*Ailanthus excels* Roxb.) germplasm against powdery mildew disease	**Approved with following suggestions:** 1. Mention disease scale with reference in methodology. (**Action:** Prof. & Head, Dept. of Plant Protection. ACHF, NAU, Navsari)
17.3.3.149	Evaluation of bush type French bean varieties against leaf spot disease under naturally ventilated polyhouse	**Approved with following suggestions:** 1. Add susceptible check. 2. Include yield parameter (**Action:** Prof. & Head, Dept. of Plant Protection. ACHF, NAU, Navsari)
17.3.3.150	Evaluation of sugarcane zonal varieties for resistance to pokkahboeng	**Approved with following suggestions:** 1. Check the road row trial design in experiment. (**Action:** Research Scientist, MSRS, Navsari)
17.3.3.151	Management of yellow leaf disease through meristem culture combined with molecular diagnostics	**Approved** (**Action:** Research Scientist, MSRS, Navsari)
17.3.3.152	Efficient deliver of fungicides and other agro inputs to manage major fungal diseases in sugarcane	**Approved with following suggestions:** 1. Recast objective as per title. (**Action:** Research Scientist, MSRS, Navsari)
17.3.3.153	Evaluation of sugarcane zonal varieties for resistance to brown rust	**Approved with following suggestions:** 1. Recast objective as per title. (**Action:** Research Scientist, MSRS, Navsari)
17.3.3.154	Evaluation of fungicides against the sheath blight of rice	**Approved with following suggestions:** 1. Correct the dose in T_4 as 1.5 ml/lit instead of 1.0 ml/lit. 2. Correct the dose of T_1 in g ai/ha & formulation as per the CIB & RC label claim. (**Action:** Research Scientist, MRRC, NAU, Navsari)
17.3.3.155	Assessment of incidence of die-back disease in high and ultra-high-density plantation in mango	**Approved with following suggestions:** 1. Include biotic and abiotic factors. 2. Mention the detailed methodology of objective No. 02 in experiment. (**Action:** Research Scientist, SWMRU, NAU, Navsari)

17.3.3.156	Screening of Indian bean entries against yellow mosaic and powdery mildew disease	**Approved with following suggestions:** 1. Add observations on anthracnose disease. 2. Mentionthebiochemical parameters in detail. (**Action:** Research Scientist, PCRS, NAU, Navsari)
17.3.3.157	Management of powdery mildew disease of mungbean	**Approved with following suggestions:** 1. Mention the disease scale with reference in methodology. (**Action:** Research Scientist, PCRS, NAU, Navsari)
17.3.3.158	Evaluation of endophytic bacteria against Anthracnose of Banana	**Approved with following suggestions:** 1. Use 'Repetition' instead of 'Replication'. 2. Remove T_9 from experiment (**Action:** Principal, CoA, Bharuch)
17.3.3.159	Estimation of yield losses caused by diseases in pigeon pea (*Cajanus cajan* (L.) Millsp.)	**Approved** (**Action:** Principal, NARP, CoA, Bharuch)
17.3.3.160	Occurrence and Diagnosis of Foliar Diseases in Cotton Growing Regions of Bharuch	**Approved** (**Action:** Research Scientist, CRS, NAU, Bharuch)
17.3.3.161	Evaluation of locally available substrates and their combinations for the cultivation of milky mushroom in the Dangs	**Approved with following suggestions:** 1. Mention the scientific name of "milky mushroom" in title and objective (**Action:** Principal, CoA, NAU, Waghai (Dang))
17.3.3.162	Nutritional Analysis of cultivated and naturally available edible mushrooms from the Dang district of south Gujarat	**Approved with following suggestions:** 1. Mention the scientific name of "milky mushroom" in title and objective (**Action:** Principal, CoA, NAU, Waghai (Dang))
17.3.3.163	Studies on production potential of different *Pleurotus* spp. (Oyster Mushroom)	**Approved** (**Action:** Principal, CoA, NAU, Waghai (Dang))
17.3.3.164	Impact of different level of Calcium Carbonate ($CaCo_3$) on Growth and yield of Oyster Mushroom (*Pleurotus* Spp.)	**Approved** (**Action:** Principal, CoA, NAU, Waghai (Dang))

17.3.3.165	Evaluation of different fungicides against boll rot and foliar diseases of cotton	**Approved with following suggestions:** 1. Mention application time. 2. Delete "word" newer form objective. 3. Mention the boll rot observation in methodology. 4. Take two spray of fungicides. 5. AICRP trial and presented for information to the house due to completion of one year. (**Action:** Research Scientist, MCRS, NAU, Surat)
17.3.3.166	Evaluation of fungicides against Sugary disease of sorghum	**Approved with following suggestions:** 1. Correct objective as "To evaluate the different fungicides against sugary disease of sorghum" 2. Check the concentrations of all the treatments (**Action:** Research Scientist, MSRS, NAU, Surat)
17.3.3.167	Survey of various diseases of okra in Tapi district	**Approved with following suggestions:** 1. Mention name of varieties of okra. 2. Sample size for the survey should be 100. 3. Correct the year and season of commencement of experiment. 4. Recast the objective as per title. 5. Recast the methodology accordingly. 6. Observation on ennation leaf curl disease to be taken. (**Action:** Principal, Polytechnic in Agriculture, Vyara)
17.3.3.168	Integrated management of post-harvest diseases (anthracnose, shoulder browning, stem end rot and Aspergillus rot) of mango fruits	**Approved** (**Action:** Res. Sci., AES, NAU, Paria)
17.3.3.169	Evaluation of fungicides against mango powdery mildew	**Approved with following suggestions:** 1. Apply only two sprays instead of three sprays. 2. Use T_6 as a treated check. 3. Add treatments Penconazole and metrafanone as per CIB & RC label claim. (**Action:** Research Scientist, AES, NAU, Paria)
17.3.3.170	Survey of anthracnose and powdery mildew of mango in Surat district	1. Merge the three trials **17.3.3.170**, **17.3.3.113 and**

		17.3.3.114 as one trial (**Action:** Scientist (Plant Protection), KVK, NAU, Surat)
17.3.3.171	Survey of diseases of rice in the Dangs district	**Approved** (**Action:** Scientist (Plant Protection), KVK, NAU, Waghai)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SKNAGAR

AGRICULTURAL ENTOMOLOGY		
Sr. No.	**Title**	**Suggestions**
17.3.3.172	Evaluation of seed protectants against rice moth in stored groundnut	**Approved with following suggestions:** 1. Correct Variety "GJG-32'' instead of "GG-32" 2. Add percent infestation in observation (**Action:** Prof. & Head (Ento.), C. P. College of Agriculture, SDAU, Sardarkrushinagar)
17.3.3.173	Evaluation of indigenous bee attractants in enhancing pollination and mustard seed yield	**Approved with following suggestions:** 1. Change title as "Evaluation……" instead of "Influence….." 2. Correct variety 'GDM-4' instead of 'GM-4' 3. Correct plot size and include spray fluid (500 litre) (**Action**: Prof. & Head (Ento.), C. P. College of Agriculture, SDAU, Sardarkrushinagar)
17.3.3.174	Evaluation of seed treatment of pesticides against insect-pest and diseases in groundnut	**Approved with following suggestions:** 1. Correct Variety 'GJG-32' instead of 'GG-32' (**Action:** Prof. & Head (Patho.), Department of Plant Pathology, C.P.C.A., Sardarkrushinagar)
17.3.3.175	Bioefficacy of insecticides against lepidopteran pests of castor	**Approved with following suggestions:** 1. Correct the title as "Bioefficacy of insecticides against defoliators of castor". (**Action:** Assoc. Res. Sci, Cotton Research Station, SDAU, Talod)
17.3.3.176	Eco-friendly management of lepidopteran pests in castor	**Approved with following suggestions:** 1. Correct title as "Ecofriendly management of defoliators of castor"

		2. Record observations of hairy caterpillar, if it appears. (**Action:**Assoc. Res. Sci., Cotton Research Station, SDAU, Talod)
17.3.3.177	Survey and identification of pests and diseases in strawberry	**Approved with following suggestions:** 1. Write "Fields are selected purposively" in methodology. 2. Add Kutch district and one Co-PI form that region (Asstt. Res. Sci. (Patho.) ARS, SDAU, Kothara) (**Action**:Res. Sci., Seed Technology Farm, SDAU, Sardarkrushinagar
PLANT PATHOLOGY		
17.3.3.178	Elucidation of the aetiology of cumin yellowing and purpling complex	**Approved with following suggestions:** 1. Take the experiment in open field condition. 2. Use 16s RNA to detect phytoplasma 3. Correct the commencement of the season as *Rabi* (**Action:** Prof. & Head, Department of Plant Pathology, C.P.C.A., SDAU, Sardarkrushinagar)
17.3.3.179	Evaluation of fungicide against leaf spot and fruit spot disease in pomegranate (*Punica granatum* L.)	**Approved with following suggestions:** 1. Correct the title as "Evaluation of fungicide against leaf spot and fruit spot disease in pomegranate (*Punica granatum* L.)" 2. Write 'Repetition' instead of 'replication'. 3. Take only two sprays at 15 days interval. 4. Correct the unit of yield. 5. Mention the time of application. 6. Fruit yield to be taken in kg/plant. (**Action:**Res. Sci., Arid Horticulture Research Station, Sardarkrushinagar)
17.3.3.180	Management of Damping off disease in rustica tobacco under nursery with fungicides.	**Approved with following suggestions:** 1. Add damped seedling in observation. 2. Mention drenching solution (fluid) to be given per m^2 area. 3. Check concentration and dose of fungicides. 4. Mention the biopesticide strain name. (**Action:** Assoc. Res. Sci., Agricultural Research Station, Ladol)

17.3.3.181	Management of Damping off disease in rustica tobacco under nursery through biocontrol agents.	**Approved with following suggestions:** 7. CFU count should be given in methodology. 8. Mention the name of strain of biopesticide. (**Action:** Assoc. Res. Sci., Agricultural Research Station, Ladol)
17.3.3.182	Evaluation of fungicides against maize banded leaf and sheath blight	**Approved with following suggestions:** 1. Correct the title as "Evaluation of ……." 2. Correct the dose of T_1 as 11.5 and T_3 dose 19.0 3. Take two spray at 15 days interval (**Action:** Assoc. Res. Sci., Maize Research Station, S.D. Agricultural University, Bhiloda)
17.3.3.183	Determination of nutritional composition of *Agaricus bisporus* and *Pleurotussajor-caju* cultivated in North Gujarat	**Approved with following suggestions:** 1. Change title as "Determination of nutritional composition…………" 2. Add TSS, antioxidant, acidity, ascorbic acid, phenol, etc. in observation. (**Action:** Principal, Polytechnic in Agriculture, Deesa)
17.3.3.184	Assessment of different substrate for cultivation of milky mushroom (*Calocybe indica*) in North Gujarat	**Approved with following suggestions:** 1. Correct the title as "Assessment of different substrate for cultivation of milky mushroom (*Calocybe indica*) in North Gujarat" 2. Mention the spawn rate (%) to be used. 3. Add maize cob as a treatment. (**Action:** Principal, Polytechnic in Agriculture, Deesa)
17.3.3.185	Evaluation of different organic inputs for the management of sclerotium rot in groundnut (*Arachis hypogea* L.)	**Approved with following suggestions:** 1. Take this experiment with artificial inoculation method. 2. Mention formulation of *Trichoderma* and Pseudomonas. 3. Mention the strain of biopesticide and CFU count. 4. Increase drenching volume upto 1000 lit. 5. Mention the fertilizer input per ha to be given in the trial. 6. Take observation for germination at 10 DAS. 7. Remove observations on disease

		severity. 8. Number of diseased plant to be recorded at 15, 30, 45 and 60 DAS. 9. Mention 'Evaluation' instead of Evaluations' in title. (**Action:** Res. Sci., Seed Technology Farm, S. D. Agricultural University, Sardarkrushinagar)

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17.4 HORTICULTURE & FORESTRY

(June 21-24, 2021)

Venue: IT Cell Conference Hall, AAU, JAU, NAU, SDAU

Mode: Online Video Conference using zoom platform **Time:** 09:00 am onwards

Chairman	:	Dr. V. P. Chovatia, Honorable Vice Chancellor, J.A.U., Junagadh
Co- Chairman-1	:	Dr. D. K. Sharma, Professor, N.A.U., Navsari
Co- Chairman-2	:	Dr. D. K. Varu, Professor and Head, CoH, J.A.U., Junagadh
Rapporteurs-1	:	Dr. B.M. Nandre, S.D.A.U.,Sardarkrushinagar
Rapporteurs-2	:	Dr. B. N. Satodia, A.A.U.,Anand
Rapporteurs-3	:	Dr. N. D. Polara, J.A.U., Junagadh
Rapporteurs-4	:	Dr. N. B. Patel, N.A.U., Navsari
Statistician	:	Sh. H. N. Chhatrola, N.A.U., Navsari

SUMMARY

RECOMMENDATIONS

University	RECOMMENDATIONS					
	Proposed		Approved		Not Approved	
	For Farmers	For Scientist	For Farmers	For Scientist	Deferred	Dropped
AAU, Anand	05	00	04	00	01	00
JAU, Junagadh	07	00	07	00	00	00
NAU, Navsari	20	03	14	02	06	01
SDAU, SK Nagar	05	00	05	00	00	00
Total	**37**	**03**	**30**	**02**	**07**	**01**

NEW TECHNICAL PROGRAMMES

AGRESCO Sub-Committee	SAUs of Gujarat	No. of New Technical Programmes		
		Presented	Approved	Not Approved
Horticulture	**AAU, Anand**	11	09	02
	JAU, Junagadh	16	16	00
	NAU, Navsari	53	46+2*	05
	SDAU, SK Nagar	07	06	01
	Total	**87**	**77+2*=79**	**08**

* Feeler trial

17.4.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title
17.4.1.1	**Evaluation of vegetables during different seasons under different shade net conditions**
	The farmers of middle Gujarat agro climatic zone growing leafy vegetables are recommended to 1. Grow coriander cv. GDLC 1 at 25 cm line sowing in open field in 2nd week of September for getting higher yield and net return. 2. Grow spinach cv. Pusa Anupama at 25 cm line sowing in 50% white shade net or in open field in 2nd week of September for getting higher yield and net return.

	3. Grow amaranthus cv. Pusa Badi Chaulai at 25 cm line sowing in 50% white shade net in 2nd week of September for getting higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને પાંદડાવાળા શાકભાજી માટે નીચે મુજબ ભલામણ કરવામાં આવેછે કે..... ૧.ધાણા જાત જીડીએલસી-૧ને ૨૫ સેમી.નાં અંતરે લાઇનમાં ખુલ્લા ખેતરમાં સપ્ટેમ્બરના બીજા અઠવાડીયામાં ઉગાડવાથી વધારે ઉત્પાદન તથા ચોખ્ખો નફો મળે છે. ૨.પાલક જાત પુસા અનુપમાને ૨૫ સેમી.નાં અંતરે ૫૦% સફેદ શેડનેટ અથવા ખુલ્લા ખેતરમાં સપ્ટેમ્બરના બીજા અઠવાડીયામાં ઉગાડવાથી વધારે ઉત્પાદન તથા ચોખ્ખો નફો મળે છે. ૩.તાંદળજા જાત પુસા બડી ચૌલાઇને ૨૫ સેમી.નાં અંતરે લાઇનમાં ૫૦% સફેદ શેડનેટમાં સપ્ટેમ્બરના બીજા અઠવાડીયામાં ઉગાડવાથી વધારે ઉત્પાદન તથા ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Department of Veg. Sci., COH, AAU, Anand**)**
17.4.1.2	**Effect of transplanting time and spacing on growth and flower yield in gaillardia cv. Local**
	The farmers of middle Gujarat agro climatic zone growing gaillardia flower crop during summer season are recommended to transplant the seedling at 45 x 45 cm in the first week of December for getting higher yield. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ગેલાર્ડીયા ફૂલપાકની ઉનાળું ઋતુમાં ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે, ગેલાર્ડીયાના ધરુની ફેરરોપણી ૪૫ x૪૫સે.મીના અંતરે ડીસેમ્બર મહિનાના પ્રથમ અઠ્વાડિયામાં કરવાથી વધુ ઉત્પાદન મળે છે. **Deferred with Suggestion** Suggested to conduct experiment for one more year due to inconsistensy of data **(Action:** Professor and Head, Dept. of Horticulture, BACA, AAU, Anand)
17.4.1.3	**Study on intercropping in aonla base cropping system**
	Recommendation for the farmers: The farmers of middle Gujarat agro climatic zone having adult tree of aonla orchard (8.0 x 8.0 m.) are recommended to plant vegetable purpose turmeric or ginger during 2nd week of May at 30 x 15 cm as inter crop leaving 0.5 m distance on both the sides of aonla trunk for getting higher net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં આમળાની (૮x૮મી.)પુખ્ત વયના ઝાડની ફળવાડી ધરાવતા ખેડૂતોને ભલામણ કરવામા આવેછે કે આમળાની ફળવાડીમા લીલી હળદર અથવા તાજા આદુ માટે મે માસના બીજા અઠવાડિયામાં ૩૦x૧૫સે.મી.ના અંતરે આંતર પાક તરીકે આમળાના થડની બંને બાજુએ ૦.૫મીટર અંતર છોડીને રોપવાથી વધુ ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. Of Horticulture, BACA, AAU, Anand)
17.4.1.4	**Optimization of NPK requirement for growth and curd yield of broccoli (*Brassica oleracea* var. *italica* L.) under Middle Gujarat condition**
	Recommendation for the farmers: The farmers of middle Gujarat agro climatic zone growing broccoli (1st week of November) are recommended to apply 10 t FYM with 75 kg N, 75 kg P_2O_5 and 50

kg K_2O/ha at the time of transplanting and 75 kg N/ha at 30 days after transplanting for higher yield and net return.

મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં બ્રોકોલીની ખેતી (નવેમ્બરનાં પ્રથમ અઠવાડિયામાં) કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા ૧૦ ટન છાણિયું ખાતર તથા ૭૫ કિલોગ્રામ નાઈટ્રોજન, ૭૫ કિલોગ્રામ ફૉસ્ફરસ અને ૫૦ કિલોગ્રામ પોટાશ/હેક્ટર ફેરરોપણી સમયે અને ૭૫કિલોગ્રામ નાઈટ્રોજન પ્રતિ હેક્ટર ફેરરોપણીના ૩૦ દિવસ પછી આપવાની ભલામણ કરવામાં આવે છે.

Approved

(**Action:** Professor and Head, Department of Horticulture, CoA, AAU, Vaso)

17.4.1.5 Nitrogen management in tomato (*Lycopersicon esculentum* L.) under drip irrigation system in *goradu* soil of middle Gujarat conditions

Recommendation for the farmers:

The farmers of Middle Gujarat Agro Climatic Zone growing tomato in *rabi* season on goradu soil are recommended to transplant tomato seedling in paired row (45-135-45 x 45 cm) under drip irrigation system at 0.8 PEF and fertilize the crop with 120-75-75 kg NPK/ha of which 30 kg N as basal and remaining 90 kg N/ha in 5 equal splits at weekly interval starting from 25 days after transplanting through drip (In the form of Urea) for getting higher yield and net return.

System details:

1.	Lateral spacing	180 cm
2.	Dripper spacing	45 cm
3.	Dripper discharge	4 lph
4.	Operating pressure	1.2 kg/cm^2
5.	Operating frequency	Three day
6.	Operating time	October to December for 40 minutes and January to March 60 minutes

મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળું ઋતુમાં ગોરાડુ જમીનમાં ટામેટાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ટામેટાના ધરૂની ફેરરોપણી ૪૫સે.મી. ના ગાળે જોડીયાહારમાં બે જોડીયાહાર વચ્ચે ૧૩૫સે.મી. નું અંતર રાખી કરવી અને પાકને પ્રતિ હેકટરે ૧૨૦-૭૫-૭૫ કિગ્રા. ના.ફો.પો./હે. આપવું. જે પૈકી ૩૦ કિ.ગ્રા. નાઈટ્રોજન પાયામાં અને બાકીનો ૯૦ કિ.ગ્રા. નાઈટ્રોજન ટપક પધ્ધતિથી ફેરરોપણી બાદ ૨૫ દિવસે પાંચ સરખા હપ્તામાં અઠવાડિયાના ગાળે (યુરિયા દ્વારા) આપવાંથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.

ટપકપધ્ધતિનીવિગત :

૧	બેલેટરલપાઈપવચ્ચેનુઅંતર	૧૮૦સે.મી.
૨	બે ડ્રીપર વચ્ચેનુ અંતર	૪૫ સે.મી
૩	ડ્રીપરમાંથી પાણી નીકળવાનું પ્રમાણ	૪લિટર પ્રતિ કલાક
૪	સંચાલનમાટેદબાણ	૧.૨કિ.ગ્રા. પ્રતિ ચોરસ સે.મી.
૫	ડ્રીપસંચાલનપુનરાવર્તન	દર ત્રીજા દિવસે
૬	ડ્રીપસંચાલનનોસમય	ઓક્ટોમ્બર-ડિસેમ્બર માસ દરમ્યાન ૪૦ મિનિટ અને જાન્યુઆરી- માર્ચ માસ દરમ્યાન ૬૦મિનિટ

Approved

(**Action:** Associate Research Scientist, Agricultural Research Station for Irrigated Crops, AAU, Thasra)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title
17.4.1.6	**Effect of pinching methods on different varieties of carnation under protected condition**
	Farmers of Gujarat are interested in flower cultivation under protected structure (Fan and Pad cooling polyhouse) are recommended to grow carnation with single and half pinching to get higher yield and net return. ગુજરાતમાં ફૂલોની રક્ષિત ખેતી કરતાં ખેડૂતોને આથી ભલામણ કરવામાં આવે છે કે, ગ્રીનહાઉસ (ફેન એન્ડ પેડ કુલીંગ પોલીહાઉસ)માં કાર્નેશનનું વાવેતર કરી, તેમાં સિંગલ અને હાફ પીન્ચિંગ કરવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.1.7	**Effect of different mulching and integrated liquid organic nutrients on growth, yield and quality in banana cv. Grand Naine**
	Farmers of Saurashtra growing organic banana Cv. Grand Naine are recommendedto apply 25 micron silver mulch with drenching of Jivamrut @ 500 l/ha through fertigation ten times with one month interval plus spraying of sea weed extract @ 3% (300 ml/10 lit. of water) in six time with two month interval starting from 2nd month after transplanting along with FYM @ 10 kg per plant for getting good quality, higher yield and net return. સૌરાષ્ટ્ર વિસ્તારના કેળાની ગ્રાન્ડ નૈન જાતની સેન્દ્રીય ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, કેળમાં ૨૫ માઈક્રોનનાં સિલ્વર કલરના પ્લાસ્ટિકનું આરછાદન તેમજ ૧૦ કિ. ગ્રા. સારું કોહવાયેલ છાણિયું ખાતર પ્રતિ છોડ દીઠ ફેર રોપણી સમયે સાથે જૈવિક પ્રવાહી ખાતરો પૈકી જીવામૃત ૫૦૦ લી./ હેક્ટર મુજબ જમીનમાં ટપક પદ્ધતિ મારફતદર મહીને એમ કુલ દસ વખત તેમજ સીવીડ એક્સ્ટ્રેક ૩% દ્રાવણનો છંટકાવ એટલે કે ૩૦૦ મિલી/ ૧૦ લી. પાણી મુજબદર બે મહીને છ વખત બંનેને ફેરરોપણીના બીજા મહિનાથી આપવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.1.8	**Evaluation of different varieties of guava and its genotypes under HDP**
	The farmers of Saurashtra growing guava under high-density planting (3.0 m x 1.5 m) are recommended to grow variety L-49 or Lalit or Shweta for obtaining higher yield and net return. સૌરાષ્ટ્રના વિસ્તારનાં ઘનિષ્ઠ વાવેતર પદ્ધતિથી (૩.૦ મી. x ૧.૫ મી.) જામફળની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, જામફળની એલ-૪૯ અથવા લલીત અથવા શ્વેતા જાતનું વાવેતર કરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.1.9	**Effect of bio stimulants and bio fertilizers on flowering, fruiting, yield and quality of pomegranate (*Punica granatum* L.) cv. Bhagva**
	Farmers of Saurashtra growing pomegranate are recommended to apply Humic acid 1% (100 ml/10 lit. of water) in two spray at full bloom stage and at 15 days after fruit set stage with drenching of bio fertilizer *Azotobacter* + PSB + KSB each @ 5 ml/plant of full bloom stage in addition to RDF for getting higher

	yield and net return. સૌરાષ્ટ્રના વિસ્તારનાં દાડમની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, દાડમમાં ભલામણ મુજબના રસાયણિક ખાતરો સાથે હ્યુમિક એસીડ ૧% ના (૧૦૦ મિલી/ ૧૦લી. પાણી) દ્રાવણના બે છંટકાવફૂલ અવસ્થાએ અને ફળધારણના ૧૫ દિવસ બાદ તેમજ જમીનમાં જૈવિક ખાતર એઝેટોબેક્ટર+ ફોસ્ફરસ સોલ્યુબલાઈઝિંગ બેક્ટેરિયા+ પોટેશિયમ સોલ્યુબલાઈઝિંગ બેક્ટેરિયા દરેકપ મિલી/ છોડ પ્રમાણે ફૂલ અવસ્થાએ આપવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.1.10	**Effect of de-leafing and graded multi micronutrients on growth, flowering and flower yield of spider lily (*Hymenocallis litterolis* L.) cv. local**
	Farmers of Saurashtra growing spider lily are recommended to do de-leafing during *Kharif* (at the end of June) with spray of multi-micronutrient grade IV @ 1 % (100 g./10 lit. water) in three equal splits at 15 days before de-leafing and 30 and 45 days after deleafing to get higher yield and net return. સૌરાષ્ટ્રના વિસ્તારનાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, સ્પાઈડર લીલીમાં ચોમાસા દરમિયાન(જુન માસના અંતે) છોડના તમામ પર્ણો દૂર કરી, સુક્ષ્મ તત્ત્વો ધરાવતું મલ્ટી માઈક્રોન્યુટ્રીયન્ટ ગ્રેડ-૪નુ ૧ ટકાનું દ્રાવણ (૧૦૦ મીલી પ્રતિ ૧૦ લી.) ત્રણ વખત એટલે કે, પર્ણ કાપ્યાના ૧૫ દિવસ પહેલાં તેમજ પર્ણ કાપ્યા પછી ૩૦ અને ૪૫ દિવસે છંટકાવ કરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.1.11	**Evaluation of cucumber variety under net house and poly house condition**
	Farmers of Gujarat are cultivating cucumber under protected condition are recommended to grow cucumber in 50 % white shade net instead of polyhouse to get higher yield and net return. ગુજરાતમાં રક્ષિત ખેતી કરતાં ખેડૂતોને આથી ભલામણ કરવામાં આવે છે કે, કાકડીનું વાવેતર ૫૦% સફેદશેડ નેટ હાઉસમાં કરવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.1.12	**Feasibility of organic farming in coconut (*Cocos nucifera*) under saline water irrigation condition**
	The farmers of Saurashtra are interested organic cultivation of coconut cv. West Coast Tall (WCT) are recommended to apply FYM @ 60 kg per plant or FYM at 15 kg + Castor cake at 2.25kg +Vermicompost at 8kg + Neem cake at 2.25 kg per plant to get higher nut yield and improved organic carbon and microbial status in soil under saline irrigation condition (EC 10-14 dSm^{-1}). સૌરાષ્ટ્રના હવામાનમાં જે ખેડૂતો નાળીયેરીનીવેસ્ટ કોસ્ટ ટોલ (દેશી)ની સજીવ ખેતીમાં રસ ધરાવતાં હોય અને ખારા પાણીની પિયત પરિસ્થિતિ હોય, તેને ભલામણ કરવામાં આવે છે કે, ઝાડ દીઠ ૬૦ કિ.ગ્રા. છાણિયું ખાતર અથવા ઝાડ દીઠ ૧૫ કિ.ગ્રા. છાણિયું ખાતર + ૨.૨૫ કિ.ગ્રા. દીવેલીનો ખોળ + ૮.૦૦ કિ.ગ્રા. વર્મીકમ્પોસ્ટ+ ૨.૨૫ કિ. ગ્રા. લીમડાનો ખોળ આપવાથી વધારે ઉત્પાદન સાથે જમીનનો સેન્દ્રિય કાર્બન તથા જમીનમાં સુક્ષ્મ જીવાણુંની સંખ્યામાં સુધારો થાય છે. **Approved** **(Action:** Assistant Research Scientist, JAU, Mangrol)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.4.1.13	**Evaluation of different bio fertilizers with graded chemical fertilizers for nutrient management in papaya var. Red Lady**

The farmers of South Gujarat growing papaya var. Red Lady are recommended to apply 60 per cent recommended dose of chemical fertilizer (120-120-150 NPK g/plant, As per the schedule given in table below) along with soil application of biofertilizers (*Azotobacter, Phosphate solubilizing bacteria, Potash mobilizing bacteria*) @ 20 ml per plant of each at the time of planting, 3 and 6months after planting for getting higher yield and net realization.

Time of fertilizer application	**Application of fertilizers**					
	N (g/plant)	**P (g/plant)**	**K (g/plant)**	***Azotobacter* (1x10^{8}cfu/ml) (ml/plant)**	***PSB* (1x10^{8}cfu/ml) (ml/plant)**	***KMB* (1x10^{8}cfu/ml) (ml/plant)**
At the time of planting	-	-	-	7.00	7.00	7.00
Two month after planting	30	30	37.5	-	-	-
Three month after planting	-	-	-	6.50	6.50	6.50
Four month after planting	30	30	37.5	-	-	-
Six month after planting	30	30	37.5	6.50	6.50	6.50
Eight month after planting	30	30	37.5	-	-	-

દક્ષિણ ગુજરાતમાં પપૈયાની જાત રેડ લેડીની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે પપૈયાના છોડને રાસાયણિક ખાતરના ૬૦ ટકા જથ્થો (૧૨૦-૧૨૦-૧૫૦ ગ્રામ ના.ફો.પો./છોડ,નીચેના કોઠામાં દર્શાવેલ પ્રમાણે) જમીનમાં આપવાની સાથે જૈવિક ખાતરો (એઝેટોબેક્ટર,ફોસ્ફેટ સોલ્યુબલાઈઝીંગ બેક્ટેરિયા, પોટાશ મોબીલાઈઝીંગ બેક્ટેરિયા) દરેકના ૨૦ મિલી/છોડના પ્રમાણમાં જમીનમાં રોપતી વખતે, ત્રીજા અને છઠ્ઠા માસ દરમ્યાન આપવાથી પપૈયાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.

ખાતરઆપવાનો સમય	ખાતરઆપવાનો સમય					
	નાઈટ્રોજન (ગ્રામ/છોડ)	ફૉસ્ફરસ (ગ્રામ/છોડ)	પોટાશિયમ (ગ્રામ/છોડ)	એઝેટોબેક્ટર (૧×૧૦૮સીએફયુ/મિલી) (મિલી/છોડ)	પીએસબી (૧×૧૦૮સીએફયુ/મિલી) (મિલી/છોડ)	કેએમબી (૧×૧૦૮સીએફયુ/મિલી) (મિલી/છોડ)
રોપણીસમયે	-	-	-	૭. ૦૦	૭. ૦૦	૭. ૦૦
રોપણીબાદબીજામાસે	૩૦	૩૦	૩૭.૫	-	-	-
રોપણીબાદત્રીજામાસે	-	-	-	૬. ૫૦	૬. ૫૦	૬. ૫૦
રોપણીબાદચોથામાસે	૩૦	૩૦	૩૭.૫	-	-	-
રોપણીબાદછઠ્ઠામાસે	૩૦	૩૦	૩૭.૫	૬. ૫૦	૬. ૫૦	૬. ૫૦
રોપણીબાદઆઠમામાસે	૩૦	૩૦	૩૭.૫	-	-	-

Approved

(**Action:** Research Scientist, RHRS, ACHF, Navsari)

17.4.1.14	**Effect of time and growing condition on success of softwood grafting in mango.**
	Farmers and nurserymen of South Gujarat preparing softwood graft of mango cv. Kesar are recommended to prepare grafts in June and August months

(on 11-14 months old rootstock) for higher success and survival of softwood grafts under poly house condition.

ભલામણ:

દક્ષિણ ગુજરાતમાં કેસર આંબાની નુતન કલમો બનાવતા ખેડૂતો તેમજ નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે નુતન કલમો જુન અને ઓગષ્ટ માસમાં (૧૧-૧૪ મહિનાના મૂળરોપ ઉપર) પોલી હાઉસમાં બનાવવામાં આવે તો વધારે કલમોની સફળતા મેળવી શકાય છે.

Dropped

Inconsistent data of cv % during all years

(Action: Research Scientist, RHRS, ACHF, Navsari)

17.4.1.15 **Evaluation of the field performance of the macro-propagated plants of banana**

The banana growers are recommended to cultivate banana through macro propagated plants for getting early maturity, higher production and net return as compared to suckers plant.

ગુજરાતમાં કેળાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે કેળાના મેક્રોપ્રોપેગેશન પધ્ધતિથી ઉછેરેલા રોપાની રોપણી કરવાથી કેળના પીલા કરતાં લૂમ વહેલી તૈયાર થાય છે તેમજ વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.

Approved

(Action: Associate Research Scientist, FRS, Gandevi)

17.4.1.16 **Standardization of stage wise requirement of nutrients in sapota**

The farmers of South Gujarat having mature trees of sapota cv. Kalipatti are recommended to apply 80% recommended dose of chemical fertilizers (800:400:400 g N: P_2O_5 :K_2O/tree) in four splits July, September, November and February month {as per givenbelow table} and 15 kg vermicompost along with Azotobacter 100 ml and PSB 100 ml per tree (10^8cfu/g) per tree in July and Grade-4 multi micronutrient (0.5%) spray in October month for getting higher yield and net income in winter season.

80% recommended dose of chemical fertilizer				
Time and stage of application	**I Vegetative flush (July)**	**II Fruit set (September)**	**III Fruit growth (November)**	**IV Fruit growth (February)**
N:P_2O_5 :K_2O (%)	**32-40-20 %**	**16-00-20 %**	**16-40-20 %**	**16-00-20 %**
N:P_2O_5 :K_2O g/tree	**320-200-100**	**160-00-100**	**160-200-100**	**160-00-100**
Urea (g/tree)	700	350	700	350
SSP (g/tree)	1250	0	1250	0
Murate of Potash (g/tree)	170	170	170	170

દક્ષિણ ગુજરાતમાં ચીકુની કાલીપત્તી જાતના પુખ્તવયના ઝાડ ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે રાસાયણીક ખાતરની ભલામણના ૮૦ ટકા(૮૦૦:૪૦૦:૪૦૦ ગ્રામ એન.પી.કે. પ્રતિ ઝાડ) ચાર હપ્તામાં જુલાઇ, સપ્ટેમ્બર, નવેમ્બર અને ફેબ્રુઆરી માસમાંનીચેની ટેબલ મુજબ અને ૧૫ કિલો વર્મી કંપોસ્ટ સાથે જૈવિક ખાતર એજોટોબેક્ટર અને પી.એસ.બી. ૧૦૦ મી.લી./ઝાડ જુલાઇ માસમાં અને ગ્રેડ-૪ મલ્ટીસૂક્ષ્મપોષક તત્વોનો ૦.૫ ટકાનો છંટકાવ ઓક્ટોબર માસમાં કરવાથી શિયાળુ ઋતુમાં ઉત્પાદન અને આવકમાં વધારો થાય છે.

રાસાયણીક ખાતરની ભલામણનો ૮૦% જથ્થો				
ખાતરઆપવાનો સમયઅનેઅવસ્થા	નવીકુપણનિકળે ત્યારે (જુલાઇ)	ફળબેસેત્યારે (સપ્ટેમ્બર)	ફળનોવિકાસથાય ત્યારે (નવેમ્બર)	ફળનોવિકાસથાય ત્યારે (ફેબ્રુઆરી)
એન.પી.કે.(%)	૩૨-૪૦-૨૦ %	૧૬-૦૦-૨૦ %	૧૬-૪૦-૨૦ %	૧૬-૦૦-૨૦ %
એન.પી.કે.(ગ્રામ/ઝાડ)	૩૨૦-૨૦૦-૧૦૦	૧૬૦-૦૦-૧૦૦	૧૬૦-૨૦૦-૧૦૦	૧૬૦-૦૦-૧૦૦
યુરીયા (ગ્રામ/ઝાડ)	૭૦૦	૩૫૦	૩૫૦	૩૫૦
સિંગલસુપરફોસ્ફેટ (ગ્રામ/ઝાડ)	૧૨૫૦	૦૦૦	૧૨૫૦	૦૦૦
મ્યુરેટઓફપોટાસ (ગ્રામ/ઝાડ)	૧૭૦	૧૭૦	૧૭૦	૧૭૦

Approved **(Action:** Associate Research Scientist, FRS, Gandevi)

17.4.1.17 Net house cultivation of papaya

The farmers of South Gujarat recommended to cultivate gynodiocious varieties of papaya under insect proof net house (40 mesh)for getting good quality fruits, higher yield and net return without incidence of papaya ring spot virus (PRSV).

દક્ષિણ ગુજરાતના ખેડૂતોને ભલામણ કરવામાં આવે છે કે ગાયનોડાયોશીયસ (ભિન્નસ્થ ઉભય સ્ત્રીલિંગી) જાતના પપૈયાની ખેતી ઈન્સેક્ટ પ્રૂફ નેટ હાઉસ (૪૦ મેશ)માં કરવાથી સારી ગુણવત્તાવાળા ફળ, વધારે ઉત્પાદન અને ચોખ્ખો નફો પપૈયા રીંગ સ્પોટ વાયરસ (પી.આર.એસ.વી.)ના ઉપદ્રવ વગર મેળવી શકાય છે

Deferred with suggestions:

1. Data in Tab. No. 7 and 8 should be matched, checked verified and validate.
2. Extend the experiment for one year and resubmit in next year.

(Action: Associate Research Scientist, FRS, Gandevi)

17.4.1.18 Effect of paclobutrazol application before monsoon and efficacy of bud breakers on early season flowering and fruiting in mango

The farmers of South Gujarat Heavy Rainfall Zone having 16 years old mango orchard of Alphonso variety are recommended to apply paclobutrazol (25 % v/v) four times of canopy radius (m) at last week of April in soil and foliar spray of 13-0-45 @0.25% (commercial grade) after 120 days of paclobutrazol application to increase the yield and improve quality of fruits along with higher net realization.

દક્ષિણ ગુજરાતના વધુ વરસાદવાળા વિસ્તારમાં ૧૬ વર્ષ જુની આંબાની હાફુસ જાતની વાડી ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે હાફુસના ઝાડને એપ્રિલના છેલ્લા અઠવાડીયામાં ઘટાની ત્રિજ્યા (મી.)નું ચાર ગણું પેકલોબ્યુટ્રાઝોલ (૨૫% વી/વી) જમીનમાં આપ્યાબાદ ૧૨૦ દિવસ પછી વ્યાવસાયીક કક્ષાના ૧૩-૦-૪૫(૦.૨૫ % મુજબ)નો છંટકાવ કરવાથી કેરીનું ગુણવતાસભર વધુ ઉત્પાદન સાથે વધારે ચોખ્ખો નફો મેળવી શકાય છે.

Deferred with suggestions:

1. Continue the experiment for another one year and resubmit in next year.
2. Paclobutrazol unit should be mentioned.
3. Add -Table 1 , 1st November as cut off date and calculate days for flower initiation

	(Action: Research Scientist, AES, Paria)
17.4.1.19	**Effect of micronutrients on yield and quality of mango**
	Farmers of South Gujarat Heavy Rainfall Zone-I, AES-II having adult mango trees of Kesar variety are recommended to apply100 g zinc sulphate with 50 g copper sulphate and 50 g borax (soil application in basin after harvest) along with foliar spray of 0.2% zinc sulphate, 0.1% copper sulphate and 0.1% boric acid (2 sprays at just before flowering and marble stage)in addition to the recommended dose of fertilizers (RDF) for obtaining higher yield and net return. દક્ષિણ ગુજરાતમાં ભારે વરસાદવાળી કૃષિ આબોહવાકીય પરિસ્થિતિમાં પુખ્ત વયના આંબા જાત કેસરની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ભલામણ કરેલ રાસાયણિક ખાતરના જથ્થાની સાથે ૧૦૦ ગ્રામ ઝીંક સલ્ફેટ, ૫૦ ગ્રામ કોપર સલ્ફેટઅને ૫૦ ગ્રામ બોરેક્ષ ફળ ઉતાર્યા બાદ જમીનમાં આપવું જયારે ૦.૨% ઝીંક સલ્ફેટ, ૦.૧% કોપર સલ્ફેટ અને ૦.૧% બોરિક એસીડના બે છંટકાવ (પ્રથમ મોર નીકળવા પહેલા અને બીજો ફળ લખોટી જેવડા થાય ત્યારે) કરવાથી વધુ ઉત્પાદન અને નફો મેળવી શકાય છે. **Approved** **(Action:** Research Scientist, AES, Paria)
17.4.1.20	**Effect of foliar application of novel organic nutrient and micronutrients on yield and quality of mango (*Mangifera indica* L.) cv. Kesar**
	Farmers of South Gujarat, growing mango cv. Kesar are recommended to apply 2 percent Novel organic nutrient along with 1 per cent calcium nitrate at flower bud development stage and full bloom stage, in addition to recommended dose of chemical fertilizers for getting better yield with higher economic return. દક્ષિણ ગુજરાતમાં આંબાની કેસર જાત ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે, ભલામણ કરેલ રાસાયણિક ખાતરના જથ્થા સાથે આંબામાં કળીના વિકાસ અને પૂર્ણ મોર આવ્યાની અવસ્થાએ નોવેલ ઓર્ગેનીક ન્યુટ્રીઅન્ટ ૨ ટકા અને કેલ્સિયમ નાઈટ્રેટ ૧ ટકાના છૂંટકાવથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે. **Deferred with suggestions:** 1. Economics should be checked. 2. Extendd for another one year. 3. Analyse the data with simple RBD design. **(Action:** Professor and Head, Deptt. of Horticulture, CoA, NAU, Bharuch)
17.4.1.21	**Artificial oscillation for increasing fruit set and performance of tomato in polyhouse under South Gujarat conditions**
	Farmers cultivating tomato in naturally ventilated polyhouse are recommended to vibrate tomato truss with electric pollinator on every 3rdday starting from the day of first flowering for 10 seconds during morning hours between 7.30 am to 9.00 am for better fruit set, higher yield and net returns. નેચરલી વેન્ટીલેટેડ પોલી હાઉસમાં ટામેટાની ખેતી સાથે સંકળાયેલ ખેડૂતોને ભલામણ કરવામાં આવે છે કે ટામેટામાં ફળ ધારણ, વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે સવારના ૭.૩૦ થી ૯ દરમિયાન ટામેટાનાં છોડનાં પુષ્પગુચ્છને પ્રથમ ફૂલ આવ્યા બાદ દર ત્રણ દિવસે ૧૦ સેકન્ડ સુધી ઈલેક્ટ્રિક પોલીનેટર વડે ઝડપથી ધ્રુજાવવું. **Approved** **(Action:** Professor and Head, Deptt. of Veg. Sci., ACHF, Navsari)
17.4.1.22	**Standardize the fertilizer dose of drumstick (*Moringa spp.)***
	The farmers of south Gujarat growing drumstick are recommended to apply 100-75-50 g NPK (217.3 g NCU - 468.7 g SSP - 83.3 g MOP) per tree to

obtain higher yield and income. Nitrogen (Neem Coated Urea) apply in four equal splits, first apply at pit preparation (common application of 8 kg FYM enrich with (*Azotobacter*+ *PSB*+ *KMB* (each @ 2ml) in a pit), along with half dose phosphorus (Single Super Phosphate) and potash (Muriate of Potash), second fertilizer application after 30 days after planting; third split application was given after six month interval after pruning along with half dose of phosphorus and potash and fourth split application was given 30 days after pruning.

Application time	Fertilizer	Quantity
First	25 g N_2 37.5 g P_2O_5 25 g K_2O	54.30 g NCU+ 234.35 g SSP + 41.65 g MOP
Second	25 g N_2	54.30 g NCU
Third	25 g N_2 37.5 g P_2O_5 25 g K_2O	54.30 g NCU+ 234.35 g SSP + 41.65 g MOP
Forth	25 g N_2	54.30 g NCU

દક્ષિણ ગુજરાતના ખેડૂતોને ભલામણ કરવામાં આવે છેકે સરગવાની શીંગોનું વધુ ઉત્પાદન સાથે સારી આવક મેળવવા માટે પ્રતિ ઝાડ ૧૦૦-૭૫-૫૦ ગ્રામ ના-પો-ફો (૨૧૭.૩ ગ્રામ લીમડાનાપટ આધારીત યૂરીયા - ૪૬૮.૭ ગ્રામ સિંગલ સુપર ફોસ્ફેટ - ૮૩.૩ ગ્રામ મ્યુરેટ ઓફ પોટાશના રૂપે) આપવો. નાઈટ્રોજન (લીમડાનાપટ આધારીત યૂરીયા) ને ચાર સરખા હપ્તામાં આપવો, જે પૈકી પ્રથમ હપ્તો રોપવાના ખાડામાં (૮ કિલો છાણિયુ ખાતર સાથે એઝેટોબેક્ટર+પી.એસ.બી.+ કે.એમ.બી. (દરેક ૨ મિલિ)) ફોસ્ફરસ (સિંગલ સુપર ફોસ્ફેટ) અને પોટાશ (મ્યુરેટ ઓફ પોટાશ)ના અડધા જથ્થા સાથે, બીજો હપ્તો છોડ રોપ્યાના ૩૦ દિવસ બાદ, ત્રીજો હપ્તો ૬ માસ પછી ફોસ્ફરસ અને પોટાશના અડધા જથ્થા સાથે છટંણી બાદ અને ચોથો હપ્તો છટંણી કર્યાના ૩૦ દિવસ પછી આપવો.

સમય (હપ્તો)	ખાતર	જથ્થો
પ્રથમ	૨૫.૦ ગ્રા ના. ૩૭.૫ ગ્રા. ફો. ૨૫.૦ ગ્રા પો	૫૪.૩૦ ગ્રા.લીંમડાપટવાળુ યુરીયા + ૨૩૪.૩૫ ગ્રા. એસ.એસ.પી. + ૪૧.૬૫ગ્રા. એમ.ઓ.પી
બીજો	૨૫.૦ ગ્રા ના	૫૪.૩૦ ગ્રા.લીંમડાપટવાળુ યુરીયા
ત્રીજો	૨૫.૦ ગ્રા ના. ૩૭.૫ ગ્રા. ફો. ૨૫.૦ ગ્રા પો	૫૪.૩૦ ગ્રા.લીંમડાપટવાળુ યુરીયા + ૨૩૪.૩૫ ગ્રા. એસ.એસ.પી. + ૪૧.૬૫ગ્રા. એમ.ઓ.પી
ચોથો	૨૫.૦ ગ્રા ના	૫૪.૩૦ ગ્રા.લીંમડાપટવાળુ યુરીયા

Deferred with suggestions:

1. Extended for another one year and re-analyze the data by FRBD design and resubmit in next year.

(Action: Professor and Head, Deptt. of Veg. Sci., ACHF, Navsari)

17.4.1.23 Effect of IBA and number of nodes on stem cutting on propagation of little gourd

The farmers/nurserymen of South Gujarat are recommended to select one year old little gourd vine cutting with two nodes dipped in 80mg/l IBA solution for 30 minute and plant in growing media Soil: FYM: Sand (1:1:1) increases survival percentage of little gourd cutting.

દક્ષિણ ગુજરાતના ખેડૂતો/નર્સરીમેનોને ભલામણ કરવામાં આવેછેકે, ટિંડોળાના એકવર્ષ જૂના

	વેલા માંથી બે આંખનાકટકાં બનાવી ૮૦મિગ્રા/લી આઇ.બી.એ(IBA) ના દ્રાવણમાં ૩૦મિનિટ સુધી ડુબેલા રાખી સરખા ભાગે માટી, છાણીયું ખાતર અને રેતીના મીડીયામાં રોપવાથી ટિંડોળાના કટકામાં ઉગાવો, વેલા અને મૂળની લંબાઇ, જાડાઇ તથા કટકાંના અસ્તીત્વની ટકાવારીમાં વધારો નોંધાયેલ છે. **Approved** **(Action:** Professor and Head, Deptt. of Veg. Sci., ACHF,Navsari)
17.4.1.24	**Response of okra to foliar application of Novel Organic Liquid Nutrients and Micronutirents**
	The okra growing farmers of South Gujarat Agro-Climatic Zone are recommended for foliar application of 1.5 % Novel Organic Liquid Nutrients at 30, 45 & 60 DAS in addition to RDF (100-50-50 N-P-K kg/ha) to obtain higher yield of okra. દક્ષિણ ગુજરાતનાં ખેત આબોહવાકીય વિસ્તારનાં ભીંડાની ખેતી સાથે સંકળાયેલ ખેડૂતોને વધુ ઉત્પાદન મેળવવા માટે ૧.૫ % ની સાન્દ્રતાવાળા નોવેલ ઓર્ગેનીક લીક્વીડ ન્યુટ્રીઅન્ટસનો રોપણી બાદ ૩૦, ૪૫ અને ૬૦ દિવસે ભલામણ કરેલ રાસાયણિક ખાતરના જથ્થા સાથે (૧૦૦-૫૦-૫૦ ના.ફો.પો. કિલો/હે) છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Deferred with Suggestions:** 1. Check the yield conversion data 2. Add economics. 3. Extended for next year **(Action:** Professor and Head, Deptt. of Veg. Sci., ACHF, Navsari)
17.4.1.25	**Effect of different growing media on Haworthia pot plant**
	Nurserymen raising haworthia as pot culture under naturally ventilated polyhouse are recommended to grow in media comprising of Sand: Vermicompost (9:1 v/v) for better plant growth and quality. હેવોર્થિયાને નેચરલી વેન્ટિલેટેડ પોલીહાઉસની અંદર કુંડામાં ઉગાડતા નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે રેતી : વર્મીકંપોસ્ટ (૯:૧ કદ/કદ) નાપ્રમાણના માધ્યમમાં ઉછેરવાથી છોડની વૃધ્ધિ અનેગુણવત્તા સારીમળે છે. **Approved** **(Action:** Professor and Head, Deptt. of Floriculture, ACHF, Navsari)
17.4.1.26	**Development of plant architecture through pinching and pruning in adenium pot plant under soilless growing system**
	Nursery men or farmers raising adeniums as pot culture are recommended to follow the pruning treatment (leaving 2inches of new growth) after four and eight months of grafting to obtain better architecture with plant canopy as well as more flower clusters per plant and flowers per cluster. એડેનીયમ ઉગાડતા નર્સરી ધારકો અને ખેડૂતોને ભલામણ કરવામાં આવે છે કે કલમ કર્યા બાદ ચોથા અને આઠમા મહિને (નવી વિકાસ પામેલી ડાળી ૨ ઇંચછોડીને) છટણી કરવાથી છોડનો સારો ઘેરાવો અને માળખું તેમજ વધુ ફૂલોના ઝુમખા અને ફૂલો મળે છે. **Approved** **(Action:** Professor and Head, Deptt. of Floriculture, ACHF, Navsari)
17.4.1.27	**Effect of different growing media and foliar application of nitrogen on Garlic, Fenugreek and Spinach**
	Farmers growing green garlic and spinach under polyhouse in off-season are recommended as below: 1) To grow green garlic: Fill tray with sand media and apply foliar spray of nitrogen @ 150 mg/l at weekly interval for higher yield with good

	pungency. 2) To grow spinach: Fill tray with sand media and apply foliar spray of nitrogen @ 150 mg/l at weekly interval for higher yield. ***Note: For N150mg/l =326 mg/l Urea, For N50mg/l =108 mg/l Urea** પોલીહાઉસમાં લીલું લસણ અને પાલકની શીયાળા સીવાયની ઋતુમાં ખેતી કરતાં ખેડૂતોને નીચે મુજબ ભલામણ છે. 1. લીલું લસણ ઉગાડવા: રેતીથી ભરેલી ટ્રેમાં રોપી તેમાં ૧૫૦ મી.ગ્રા./ લી. નાઈટ્રોજનનો છંટકાવ દર અઠવાડિયે કરવાથી વધુ ઉત્પાદન સાથે સારી તીખાસવાળું લીલું લસણ મળે છે. 2. પાલક ઉગાડવા: રેતીથી ભરેલી ટ્રેમાં રોપી અને ૧૫૦મી.ગ્રા./ લી. નાઈટ્રોજનનો છંટકાવ દર અઠવાડિયે કરવાથી વધુ ઉત્પાદન મેળવી શકાય છે. *નોંધ: ૧૫૦મી.ગ્રા./ લી. =૩૨૬મી.ગ્રા./ લી. યુરિયા,૫૦મી.ગ્રા./લી. =૧૦૮મી.ગ્રા./લી. યુરિયા **Approved** **(Action:** Professor and Head, Deptt. of Floriculture, ACHF, Navsari)
17.4.1.28	**Standardization of technology for minimal processing of fresh cut potatoes (*Solanum tuberosum*L.).**
	It is recommended to the processors and entrepreneurs that minimally processed fresh cut potatoes can be prepared by hot water blanching for 3 minutes at 95 ^{o}C along with 1.0 per cent calcium chloride ($CaCl_2$) and cooling for 15 minutes by dipping in the solution of 0.05 per cent citric acid and 0.1 percent potassium meta bisulphite (KMS) followed by excess water removal. The fresh cut potatoes can be successfully stored for 16 days at refrigerated temperature when packed in 200 gauge LDPE bags with acceptable quality. પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે, બટાકાના ટુકડાને ૯૫ ૦સે. તાપમાને ગરમ પાણીમાં ૧% કેલ્શિયમ ક્લોરાઈડ ઉમેરી ૩ મીનીટબ્લાન્ચીંગ કરી તરત જ ઠંડા પાણીમાં ૦.૦૫% સાઈટ્રીક એસીડ અને ૦.૧% પોટેશીયમ મેટા બાય સલ્ફાઈટ (કે.એમ.એસ.) નાંખી ૧૫ મીનીટ સુધી ડુબાડી રાખવા. ત્યારબાદ વધારાનું પાણી દૂર કરી બટાકાના ટુકડાને ૨૦૦ ગેજ એલ.ડી.પી.ઈ. (લો ડેન્સીટી પોલી ઈથીલીન) બેગમાં પેક કરી નીચા તાપમાને (ફ્રીજમાં) ૧૬ દિવસ સુરક્ષિત રીતે સંગ્રહ કરી ઉચ્ચ ગુણવત્તા જાળવી શકાય છે. **Approved** **(Shifted to Dairy Science & Food Technology AGRESCO Sub-Committee)** **(Action:** Professor and Head, Deptt. of PHT., ACHF, Navsari)
17.4.1.29	**Effect of different cultivation practices on yield and quality of banana pseudostem sap**
	The farmers and entrepreneurs are recommended to use banana pseudostem sap from banana field planted through suckers having drip irrigation to get maximum fresh sap with better quality for fresh use as well as for enrichment purpose. ખેડૂતો અને ઉત્પાદકોને ભલામણ કરવામાં આવેછે કે ગાંઠ વડે વાવેતર કરેલ કેળાનું ખેતર કે જેમાં ટપક પધ્ધતિથી પિયત કરેલ હોય એવા ખેતરના થડ લેવાથી વધુ જથ્થામા સારી ગુણવત્તાનું પ્રવાહિ મળી શકે છે જેનો ઉપયોગ ખેતી અથવા સમૃધ્ધ કરવા માટે કરવો જોઈએ. **Approved** **(Action:** Research Scientist and Head, SWMU, Navsari)

Sr. No.	Title
17.4.1.30	Annual biomass, volume and carbon stock estimation of *Melia dubia* Cav. through destructive method

Recommendation for the farmers:

Farmers of South Gujarat, cultivating Malabar Neem, and forester and timber traders are recommended to use the below given table to estimate fresh biomass and volume of standing Malabar Neem tree.

Table - Estimated *M. dubia* fresh biomass (kg/tree) based on regression equations

		DBH (cm)													
		4	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Tree height (m)	4	5.75	8.02	10.79	14.07										
	5	6.76	9.60	13.06	17.16										
	6				11.94	16.44	21.54	27.24	33.54						
	7				14.39	19.64	25.59	32.24	39.59	47.64					
	8					22.84	26.78	31.19	36.06	41.40	47.20	53.46			
	9					24.69	29.13	34.09	39.57	45.57	52.10	59.14	66.71		
	10							36.99	43.08	49.75	57.00	64.83	73.24	82.23	
	11									53.92	61.90	70.51	79.76	89.65	100.18

DBH=Diameter at breast height

Table - Estimated *M. dubia* over bark volume (m^3/tree) based on regression equation

		DBH (cm)													
		4	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Tree height (m)	**4**	0.005	0.006	0.007	0.009										
	5	0.005	0.007	0.008	0.010										
	6				0.012	0.015	0.018	0.021	0.025						
	7				0.013	0.016	0.020	0.024	0.028	0.033					
	8					0.018	0.022	0.027	0.032	0.038	0.044	0.050			
	9					0.020	0.025	0.030	0.036	0.042	0.049	0.056	0.064		
	10							0.033	0.039	0.046	0.054	0.062	0.071	0.080	
	11									0.051	0.059	0.068	0.077	0.088	0.098

DBH=Diameter at breast height

ભલામણ

દક્ષિણ ગુજરાતમાં માલાબારનીમનીખેતીકરતા ખેડૂતો, વનવિભાગનાં કર્મચારીઓ અને લાકડાનાં વેપારીઓને માલાબાર નીમનાં ઊભા-જીવંત વૃક્ષોનાં બાયો માસ (વજન) અનેકદનોં અંદાજ મેળવવા નીચેનાં કોષ્ટક્નો ઉપયોગકરવાની ભલામણ કરવામાં આવે છે.

કોષ્ટક. સમીકરણના આધારે માલાબાર નીમના અંદાજિત તાજા વજન (કી. ગ્રા. વૃક્ષ દીઠ)

		છાતીની ઊંચાઈએ થડના વ્યાસ (સે.મી.)													
વૃક્ષની ઊંચાઈ (મી.)		૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨	૧૩	૧૪	૧૫	૧૬	૧૭
	૪	૫.૭૫	૮.૦૨	૧૦.૭૯	૧૪.૦૭										
	૫	૬.૭૬	૯.૬૦	૧૩.૦૬	૧૭.૧૬										
	૬				૧૧.૯૪	૧૬.૪૪	૨૧.૫૪	૨૭.૨૪	૩૩.૫૪						
	૭				૧૪.૩૯	૧૯.૬૪	૨૫.૫૯	૩૨.૨૪	૩૯.૫૯	૪૭.૬૪					
	૮					૨૨.૮૪	૨૬.૭૮	૩૧.૧૯	૩૬.૦૬	૪૧.૪૦	૪૭.૨૦	૫૩.૪૬			
	૯					૨૪.૬૯	૨૯.૧૩	૩૪.૦૯	૩૯.૫૭	૪૫.૫૭	૫૨.૧૦	૫૯.૧૪	૬૬.૭૧		
	૧૦							૩૬.૯૯	૪૩.૦૮	૪૯.૭૫	૫૭.૦૦	૬૪.૮૩	૭૩.૨૪	૮૨.૨૩	
	૧૧									૫૩.૯૨	૬૧.૯૦	૭૦.૫૧	૭૯.૭૬	૮૯.૬૫	૧૦૦.૧૮

કોષ્ટક. સમીકરણના આધારે માલાબાર નીમના અંદાજિત કદ (ઘન મી. વૃક્ષ દીઠ)

		છાતીની ઊંચાઈએ થડના વ્યાસ (સે.મી.)													
વૃક્ષની ઊંચાઈ (મી.)		૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨	૧૩	૧૪	૧૫	૧૬	૧૭
	૪	૦.૦૦૫	૦.૦૦૬	૦.૦૦૭	૦.૦૦૯										
	૫	૦.૦૦૫	૦.૦૦૭	૦.૦૦૮	૦.૦૧૦										
	૬				૦.૦૧૨	૦.૦૧૫	૦.૦૧૮	૦.૦૨૧	૦.૦૨૫						
	૭				૦.૦૧૩	૦.૦૧૬	૦.૦૨૦	૦.૦૨૪	૦.૦૨૮	૦.૦૩૩					
	૮					૦.૦૧૮	૦.૦૨૨	૦.૦૨૭	૦.૦૩૨	૦.૦૩૮	૦.૦૪૪	૦.૦૫૦			
	૯					૦.૦૨૦	૦.૦૨૫	૦.૦૩૦	૦.૦૩૬	૦.૦૪૨	૦.૦૪૯	૦.૦૫૬	૦.૦૬૪		
	૧૦							૦.૦૩૩	૦.૦૩૯	૦.૦૪૬	૦.૦૫૪	૦.૦૬૨	૦.૦૭૧	૦.૦૮૦	
	૧૧									૦.૦૫૧	૦.૦૫૯	૦.૦૬૮	૦.૦૭૭	૦.૦૮૮	૦.૦૯૮

Approved

(Action: Professor and Head, Department of SAF, CoF, ACHF, NAU, Navsari**)**

17.4.1.31	**Integrated nutrient management of Brinjal (*Solanum melongena* L.) under Teak (*Tectona grandis* L.) based Silvi-horticultural system in South Gujarat region**
	Recommendation for farming community: Farmers of South Gujarat growing Brinjal (*Solanum melongena* L.) var. GNRB-1 as an intercrop under Teak having spacing of 3 x 2 m are recommended to apply 100 % RDF (100-50-50 NPK kg/ha) or 75 % RDN + 25 % Neem cake on the basis of cultivated area (6670 m^2) in teak based silvi-horticultural system to get additional income and higher production. It also increased fertility status of soil as well as growth of teak. દક્ષિણ ગુજરાતમાં સાગ આધારિત બાગાયત વાનિકી અંતર્ગત ૩ x ૨મીટરના અંતરે વાવેતર કરેલ સાગની વચ્ચે આંતરપાક તરીકે રીંગણ(ગુજરાત નવસારી ગોળ રીંગણ-૧) ની ખેતી સાથે સંકળાયેલા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ભલામણ કરેલ ખાતરનો ૧૦૦% (૧૦૦-૫૦-૫૦ NPK કિગ્રા/હે.) જથ્થો અથવા ભલામણ કરેલ નાઈટ્રોજનનો ૭૫% જથ્થોર૫% નીમ કેક સાથે વાવેતર વિસ્તાર આધરિત (૬૬૭૦ ચોમી) આપવાથી વધારાની આવક અને ઉત્પાદન મેળવી શકાય છે. તદઉપરાંત જમીનની ફળદ્રૂપતા તેમજ સાગનો વિકાસ પણ વધારી શકાય છે. **Approved** **(Action:** Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)
17.4.1.32	**Development of local volume table for Saru (*Casuarina equisetifolia*)**
	Recommendation for farmers: It is recommended that farmers, foresters and wood merchants of South Gujarat can use volumetric equations, $V_1 = 0.00005 \times HD^2 + 0.0196$ (trees with DBH of 10 to 45 cm) and volumetric equation $V_2 = 0.00003 \times HD^2 + 0.6874$ (trees with DBH of 45 to 70 cm) and below given local volume table for estimation of volume of standing trees of *Casuarina equisetifolia*.

Table: Local volume table developed for Saru (*Casuarina equisetifolia*) trees grown in south Gujarat condition (m^3/tree)

			Height in m (Height range and mid value)											
	Diameter/ Height range		8-11	11-14	14-17	17-20	20-23	23-26	26-32	32-35	35-38	38-41	41-44	44-47
	Mid diameter/ Height		9.5 m	12.5 m	15.5 m	18.5 m	21.5 m	24.5 m	27.5 m	33.5 m	36.5 m	39.5 m	42.5 m	45.5 m
DBH (cm) (Dia range and mid value)	10-15	12.5 cm	*0.094*	*0.117*	*0.141*	*0.164*	*0.188*	*0.211*	*0.234*					
	15-20	17.5 cm	*0.165*	*0.211*	*0.257*	*0.303*	*0.349*	*0.395*	*0.441*					
	20-25	22.5 cm		*0.336*	*0.412*	*0.488*	*0.564*	*0.640*	*0.716*	*0.868*				
	25-30	27.5 cm			*0.606*	*0.719*	*0.833*	*0.946*	*1.059*	*1.286*				
	30-35	32.5 cm				*0.997*	*1.155*	*1.314*	*1.472*	*1.789*	*1.947*	*2.106*	*2.264*	*2.423*
	35-40	37.5 cm				*1.320*	*1.531*	*1.742*	*1.953*	*2.375*	*2.586*	*2.797*	*3.008*	*3.219*
	40-45	42.5 cm				*1.690*	*1.961*	*2.232*	*2.503*	*3.045*	*3.316*	*3.587*	*3.858*	*4.129*
	45-50	47.5 cm						**2.346**	**2.549**	**2.955**	**3.158**	**3.361**	**3.564**	**3.767**
	50-55	52.5 cm						**2.713**	**2.961**	**3.457**	**3.705**	**3.954**	**4.202**	**4.450**
	55-60	57.5 cm							**3.415**	**4.010**	**4.308**	**4.605**	**4.903**	**5.200**
	60-65	62.5 cm							**3.910**	**4.613**	**4.965**	**5.316**	**5.668**	**6.019**
	65-70	67.5 cm								**5.266**	**5.676**	**6.087**	**6.497**	**6.907**

દક્ષિણ ગુજરાતમાંશરૂની ખેતી કરનાર, લાકડાના વેપારીઓને અને કુદરતી જંગલમાં થતાં શરૂના ઉભા ઝાડ (જીવંત) ના કદ ના અંદાજ આકરણી માટે કદદર્શક (સમીકરણ$V_1 = 0.00005 \times HD^2 + 0.0196$ (છાતીની ઊંચાઈએ થડનો વ્યાસ૧૦થી૪૫સે.મી.) અને$V_2 = 0.00003 \times HD^2 + 0.6874$ (છાતીની ઊંચાઈએ થડનો વ્યાસ૪૫થી૭૦સે.મી.) અને સ્થાનિકકદદર્શક કોષ્ટકનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.(D=છાતીની ઉચાઇ સુધીનો વ્યાસ; H= ઝાડની ઊંચાઈ)

ટાઈટલ:-શરૂનુંસ્થાનિક કદદર્શક કોષ્ટક (ઘન મી. વૃક્ષ દીઠ)														
		ઝાડની ઊંચાઈ (મી) (હાઈટ રેન્જ એન્ડ મીડ વેલ્યુ)												
	ડાયામીટર/ હાઈટ રેન્જ (સે મી)		૮-૧૧	૧૧-૧૪	૧૪-૧૭	૧૭-૨૦	૨૦-૨3	૨૩-૨૬	૨૬-૩૨	૩૨-૩૫	૩૫-૩૮	૩૮-૪૧	૪૧-૪૪	૪૪-૪૭
ડી બી એચ (સે મી) (ડાયામીટર રેન્જ એન્ડ મિડ વેલ્યુ)		મીડ ડાયામીટર/હાઈટ	૯.૫મી	૧૨.૫મી	૧૫.૫ મી	૧૮.૫ મી	૨૧.૫મી	૨૪.૫ મી	૨૭.૫ મી	૩૩.૫ મી	૩૬.૫ મી	૩૯.૫ મી	૪૨.૫ મી	૪૫.૫ મી
	૧૦-૧૫	૧૨.૫ સેમી	૦.૦૯૪	૦.૧૧૭	૦.૧૪૧	૦.૧૬૪	૦.૧૮૮	૦.૨૧૧	૦.૨૩૪					
	૧૫-૨૦	૧૭.૫ સેમી	૦.૧૬૫	૦.૨૧૧	૦.૨૫૭	૦.૩૦૩	૦.૩૪૯	૦.૩૯૫	૦.૪૪૧					
	૨૦-૨૫	૨૨.૫ સેમી		૦.૩૩૬	૦.૪૧૨	૦.૪૮૮	૦.૫૬૪	૦.૬૪૦	૦.૭૧૬	૦.૮૬૮				
	૨૫-૩૦	૨૭.૫ સેમી			૦.૬૦૬	૦.૭૧૯	૦.૮૩૩	૦.૯૪૬	૧.૦૫૯	૧.૨૮૬				
	૩૦-૩૫	૩૨.૫ સેમી				૦.૯૯૭	૧.૧૫૫	૧.૩૧૪	૧.૪૭૨	૧.૭૮૯	૧.૯૪૭	૨.૧૦૬	૨.૨૬૪	૨.૪૨૩
	૩૫-૪૦	૩૭.૫ સેમી				૧.૩૨૦	૧.૫૩૧	૧.૭૪૨	૧.૯૫૩	૨.૩૭૫	૨.૫૮૬	૨.૭૯૭	3.૦૦૮	3.૨૧૯
	૪0-૪૫	૪૨.૫ સેમી				૧.૬૯૦	૧.૯૬૧	૨.૨૩૨	૨.૫૦૩	3.૦૪૫	3.૩૧૬	3.૫૮૭	3.૮૫૮	૪.૧૨૯
	૪૫-૫૦	૪૭.૫ સેમી						૨.૩૪૬	૨.૫૪૯	૨.૯૫૫	3.૧૫૮	3.૩૬૧	3.૫૬૪	3.૭૬૭
	૫૦-૫૫	૫૨.૫ સેમી						૨.૭૧૩	૨.૯૬૧	3.૪૫૭	3.૭૦૫	3.૯૫૪	૪.૨૦૨	૪.૪૫૦
	૫૫-૬૦	૫૭.૫ સેમી							3.૪૧૫	૪.૦૧૦	૪.૩૦૮	૪.૬૦૫	૪.૯૦૩	૫.૨૦૦
	૬૦-૬૫	૬૨.૫ સેમી							3.૯૧૦	૪.૬૧૩	૪.૯૬૫	૫.૩૧૬	૫.૬૬૮	૬.૦૧૯
	૬૫-૭૦	૬૭.૫ સેમી								૫.૨૬૬	૫.૬૭૬	૬.૦૮૭	૬.૪૯૭	૬.૯૦૭

Approved

(**Action:** Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)

SARDAR KRUSHI NAGAR AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

17.4.1.33	**Effect of different media on propagation of desi rose (*Rosa chinensis*)**
	Recommendation for the farmers: Farmers and nurserymen of Gujarat interested in vegetative propagation of desi rose under fan-pad polyhouse are recommended to fill the plug tray either with loamy soil: vermicompost (1:1) or cocopeat : sand (1:1) or cocopeat : vermicompost (1:1) on volume basis as rooting media andtreat the cuttings with 500 ppm IBA solution (500 mg/l of water) by quick dip method for obtaining maximum number of rooted cuttings. ગુજરાતના દેશી ગુલાબની કલમો તૈયાર કરવામાં રસધરાવતા ખેડૂતો અને નર્સરી ધારકોને ભલામણ કરવામાં આવેછે કે, ફેન-પેડપોલીહાઉસમાં ગોરાડુ માટી : વર્મીકમ્પોસ્ટ (1:1) અથવા કોકોપીટ : રેતી (1:1) અથવા કોકોપીટ : વર્મીકમ્પોસ્ટ (1:1) (કદના આધારે)નો પ્લગ ટ્રેમાં માધ્યમ તરીકે ઉપયોગ કરીને આઈ.બી.એ. ૫૦૦ પી.પી.એમ.ના દ્રાવણમાં (૫૦૦ મીલીગ્રામ/લીટર પાણી) કટકાઓને ત્વરિત બોળીને વાવવાથી મૂળવાળા કટીંગ વધારે મળે છે. **Approved** (**Action:** Professor and Head, Dept. Of Horticulture, CPCA, Sardarkrushinagar)
17.4.1.34	**Effect of mulching and nitrogen on growth, yield and quality of desi rose (*Rosa chinensis*)**
	Recommendation for the farmers: Desi rose growing farmers of Gujarat are recommended to apply 100-200-200 kg NPK/ha at October pruning and 100 kg Nitrogen/ha at 45 days after October pruning with5 cm thickness of either castor shell or mustard husk as mulch (50 cm band in row) in 90 cm x 60 cm spacing under drip irrigation for obtaining the higher yield and net return. ગુજરાતના દેશીગુલાબની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે, ઓકટોબર છટણી પછી

	૧૦૦-૨૦૦-૨૦૦ કિ.ગ્રા. ના.ફો.પો. /હેક્ટર અને ત્યારબાદ ૪૫ દિવસે ૧૦૦ કિ.ગ્રા. નાઈટ્રોજન/ હેક્ટર આપવો અને છટણી બાદ ગુલાબના છોડની એક હારમાં ૫૦ સે.મી.ની પહોળાઈ (૫ સે.મી. જાડાઈ)નું દિવેલાની ફોતરી આથવા રાયડાના ભુસાનું આરછાદન ટપક સીંચાઈ પદ્ધતિ હેઠળ ૯૦ સે. મી. x ૬૦ સે.મી. ના અંતરે કરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Professor and Head, Dept. Of Horticulture, CPCA, Sardarkrushinagar)
17.4.1.35	**Effect of different environmental conditions and IBA on propagation of desi rose (*Rosa chinensis*)**
	Recommendation for the farmers: Farmers and nurserymen of Gujarat are interested in multiplication of desi rose are recommended to raise the cuttings treated with 500 ppm IBA solution (500 mg/l of water) by quick dip method under fan-pad polyhouse for obtaining maximum number of rooted cuttings. ગુજરાતના દેશી ગુલાબની કલમો તૈયાર કરવામાં રસધરાવતા ખેડૂતો અને નર્સરી ધારકોને ભલામણ કરવામાં આવેછે કે, કટકા કલમોને આઈ.બી.એ. ૫૦૦ પી.પી.એમ.ના દ્રાવણમાં (૫૦૦ મીલીગ્રામ/ લીટર પાણી) ત્વરિત બોળીને ફેન-પેડ પોલીહાઉસમાં ઉછેરવાથી મૂળવાળા કટીંગ વધારે મળે છે. **Approved** **(Action:** Professor and Head, Dept. Of Horticulture, CPCA, Sardarkrushinagar)
17.4.1.36	**Performance of vegetablesarson under various growing conditions with different time of sowing on growth, yield and quality**
	Recommendation for the farmers: Farmers of North Gujarat Agro-Climatic Zone - IV growing vegetable *sarson* are recommended to raise the crop during 1st week of October to1st week of November under 50 % white shade net house for obtaining higher green biomass yield and net return. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર -૪ના શાકભાજીના સરસવની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે, ઓક્ટોબરના પ્રથમ અઠવાડીયાથી નવેમ્બરના પ્રથમ અઠવાડીયા સુધી ૫૦% સફેદ શેડનેટ હાઉસમાં વાવણી કરવાથી લીલા પાંદડાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** **(Action:** Principal,College of Horticulture, SDAU, Jagudan)
17.4.1.37	**Performance of different varieties of gladiolus under North Gujarat condition**
	Recommendation for the farmers: Farmers of Gujarat growing gladiolus are recommended to adopt either American Beauty or Psittacinus Hybrid variety for obtaining higher yield of qualitative spikes and net return. ગુજરાતના ગ્લેડીઓલસની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, અમેરીકન બ્યુટી અથવા સીટેસીનસ હાઈબ્રીડ જાતનું વાવેતર કરવાથી ગુણવત્તાસભર ફૂલદંડીઓનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Approved** (**Action:** Assistant Research Scientist, FRS, Dehgam)

17.4.2 RECOMMENDATION FOR SCIENTIFIC COMMUNITIES

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.4.2.1	**Response of media, fertilizer and chemicals application on growth of mango rootstock**
	Scientists those who are working on raising of mango rootstock are recommended to sow the mango stone in poly bag having potting media of red soil + FYM + vermicompost (2:1:0.5) and to fertilize @ 75:16:75 mg NPK /Kg through soil application with foliar application of Novel organic liquid nutrients 10 ml per litre at 2nd and 3rd MAS for better germination, growth and higher survival of mango rootstock. **Approved** **(Action:** Research Scientist, RHRS, ACHF, Navsari)
17.4.2.2	**Effect of nitrogen fixing bio-fertilizers on yield and quality of mango**
	The application of bio-fertilizers [*Azospirillum* (100ml) + *Azotobacter* (100ml) + *Azorhizobium* (100ml)] along with 25% less nitrogen than RDF (562.5:160:750 g NPK/plant/year) or 100% RDF (750:160:750 g NPK/plant/year) gave consistently higher yield. In addition to these, there were increased in organic carbon, available N, P and K (kg/ha) along with bacterial colonies. **Deferred with above suggestions** 1. Check the name of variety and mention it. 2. Data of the year 2019 is missing. **3.** Reconstruct the data up to 2018 and resubmit innext year. **(Action:** Research Scientist, AES, Paria)
17.4.2.3	**Mapping of degraded lands using Remote sensing and GIS technique in coastal region of Navsari**
	Recommendation for scientific community: Policy makers, state agriculture and forest departments are suggested to utilize the technique of weighted overlay analysis using remote sensing and GIS for assessment of land degradation at regular basis to ascertain the land sustainability. The sustainable utilization of unutilized land *i.e.*> 50% area (muddy & barren) may be done as per land capability classification essentially required for nourishing ecological balance and food security of the region. **Approved** (**Action:** Professor and Head, Dept. NRM, CoF, ACHF, NAU, Navsari)

17.4.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY,ANAND

<table>
<tr><th>Sr. No.</th><th>Title/Centre</th><th>Suggestions</th></tr>
<tr><td>17.4.3.1</td><td>Effect of integrated nutrient management on growth, yield and quality of onion</td><td>Accepted with following suggestions
1. Made only one objective i.e. To find out the effect of integrated nutrient management on growth, yield and quality of onion
2.Take observations of soil pH, EC and O.C. at initial and after completion of experiment
3.Increase the plot size for border line (2) kept
-Gross plot-2.55 X1.70 m
Net plot-1.95 X 1.30 m
4. Write source of Sulphur
(Action: Principal, College of Horticulture, AAU, Anand)</td></tr>
<tr><td>17.4.3.2</td><td>Response of planting season and geometry on growth and flower production of golden rod (Solidago canadensis L)</td><td>Not Approved
Due to duplication of work
(Action: Principal, College of Horticulture, AAU, Anand)</td></tr>
<tr><td>17.4.3.3</td><td>Feasibility of different vegetable crops as intercrop in sandal wood</td><td>Accepted with following suggestions
1.Maintain the plot size 20 m x 4 m.
2. Sow the inter crops around sandal wood plants
3. Take the line of inter crops as per below
<table>
<tr><th>Treatments</th><th>Name of treatments</th><th>No of lines/ Treatment</th></tr>
<tr><td>T_1</td><td>Indian bean(Rabi)+
Cow pea(Summer)</td><td>3
6</td></tr>
<tr><td>T_2</td><td>French bean (Winter) +Cluster bean (Summer)</td><td>3
6</td></tr>
<tr><td>T_3</td><td>Turmeric</td><td>5</td></tr>
<tr><td>T_4</td><td>Pigeon pea</td><td>3</td></tr>
<tr><td>T_5</td><td>Control</td><td>-</td></tr>
</table>
(Action: Professor and Head, Department of Horticulture, BACA, AAU, Anand)</td></tr>
<tr><td>17.4.3.4</td><td>Effect of different hydroponic methods on growth, yield and quality of lettuce</td><td>Accepted with following suggestions
1. Write 2nd observation as number of leaves
2. Remove observations No. 3,4 and 7
3. Add quality observation
a. Vitamin A content in leaves</td></tr>
</table>

		b. Total sugar content(%) in leaves **(Action:** Professor and Head, Department of Horticulture, BACA, AAU, Anand)
17.4.3.5	Effect of secondary nutrients on yield and quality of banana	**Accepted with following suggestions** 1.Write note: N and S will be given as per equivalent base 2. Write observation No.1 as psudostem height 3. Write observation No.5 as Days to shooting 4. Add PLW observation i.e. from Maturity to ripening 5. Add observation of self-life **(Action:** Assistant Research Scientist, ARS, COA, AAU, Jabugam)
17.4.3.6	Effect of micronutrients on yield and quality of banana	**Accepted with following suggestions** 1. In treatmentNo.4 write novel organic nutrient in place of Nauroji Novel 2 In treatment No. 2 and 5 write Multimicro nutrient Grade-IV 3. Treatment No. 5 @ 1% instead of 2% 4.Write observation No.1 as psudostem height 5.Write observation No.4 as Days to shooting **(Action:**Assistant Research Scientist, ARS, COA, AAU, Jabugam)
17.4.3.7	Effect of INM on growth, yield & quality of cauliflower (*Brassica oleraceae* var. *botrytis*) cv. Pusa Paushja on rice base cropping system	**Accepted with following suggestions** 1.Pooled data should be analyses as per split plot technique **(Action:** Principal, College of Agriculture, AAU, Vaso)
17.4.3.8	Integrated nutrient management in brinjal (*Solanum melongena* L.)	**Accepted with following suggestions** 1.Write season *Rabi* instead of *Kharif Rabi* 2. Add observations a. No. of pickings b. Fruit weight c. Fruit yield/plant and per plot **(Action:** Professor and Head, Department of Plant Pathology, BACA, AAU, Anand)
17.4.3.9	Integrated nutrient management in chilli (*Capsicum annuum* L.)	**Accepted with following suggestions** 1.Write season *Rabi* instead of *Kharif Rabi* 2. Add observations a. No. of pickings

		b. Fruit weight c. Fruit yield/plant and per plot **(Action:** Professor and Head, Department of Plant Pathology, BACA, AAU, Anand
17.4.3.10	Assessment of N, P, K and S requirement in garlic	**Not Approved** Due to duplication of work **(Action:** Professor and Head, Department of Agronomy, BACA, AAU, Anand)
17.4.3.11	Assessment of N, P, K and S requirement in garlic (Dahod)	**Accepted with following suggestions** 1. N treatment recast as N_1- 50 kg/ha N_2-75 kg/ha N_3-125 kg/ha 2. Add observation bulb yield/plot **(Action:** Unit Officer, Hill Millets Research Station, AAU, Dahod)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title/Centre	Suggestions
17.4.3.12	Study of seed dormancy and viability in papaya cv. GJP-1	**Accepted with following suggestions** 1. Add viability in title 2. Take 100 seeds as per ISTA std. 3. Take three repetition **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.13	Effect of sarcotesta and time of sowing on seed germination and seedling growth of papaya cv. GJP- 1	**Accepted with following suggestions** 1. Split objective in three 2.Time of sowing 1stweek of month instead of 1stdate 3. Take seed up to two month old 4. Take Vigour index-1 and 2 5. Take survival percent at 45 DAS **(Action:** Professor and Head Dept. of Horticulture, JAU, Junagadh)
17.4.3.14	Effect of different chemicals on flower, yield and quality in mango (*Mangifera indica* L.) cv. Kesar	**Accepted with following suggestions** 1. Remove E-W and N-S, days to full bloom and days to flower initiation from observations 2. Add fruit setting at pea and marble stage, shelf life and disease pest in observations 3. Time of application of treatments are 1st at flower bud initiation stage and 2nd at

		sorghum stage **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.15	Effect of different season and storage temperature on pollen viability of coconut cv. Lotan	**Accepted with following suggestions** 1. Recast objective as per treatment and title 2.Take season month as July-Aug, Dec-Jan and April-May 3. Take factor B write only temperature 4. Write unit of size of pollen **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.16	Effect of supplementary pollination methods on fruit set and fruit drop in mango cv. Kesar	**Accepted with following suggestions** 1. Recast title 2. Specify methodology 3. Incidence of pest and disease if any **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.17	Effect of time of irrigation and level of pruning on yield and quality for early flowering in custard apple (*Annona squamosa* L.) cv. GJCA-1	**Accepted with following suggestions** 1. Remove flowering intensity from observation and add size of flower on visual base 2. In treatment, take pinching at 2.5 and 5.0 cm 3. Mention number of plant /treatment **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.18	Effect of NPK on growth, yield and quality of gladiolus (*Gladiolus grandiflorus* L.).	**Accepted with following suggestions** 1. Change level of P and K (P-25,50,75 & K-50, 100, 150) 2. Take variety Psittacinus hybrid 3. Recast objective **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.19	Effect of chemical mutagens on morphological characters of Tuberose (*Polianthes tuberosa* L.)	**Accepted with following suggestions** 1. Variety only double 2. Specify methodology 3. Change net and gross plant **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.20	Nutrient management in cucumber under polyhouse.	**Accepted with following suggestions** 1. Design Large plot (analysis as per CRD)

		2. Add EC, pH and O.C. in initial soil analysis 3. Add soil microbial count in observation 4. Record Temp. and Humidity 5. Use Govt. approved variety **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.21	Nutrient management in tomato under polyhouse	**Accepted with following suggestions** 1. Design Large plot (analysis as per CRD) 2. Add EC, pH and O.C. in initial soil analysis 3. Add soil microbial count in observation 4. Record Temp. and Humidity 5. Use Govt. approved variety **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.22	Nutrient management in leafy coriander cv. GDLC-1	**Accepted with following suggestions** 1. Rectify objectives 2. Add EC, pH in initial soil analysis 3. Nitrogen and Potash apply in split (N-33% as basal and N-33% after each cutting and K-50% as basal and 50 % after each cutting) 4. Record Ob. 1 and 2 at 1st cutting **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.23	Response of different rootstocks on growth, yield and quality in watermelon var. Sugar baby.	**Accepted with following suggestions** 1. Remove second observation 2. Add survival (%) of graft before TP 3. Keep same variety of root stock each year **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.24	Study on preparation, packaging and storage of passion fruit (*Passiflora edulis* f. flavicarpa Deg.) nectar beverages	**Approved** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
17.4.3.25	Propagation of a rare and medicinally important declining shrub species Agnimantha(*Premna serratifolia* L.*)* by hardwood cuttings	**Accepted with following suggestions** 1. Dipping time 30 minutes 2. Add observation on days to sprouting, length of shoot and root, survival percent at 90 days, root fresh and root dry weight, green biomass etc.

		3. Add common name in title 4. Use Hard wood cutting 5.Take 25 cuttings/treatment and specify media ratio **(Action:** Professor and Head, Dept. of GPB, JAU, Junagadh)
17.4.3.26	Induction of rooting through plant growth regulators in stem cutting of Thuja	**Accepted with following suggestions** 1.Use Hard wood cutting 2. Soaking time: Prolong method 3.Take 25 cuttings/treatment and specify media ratio 4. Add observation on days to sprouting, length of shoot and root, survival percent at 90 days, root fresh weight, dry weight and green biomass etc. **(Action:** Professor and Head, Dept. of GPB, JAU, Junagadh)
17.4.3.27	Effect of growth regulators on cuttings of Barbados cherry (*Malpighia glabra* L.)	**Accepted with following suggestions** 1. Use soft wood cutting 2.Soaking method: Quick deep method 3. Add observation on days to sprouting, length of longest shoot and root, survival percent at 90 days, fresh and dry weight of roots, green biomass etc. **(Action:** Professor and Head, Dept. of GPB, JAU, Junagadh)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.4.3.28	Effect of fruit bagging and nutrient spray on fruit quality and shelf life of mango cv. Kesar under HDP	**Accepted with following suggestions** 1. Add the word pre harvest in title and objective 2. Obs. No. 13 remove damage fruit %, add non marketable fruits **(Action:** Research Scientist, RHRS, ACHF, Navsari)
17.4.3.29	Exogenous application of melatonin on growth, nutrient uptake and survival of mango seedling under salt stress regimes.	**Accepted with following suggestions** **Suggestions:** 1. Change in the title of the experiment as Effect of melatonin application on ………… 2. Do the changes in objectives accordingly. 3. Factor I T1 – Available water 4. Take stone of Kesar cv. Fruit **(Action:** Research Scientist, RHRS, ACHF, Navsari)

17.4.3.30	Response of Silicon on flowering, yield and quality of Sapota cv. Kalipatti	**Accepted with following suggestions** 1. Treatment 1:- Write word "Water" instead of no silicon application 2. Use design : CRD and Observation will be start from April 2022 **(Action:** Research Scientist, RHRS, ACHF,Navsari)
17.4.3.31	Effect of growing media on germination, growth and nutrient uptake of papaya seedlings cv. Red Lady raised in plug tray	**Accepted with following suggestions** 1. Start the observations from April 2022. **(Action:** Research Scientist, RHRS, ACHF,Navsari)
17.4.3.32	Response of planting density on dragon fruit *(Hylocereus polyrhizus* L.*)*	**Accepted with following suggestions** 1. Add one more tretament of planting density as D_5 : 3.0 m x 2.7 m 2. Observtions: Number of ays taken to reach up to pole hieght 3. Height of the pole shouldbe 5.5 feet. **(Action:** Research Scientist, RHRS, ACHF, Navsari)
17.4.3.33	Effect of season on stem cutting of dragon fruit (*Hylocereus polyrhizus* L.)	**Accepted with following suggestions** 1. Mention that the Green house is NVPH 2. Don't mention year of completetion. **(Action:** Research Scientist, RHRS, ACHF, Navsari)
17.4.3.34	Response of Drip irrigation on grow and yield of D x T coconut (*Cocos nucifera* L.) hybrid under south Gujarat condition	**Accepted with following suggestions** 1. Correct the fertilizer dose 1500-750-150 g NPK/palm/year 2. Layout should be mentioned and show to the statistician. 3. Don't mention year of completetion. **(Action:** Research Scientist, RHRS, ACHF, Navsari)
17.4.3.35	Effect of growth substances on growth of Kagzi lime seedlings.	**Accepted with following suggestions** 1. To sow the seed in bag size 6" x 9". 2. Kagzi lime od polyembroynic plant. How you will manage the excess germination fromone seeed. 3. T_{10} = Foliar spray of Urea @ 1 % should be removed. **(Action:** Principal, Hort. Polytechnic, Navsari)
17.4.3.36	Effect of growing media and PGR on success of softwood cuttings in guava under polyhouse conditions.	**Accepted as a feeler trial** **(Action:** Professor and Head, CoA, Bharuch)

17.4.3.37	Response of planting densities on growth, yield and quality of banana cv. Grand Naine	**Accepted with following suggestions** 1. Mention layout of the experiment. 2. Mention gross and net plot size. 3. Pair row system should be applied. 4. Add one more spacing 1.2 m x 1.2 m. Write number of plants in bracket. 5. Mearge the objective instead of two make one. 6. Meet statistician to finalize the further study. **(Action:** Principal, Polytechnic, Paria)
17.4.3.38	Intercropping of cole crops in banana cv. Grand Naine	**Accepted with following suggestions** 1. Mention the varieties of intercrop. 2. Spacing of broccoli should be 60 cm x 30 cm 3. Find out appropriate fertilizer dose for inter crops and mention. 4. Correct the wording of observtaions. **(Action**: Principal, Polytechnic, Paria)
17.4.3.39	Impact of different time of grafting in custard apple cv. Sindhan and Arka Sahan	**Accepted as a feeler trial with following suggestions** 1. Drop the variety Arka Sahan. 2. Conduct the filler trial on cv. Sindhan for whole year per month. **(Action:** Principal, Polytechnic, Vyara)
17.4.3.40	Evaluation of banana mutant (MLT-4)	**Approved asAICRP trial** **(Action:** Associate Research Scientist, FRS, Gandevi)
17.4.3.41	Validation of protocol for extending papaya seed viability in storage	**Approved as AICRP trial** **(Action:** Associate Research Scientist, FRS, Gandevi)
17.4.3.42	Multi location testing of new papaya selections (MLT-I)	**Approved asAICRP trial** **(Action:** Associate Research Scientist, FRS, Gandevi)
17.4.3.43	Effect of foliar application of liquid organic fertilizers on growth, yield and quality of strawberry (Fragaria× ananassa Duch.).	**Accepted with following suggestions** 1. Reform the experiment on organic fertilizer based on literature. 2. Treatment T_1: 50 % N T_2: 75 % N T_3: 100 % N T_4: 125 % N T_5: 150 % N T_6: Control 3. Replication: 4 4. 50 % FYM & 50 % Nem cake **(Action:** Senior Scientist & Head,KVK, Waghai)

17.4.3.44	Response of greenhouse cucumber to regulated irrigation and mulching	**Approved** **(Action:** Professor& Head, Deptt. Of Vegetable Science, ACHF, Navsari)
17.4.3.45	Performance of yard long bean *[Vigna unguiculata* (L.) Walp. subsp. sesquipedalis (L.) Verdc.] in varying levels of plant density under NVPH	**Accepted with following suggestion** 1. Add observation = Pod yield per plot (kg/plot) **(Action:** Professor& Head, Deptt. Of Vegetable Science, ACHF, Navsari)
17.4.3.46	Effect of pre-harvest spray coating of Aloe vera pulp aqueous extract and packaging on post-harvest quality of Amaranthus micro greens	**Not approved** 1. Submitt this experiment in Enginerring AGRESCO sub comittee in next year. **(Action:** Professor& Head, Deptt. Of Vegetable Science, ACHF, Navsari)
17.4.3.47	Fertilizer best management practices in sweet potato	**Accepted with following suggestions** 1. Write down the objectives as per the design. 2. AICRP trial **(Action:** Professor& Head, Deptt. Of Vegetable Science, ACHF, Navsari)
17.4.3.48	Management of storage rot in elephant foot yam corms	**Approved as a AICRP** **(Action:** Professor& Head, Deptt. Of Vegetable Science, ACHF, Navsari)
17.4.3.49	IET on purple flesh greater yam	**Approved** **(Action:** Professor& Head, Dept. Of Vegetable Science, ACHF, Navsari)
17.4.3.50	Influence of plant growth substances on growth and green pod yield of Indian bean (*Dolichos lablab* L.) cv. GNIB 22	**Accepted with following suggestions** 1.Write absolute control. 2.Cycocel is banned so instead of it...........? 3. Three foliar spray at 20, 40, & 60 DAS is not applicable...............? **(Action:**Principal Polytechnic, Navsari)
17.4.3.51	Effect of different sowing dates on growth, yield and quality of Kale under sub-humid tropics of south Gujarat.	**Accepted with following suggestions** 1. In the treatment instead of date first use word first week. **(Action:** Principal, Polytechnic, Navsari)
17.4.3.52	Effect of different colour shade nets on germination and seedling growth of broccoli (*Brassica oleracea* var. Italica) var. Pusa Kts-1	**Accepted with following suggestions** 1. Mention the observation of Germination % 2. Cocopeat and vermi-compost 1:1 **(Action:** Professor and Head, Deptt. Of Horticulture, NMCA, Navsari)

17.4.3.53	Effect of organic nutrition on growth and fruiting of brinjal on terrace garden	**Accepted with following suggestions** 1. Mearge the objectives and keep only one. 2. Add coconut husk in treatment No. 8 3. Check the bag size is suffiucient for rooting material or not 16” x 14”. 4. Add fruit quality observations. **(Action:** Senior Scientist & Head, KVK, Vyara)
17.4.3.54	Effect of foliar application of liquid organic nutrients on different varieties of elephant foot yam.	**Accepted with following suggestions** 1. Work on only Swagata variety. 2. Change the concentration as F_3 Varmiwash 2.5 % and F_4 Varmiwash 5 % 3. Change the concentration as F_5 Panchagavya 2 % and F_6 Panchagavya 3 % 4. Start the experiment in next year April 2022. **(Action:** Pricipal, CoA, Waghai)
17.4.3.55	Effect of sowing time on different varieties of lettuce.	**Accepted with following suggestions** 1. Work on only great lakes variety. 2. Add observation of Number of cuttings 3. Mention Trasplanting date instead of sowing time, make the changes accordingly in the treatment details. 4. Vermicompost will be given equivalent to RDN. **(Action:** Pricipal, CoA, Waghai)
17.4.3.56	Collection and evaluation of Okra (Abelmoschus esculentus L. Moench) genotypes suitable for cultivation during late Kharif and Rabi Season in South Gujarat.	**Approved** **(Action:** I/c**.** Assoc.Res. Sci.,HMRS, Waghai)
17.4.3.57	Effect of different type of mulches on growth, flowering and yield of cucumber var. Pusa Sanyog	**Accepted with following suggestions** 1. Remove second objective. 2. Add the observatio of soil temperature and soil moisture. 3. Mention the stalking of plants in methodology. **(Action:** Principal, Horticulture Polytechnic, Paria)
17.4.3.58	Effect of different growing media on growth of tomato seedlings raised in plug trays under polyhouse conditions	**Not Approved** **(Action:** Professor and Head, Horticulture, CoA, Bharuch)
17.4.3.59	Evaluation of new mutants in chrysanthemum in NV polyhouse	**Accepted with following suggestions** 1. All the scientist of other dept. should be work in collabration.

		2. Use the word repitions instead of replications. 3. Change the title remove new mutants. 4. Mention gross and net plot. 5. Border lines are essential. **(Action:** Professor and Head, Dept. Of Floriculture, Navsari)
17.4.3.60	Testing of genotypes in tuberose for cut flower	**Approved** **(Action:** Professor and Head, Dept. of Floriculture, ACHF, Navsari)
17.4.3.61	Testing of genotypes in tuberose for pot culture	**Approved** **(Action:** Professor and Head, Dept. of Floriculture, ACHF, Navsari)
17.4.3.62	Testing of new genotypes of gladiolus	**Accepted with following suggestion** 1. Add one more variety of gladious as Psittacinus hybrid **(Action:** Professor and Head, Dept. of Floriculture, ACHF, Navsari)
17.4.3.63	Effect of plant growth retardants on growth and flowering in pot Kalanchoe	**Approved** **(Action:** Professor and Head, Dept. Of Floriculture, Navsari)
17.4.3.64	Effect of different mulches and stimulants on China aster	**Not Approved** **(Action:** Principal, Polytechnic in Agri., Waghai)
17.4.3.65	Effect of N and P levels on growth and yield of golden rod cv. Local	**Accepted with following suggestions** 1. Spacing should be 45 x 45. 2. Recast treatment Fertlizer dose N_1= 150 N_2= 200 N_3= 250 P_1= 75 P_2= 100 K_1= 00 K_2= 50 3. Gross and net plot should be mentioned. **(Action:** Principal, Horticulture Polytechnic, Navsari)
17.4.3.66	Effect of pinching and foliar application of nutrients on growth, quality and yield of African marigold(*Tagetes erecta* L.) var. Punjab Gainda - 1	**Approved** **(Action:** Professor and Head, Deptt. of Floriculture, ACHF, Navsari)
17.4.3.67	Effect of plant growth regulators on rooting of kamini (*Murraya exotica*) cuttings	**Accepted with following suggestions** 1. Write clearly the methodology of the experiment. 2. Treatment should be preapared as P_0 PBZ @ 50 ppm P_1 PBZ @ 100 ppm

		P_2 PBZ @ 150 ppm 3. Change teh treatment as above and design and objective also accordingly. **(Action:** Professor and Head, Dept. Of Horticulture, NMCA, Navsari)
17.4.3.68	Standardization of method for extraction of passion fruits (*Passiflora edulis)* juice	**Approved** **(Action:** Professor and Head, Dept. of PHT, ACHF, Navsari)
17.4.3.69	Standardization of suitable blending proportion for preparation of spiced squash (appetizer) using passion fruits (*Passiflora edulis*) and bael fruits (*Aegle marmelos* L.).	**Approved** **(Action:** Professor and Head, Dept. Of PHT, ACHF, Navsari)
17.4.3.70	Standardization of formulation for preparation of fruit bar from sapota pulp	**Accepted with following suggestions** 1. Remove the economics from obervation list. **(Action:** Professor and Head, Dept. of PHT, ACHF, Navsari)
17.4.3.71	Effect of blanching and drying on quality of oyster mushroom (*Pleurotus ostreatus*)	**Accepted with following suggestions** 1. CRD factorial concept 2. Treatment combination 3. Objective as per design 4. Metion sample size in experiment. **(Action:** Professor and Head, Dept. of PHT, ACHF, Navsari)
17.4.3.72	Standardization of processing technology for dried *Kothimbda*/ *Kachri* (*Cucumis callosus* (Rottl.) Cogn.	**Not Approved** **(Action:** Professor and Head, Dept. Of Horticulture, CoA, Bharuch)

FORESTRY

Sr. No.	Title/ Centre	Suggestions
17.4.3.73	Fruit characterization, influence of pre-sowing treatments on germination and growth of seedlings in *Pterocarpus marsupium* Roxb.	**Accepted with following suggestions** 1. Add T_7:- Soaking fruits in luke warm water up to 48 hrs 2. Correct the title and treatment according to observation 3. Common name of the tree should be mentioned in the title 4. Add treatment 15 **(Action:**Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)

17.4.3.74	Influence of pre-sowing treatments on seed germination and seedling vigour in *Semecarpus anacardium* Linn.	**Accepted with following suggestions** 1. Days to germination, survival % time will be given. 2. Common name of the tree should be mentioned in the title **(Action:**Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)
17.4.3.75	Evaluation of germination media and organic manures for production of quality seedlings of *Soymida febrifuga* Roxb. A. Juss.	**Accepted with following suggestions** 1. Change the title as……effect of …..on germination, growth and quality 2.Up date the background information 3. Write the methodology in detail 4. Reverse the ratio of soil and organic matter 5. Days to germination, survival %, time will be given. **(Action:**Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)
17.4.3.76	Study of ecological structure of *Bauhinia malabarica* Roxb.	**Accepted with following suggestions** 1. Total quadrates should be 20. 2. Title recast as per objective. **(Action:**Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)
17.4.3.77	Variation in drupe characteristics and germination potential among different seed sources of Teak (*Tectona grandis* L.f.*)* in South Gujarat	**Approved** **(Action:**Professor and Head, Dept. SAF, CoF, ACHF, NAU, Navsari)
17.4.3.78	Dormancy and germination investigations in *Melia dubia* Cav.	**Accepted with following suggestions** 1. Year of completion should not be mention. (**Action:**Professor and Head, Dept. FBTI, CoF, ACHF, NAU, Navsari)
17.4.3.79	Study of bee flora of NAU campus and nearby areas	**Not Approved** Next year put in plant protection sub committee **(Action:**Professor and Head, Dept. FPU, CoF, ACHF, NAU, Navsari)
17.4.3.80	Growth performance of important bee floral plants in salt affected soils of South Gujarat	**Approved** **(Action:**Professor and Head, Dept. FPU, CoF, ACHF, NAU, Navsari)

S. D.AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title/Centre	Suggestions
17.4.3.81	Effect of water dipping and time of cutting on propagation of Dwarf Tagar (*Tabernae montana divaricata*)	**Accepted with following suggestions** 1. Treatment reframed as **Factor I: Duration of water dipping** W_1- 20 days dipping W_2- 30 days dipping W_3- 40 days dipping **Factor II: Time of planting** T_1- 1st week of May T_2- 1st week of July T_3- 1st week of September 2. Mention rooting media in poly bag 3. Add obsrvations on days to sprouting, days to initiation of rooting 4. Write note: Water will change twice in a week (**Action:** Professor and Head, Dept. Of Horticulture, CPCA, Sardarkrushinagar)
17.4.3.82	Effect of water dipping and time of cutting on propagation of Hamelia (*Hamelia patens*)	**Accepted with following suggestions** 1. treatment reframed as **Factor I: Duration of water dipping** W_1- 20 days dipping W_2- 30 days dipping W_3- 40 days dipping **Factor II: Time of planting** T_1- 1st week of May T_2- 1st week of July T_3- 1st week of September 2. Mention rooting media in poly bag 3. Add obsrvations on days to sprouting, days to initiation of rooting 4. Write note: Water will change twice in a week (**Action:** Professor and Head, Dept. Of Horticulture, CPCA, Sardarkrushinagar)
17.4.3.83	Response of organic manures and bio-enhancer on growth, yield and quality of Cabbage (*Brassica oleracea* var. capitata)	**Accepted with following suggestions** **1.** Take design RBD (Factorial) **2.** Treatment as B_2- Jivamrut @500 litre/ha as soil application at 30 days interval with irrigation

		3. Initial and after soil analyis for Ec, pH, OC, N, P and K. (**Action:**Principal, College of Horticulture, SDAU, Jagudan)
17.4.3.84	Effect of seed treatments on enhancement of guava seed germination	**Accepted with following suggestions** 1. Instead of 2 g seed use number or count 400 seed. 2. Extend the period of experimentation up to 120 days and take obsevation 3 to 8 up to 120 DAS 3.Time of sowing: July (**Action:** Assistant Research Scientist, FRS, Dehgam)
17.4.3.85	Physiochemical study of olive (*Oleae europaea* L.) leaves during different months of the year	**Accepted with following suggestions** 1. In all treatment take 2nd week of respective month insted of date **2.** Middle and mature leaves should be selected for analysis. **(Action:** Research Scientist, Agroforestry Research Station, Sardarkrushinagar)
17.4.3.86	High density planting in custard apple var. Phule Janaki	**Accepted with following suggestions** 1 Block plantation shoul be done and use stastical design Large Plot Techinque and analyse as per CRD design 2 Add observations on plant height, pulp weight, rag weight, seed weight, reducing sugar(%), total sugar (%) 3 Prunning should be done in May-June month 4 Mention RDF 5 Remove observation – Colour of fruit **(Action:** Research cientist,Agroforestry Research Station, Sardarkrushinagar)
17.4.3.87	Collection and evaluation of onion germplasm from different parts of the Gujarat state	**Not Approved** Next year this experiment should be present in crop improvment sub commiittee. **(Action:** Principal Scientist & Head, KVK, Khedbrahma)

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17.5 BASIC SCIENCE SUBCOMMITTEE

Meeting date: 24-26th May, 2021 via online video conference

Chairman	Dr. M. K. Jhala, DoR, AAU
Co-Chairmen	1. Dr. Y.M. Shukla, Principal and Dean, BACA, AAU 2. Dr. H. P. Gajera, Prof.& Head (Bio Tech), JAU
Rapporteurs	1. Dr. KapilTiwari, SDAU 2. Dr. J. J. Dhruv, AAU 3. Dr. R.S Tomar, JAU 4. Dr. A.V. Narwade, NAU
Statistician	Dr. Alok Srivastava NAU

NAME OF CONVENERS OF SAUS

Sr. No	Name	University
1.	Dr. Akarsh Parihar	AAU, Anand
2.	Dr. G. K. Kataria	JAU, Junagadh
3.	Dr. Sanjay Jha	NAU, Navsari
4.	Dr. Sarvesh Kumar Shah	SDAU, Sardarkrushinagar

The meeting of 17th Combined AGRESCO Basic Science Sub Committee regarding "Recommendation for Farmers and Scientific Community as well as New Technical Programmes" was held during 24 – 26th May, 2021 via video conferencing.

At the outset, Dr. M. K. Jhala, Director of Research and Dean P.G. Studies, AAU, Anand welcomed Dr. K. B. Kathiria, Hon. Vice Chancellor AAU, Anand, Co-Chairmen and conveners as well as all the members of 17th Combined AGRESCO Basic Science Sub Committee.

As per the opening remarks given by Dr. K. B. Kathiria, Hon. Vice Chancellor AAU, Anand, he emphasized that the basic science group is related to various disciplines such as Physiology, Biochemistry, Tissue culture, Biotechnology, Bioinformatics, Microbiology etc. With regard to plant breeding for biotic and abiotic stresses, he suggested that there is huge need to study the physiological parameters thoroughly both at the phenotypic and molecular level. He stressed on collaborative work and discussed about the role of speed breeding, double haploid breeding, distant hybridization, nanotechnology and bioinformatics in accelerating the crop productivity by reducing time of breeding cycle of a crop and achieving the Rapid Generation Advancement.

In the welcome speech, Chairman of this event, Dr. M. K. Jhala emphasized on the importance and use of "high-tech" novel technologies recommended globally in agricultural biotechnology including CRISPR/Cas9 based Genome editing, genome sequencing, RNAi-based gene silencing, new plant breeding techniques (NPBT) including site specific mutagenesis and deploying genes from cross-compatible species through transgenesis (gene transfer), cisgenesis, breeding with transgenic inducer line, RNA-dependent DNA methylation (RdDM), reverse breeding, agro-infiltration, grafting techniques and speed breeding. He emphasized to strengthen the area of Bioinformatics in order to handle the enormous genomic data being rapidly generated through biotechnological research and to make valid and useful inferences from the analyzed data.

He urged members for an active participation and critical discussion on recommendations and appreciated the efforts made by the scientists of all the four State Agricultural Universities for coming up with such an output in the form of recommendations and new technical programmes.

The technical session of Recommendations was chaired by Dr. M. K. Jhala, Director of Research and Dean P.G. Studies, AAU, Anand and Co-chaired by Dr. Y. M. Shukla, Principal & Dean, B.A.C.A., AAU, Anand and Dr. H. P. Gajera, I/c. Professor & Head, Department of Biotechnology, JAU, Junagadh.

Recommendations and New Technical Programmes were presented by Dr. Akarsh Parihar, Convener AAU, Anand, followed by Dr. G. K. Kataria, Research Scientist (Pl. Physiol), JAU, Junagadh., Dr. Sanjay Jha, Convener, NAU, Navsari; and Dr. Sarvesh Kumar Shah, Convener, SDAU, SK Nagar.

The Plenary session was chaired by Dr. K. B. Kathiria, Hon. Vice Chancellor AAU, Anand. In his address, Dr. K. B. Kathiria stressed upon to enhance the level of collaborative research to make it more applied and product oriented. He appreciated the efforts made by all the scientists of the Basic Science group for conducting the research efficiently and coming up with useful outcome of the experiments. He encouraged all the scientists applauding the hard work with zeal to further intensify and enhance the quality of the research work. There were very fruitful deliberations made throughout the presentation of recommendations. He suggested to all the scientists to critically refer the recent research publications to support their research findings. He further added that the findings obtained in the various experiments must be supported by the molecular validation. All the recommendations presented by different conveners were thoroughly discussed at length by the house and approved/deferred with critical suggestions.

The meeting was ended with vote of thanks by Dr. Sarvesh Kumar Shah, Convener, SDAU, S.K. Nagar.

SUMMARY OF RECOMMENDATIONS

Name of University	**No. of Recommendation**					
	Farming /Entrepreneur/ Industries Community		**Scientific Community**		**Total**	
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**
AAU, Anand	00	00	04	04	04	04
JAU, Junagadh	03	01	06	06 + 01*= 07	09	08
NAU, Navsari	00	00	03	02	03	02
SDAU, S. K. Nagar	00	00	03	03	03	03
Total	**03**	**01**	**16**	**16**	**19**	**17**

Note: a) * Recommendation shifted from farming community to scientific community.

17.5.1. RECOMMENDATIONS FOR FARMING/ ENTREPRENEUR/ INDUSTRIES COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Centre/ Title
	-Nil-

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Centre/ Title
17.5.1.1	Influence of Plant Growth Retardants on Morpho-Physiological Traits and Yield in High Density Planting Cotton (*Gossypium hirsutum* L.)
	Recommendation in English: The farmers of Saurashtra region growing irrigated Bt cotton hybrids under HDPS (90cm x 30cm) are recommended to spray growth inhibitor Mepiquat Chloride (MC) @ 50 ppm (0.5 g a.i. /10 litre water) at boll development stage for balanced growth, higher seed cotton yield and net return.
	Recommendation in Gujarati: સૌરાષ્ટ્ર વિસ્તારનાં પિયત બી.ટી. કપાસની સંકર જાતોનું ઘનિષ્ઠ ખેતિ પધ્ધતિમાં (એચડીપીએસ - ૯૦સેમી x ૩૦સેમી) વાવેતર કરતા ખેડૂતોને ભાલામણ કરવામાં આવે છે કે કપાસની સંતુલિત વૃદ્દિ્ધ, વધુ ઉપજ અને ચોખ્ખુ વળતર મેળવવા માટે કપાસની જીંડવા વિકાસની અવસ્થાએ ૫૦પીપીએમ (૦.૫ગ્રામ સક્રિય તત્વ/૧૦લી પાણીમાં) વૃદ્દિ્ધનિયંત્રક મેપીક્વેટ ક્લોરાઈડનો છંટકાવ કરવો.
	The recommendation is approved as mentioned above with following suggestions- 1. Mention the SPAD value in chlorophyll data 2. Add 50ppm active ingradient of Mepiquat Chloridein text 3. Recast language
	(Action: Research Scientist, Cotton Research Station, JAU, Junagadh)
17.5.1.2	**Canopy Management in HDPS Cotton Under High Fertility Condition (AICRP Trial)**
	Recommendation in English: The farmers of Saurashtra region growing irrigated non Bt cotton hybrids under HDPS (60cm x 15cm) are advised to spray growth inhibitor Mepiquat Chloride (MC) @ 40 ppm (0.4 g a.i. /10 lit. water) at 60 & 75 DAS for balanced growth, higher seed cotton yield and net return. This is due to increased in the number of sympodia & sympodial length.

	The recommendation has been approved as Scientific Recommendation with above language.
	(Action: Research Scientist, Cotton Research Station, JAU, Junagadh)
17.5.1.3	**Physiological Screening of Bunch Varieties of Groundnut (*Arachis hypogaea L.)* under dry farming condition**
	The project already concluded, hence <u>not approved</u>. **(Action: Research Scientist, Main Dry Farming Research Station, JAU, Targhadiya)**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Centre/ Title
	-Nil-

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Centre/ Title
	-Nil-

17.5.1.2 RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Centre/ Title
17.5.2.1	Green synthesis of metallic nanoparticles and their antimicrobial activity against plant pathogens
	Recommendation in English: Green synthesis of zinc oxide nanoparticles using plant leaves extract and a pH based reduction (pH maintained by 0.1 N NaOH) has been standardized by Anand Agricultural University. Sunlight exposure for 20 mins effectively synthesized zinc oxide nanoparticles using 0.1M zinc sulphate as a substrate and 2.5 ml of 5% Neem leaves extract as a reducing agent. The size of green synthesized zinc nanoparticles ranges from 157.6 to 336.0 nm following sunlight exposure. Further reduction of size and large scale production of nanoparticles achieved at basic pH ranging from 9.5 to 11.0. The size for pH mediated synthesized ZnO nanoparticles ranges from 6.12 to 172.15 nm with poly dispersity index ranges from 0.221 to 0.315 and zeta potential ranges from -54.0 to -63.8 mV. These synthesized nanoparticles possessed excellent anti-microbial activity as revealed by *in vitro* growth inhibitory studies against various bacterial (*Xanthomonas oryzae*, Date palm isolate 9 and 11) and fungal (*Macrophoemina sp.*, *Sclerotium sp.*, *Fusarium sp.*, *Alternaria burnsii* and *Alternaria solani)* plant pathogens.
	The recommendation is approved with following suggestions 1. Confirmation of ZnO through XRD and its purification detail 2. For adjustment of pH, addition of 0.1N NaOH should be added in text 3. Check CV value. 4. Write the names of plant pathogen in the recommendation text.
	(Action: Principal Investigator, Nanotechnology, Department of Agricultural Biotechnology, AAU, Anand)
17.5.2.2	Synthesis and characterization of hydroxyapaptite nanoparticles and its potential applications as phosphorous fertilizers
	Recommendation in English: A wet chemical synthesis method of hydroxyapatite nanoparticles as a source of phosphorus fertilizer has been standardized by Anand Agricultural University. Calcium hydroxide and phosphoric acid of analytical grade can be used for the synthesis of HAP nanoparticle. The particle size of synthesized nanoparticle ranges from 227.5 to 1565.0 nm with poly dispersity index ranging from 0.288 to 1.000. The zeta potential of synthesized stabilized nanoparticle was found to be -46.7mV. Among different treatment combinations, 0.04% CMC is best suited for providing coating to overcome aggregation of particles. The synthesized HAP particles exhibited growth stimulatory effects on soybean plant and could be used

	as a solubilised P fertilizer in enhancing plant yield and biomass production.
	The recommendation is approved with following suggestions- 1. Write plants instead of crops 2. Write the size of nano particles, add zeta potential 3. Instead of P fertilizer, use the word solubilised P fertilizer 4. Replace word 'crops'with 'crop'; 'nanoparticles' with 'nanoparticle' and 'yields' with 'yield'
	(Action: Principal Investigator, Nanotechnology, Department of Agricultural Biotechnology, AAU, Anand)
17.5.2.3	Marker assisted selection for RKN resistance in Tobacco
	Recommendation in English: In *bidi* tobacco, SSR markers namely, PT20149, PT30346 and TM11008 found linked with leaf thickness trait and TM10083, TM10820, PT20213 and TM10816 found linked with RKN resistance can be successfully used to transfer both the traits from A119 and ABT10, respectively. In addition, these markers can be successfully used to screen the germplasm at seedlings stage to identify genotypes having thickened leaf and RKN resistance.
	The recommendation is approved with following suggestions- 1. Keep only 'p' value , remove the 'f' value from the table 2. Recheck normal distribution plot curve with concern of statistician.
	(Action: Professor & Head, Dept. of Agril. Biotech., AAU, Anand)
17.5.2.4	Development of colchiploid in *desi* Cotton (*Gossypium herbaceum* L)
	Recommendation in English: The scientific community involved in induction of polyploidy through colchicine treatment in genotypes of *desi* cotton (*Gossypium herbaceum* L) namely ALF-1027, 4011 and V-797 through various methods *viz.* treatment after germination, cotton swabbing method and seed soaking method with different colchicine concentrations (0.2%, 0.4%, 0.6%, 0.9%, 1.0% and 1.5%) is recommended to use the seed soaking method with 0.2% colchicine concentration and water soaking and colchicine soaking for 24 hrs and 16 hrs, respectively, for better induction of polyploidy among the three methods.
	The recommendation is approved with following suggestions 1. Add time of seed soaking in text
	(Action: Professor & Head, Dept. of Agril. Biotech., AAU, Anand)

JUNAGADH AGRICULTURAL UNIVERSITY

Sr. No.	Centre/ Title
17.5.2.5	Canopy Management in HDPS Cotton Under High Fertility Condition (AICRP Trial)
	Recommendation in English: The farmers of Saurashtra region growing irrigated non Bt cotton hybrids under HDPS (60cm x 15cm) are advised to spray growth inhibitor Mepiquat Chloride (MC) @ 40 ppm (0.4 g a.i. /10 lit. water) at 60 & 75 DAS for balanced growth, higher seed cotton yield and net return. This is due to increased in the number of sympodia & sympodial length, number of bolls & boll weight and maximum transportation of photosynthates into bolls.
	The recommendation has been approved as Scientific Recommendation with above language.
	(Action: Research Scientist, Cotton Research Station, JAU, Junagadh)
17.5.2.6	Elemental, Nutritional and Microbiological Analysis of Panchagavya (Ancient Liquid Organic)
	Recommendation in English: The Scientific community involved in Panchagavya research or microbial research are recommended to use 19th day old Panchagavya to study maximum microbial diversity. The higher proportion of α-proteobacteria was observed in 19th day of Panchagavya preparation while 21st Day Panchagavya formulation was found to be dominated by Firmibacteria, β-proteobacteria or Actinobacteria. The presence of unknown /novel microbes were higher in 21st day old Panchagavya on the basis of results of Metagenomic analysis. **a) Panchagavya** contained dominant bacteria of nitrogen fixing, phosphate solubilizers and potash mobilizers. Moreover, it showed antagonism towards plant pathogenic fungi like *Helminthosporium* (47%), *A. flavus* (45%), *A. niger* (35%) and *Sclerotiumrolfsii* (40%) *in vitro*. Elemental composition of Panchagavya showed higher concentration of Fe (158.94 ppm), Ca (2789.99 ppm), Mg (1553.76 ppm) and Mo (25.50 ppm). It also contained N-Methyl-2-pyrrolidinone used as insecticide, herbicide and fungicide. Phenylacetaldehyde is a second major compound found which has very important antibiotic compound. **b) Bijamrut** elemental analysis revealed that it contains Cu (4.19 ppm), Fe (111.16 ppm), Mn (1.56 ppm), Zn (2.40), Ca (1211.63 ppm) and Mg (1084.65 ppm) which can provide immunity against various diseases and improve seed germination. It also contained important compound 5(6)-EpETrE-EA which has antagonist activity against pathogenic microbes. 17 beta-Nitro-5alpha-androstane is the aza-steroid which enhances the germination of plant seed. **c)** Liquid organic preparation of **Jivamrut** has bacteria, fungi, actinomycetes, N-fixers and P-solubilizers and K-mobilizers. Jivamrut inhibited *Helminthosporium*

	(40%), *A. flavus* (30%), *A. niger* (25%) and *Sclerotiumrolfsii* (35%), *Fusarium oxysporum* (35%). Jivamrut contains high concentration of Fe (115.09 ppm), Ca (1575.78 ppm), Mg (621.57ppm) and Co (88.90 ppm). LC-QToF analysis showed Pyropheophorbide is an antioxidant found in Jivamrut. **d) Amrutpani** is a good source of micronutrient which includes high concentration of Fe (208.44 ppm), Ca (2276.73 ppm), Mg (1119.15 ppm) and Ti (73.05 ppm). LC-QToF analysis revealed that Adouetine Z is an insecticidal cyclic peptide and (5alpha, 8beta, 9beta)-5,9-Epoxy-3,6-megastigmadien-8-ol is an antioxidant compound found in Amrutpani. **e) Sanjivak** has antagonist activity and micronutrient content with important compound like Methyl jasmonate.
	The recommendation is approved with following suggestions: 1. Add methodology for metagenomics 2. Mention the time and source of sample collection 3. Reduce the size of text as per format
	(Action: Prof. & Head, Dept. of Biotechnology, College of Agriculture, JAU, Junagadh)
17.5.2.7	BCJ - 55:Studies on Phytochemicals And Metabolomics Profiling of Seaweeds
	Recommendation in English: The seaweed resources viz., Green, Red and Brown seaweeds analyzed through Ms/Ms based platform showed presence of 375 unique compounds. These seaweeds were found to contain important oil content, vitamin D3 and many bioactive compounds that can be used as nutraceutical products . In case of ω-3 polyunsaturated fatty acids, eicosapentaenoic acid (EPA) was found in seaweed species, viz., *Sarconema filiforme* (5.02%) and *Spatoglossum asperum*(4.04%). Vitamin D-3 was found in *Caulerpa Lenthilifolia* (16.7%), *Caulerpa sertulorioides* (8.5%), *Ulva fasciata* (10.7%) , *Halimeda tuna* (12.7%) , *Hydroclatharus clathratus* (18.9%), *Halymenia venusata* (6.5%), *H. porphyraeformis* (20.6%), *Dictyopteris marginatum*, *Gelidiopsisrepens* (18.2%) and *Heterosiphonia muelleri* (26.1%). Some species of seaweeds viz, *Dictyopterisdelicatula* (2.68%), *Heterosiphonia muelleri* (0.24%), *Dictyopterismarginatum (stoecospermum)* (4.07%), *Spatoglossum asperum* (8.1%), *Padina gymnospora*(4.86%), *Caulerpa lenthilifolia* (0.96%)contained docosahexaenoic acid (DHA). These compounds are not found in plants.
	The recommendation is approved with following suggestions: 1. Mention the nutraceutical value of compound. 2. Remove the MUFA/PUFA ratio. 3. Recast the recommendation by adding “these compounds are not found in plants” in the recommendation.
	(Action: Prof. & Head, Dept. of Biotechnology, College of Agriculture, JAU, Junagadh)

17.5.2.8 Transcriptome and Proteomic Characterization for Identification of Candidate Genes Responsible for Pistillate Inflorescence and Its Reversion in Castor

Recommendation in English:

The scientific community involved in Castor improvement are recommended to use the set of 14 primers as mentioned below to distinguish the pistillate and monoecious plants in castor. They are also advised to use the castor database developed (http://webtom.cabgrid.res.in/castdb/) for the identification of gene of interest and selection of SSRs and their primers to be used under Marker Assisted Selection and molecular breeding.

Sr. No	Name of the Gene	Forward primer	Reverse Primer	Gene Function
1	Dynamin-2A	GCTAAGCAAGGG T TC GTCAG	CTGGCAGGTCGATCAA TTTT	Response to hormone stimulus
2	Auxin response factor	CACACATGGTGG G TT CTCAG	TGAGTTGGTGGTTGCA TTGT	Organ development; and post-embryonic development
3	ATP-binding protein	CATTGGACAGGT CCT CCACT	AAGCAAGGTGAAGCA AGGAA	Regulation of ARF protein signal transduction
4	Spermidine synthase	GGTGCTGCATTTC TC TCCTC	TGCCCTGGAATAAATC TTGC	Polyamine biosynthetic process
5	Xaa-pro amino peptidase	GGATGGAAGCTTT GG CATAA	GCCCTTCTCACCAAAA TTGA	Auxin transport
6	Conserved hypothetical protein	TCGAATGAAGAG GCC ATTCT	GTGAGAAGGGCAAAA GCAAG	Abscisic acid metabolic process
7	MADS box protein	AAAGGTTGGCCTG A GGAGTT	GTCACTTGCCTGTTGC TTGA	Transcription, DNA-dependent
8	RNA polymerase sigma factor rpoD1	GATCTTCAGGCAA G CACTCC	ATATCCTCCCCTTGGT C CAC	DNA-dependent transcription, initiation
9	Protein with unknown function	TTGTCAAGGGCCA G TTCTTT	TTGACCTGCTGTGTCC C ATA	Guanylribonucleotide binding
10	Arginine/serine-rich splicing factor	CGGAAGCTTGATG A CACTGA	GGCTTCTACTTCGGCT C CTT	Sex differentiation
11	Acid phosphatase	TCCTGTAACCGTT CC TTTCG	TGTTCAGGCTCGAAAC CTCT	Phosphatase activity
12	DNA replication helicase dna2	AGGCTGTGAATA ACC CAACG	CCCAATATCTTCGCCT T GAA	DNA metabolic process
13	Eukaryotic translation initiation factor2c	CACGACTTTTTCC CG TTGAT	GAACTCCCTCTGGTGG CATA	Translation
14	s-adenosyl-methyltransferase	TCTCCGTTCTTTC GT CGATT	GGGTCAACATCCATTC CAAC	rRNA methylation

The recommendation is approved.

(Action: Prof. & Head, Dept. of Biotechnology, College of Agriculture, JAU, Junagadh)

17.5.2.9 Genome Sequencing of Cumin (*CuminumcyminumL.*) to Reveal Insight of its Genomic Architecture

Recommendation in English:

The scientific community involved in Cumin improvement are recommended to use genomic information generated (https://drive.google.com/file/d/ 1ukln R77l YWJcR Ip8m40lLpm OP_ujqJz/view ?usp=sharing) for cumin in Marker Assisted Selection for the improvement of cumin. They are also advised to use the genes identified as mentioned below and SSRs identified in Marker Assisted Selection.

Sr. No.	Character	Number of genes	Gene identified
1.	Flavonoid	21	U78D2, C75A2, C75A4, C75B3, C93C F3PH, FAOMT, FL3H3, MOMT, SOMT SOT5, UFOG, UFOG1, UFOG2, UFOC UFOG4, UFOG5, UFOG6, UFOG7, UGF(and Y1103
2.	Chalcone synthase	9	6DCS, CHS1, CHS2, CHSA, CHSB, CHS CHSL1, CHSY, PKS5
3.	Chalconeisomerase	4	CFI, CFI1, CFI2B, CFI3
4.	Flavanone synthase	3	C93C1, FNSI, C93B1
5.	Terpenoid synthase	15	BAMS, GBIS1, GBIS2, HUMS, TPS(TPS05, TPS07, TPS08, TPS09, TPS1 TPS18, TPS22, TPS26, TPS29, TPS30
6.	Disease resistance	89	ADR2, CDR1, CHS1, CSA1, DF230, DR2(DRL12, DRL13, DRL14, DRL15, DRL1 DRL17, DRL18, DRL19, DRL2, DRL2 DRL21, DRL23, DRL24, DRL25, DRL2 DRL27, DRL28, DRL29, DRL3, DRL3 DRL31, DRL32, DRL33, DRL34, DRL3 DRL37, DRL38, DRL39, DRL4, DRL4 DRL41, DRL42, DRL43, DRL45, DRI DRL7, DRL8, DRL9, DSC1, DSC2, EDI EDR2, EDR2L, EDR4, LAZ5, LOV1 NDR1, R13L1, R13L2, R13L3, R13I RFL1, RGA1, RGA2, RGA3, RGA RLM1B, RLM3, RP8HA, RP8L2, RP8I RP8L4, RPM1, RPP1, RPP13, RPP4, RPI RPP8, RPS2, RPS4C, RPS4L, RPS4 RPS5, RPS6C, RPS6R, RPS6R, SUMM TAO1, WR52C, WR52N, WR52R, WR52 Y4117
7.	Antifungal	4	DEF1, DEF15, DEF2, DEF4
8.	Early flowering	13	ASHH2, EFM, ELF3, ELF6, HD16N, PAI PIE1, REF6, RUP1, RUP2, SKIP, SW(VIP6
9.	Aromatic	11	5MAT, ANTA, AVT3A, AVT3B, AVT3 DDC, ISS1, PGL1, PGL2, PGL3, SOT16

10.	Drought	8	AL7A1, DIS1, ERG14, HDG11, LSM5, SAD2, SDIR1, SSP1A
11.	Nematodes	2	ELF3, HSPR2

The recommendation is approved with following suggestions:

1. Specify the genes related to nematode resistance and drought resistance
2. Use marker assisted selection in place of Genomic assisted selection

(Action: Prof. & Head, Dept. of Biotechnology, College of Agriculture, JAU, Junagadh)

17.5.2.10 Transcriptome Analysis in Coriander for Identification of Candidate Genes Against Stem Gall Disease

Recommendation in English:

The scientific community involved in Coriander improvement is recommended to use the following set of **7** primers in the process of marker assisted selection for the identification of disease defense genes in coriander genotypes.

Sr. No	Gene Name	Forward Primer	Reverse Primer	Function
1.	RL31	GCCAAACCAAAAG GTGAGAA	CGGATACCCTTA GCCCAGAT	Jasmonic acid mediated signaling pathway
2.	A0A2Z5D8 54	CCACCGTTTCCAAT GCTAGT	GGAATCTCTCGG GCCTAAAC	Metal ion binding
3.	A0A166CJ7 4	ATTGGCTGAGCTTT GGATTG	GGCTTGATGCTC CATTGTTT	Regulation of transcription DNA-template
4.	A0A166CJ7 4	CACGCATTTCTCCT CCTGAT	TCAGAGGGGGT TTTCTGATG	DNA-template
5.	Y1934	ACTCGGTGTCACGG TTTTTC	CAAAAGCCGAG ATTGTGGAT	Molecular function DNA-binding
6.	TGA10	CCCTGTTGGGAAAC TTCGTA	GCTGCAAAGGT CCAGCTATC	Nitrogen-activated protein kinase binding
7.	A0A164XU Z0	GAGTTGGAGTTCAG GGAGGA	GATGAGCGGGA TATCTGGAA	Affects Fungal Development and Pathogenicity of Fusarium graminearum

The recommendation is approved with following suggestions:

1. High and low value indicates for RT-PCR values.
2. Reduce the number of primers to be recommended and keep only highly relevant genes up to 6 to 8.

(Action: Prof. & Head, Dept. of Biotechnology, College of Agriculture, JAU, Junagadh)

<table>
<tr><td rowspan="4">17.5.2.11</td><td>Biochemical and Molecular Evaluation of A1 and A2 Casein Protein of Milk in Holstein Friesian Cow and Indigenous Gir Cow</td></tr>
<tr><td>Recommendation in English:
The scientific community involved in cow improvement is recommended to use DNA markers to detect or distinguish A1A2 and A2A2 genotypic frequency among the Gir Bulls and Cows using below mentioned marker.
<table>
<tr><td rowspan="2">1</td><td>A1 Forward</td><td>5’ CTTCCCTGGGCCCATCCA 3’</td></tr>
<tr><td>A1 Reverse</td><td>5’ AGACTGGAGCAGAGGCAGAG 3’</td></tr>
<tr><td rowspan="2">2</td><td>A2 Forward</td><td>5’ CTTCCCTGGGCCCATCCC 3’</td></tr>
<tr><td>A2 Reverse</td><td>5’ AGACTGGAGCAGAGGCAGAG 3’</td></tr>
</table></td></tr>
<tr><td>The recommendation is approved with following suggestions:
1. Instead of cattle improvement, use word Cow improvement
2. Delete word Marker Assisted Selection from the text.</td></tr>
<tr><td>(Action: Prof. & Head, Dept. of Biotechnology, College of Agriculture, JAU, Junagadh)</td></tr>
</table>

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

<table>
<tr><th>Sr. No.</th><th>Centre/ Title</th></tr>
<tr><td rowspan="4">17.5.2.12</td><td>Study of free living nitrogen fixing bacterial diversity with respect to seasonal variation</td></tr>
<tr><td>Recommendation in English:
The post monsoon isolate A19 (Streptomyce scoelicolor) and A28 (Bacillus altitudinis) can be used due to their multiple in vitro plant growth promoting activities along with the living nitrogen fixing potential.</td></tr>
<tr><td>The recommendation is approved with following suggestions-
1. Replace word ‘could’ with ‘can’ in the recommendation text.
2. Remove ‘free’ word from the recommendation text.
3. Write accession number in the recommendation text.</td></tr>
<tr><td>(Action: Prof. & Head, Dept. of Plant Pathology, College of Agriculture, NAU, Bharuch)</td></tr>
<tr><td rowspan="2">17.5.2.13</td><td>Optimization of expression level of recombinant protein from E. coli host strain BL21(DE3)</td></tr>
<tr><td>Recommendation in English:
Expression level of recombinant protein from E. coli host strain BL21 (DE3) with the addition of salts cocktail solution (10.1294 gm%), Glycerol (0.600253 gm%), Tryptone (1.58441 gm%), Yeast extract (1.28801 gm%) and IPTG (0.347879 mM) leads to the increase in cellulase activity (1.76 fold), chitinase</td></tr>
</table>

	activity (1.36 fold) and protease activity (3.55 fold). The activity was found to be 0.09 U/ml for cellulase, 0.05 U/ml for chitinase and 45.08 U/ml for Protease.
	The recommendation is approved with following suggestions- 1. Recast the recommendation by adding new line 'Expression level of recombinant protein from *E. coli* host strain BL21 (DE3) in' at the start of recommendation paragraph. 2. Convert value into two digit in the recommendation text and rewrite accordingly. 3. Add mortal equation.
	(Action: Prof. & Head, Dept. of Plant Molecular Biology and Biotechnology, ACHF, NAU, Navsari)
17.5.2.14	*In silico* characterization of different banana bunchy top virus (BBTV)
	Recommendation in English: Comparing BBTV different genome components at nucleotide (DNA-R and DNA-U3), and amino acid level (DNA-C and DNA-U3) during *in silico* characterization of different banana bunchy top virus (BBTV) showed maximum genetic variability in all reported BBTV strains. Comparing DNA- R (Replicase protein) and DNA-S segments (Coat protein), majority of Indian isolates match with isolates of the countries in East and Southeastern Africa region and belong to Pacific-Indian Oceans (PIO) groups of BBTV isolates classification. BBTV coat protein model showed maximum binding affinity with NBS-LRR class resistance protein. Three mutagenic epitope (IADEFYVERL, SKRFLLVLDD &WEFFKQCAFSS) were predicted from BBTV coat protein region.
	The recommendation was not approved this year and suggested to present next year with following suggestions- 1. 'in silico analysis' words should be included in recommendation text. 2. Check model validation used in the study. 3. Discuss with Dr. Akarsh Parihar, AAU and Dr. Karen Pachchigar, SDAU for regarding the reframing the recommendation text. **(Action: Principal and Dean, ASBI, NAU, Surat)**

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

Sr. No.	Centre/ Title
17.5.2.15	Assessment of zinc solubilization potential of bacteria isolated from soil
	Recommendation in English: It is recommended to scientific community that two bacterial isolates ZSB 1 (Gen Bank accession number MW793492) and ZSB 5 (GenBank accession number MW793493) with zinc solubilizing traits were obtained from root zone soil. The BLAST homology search against 16S rRNA gene sequence of the isolates with code ZSB 1 and ZSB 5 showed 98.93% and 98.90% similarity with

pathogenic bacteria *Cronobacter malonaticus* (isolated from a breast abscess) and *Pseudomonas paralactis* (isolated from cow's raw milk), respectively. ZSB 1 and ZSB 5 recorded zinc carbonate solubilization index of 4.04±0.66 and 3.44±0.51, zinc oxide solubilization index of 3.01±1.71 and 2.96±0.27, zinc phosphate solubilization index of 2.82±0.17 and 1.96±0.73, respectively.

The recommendation is approved with following suggestions-

1. Approval number of experiment should be mentioned
2. Specify the source of samples i.e. Root zone or root rhizosphere

(Action: Head, Dept. of Microbiology, CBSH, Sardarkrushinagar)

17.5.2.16 Mining and characterization of EST-SSR markers for oil content in Castor (*Ricinus communis* L.)

Recommendation in English:

It is recommended to scientific community involved in castor improvement to utilize following newly *in silico* developed EST-SSR markers for genetic improvement/ marker assisted breeding of castor.

Sr. No.	Primer Name	SSR Motif	Function	Sequence (5' to 3')	
1	CES-1	(AC)15	3-oxoacyl-[acyl-carrier-protein] synthase II	F	CGGCCCTCCATTACATAACA
				R	CGGCAGCACTTTATCAACAC
2	CES-2	(CTT)11	3-oxo-Delta(4,5)-steroid 5-beta-reductase	F	CCGACTGTTAGCATTAGCCTGT
				R	CGCGTCATCTTCTTCCTGTT
3	CES-6	(TTCT)5 (TC)13	fatty acid hydroperoxidelyase	F	TCCAGCGAACACAAACAAAC
				R	CCAAATCGAAATCCGTCATC
4	CES-8	(ATG)5	oleosin 1	F	CGGTTTGATTATGCCCGTAG
				R	AGAAGAAAAGCACAATAACAAGA
5	CES-9	(CAG)5	acyl-coenzyme A thioesterase 13	F	ACGAGGCTCAGTGGATTTG
				R	AAAAGGCGAGGAGGGACTT
6	CES-12	(CTT)6	hydroxyacyl-ACP Dehydrase	F	CCGCCATTCTCTTCTAAAACC
				R	AAATTCGAGGGAGAGCCAAA
7	CES-15	(AAG)6 (ATA)7	type 2 diacylglycerolacyl transferase	F	GAAGAAGAAATGGGGGAAGAA
				R	CAGGAGGAATGTGGGAAAAG
8	CES-16	(TCT)8	oleosin 18.2 kDa	F	GTGCCCAAAGTTGTCTCCTC
				R	TCACCCATACTCGGCATAAA
9	CES-19	(TA)9	3-ketoacyl-CoA synthase 6	F	TGGGCTGATTGCATTGATAG
				R	GAGGAGAAGAGAAGAGCGTGAA
10	CES-21	(AGA)6 (ATA)7	type 2 diacylglycerolacyl transferase	F	ATGGCGGAGAGGTCGATG
				R	AACGCTAACAGTGCGTGAAA

The recommendation is approved with following suggestions-

1. Experiment approval No. Should be mentioned.

	2. Keep the function of molecular markers in table. 3. Keep the data related to oil content
	(Action: Professor and Head, Dept. of GPB, CPCA, Sardarkrushinagar)
17.5.2.17	Evaluation of Nutritional and Antinutritional properties of Pearl Millet
	Recommendation in English: The pearl millet line '42852-HP' is having higher amount of true protein (11.12%) and iron (99.00 ppm) and lower amount of phytic acid (346.25 mg/100gm) in grain, so it can be utilized in breeding programme to improve grain quality of pearl millet.
	The recommendation is approved with following suggestions- 1. Check the unit of Zn and Fe 2. Change the text as "The pearl millet line '42852-HP' having higher amount of true protein (11.12%) and iron (247.50 mg/100gm) and lower amount of phytic acid (346.25 mg/100gm). 3. Include antimicrobial activity result in conclusion part. 4. The word 'Grain quality' should be added in the recommendation.
	(Action: Head, Dept. of Biochemistry, CBSH, Sardarkrushinagar)

17.5.3 NEW TECHNICAL PROGRAMMES

SUMMARY OF NEW TECHNICAL PROGRAMMES

Name of University	No. of New Technical Programmes	
	Proposed	Approved
AAU, Anand	08	08
JAU, Junagadh	07	06
NAU, Navsari	25	20+2**
SDAU, S. K. Nagar	06	04+1**
Total	**46**	**38 +3 ****

** Feeler trail

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestions	Remarks
17.5.3.1	Green synthesis of iron oxide nanoparticles and evaluation of its nano-priming activity in rice	The new technical programme is approved with following suggestions- 1. XRD analysis should be carried out for the synthesized nanoparticles. 2.80 ppm concentration is to be included in treatment. 3. Duration (days or leaf stage) should be specified for the data collection. 4. Quantification (Zeta size, particle size) of synthesized nanoparticles should be carried out. 5. GCMS profiling of neem extract should be carried out prior to synthesis of green nanoparticles. 6. Measure Fe concentration before initiation of experiment. 7. Measure Fe concentration of nanoparticle after recovery. **(Action: Asstt. Res. Sci., Centre for Advanced Research in Plant Tissue Culture, Department of Agricultural Biotechnology, AAU, Anand)**	**Approved**
17.5.3.2	Synthesis and characterization of urea-hydroxyapatite nanohybrids and study of its growth promotory effects on wheat	The new technical programme is approved with following suggestions- 1. XRD analysis should be carried out for the synthesized nanoparticles. 2. Positive control is to be included in the treatment. 3. Number of plants is to be mentioned. 4. Three concentrations each of urea and	**Approved**

<table>
<tr><td></td><td></td><td>HAP is to be included for better comparison of treatments.
(Action: Asst. Res. Sci., Centre for Advanced Research in Plant Tissue Culture, Dept. of Agril. Biotech., AAU, Anand)</td><td></td></tr>
<tr><td>**17.5.3.3**</td><td>Physiological and molecular responses of zinc (bulk and nano) particles on seedling growth of wheat (*Triticum aestivum* L.)</td><td>The new technical programme is approved with following suggestions-
1. Duration (days or leaf stage) should be specified for the data collection
2. Quantification (Zeta potential, Zeta size) of synthesized nanoparticles should be carried out.
3. Zinc sulphate instead of zinc oxide is to be used in treatment.
4. Measure Zn concentration of nanoparticle after recovery.
(Action: Asst. Res. Sci., Centre for Advanced Research in Plant Tissue Culture, Dept. of Agril. Biotech., AAU, Anand)</td><td>**Approved**</td></tr>
<tr><td>**17.5.3.4**</td><td>Identification of marker-trait association in *desi* cotton for lint yield and quality traits</td><td>The new technical programme is approved with following suggestions-
1. Add days to Maturity
2. Add No. of Sympodia/plant
3. QTL marker to be added

(Action: Professor & Head, Dept. of Agril. Biotech., AAU, Anand)</td><td>**Approved**</td></tr>
<tr><td>**17.5.3.5**</td><td>Impact of source manipulation practices on morpho-physiological, biochemical and sennosides biosynthesis gene expression of senna (*Cassia alexandriana* Mill.) under different harvesting stage</td><td>The new technical programme is approved with following suggestions-
1. Write the time of harvest and pattern
2. Sennosides related gene to be included
3. Add No. of branches in observations
4. Mention sennosides total (a,b,c,d,e)
5. Add name of Co-PI , Dr. K. V. Patel.
(Action: Asso. Res. Sci. and Head, M&APRS, AAU, Anand)</td><td>**Approved**</td></tr>
<tr><td>**17.5.3.6**</td><td>Comparative nutritional assessment of safed musli under different drying conditions</td><td>The new technical programme is approved with following suggestions-
1. Add quantification of total pigments, β carotene in observations</td><td>**Approved**</td></tr>
</table>

		2. Record browning in the observation analysis. 3. Consult FQTL scientist before start of the experiment. **(Action: Asso. Res. Sci. and Head, M&APRS, AAU, Anand)**	
17.5.3.7	Seed hardening and its effect on seed germination in groundnut *(Arachis hypogaea* L)	The new technical programme is approved with following suggestions- 1. Mention the days to germination, days of observation for vigor Index I & vigor Index II 2. Add Biochemical parameters such as moisture, RWC, Alpha-amylase, lipoxygenase, total soluble sugars 3. Use $ZnSO_4$ in place of ZnO. **(Action: Asst. Res. Sci. and Head, Dept. of Plant Physiology, AAU, Anand)**	**Approved**
17.5.3.8	Influence of foliar sprays of nano-fertilizers and PGRs on lucerne forage quality and seed yield	The new technical programme is approved with following suggestions- 1. Particle size should be mentioned 2. Mention active ingredient Brassinolide in treatment 3. Plant population observation should be included 4. Observation on characterization of nanoparticles including zeta potential to be included. **(Action: Research Scientist (Forage), MFRS, AAU, Anand)**	**Approved**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	**Title**	**Suggestions**	**Remarks**
17.5.3.9	Nutritional, antinutritional and molecular characterization of selected genotypes of chickpea	**Approved with following suggestions** 1. Add at least 100 more chickpea genotypes for this work. 2. Total fibre content should be included in observation. 3. Elemental as well as phenol profiling should also be included. 4. In 2nd objective, write 'to study' and accordingly rewrite 2nd objective. **(Action: Prof. and Head, Dept. of Biotechnology., COA, JAU, Junagadh)**	**Approved**

17.5.3.10	Improvement of antioxidant and defense properties of Tomato using *Bacillus* spp	**Approved with following suggestions** 1. Screening the genotypes/varieties against the *Bacillus* spp. 2. Remove carotenoid from the observation and add total acidity and TSS in the observation. 3. Analyse the PGPR activity in the plant at 30 days after TP. **(Action: Prof. and Head, Dept. of Biotechnology, COA, JAU, Junagadh)**	**Approved**
17.5.3.11	Identification of candidate genes responsible for resistance towards early leaf spot fungi (*Cercospora arachidicola*) in groundnut (*Arachis hypogaea* L.) using transcriptome assembly	**Approved with following suggestions** 1. Modify title. 2. Add one more resistant and susceptible genotype in the genotypes. **(Action: Research Scientist, Main Oil Seed Res. Station, JAU, Junagadh)**	**Approved**
17.5.3.12	RNA- sequencing for unraveling the mechanisms of resistance to *Sclerotium rolfsii* in groundnut (*Arachis hypogaea* L.) using resistant and susceptible genotypes	**Approved with following suggestions** 1. Replace the word “to unravelling” with “for unravelling” in the title. 2. Add one more resistant and susceptible genotype **(Action: Research Scientist, Main Oil Seed Res. Station, JAU, Junagadh)**	**Approved**
17.5.3.13	Comparative transcriptome assembly analysis of a resistant and susceptible groundnut (*Arachis hypogaea*) genotypes in response to leaf rust infection caused by *Puccinia arachidis* for the identification of differentially expressed gene	**Approved with following suggestions** 1. Instead of candidate genes use differentially expressed gene in title. 2. Add one more resistant and susceptible genotype in the genotypes. 3. Title be modified as “Comparative transcriptome assembly analysis of a resistant and susceptible groundnut (*Arachis hypogaea*) genotypes in response to leaf rust infection caused by *Puccinia arachidis* for the identification of differentially	**Approved**

		expressed gene" **(Action: Research Scientist, Main Oil Seed Res. Station, JAU, Junagadh)**	
17.5.3.14	Identification of physiological traits for drought tolerance in pearl millet	**It was an AICRP trial and no scope to add suggestions** **(Action: Research Scientist, Pearl Millet Research Station, J.A.U., Jamnagar)**	**Not Approved**
17.5.3.15	Effect of growth regulators on growth and yield of chickpea under limited irrigation	**Approved with following suggestions** 1. Mention the active ingredient of the chemical formulation. 2. Observation on plant population to be taken. 3. Use the word brassinolide in place of brassinosteroids. 4. Remove the word restricted irrigation in the title. **(Action: Research Scientist, Main Dry Farming Research Station, JAU, Targhadia)**	**Approved**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title	Suggestions	Remarks
17.5.3.16	Evaluation of cellulase producing bacteria from indigenous cow dung	**Approved with following suggestions** **Take as a filler Trial** **Suggestions:** 1. Carry out this experiment as filler trial and if isolates are culturable then go for next year as new experiment. 2. Specify the indigenous cow breed along with health, age of cow in the methodology part. 3. Specify the time and season of sample collection in the methodology part. 4. Collect bacteria from lumen liquor and depending on success, go for further study. **(Action: Prof. and Head, Dept. of Plant Patho., COA, NAU, Bharuch)**	**Approved**

17.5.3.17	Comparative expression analysis of pectatelyase from native host and heterologous host	**Approved with following suggestions** 1. Mention name of native and heterologous host in the title. 2. Mention Michaelis Menten equation and enzyme kinetics in the study. **(Action: Prof. and Head, Dept. of PMBB, ACHF, NAU, Navsari)**	**Approved**
17.5.3.18	Laccase secreted by the alkaline tolerant bacteria: Identification, molecular characterization and heterologous expression	**Approved with following suggestions** 1. Include gene expression study in the experiment. **(Action: Prof. and Head, Dept. of PMBB, ACHF, NAU, Navsari)**	**Approved**
17.5.3.19	Isolation and identification of endophytes from *Furcraeagigantea* for their *in vitro* plant growth promoting attributes	**Approved with following suggestions** 1. Specify the isolates collection site. 2. Include Pot trial study. 3. Check efficacy of potential isolates under *in vivo* study. 4. After efficacy study of potential isolates, add new objective – To check potentiality of isolates under *in vivo* study. 5. Remove *in vitro* word from title. **(Action: Principal, ASBI, NAU, Surat)**	**Approved**
17.5.3.20	Optimization of physiochemical parameters for protease production by bacterial isolate under solid state fermentation (SSF)	**Approved with following suggestions** 1. Specify observations as per objectives in the study. 2. Consult Statistician Dr. Alok Sirvastava, NAU. **(Action: Principal and Dean, ASBI, NAU, Surat)**	**Approved**
17.5.3.21	Micropropagation of Malabar neem (*Melia dubia)*	**Approved with following suggestions** 1. Remove surface sterilization	**Approved**

		treatment. 2. Add shoot length observation at hardening processes. **(Action: Principal and Dean, ASBI, NAU, Surat)**	
17.5.3.22	Identification of sex linked DNA markers for sex determination in dioecious Papaya (*Carica papaya L.*)	**Dropped** **(Action: Principal and Dean, ASBI, NAU, Surat)**	**Not Approved**
17.5.3.23	*In silico* identification of natural fungicide analogus to mancozeb against *Fusarium graminearum*	**Approved with following suggestions** 1. In the title after 'identification' word, add new words 'and validation' in the title and accordingly modify the title as "*In silico* identification and validation of natural fungicide analogus to mancozeb against *Fusarium graminearum"* 2. Add two new objectives - (i). Isolation, identification and characterization of fungicide analogous from source. (ii) Study efficacy of isolates of fungicide Analogous. 3. In 2rd objective, include molecular simulation study of potent phytochemicals against *Fusarium graminearum*. **(Action: Principal and Dean, ASBI, NAU, Surat)**	**Approved**
17.5.3.24	Nutritional profiling of different Tannia (*Xanthosomasagitti folium*) genotypes	**Approved with following suggestions** 1. Add moisture content, chlorophyll content, total phenol content and total oxidation activity from leaf as new observations in the study. **(Action: Prof. and Head, Dept. of Soil Science and Agri. Chemistry, NMCA, NAU, Navsari)**	**Approved**

17.5.3.25	Biochemical Changes Associated with Storage Period in Sweet Potato	**Approved with following suggestions** 1. Storage days up to 6 weeks. 2. Measure starch, amylose, amylopectin, amylose and amylopectin ratio in the study. 3. Add new observations - record minimum humidity and temperature. **(Action: Prof. and Head, Dept. of Soil Science and Agri. Chemistry, NMCA, NAU, Navsari)**	**Approved**
17.5.3.26	Phytochemical Composition and Antimicrobial Actions of Aqueous and Ethanolic Extracts of the Peels and leaves of Lesser Yam Genotypes	**Approved with following suggestions** 1. Specify antimicrobial activity procedure against microbes. 2. Mention details of MTCC cultures used for antimicrobial study. **(Action: Prof. and Head, Dept. of Soil Science and Agri. Chemistry, NMCA, NAU, Navsari)**	**Approved**
17.5.3.27	Development of tissue culture protocol for chrysanthemum novel mutants	**Approved with following suggestions** 1. Name explant used in the study. 2.Remove surface sterilization treatment. 3. Replace word 'repetition' with 'replication'. 4. Follow treatment combinations for primary and secondary hardening. **(Action: Prof. and Head, Dept. of GPB (Plant Physio.), NMCA, NAU, Navsari)**	**Approved**
17.5.3.28	Micropropagation of bamboo species through axillary bud	**Approved with following suggestions** 1. Remove objective of surface sterilization treatment. 2. For shoot multiplication use following treatments- a) 2 mg/l + GA 4 mg/l + Kinetin 3 mg/l b) 4 mg/l + GA 4 mg/l + Kinetin 3	**Approved**

		mg/l c) 6 mg/l + GA 4 mg/l + Kinetin 3 mg/l d) 8 mg/l + GA 4 mg/l + Kinetin 3 mg/l e) 10 mg/l + GA 4 mg/l + Kinetin 3 mg/l 3. Replace word 'repetition' with 'replication'. 4. Follow treatment combinations for primary and secondary hardening. 5. Mention species of bamboo. 6. Record and identification of endogenous contamination. **(Action: Prof. and Head, Dept. of GPB (Plant Physio.), NMCA, NAU, Navsari)**	
17.5.3.29	Effect of water stress on growth, yield and quality parameters of niger genotypes	**Approved with following suggestions** 1. Measure moisture content. **(Action: Prof. and Head, Dept. of GPB (Plant Physio.), NMCA, NAU, Navsari)**	**Approved**
17.5.3.30	A Comparative Assessment of Body Composition among Scientists, Academicians, and Non-Teaching staff of Navsari Agricultural University	**Dropped** **(Action: I/c, SRC, College of Veterinary Science & Animal Husbandry, N A U, Navsari)**	**Not Approved**
17.5.3.31	Bio-composting of rice and finger millet straw by potent cellulolytic isolates	**Approved with following suggestions** 1. Add new treatment T_9 – Rice straw + Waste disposal T_{10} – Finger millet + Waste disposal 2 Check the pathogenicity of the microbes at genus level. **(Action: Prof. and Head, Dept. Plant Pathology, COA, NAU, Waghai)**	**Approved**

17.5.3.32	Response of finger millet (*Eleusine coracana* (L.) Gaertn.) genotypes to osmotic stress and salinity Stress at seedling stage	**Approved with following suggestions** 1. Change title as – Physiological and biochemical revelation of finger millet under combine effect of osmotic and salinity stress at seedling stage" 2. Write the sentence '15 days all observation will be recorded' instead of 'after removing stress 16th days' in the methodology. 3. Add more genotypes (60 to 90 genotypes) of finger millets. 4. Mention factor as design is FCRD. **(Action: Prof. and Head, Dept. Plant Physiology, COA, NAU, Waghai)**	**Approved**
17.5.3.33	Phytochemical screening and determination of antioxidant activity of different mango cultivars	**Approved with following suggestions** 1. Add biochemical parameters. 2.Perform organoleptic test. 3. Add new observations - record minimum humidity and temperature. 4. Measure antioxidant activity, Vit. B12, total phytochemicals – glycoside, glycotenea from seed kernel. 5. Perform experiment for 2 more years. **(Action: Prof. and Head, Department of Fruit Science, ACHF, NAU, Navsari)**	**Approved**
17.5.3.34	Exploring cellulolytic bacteria as cotton stalk degrader	**Approved with following suggestions** 1. Mention species of cotton. 2.Consult with Statistician. **(Action: Res, Sci, MCRS, NAU, Surat)**	**Approved**
17.5.3.35	Effect of storage condition and packaging on seed germination of different cotton species	**Approved with following suggestions** 1. Experiment should be carried out according to the CICR guidelines for storage of cotton seeds. 2.Reduce number of treatments. 3. Include more number of cotton species (include wild species if possible) in the study. 4. Add new observation-	**Approved**

		a) Mean germination b) TZ test c) Vigour index - I d) Vigour index - II 5. Specify the variety of *G. arboretum* and *G. hirsutum*. **(Action: Res., Sci., MCRS, NAU, Surat)**	
17.5.3.36	Screening of cotton genotypes under saline environment	**Approved with following suggestions** 1. Experiment should be carried out according to the CICR guidelines for storage of cotton seeds. 2. Reduce number of treatments. 3. Include more number of cotton species (include wild species if possible) in the study. 4. Measure moisture content, pH and EC of soil before sowing and after harvest. 5. Maximum Root depth in place of root length **(Action: Res., Sci., MCRS, NAU, Surat)**	**Approved**
17.5.3.37	Management of Yellow Leaf Disease through meristem culture combined with molecular diagnostics	**AICRP Trial and no scope for incorporation of suggestions** **(Action: Res, Sci, MSRS, NAU, Navsari)**	**Not Approved**
17.5.3.38	Morpho-physiological and biochemical changes in greengram (*Vigna radiata* (L.) Wilczek) genotypes under drought stress	**Approved as 'Filler Trial' with following suggestions** 1. Consult Agronomy scientist. 2. Add more genotypes (40 to 60 genotypes). 3. Remove 'withdrawal' and 'check' words and reframe sentence. **(Action: Prof. and Head, Dept. Plant Pathology, COA, NAU, Waghai)**	**Approved**

<table>
<tr><td>17.5.3.39</td><td>Development of Fuzzy based decision making model</td><td>Approved with following suggestions
1. Do experiment with one example.

(Action: Principal, COA, NAU, Waghai)</td><td>Approved</td></tr>
<tr><td>17.5.3.40</td><td>Forecasting of Monthly Stream Flow of Tapi River, Gujarat</td><td>Approved with following suggestions

To be presented in Agri. Eng. sub-committee
1. Take 20 years data, if possible. .
(Action: Dept. of Agril. Engineering, NMCA, NAU, Navsari)</td><td>Approved</td></tr>
</table>

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

<table>
<tr><th>Sr. No.</th><th>Title</th><th>Suggestions</th><th>Remarks</th></tr>
<tr><td>17.5.3.41</td><td>Screening of pomegranate (Punicagranatum) extracts for their phytochemical and antimicrobial properties</td><td>Approved with following suggestions
1. Add biochemical parameters such as anthocyanin, moisture, phenol, flavanoids etc.
2. Add protein estimation
3. Stage of leaf, time & date of sample collection should be specified.
(Action: Head, Dept. of Microbiology, CBSH, SDAU, Sardarkrushinagar)</td><td>Approved</td></tr>
<tr><td>17.5.3.42</td><td>Optimization of Feather hydrolysate production by keratinolytic bacteria and its application as bio-enhancer to tomato plants</td><td>Approved with following suggestions
1. Change the Name of PI and Co-PI
2. Modify the treatment from 5 to 7
3. Remove biochemical characters such as proline and enzymes
4. Add protein and free amino acids
(Action: Head, Dept. of Biochemistry, CBSH, SDAU, Sardarkrushinagar)</td><td>Approved</td></tr>
</table>

17.5.3.43	Mainstreaming of Sesame germplasm for productivity enhancement through genomics assisted core development and trait discovery	**DBT Project and no scope for modification** This is presented only for information as DBT project **(Action: Incharge, BSRC, SDAU, Sardarkrushinagar)**	**Not Approved**
17.5.3.44	Characterization of Sesame (*Sesamumindicum*) genotypes for salinity stress tolerance	**Approved with following suggestions.** 1. Keep in proper format 2. Two years data should be taken 3.Mention the physiological and Biochemical characters 4. Include the black sesame and released varieties 5. Data on soil and water analysis should be included. **(Action: Incharge, BSRC, SDAU, Sardarkrushinagar)**	**Approved**
17.5.3.45	Evaluation of nutritional properties of Pearl Millet	**Approved with following suggestions** **Take as a Filler Trial** **(Action: Head, Dept. of Biochemistry, CBSH, SDAU, Sardarkrushinagar)**	**Approved**
17.5.3.46	Validation of functional markers associated with fatty acid metabolism-related genes in Castor (*Ricinus communis* L.)	**Approved with following suggestions** 1. Speify the gene for validation 2. Keep minimum 10 genotypes 3. Mention the observations 4. Find out the oil content **(Action: Professor and Head, Dept. of Genetics and Plant Breeding, CPCA, SDAU, Sardarkrushinagar)**	**Approved**

17.6 SOCIAL SCIENCE

Date: 24-28 May, 2021

Chairman	**:**	Dr. V.T.Patel, DEE, SDAU, Sardarkrushinagar
Co-chairman	**:**	Dr. H.M.Gajipura, DEE, JAU, Junagadh
		Dr. H. B. Patel, DEE, AAU, Anand
Rapporteurs	**:**	Dr. J.B.Patel, AAU, Anand
		Dr. B.K.Ashwar, SDAU, Sardarkrushinagar
		Dr. V.J.Savaliya, JAU, Junagadh
		Dr. Narendra Singh, NAU, Navsari

Summary of the Recommendations and New technical Programmes presented during the 17th Combined Joint AGRESCO Subcommittee Meet held from 24-28 May, 2021

Name of University	Recommendations				New Technical Programmes		
	Proposed	Approved	With-Held	Dropped	Presented	Approved	Not Approved
AAU	03	02	01	00	46	44	02
SDAU	05	04	01	00	12	12	00
JAU	08	03	01	04	13	12	01
NAU	07	04	02	01	42	37	05
Total	**23**	**13**	**05**	**05**	**113**	**105**	**08**

At the outset Dr. V. T. Patel, Director of Extension Education and Chairman of this AGRESCO Sub Committee welcomed Honorable Vice-Chancellor of SDAU, Dr. R. M. Chauhan and all the dignitaries, Co-Chairman, conveners, rapporteurs and members of this sub-committee of four SAUs. In his introductory remarks Dr.V.T.Patel informed the members that in the present combined joint subcommittee meet, 23 recommendations and 113 new technical programmes shall be discussed.

In his opening remark Honorable Vice-Chancellor of SDAU, Dr. R. M. Chauhan greeted all the esteem members present in the subcommittee meeting. He appreciated the work done by the extension scientists and all the scientists of the social science subcommittee. He was of opinion that the role and responsibility of extension personnel is very much important when it comes to the transfer of research findings. He reiterated that this group has great role to disseminate important and useful research findings for socioeconomics transformation of farming community of the state.

The technical session begin with the discussion of recommendations of AAU-Anand. Recommendations of the respective SAU were presented by conveners.

Presentation of recommendations by Conveners of SAUs

Sr. No.	Name	Designation & University
1.	Dr.V.K.Gondliya	Convener, Social Science, AAU, Anand
2.	Dr.Kalpesh P.Thakar	Convener, Social Science, SDAU, Sardarkrushinagar
3.	Dr.N.B.Jadav	Convener, Social Science, JAU, Junagadh
4.	Dr.R.M.Nayak	Convener, Social Science, NAU, Navsari

17.6.1 RECOMMENDATIONS FOR FARMING COMMUNITY : NIL

17.6.2 RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY/POLICY MAKERS/ MESSAGE FOR EXTENSION AGENCIES

ANANDAGRICULTURALUNIVERSITY, ANAND

17.6.2.1 **Title: Evaluation and development of yardstick of CV % for rice crop experiments for Nawagam Center**

House approved the recommendation for scientific community as under:

The yard stick of CV% for accepting the results of rice crop experiment is 14 per cent for yield character.

(**Action:** Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)

17.6.2.2 **Title: Comparison of different statistical models to forecast the area, production and productivity of major fruit crops of Gujarat**

Recommendation:

It is recommended that ARCH/GARCH model can be used to describe the pattern of area, production and productivity of banana crop in Gujarat. In case of mango crop, ARIMA model can be used to capture the pattern of area and productivity, whereas ARCH model can be used to capture the pattern of production for major fruit crops.

Withheld with following Suggestions:

Suggestions: House suggested to complete the study of all crops suggested in technical programme and then come for final recommendation the next year.

(**Action:** Principal, CoH, AAU, Anand)

17.6.2.3 **Title: Development and standardization of scale to measure the self-confidence of rural youth to work in farming**

House approved the recommendation for scientific community as under:

A scale of selected statements to measure the self-confidence of rural youth to work in agriculture

No	Statements	SA	A	UD	DA	SDA
1	I am confident on my working ability of modern farming(+) આધુનિક ખેતી કરવા માટે મને મારી આવડત ઉપર વિશ્વાસ છે(+)	5	4	3	2	1
2	I can handle farming without taking help of my father (+) મારાપિતાની મદદ વગર હું મારી ખેતી સંભાળી શકું તેમ છું (+)	5	4	3	2	1
3	Package of practices of scientific farming is beyond my capacity to handle (-) વૈજ્ઞાનિક ખેતી માટે જરુરી ખેતીકાર્યો કરવા એમારી ક્ષમતા બહારની વાત છે (-)	1	2	3	4	5
4	I am confident in selecting suitable varieties of field crops (+) ખેતીપાકો માટે યોગ્ય જાતો પસંદગીક રવા માટે મને વિશ્વાસ છે (+)	5	4	3	2	1
5	I have ability to produce vermicomposting (+) હું અળસિયાનુ ખાતર ઉત્પાદન કરવા માટે સક્ષમ છું (+)	5	4	3	2	1
6	Irrigation management in farming is beyond my capacity to handle (-)	1	2	3	4	5

	ખેતીમાં પિયત વ્યવસ્થાની સંભાળએ મારી ક્ષમતા બહારની વાત છે . (-)					
7	I feel confident to carry out weed control measures (+) હુ નીંદણ નિયત્રણના ઉપાયો કરવા માટે વિશ્વાસ ધરાવુ છું (+)	5	4	3	2	1
8	I feel difficulty to handle plant protection tools (-) હું પાકસંરક્ષણના સાધનો વાપરવામાં મુશ્કેલી અનુભવુ છું. (-)	1	2	3	4	5
9	I am self-reliant to handle post-harvest techniques of crop production. (+) હું પાકની કાપણી પછી કરવા પડતાં કાર્યો માટે સ્વનિર્ભર છું. (+)	5	4	3	2	1
10	I consider myself as market smart person (+) હું મારી જાતને બજાર બાબતે સ્માર્ટ વ્યક્તિ ગણુ છું (+)	5	4	3	2	1

SA: Strongly Agree, A:Agree, UD: Undecided, DA: Disagree, SDA: Strongly Disagree

(Action: Professor and Head, Dept. of Agril. Extn. & Comm., AAU, Anand)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

17.6.2.4 **Title :** Determination of indicators for farm women empowerment

Recommendation:
A scale consists of 28 statements based on nine indicators is recommended to study the empowerment of farm women.

Withheld with following Suggestions:

Suggestions: House suggested to modify the statements, follow the required procedure and present the recommendation next year.

(**Action:** Professor and Head ,Home science Extension and Communication Management, ASPEE College of Home Science and Nutrition)

17.6.2.5 **Title :** Factors in prevalence of mastitis in dairy animals and preventive and control measures followed by dairy farmers of North Gujarat

House approved the recommendation as under:

A Message for: State A.H. DepartmentGujarat/Milk Cooperatives Unions

California mastitis test or Bromo Thymol Blue-BTB strip test an aid to diagnose sub-clinical mastitis, an asymptomatic infection in a timely manner, when demonstrated-performed at regular intervals on a pilot basis by the Village Milk Cooperative Society and the Intensive Cattle Development Project Sub-Centres to farmers, help to improve the adoption of this test by the farmers., and get their milch animals treated timely for subclinical mastitis.

પશુપાલન વિભાગ ગુજરાત રાજ્ય /જિલ્લા સહકારી દૂધ ઉત્પાદક સંઘ માટે સંદેશ:
"બાવલાના લક્ષણ રહિત ચેપ" (સબ ક્લિનિકલ મસ્ટાઈટીસ)ના સમયસર નિદાન માટેનો "કેલિફોર્નિયા મસ્ટાઈટીસ ટેસ્ટ" કે "બ્રોમો થાયમોલ બ્લુ સ્ટ્રીપ" ટેસ્ટ સંબંધિત દૂધ સહકારી મંડળી અને સંબંધિત ઘનિષ્ઠ પશુ સુધારણા યોજનાનાં પેટા કેન્દ્ર દ્વારા પાયલોટ ધોરણે નિયમિત અંતરાલે પશુપાલકોને નિર્દેશિત કરવામાં આવે તો આ રોગ ના સમયસર નિદાન માટે પશુપાલકોમા નિયમિત ધોરણે આ ટેસ્ટ ઉપયોગ કરવાની આદત વિકસાવી શકાય, જેથી પશુપાલકોઆ રોગની સમયસર સારવાર કરાવી શકે.

(Action: Professor and Head, Department of Veterinary and Animal Husbandry Extension Education, College of Vety. Sci. and A.H.,SDAU, Sardarkrushinagar**)**

17.6.2.6	**Title :** Performance of organised dairy industry in Gujarat
	House approved the recommendation for policy makers as under: Gross value addition in the organized dairy industry has increased substantially over the period but fixed asset productivity had relatively drastically reduced which necessitates the rational allocation of the funds for the capital investment purpose. Organized dairy industry has to give more focus on improvement over the profitability, solvency and liquidity front for strengthening the financial situation of industry. **(Action:** Professor and Head ,Department of Agricultural Economics, C.P. College of Agriculture,SDAU, Sardarkrushinagar)
17.6.2.7	**Title :** Knowledge about fall army worm among maize growers
	House approved the message for extension agencies as under: Majority of the maize growers possess knowledge about damage of the fall army worm while they lack in knowledge regarding identification, life cycle, chemical, cultural, mechanical and biological control of fall army worm. Hence, extension agencies should intensify their efforts to educate the farmers for effective management of fall army worm. (**Action:** Directorate of Extension Education, S.D. Agricultural University, Sardarkrushinagar)
17.6.2.8	**Title :** Identification of suitable model for prediction of area, production and productivity of cumin (*Cuminum cyminum*) in Banaskantha district
	House approved the recommendation for scientific community as under: ARIMA model for prediction of area and cubic model with five year moving average data approach for prediction of production and productivity of cumin crop are recommended in Banaskantha district as under: Model for area: ARIMA (Adj. R^2 = 80.00%) $\text{Model for production}: \hat{Y} = 111.269^{**} + 3.084_t - 0.872^{**}t^2 + 0.030^{**}t^3$ (Adj. R^2 = 98.12%) $\text{Model for productivity}: \hat{Y} = 685.509^{**} - 65.131^{**}t + 3.582^{**}t^2 - 0.048^{**}t^3$ (Adj. R^2 = 95.59%) In above mentioned polynomial models, Y corresponds to original value of production or productivity or their moving average, t corresponds to time. **(Action:** Professor and Head ,Department of Agricultural Statistics, C. P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

17.6.2.9	**Title :** Spatial and temporal integration analysis and price discovery mechanism of potato wholesale markets in Gujarat
	House approved the recommendation for policy makers as under: For harnessing the benefits of market integration of potato wholesale markets in Gujarat State, the existing market information and dissemination infrastructure needs to be strengthened. In this regard, real-time market

	intelligence inputs, including price forecasting, should be made available throughout the potato supply chain either through training programmes or by hosting literature in public domain, thereby, enabling the producers to take proper production, storage and marketing decisions. (**Action:** Professor & Head, Dept. of Agril. Economics, CoA, JAU,Junagadh)
17.6.2.10	**Title :** Comparative study of Bt cotton based farming systems in Amreli district
	Not approved: Not approved by the house because of inappropriate data for the recommendation. **(Action:** Professor and Head, Deptt. of Agril. Statistics, CoA, JAU, Motabhandariya)
17.6.2.11	**Title :** Consumer preference towards organized and unorganized retailing of fruits and vegetables in Urban Saurashtra
	Not approved: Not approved by the house because of inappropriate data for the recommendation. **(Action:** Principal & Dean, Post Graduate Institute of ABM, JAU, Junagadh**)**
17.6.2.12	**Title :** Business performance analysis of Farmer Producer Organizations of Saurashtra region
	House approved the message for policy makers as under: The Farmer Producer Organizations (FPOs) in Saurashtra region are advised to increase the number of business activities *vis a vis* improve the members' involvement for better business performance. **(Action:** Principal & Dean, Post Graduate Institute of ABM, JAU, Junagadh)
17.6.2.13	**Title :** Training needs of farmers with respect to scientific cultivation of cumin crop in Porbandar District
	With-held with following suggestions: The house suggested that the data of one year is not sufficient for recommendation hence study is extended for one more year with sample size of 300 respondents. (**Action:**Principal, College of Agriculture, JAU, Khapat**)**
17.6.2.14	**Title**: Adoption of scientific dairy husbandry practices by farmers in Amreli district
	House approved the message for extension functionaries as under: For increasing benefit of livestock owners of Amreli district, extension functionaries are suggested to give emphasis on extension activities for practices viz., feeding of salt and mineral mixture, cleaning of udder and teats before milking with antiseptic, milking with full-hand method, navel disinfection of newborn calf and initiation of breeding of heifers on the basis of body weight/size**.** **(Action:** Research Scientist, Bull Mother Farm, JAU, Amreli)
17.6.2.15	**Title :** To study the knowledge, attitude and practices regarding iron deficiency anemia in adolescence girls of Amreli city
	Not approved: Not approved by the house because of Inadequate sample size**.** **(Action:** Principal, Polytechnic in Home Science, JAU, Amreli)

17.6.2.16	**Title :** Technological needs of farm women in processing and preservation of fruits
	Not approved: Not approved by the house because of Inadequate sample size. **(Action:** Principal, Polytechnic in Home Science, JAU, Amreli)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.6.2.17	**Title:** Constraints faced by the farmers in purchase of Agro-chemicals for vegetable crops in Bharuch district
	Not approved: Not approved by the house because of insufficient data**.** (**Action:** Associate Professor & Head, Agri. Extn., CoA, NAU, Bharuch)
17.6.2.18	**Title:** Development and standardization of scale to measure the attitude of employees towards ICTs apparatus for exploring agricultural information
	Withheld with following Suggestions: House suggested to modify the statements, follow the required procedure and present the recommendation next year. Also suggested to reduce number of statements if possible. (**Action:** HoD, Department of Extension Education, NMCA, NAU, Navsari)
17.6.2.19	**Title :** Training needs and constraints of farmwomen engaged in backyard poultry farming in South Gujarat region
	House approved the message for extension functionaries as under: Extension functionaries of south Gujarat are advised to give priority to impart training on health care, feeding and management aspects of poultry for women engaged in backyard poultry farming. દક્ષિણ ગુજરાતના વિસ્તરણ કાર્યકરોને સલાહ આપવામાં આવે છે કે ઘરકાછામાં મરઘાં ઉછેર કરતી મહિલાઓ માટેના મરઘાંપાલન તાલીમ કાર્યક્રમોમાં આરોગ્ય સંભાળ, ખોરાક અને વ્યવસ્થાપન વિષયો પર પ્રાધાન્ય આપવું જોઈએ. (**Action:** HoD, Dept. Vet. Ext., VCVS & AH, NAU, Navsari)
17.6.2.20	**Title:** Development and standardization of scale to measures knowledge of rural women about the agro-based enterprises
	Withheld with following Suggestions: House suggested to modify the statements and follow the required procedure and present the recommendation next year. (**Action:** Senior Scientist & Head, KVK, NAU, Vyara, Tapi)
17.6.2.21	**Title:** Growth and instability analysis of area and production in forestry sector of Gujarat
	House approved the message for policy makers as under: Special attention needs to be given to Surat, Gandhinagar, Junagadh, Valsad and Vadodara circles to increase the area under forest and tree cover whereas appropriate measures are needed to increase timber trees in Surat circle and fuel wood trees in Junagadh and Junagadh Wildlife circle. **(Action:** Professor & Head, Dept. of Social Science, ACHF, NAU, Navsari**)**

17.6.2.22	**Title:** Construction of selection indices using different economic coefficients to select optimum selection index in Indian bean (*Lablab purpureus* L. sweet)
	House approved the recommendation for scientific community as under: The genetic gain of selected Indian bean progenies was observed higher with equal weight method as compared to genotypic correlation coefficients and genotypic path coefficients (Direct effect) weight method. It is recommended to select progeny based on plant height, pod width and days to maturity that provides higher genetic gain in Indian bean seed yield improvement program. It is suggested that progeny F3B 144 2 can be used in breeding for getting higher yield. **(Action:** Prof. & Head, Dept. of Agril. Statistics, NMCA,NAU, Navsari**)**
17.6.2.23	**Title:** Stability of sorghum genotype through AMMI model in Gujarat
	House approved the recommendation for scientific community as under: It is advised to use SR-2957(G5) sorghum germplasm for grain yield and dry fodder in the breeding programme to explore other breeding parameters aggressively. For green fodder sorghum SRF-322 (G1) is highest yielder and has stable performance across locations hence advised for further utilization in different breeding programme. **(Action:** Prof. & Head, Dept. of Agril. Statistics, NMCA,NAU, Navsari**)**

17.6.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestions	Remark
17.6.3.1	Export performance of major spices of India	**Approved with following suggestion:** 1. Remove the cumin crop from the study as it is taken in JAU research study. (**Action:** Professor & Head, Department of Agril. Econ., BACA, AAU, Anand)	**Approved**
17.6.3.2	Comparative economics of green chilli cultivation under drip and conventional irrigation method in Anand district	**Approved with following Suggestions:** 1. Use word estimate instead of calculate in 1st objective. 2. Take the sample size 300 for recommendation/ message. (**Action:** Professor & Head, Department ofAgril. Econ., BACA, AAU, Anand)	**Approved**

17.6.3.3	Growth in Area Production and Productivity of Fruit Crops in Gujarat	**Approved following suggestions:** 1. Add new objective as "to decompose components of output growth". 2. Add detail about period of research study and take the sample size 300 for recommendation/ message and define. (**Action:** Principal, College of Horticulture, AAU, Anand)	**Approved**
17.6.3.4	**Title:** An economic analysis of production and marketing of watermelon across the season in Chhotaudepur district **Modified Title:** Economic analysis of production and marketing of watermelon across the season in Chhotaudepur district	**Approved with following suggestions:** 1. Remove "An" from the title 2. Replace the word "system" by "channel" in 2nd objective. 3. Add the word "across the season" at the end of second objective. 4. Add detail about sampling procedure, research design and period of research study and take the sample size 300 for recommendation/ message. (**Action:** Principal, College of Agriculture, AAU, Jabugam)	**Approved**
17.6.3.5	Economic analysis of rural poultry farming for Ankaleshwar chicken	**Approved with following suggestions:** 1. Add detail about sampling procedure, research design and period of research study. (**Action:** Principal, IABMI, AAU, Anand)	**Approved**
17.6.3.6	A study on capital investment pattern in Food Processing companies in India	**House suggested to drop the study.** (**Action:** Principal, IABMI, AAU, Anand)	**Dropped**
17.6.3.7	Fish Market Segmentation in Anand District of Gujarat	**Approved with following suggestions:** 1. Give complete methodology of study.	**Approved**

		2. Add detail about sampling procedure, research design and period of research study. (**Action:** Principal, IABMI, AAU, Anand)	
17.6.3.8	**Title:** Effect of the COVID 19 pandemic on the dairy farmers in the operational area of Dairy Vigyan Kendra (DVK), Vejalpur **Modified Title:** Effect of the Lockdown on the Dairy Enterprises in the Operational Area of Dairy Vigyan Kendra (DVK), Vejalpur	**Approved with following suggestions:** 1. Replace the word "COVID'19" by "lockdown" and "farmers" by "enterprises" in the title and 2nd and 3rd objectives. 2. Remove the word "the" and replace the word "farmers" by "enterprises" in all objectives. 3. Add detail about sampling procedure, research design and period of research study and take the sample size 300 for recommendation/ message. (**Action:** Professor and Head, Dept. of DBM, College of Dairy Science, Anand)	**Approved**
17.6.3.9	**Title:** Impact of COVID 19 on buying behaviour of consumers of processed food in Anand – Vidhyanagar **Modified Title:** Effect of COVID 19 pandemic situation on Buying Behaviour of Consumers of Processed Food in Anand – Vidhyanagar	**Approved with following suggestions:** 1. Replace the word Impact by effect. 2. Second and third objectives should be reframedas : To analyse the characteristics of respondent consumers of processed food. 3. To understand the consumer buying behaviour in pandemic situation arisen due to COVID'19. 4. Take the sample size 300 for recommendation/ message. (**Action:** Professor and Head, Department of FBM, College of FPT & BE, Anand)	**Approved**
17.6.3.10	**Title:** Determinants to avoid garlic cultivation in Mahisagar district of Gujarat **Modified Title:** Determinants to Discontinue Garlic Cultivation in Mahisagar	**Approved with the following suggestions:** 1. Replace the word 'avoid' by 'discontinue'. 2. Add detail about sampling procedure and period of research study and take the	**Approved**

	District of Gujarat	sample size 300 for recommendation/ message. (**Action:** Professor & Head, Department of Agril. Extn. & Com; BACA, AAU, Anand)	
17.6.3.11	Farming Adopting Willingness of Agriculture Diploma Students of SAUs of Gujarat	**Approved with following suggestion:** 1. Add detail about sampling procedure and period of research study. (**Action:** Professor & Head, Department of Agril. Extn. & Com; BACA, AAU, Anand)	**Approved**
17.6.3.12	Development and Standardization of a Scale to Measure the Horticultural Farming Adopting Self-confidence of Rural Youth	**Approved with the following suggestion:** 1. Mention period of research study. (**Action:** Professor & Head, Department of Agril. Extn. &Com; BACA, AAU, Anand)	**Approved**
17.6.3.13	Horticultural enterprises adopting proficiency of diploma horticulture students of Gujarat	**Approved with following suggestion:** 1. Add detail about sampling procedure and period of research study. (**Action:** Professor & Head, Department of Agril. Extn. &Com; BACA, AAU, Anand)	**Approved**
17.6.3.14	Study on Knowledge level and Attitude of ATMA Personnel Towards Bharatiya Prakritik Krishi Paddhati (BPKP)	**Approved with following suggestion:** 1. Add detail about sampling procedure, research design and period of research study and take the sample size 300 for recommendation/ message. (**Action:** Director, EEI, AAU, Anand)	**Approved**
17.6.3.15	**Title:** Constraints Experienced by the Trainees in Participation of Online Training Programmes Conducted by EEI, Anand **Modified Title:** Constraints Experienced by the Participants of Online Training	**Approved with following Suggestions:** 1. Replace the word “trainees in participation” by “participants" 2. Add detail about sampling procedure, research design and period of research study and take the sample size 300 for recommendation/ message.	**Approved**

	Programmes Conducted by EEI, Anand	(**Action:** Director, EEI, AAU, Anand)	
17.6.3.16	**Title:** Opinion of farmers about the technological traits of Brinjal cultivar GAB 6 **Modified Title:** Feedback of Farmers about the Brinjal Cultivar GAB 6	**Approved with following suggestions:** 1. Replace the word opinion by feedback and also remove the words "Technological Traits of" in the title. 2. Take the sample size 300 for recommendation/ message. (**Action:** Director of Extension Education, AAU, Anand)	**Approved**
17.6.3.17	**Title:** Opinion of farmers about the technological traits of Rice cultivar GAR 14 **Modified Title:** Feedback of Farmers about the Rice Cultivar GAR 14	**Approved with following suggestion:** 1. Replace the word opinion by feedback and also remove the words "Technological Traits of" in the title. 2. Take the sample size 300 for recommendation/ message (**Action:** Director of Extension Education, AAU, Anand)	**Approved**
17.6.3.18	**Title:** Opinion of farmers about the technological traits of Castor cultivar GCH 10 **Modified Title:** Feedback of Farmers about the Castor Cultivar GCH 10	**Approved with following suggestion:** 1. Replace the word opinion by feedback and also remove the words "Technological Traits of" in the title. 2. Take the sample size 300 for recommendation/ message (**Action:** Principal, College of AIT, AAU, Anand)	**Approved**
17.6.3.19	Knowledge and adoption of green gram growers about scientific cultivation technologies in Chhotaudepur district	**Approved with following suggestion:** 1. Add detail about sampling procedure, research design and period of research study and take the sample size 300 for recommendation/ message. **(Action:** Principal, College of Agriculture, AAU, Jabugam)	**Approved**
17.6.3.20	Migration behavior of Tribal families of Chhotaudepur district of Gujarat	**Approved with following suggestions:** 1. Add detail about sampling procedure, research design and period of research study and take the sample size 300 for recommendation/ message 2. Operationalize term "migration	**Approved**

		behaviour" in methodology. (**Action:** Principal, College of Agriculture, AAU, Jabugam)	
17.6.3.21	**Title:** Feeding practices adopted by milch dairy cow owners in Anand district **Modified Title:** Feeding Practices Adopted by Dairy Cow Owners in Anand District	**Approved with following suggestion:** 1. Remove the word "milch dairy" from title and objectives, it should be mentioned in Methodology. (**Action:** Professor and Head, Dept. of Vet. Extn; College of VS& AH, AAU, Anand)	**Approved**
17.6.3.22	Professional Competence of Agro- Input Dealers of Anand district	**Approved with following suggestions:** 1. Reframe third objective as "To study the constraints faced by the agro-input dealers in providing agro services to the farmers" 2. Add detail about sampling procedure and period of research study and take the sample size 300 for recommendation/ message. 3. Mention the scale to measure the competence in methodology. (**Action:** Director, IDEA, AAU, Anand)	**Approved**
17.6.3.23	**Title:** Perception of farmers about Technological traits of groundnut cultivar GG 34 (Anubhav brand seed) of AAU **Modified Title:** Perception of Groundnut Growers about Groundnut Cultivar GG 34 (Anubhav Brand Seed) of AAU	**Approved with following suggestion:** 1. Replace word 'farmer" by "groundnut growers" in title and objectives 2. Replace the words "Technological Traits of" in the title. 3. Take the sample size 300 for recommendation/ message (**Action:** Research Scientist, RRS, AAU, Anand)	**Approved**
17.6.3.24	Knowledge of dairy farmers about reproductive disorders in dairy animals of Vadodara district	**Approved with following suggestion:** 1. Add detail about sampling procedure and period of research study and take the sample size 300 for recommendation/ message. **(Action:** Principal, Polytechnic in Horticulture, AAU, Vadodara)	**Approved**

17.6.3.25	Assessment of the Cohesiveness of Farmer's interest groups (FIGs) and their task functioning	**Approved with following suggestion:** 1. Mention period of research study and take the sample size 300 for recommendation/ message. (**Action:** Associate Research Scientist, ARS, AAU, Derol)	**Approved**
17.6.3.26	Information Management Behaviour of Tribal Maize Growers in Panchmahals District	**Approved with following suggestion:** 1. Mention period of research study and take the sample size 300 for recommendation/ message. (**Action:** Research Scientist, ARS, AAU, Godhara)	**Approved**
17.6.3.27	**Title:** Dietary habits and nutritional status of children Post COVID 19 **Modified Title:** Dietary Habits and Nutritional Status of Children: Post COVID-19 in Ahmedabad District	**Approved with following suggestion:** 1. Title should be as "Dietary habits and nutritional status of children: Post COVID-19 in Ahmedabad district. 2. Mention period of research study and take the sample size 300 for recommendation/ message (**Action:** Sr. Scientist and Head, KVK, AAU, Arnej)	**Approved**
17.6.3.28	Knowledge and extent of participation in dairy farming activities by the sons of dairy farmers	**Approved with following suggestion:** 1. Mention period of research study and take the sample size 300 for recommendation /message. 2. Remove the word "modern" from 2nd objective. (**Action:** Sr. Scientist and Head, KVK, AAU, Arnej)	**Approved**
17.6.3.29	Mechanization need of the large farmers to minimize the drudgery problem	**Approved with following suggestion:** 1. Mention period of research study and take the sample size 300 for recommendation/ message. 2. Specify crops in methodology. (**Action:** Sr. Scientist and Head, KVK, AAU, Arnej)	**Approved**

17.6.3.30	**Title:** Prevailing cow based farming technology adopted by the farmers **Modified Title:** Prevailing cow based farming technology adopted by the farmers in Ahmedabad district	**Approved with following suggestions:** 1. Title should be as "Prevailing cow based farming technology adopted by the farmers in Ahmedabad district". (**Action:** Sr. Scientist and Head, KVK, AAU, Arnej)	**Approved**
17.6.3.31	**Title:** Extent of Knowledge and Adoption of CoFS 29 Fodder Sorghum in Anand District **Modified Title:** Extent of Knowledge and Adoption of CoFS29 Fodder Sorghum growers in Anand District	**Approved with following suggestion**: 1. Add word "growers" in title 2. Add word "each of" before "20 villages" in methodology. 3. Add detail about period of research study and take the sample size 300 for recommendation/ message. (**Action:** Sr. Scientist and Head, KVK, AAU, Devataj)	**Approved**
17.6.3.32	Knowledge and Adoption of Wheat Variety (GW 451) and Production Technologies among the farmers in Anand District	**Approved with following suggestion**: 1. Add detail about sampling design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Sr. Scientist and Head, KVK, AAU, Devataj)	**Approved**
17.6.3.33	**Title:** Feedback of the prevailing cow based farming technology adopted by the farmers in Anand district **Modified Title:** Prevailing Cow Based Farming Technology Adopted by the Farmers in Anand District	**Approved with following suggestions**: 1. Correct the title as "Prevailing cow based farming technology adopted by the farmers in Anand district". 2. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. **(Action:** Sr. Scientist and Head, KVK, AAU, Devataj)	**Approved**
17.6.3.34	**Title:** Study on knowledge and adoption of Rabi Maize Growers in Chhotaudepur district, Gujarat **Modified Title:** Knowledge and Adoption of Rabi Maize Growers in	**Approved with following suggestions**: 1. Remove the word "study on" and add words "of Gujarat state" from the title. 2. Add detail about sampling design, research design, period of research study and	**Approved**

	Chhotaudepur District of Gujarat	take the sample size 300 for recommendation/ message. **(Action:** Sr. Scientist and Head, KVK, MangalBharti)	
17.6.3.35	**Title:** Prevailing opinions of Cow based farming technology adopted by the farmers **Modified Title:** Prevailing Cow Based Farming Technology Adopted by the Farmers in Chhotaudepur District	**Approved with following suggestions**: 1. Title should be as "Prevailing cow based farming technology adopted by the farmers in Chhotaudepur district" 2. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Sr. Scientist and Head, KVK, MangalBharti)	**Approved**
17.6.3.36	Views of Sorghum Growers about CoFS 29 Variety Regarding its Usefulness in Kheda District of Gujarat	**Approved with following suggestions**: 1. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation /message. (**Action:** Sr. Scientist and Head, KVK, Kheda)	**Approved**
17.6.3.37	**Title:** Technological Gap of Brinjal Growers in Adoption of Recommended Brinjal Production Technology in Kheda District of Gujarat **Modified Title:** Technological Gap in Adoption of Recommended Brinjal Production Technology in Kheda District of Gujarat	**Approved with following suggestions**: 1. Remove word "of brinjal growers" from the title. 2. Add detail about sampling design, research design, and period of research study and take the sample size 300 for recommendation/ message. **(Action:** Sr. Scientist and Head, KVK, Kheda)	**Approved**
17.6.3.38	**Title:** Feedback of the prevailing cow based farming technology adopted by the farmers in Kheda district **Modified Title:** Prevailing Cow Based Farming Technology Adopted by the Farmers in Kheda District	**Approved with following suggestions**: 1. Title should be as "Prevailing cow based farming technology adopted by the farmers in Kheda district". 2. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Sr. Scientist and Head, KVK, Kheda)	**Approved**

17.6.3.39	**Title:** Cow based farming technology adopted by the farmers of Dahod district **Modified Title:** Prevailing Cow Based Farming Technology Adopted by the Farmers in Dahod District	**Approved with following suggestions**: 1. Title should be as "Prevailing cow based farming technology adopted by the farmers in Dahod district" 2. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Sr. Scientist and Head, KVK, AAU, Dahod)	**Approved**
17.6.3.40	Impact analysis of Cluster frontline Demonstrations (CFLDs) conducted by KVK Dahod	**Approved with following suggestions**: 1. Add detail about sampling design, research design, and period of research study and take the sample size 300 for recommendation/message. 2. Specify the methodology for impact: FLD and Non FLD 150 farmers each should be considered for impact. (**Action:** Sr. Scientist and Head, KVK, AAU, Dahod)	**Approved**
17.6.3.41	**Title:** Prevailing Indigenous Cattle Calf Mortality & its Pattern in Operational Area of Dairy Vigyan Kendra, Vejalpur **Modified Title:** Prevailing Indigenous Calf Mortality & its Pattern in Operational Area of Dairy Vigyan Kendra, Vejalpur	**Approved with following suggestions**: 1. Remove the word "cattle" from the title 2. Add detail about sampling design, research design, and period of research study and take the sample size 300 for recommendation/ message. (**Action:** Assoc. Professor, DVK, AAU, Vejalpur)	**Approved**
17.6.3.42	**Title:** Prevailing cow based farming technology adopted by the farmers **Modified Title:** Prevailing Cow Based Farming Technology Adopted by the Farmers in Panchmahals District	**Approved with following suggestions**: 1. Title should be as "Prevailing cow based farming technology adopted by the farmers in Panchmahals district" 2. Add detail about sampling design, research design, and period of research study and take the sample size 300 for recommendation/ message. (**Action:** Assoc. Professor, DVK, AAU, Vejalpur)	**Approved**

17.6.3.43	**Title:** A study on social media utilization behaviour of farmers of Kheda district of Gujarat **Modified Title:** Social Media Utilization Behaviour of Farmers of Kheda District of Gujarat	**Approved with following suggestions**: 1. Remove the word “a study on” from the title and replace the word "invite" by "find out" in 3rd objective and word “find out” by "invite" in 5th objective. 2. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Head, FTTC, AAU, Sansoli-Nenpur)	**Approved**
17.6.3.44	**Title:** Prevailing Cow based farming technology adopted by the farmers **Modified Title:** Prevailing Cow Based Farming Technology Adopted by the Farmers in Kheda District	**House suggested to drop the study as it is a duplication of NTP-38** (**Action:** Head, FTTC, AAU, Sansoli-Nenpur)	**Dropped**
17.6.3.45	Adoption of health care management practices by tribal goat keepers of dahod district	**Approved with following suggestions**: 1. Replace the word "personal characteristics" by "profile" in 1st objective 2. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Head, TRTC&TFWTC, AAU, D’ Baria)	**Approved**
17.6.3.46	Impact of Self-help groups in economic empowerment of tribal farm women of Dahod district	**Approved with following suggestions**: 1. Reframe the 1st objective as “To know the profile of SHG members 2. Take SHGs of last five years for the study 3. Add detail about sampling design, research design, period of research study and take the sample size 300 for recommendation/ message. (**Action:** Head, TRTC&TFWTC, AAU, D’ Baria)	**Approved**

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title	Suggestions	Remarks
17.6.3.47	Consumer Awareness and Food Buying Behavior towards Labelled Foods	**Approved** (**Action:** HoD, Food Science & Nutrition, ASPEE College of Home Science & Nutrition, SDAU., SK Nagar)	**Approved**
17.6.3.48	Effect of nutrition counseling on Knowledge, Attitude and Practice of hypertensive subjects	**Approved with following suggestion:** 1. Remove 2nd objective (**Action:** HoD, Food Science & Nutrition, ASPEE College of Home Science & Nutrition, SDAU., SK Nagar)	**Approved**
17.6.3.49	Study on prevalence of severe acute malnutrition (SAM) among children and anemia among adolescent girls in Dantiwada Taluka	**Approved** (**Action:** HoD, Food Science & Nutrition, ASPEE College of Home Science & Nutrition, SDAU., SK Nagar)	**Approved**
17.6.3.50	Assessment of Postural Stress and Discomfort Level of Dairy Farmers	**Approved** (**Action:** Principal, ASPEE College of Home Science & Nutrition, SDAU., SK Nagar)	**Approved**
17.6.3.51	Functioning status of Farmer Producer Organizations in North Gujarat	**Approved with following suggestion:** 1. Replace the word " estimate" by "analyse" in 3rd objective (**Action:** Directorate of Extension Education, SDAU., SK Nagar)	**Approved**
17.6.3.52	Aspiration and Perception of Students Regarding the Bachelor of Rural Studies (BRS) Course	**Approved with following suggestion:** 1. Add objective on perception (**Action:** HoD, Department of Extension Education, C.P.C.A., SDAU., SKNagar)	**Approved**
17.6.3.53	**Title:** Adoption of online teaching process by the teachers of SDAU **Modified Title:** Perception about online	**Approved with following suggestion:** 1. Modify title as "Perception about online teaching process by the teachers of SDAU" 2. Second objective needs to be Modified	**Approved**

	teaching process by the teachers of SDAU	3. Put word "by" before teacher word in 4th objective (**Action:** HoD, Department of Extension Education, C.P.C.A., SDAU., SK Nagar)	
17.6.3.54	**Title:** Adoption of online learning process by the students of SDAU **Modified Title:** Perception of online learning process by the students of SDAU	**Approved with following suggestions:** 1. Modify the title as "Perception of students about online learning process" (**Action:** HoD, Department of Extension Education, C.P.C.A., SDAU., SK Nagar)	**Approved**
17.6.3.55	Male calves Disposal pattern followed by livestock owners in North Gujarat	**Approved with following suggestion:** 1. Add word "calves" before disposal at the end of 3rd and 4th objectives (**Action:** HoD, Dept. of Veterinary & Animal Husbandry Extension Education, College of Veterinary Science Animal Husbandry, SDAU, SK Nagar)	**Approved**
17.6.3.56	Growth Performance and Instability of Major Seed Spice Crops in Gujarat	**Approved** (**Action:** HoD, Department of Agricultural Economics, C.P.C.A., SDAU., SK Nagar)	**Approved**
17.6.3.57	Comparison of under nutritional classification methods among anganwadi children of Dantiwada Taluka	**Approved** (**Action:** Principal, ASPEE College of Home Science & Nutrition, SDAU., SK Nagar)	**Approved**
17.6.3.58	Identification of suitable model for prediction of area, production and productivity of castor (*Ricinus communis* L.) in Banaskantha district	**Approved with following suggestion:** 1. Reframe the objectives and methodology (**Action:** HoD, Department of Agricultural Statistics, C.P.C.A., SDAU., SK Nagar)	**Approved**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. no.	Title(Corrected one)	Suggestion	Remarks
17.6.3.59	Economics of selected *kharif* and *rabi* vegetables crops in Saurashtra region of Gujarat	**Approved** (**Action:** Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)	**Approved**
17.6.3.60	**Title:** Comparative advantages in World cumin (*cuminum cyminum L.*) exports: An application of gravity model	**Approved with following suggestion:** 1. Delete semicolons in the end of all objectives and delete word "and" written at the end of fifth objectives. (**Action:** Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)	**Approved**
17.6.3.61	**Title:** Pre-study survey for the Auto-advisory service for groundnut growers of the Saurashtra region **Modified Title:** "Exploring the scope to start Auto Advisory Services for groundnut growers in Saurashtra region".	**Approved with following suggestion:** 1. Reframe the title of the study as "Exploring the scope to start Auto Advisory Services for groundnut growers in Saurashtra region". 2. Recast first and second objectives as: (1) To explore the scope of Auto Advisory Services for groundnut growers (2) To know the expectations of farmers about Auto Advisory Services 3. Delete third objective. (**Action:** Professor & Head, Dept. of Agril. Statistics, CoA,JAU, Junagadh)	**Approved**
17.6.3.62	Value chain analysis of Kesar mango in Saurashtra region	**Approved with following suggestions:** 1. Recast the first objective as "To map the activities of stake holders involved in value chain". 2. Delete the words "potential of" in second objective. 3. Recast all the objectives grammatically. (**Action:** Principal and Dean, PGIABM, JAU, Junagadh)	**Approved**

17.6.3.63	**Title:** Assessment of knowledge of agro-input dealers towards certificate course of insecticide management **Modified title:** Assessment of knowledge of agro-input dealers gained through certificate course on insecticide management	**Approved with following suggestions:** 1. Recast title as "Assessment of knowledge of agro-input dealers gained through certificate course on insecticide management" 2. Recast and take the objectives as under: (1)To study the profile of Agro input dealers (2)To access the knowledge of Agro-input dealers gained through certificate course on insecticides management (3)To ascertain relationship between attributes of respondents and their knowledge gained through certificate course on insecticides management (4)To find out the constraints faced by the respondents attended certificate course on insecticides management (5)To elicit the suggestions from the respondents to make certificate more effective 3. Take sample size of 300 respondents. 4. For comparison, apply paired 't' test. (**Action:** Professor & Head, Dept. of Agril. Extension, CoA, JAU, Junagadh)	**Approved**
17.6.3.64	Perception of animal owners about veterinary clinical complex(VCC),CVS &AH,JAU, Junagadh	**Approved with following suggestion:** 1. Recast first objective as "To study the profile of beneficiaries of VCC services" 2. Recast second objective as "To know the perception of beneficiaries about VCC services" (**Action:** Professor &Head, Dept. of Agril. Extension, CoA, JAU, Junagadh)	**Approved**

17.6.3.65	**Title:** Knowledge of rural women regarding fruit processing and preservation techniques at house hold level **Modified Title:** Knowledge of rural women regarding fruit processing and preservation in Amreli district	**Approved with following suggestion:** 1. Replace the words "techniques at house hold level" with "in Amreli district" in the title. 2. Delete words "in the study area" in first objective. 3. Recast second objective as "To study the knowledge level of rural women regarding processing and preservation of fruits". 4. Recast fourth objective as "To study the constraints faced by rural women in processing and preservation of fruits". 5. Delete word "technique" in the fifth objective. 6. Take sample of 300 respondents adopting fruit processing and preservation with increased number of villages. (**Action:** Professor & Head Dept. of Agril. Extension, CoA, Motabhandariya JAU, Amreli)	**Approved**
17.6.3.66	**Title:** Assessment of knowledge of farm women about kitchen gardening in rural areas in Jamnagar and Devbhumi Dwarka districts **Modified Title:** Knowledge of farm women about kitchen gardening in Jamnagar and Devbhumi Dwarka districts	**Approved with following suggestion:** 1. Recast the title as "Knowledge of farm women about kitchen gardening in Jamnagar and Devbhumi Dwarka districts". 2. Take objectives as under (1) To study the profile of respondents (2) To measure the knowledge level of farm women about kitchen gardening (3) To access adoption level of respondents about kitchen gardening (4) To identify the constraints faced by respondents in adoption of kitchen gardening (**Action:** Senior Scientist & Head, Krishi Vigyan Kendra, JAU,Jamnagar)	**Approved**

17.6.3.67	Usefulness of Agro-met advisory service to the farmers of Jamnagar districts	**Approved with following suggestion:** 1. Replace word "about" with "of" in first objective. 2. Recast second objective as "To seek suggestions from respondents for improving advisory of weather bulletin". (**Action:** Senior Scientist & Head, Krishi Vigyan Kendra, JAU, Jamnagar)	**Approved**
17.6.3.68	Information seeking behavior of organic farmers	**Approved with following suggestions** 1. Recast second objective as "To know information need of organic farmers". 2. Replace word "challenges" with "problems" in fourth objective (**Action:** Senior Scientist & Head, Krishi Vigyan Kendra, JAU,Amreli)	**Approved**
17.6.3.69	**Title:** Indigenous and scientific knowledge of the farmers about botanical pesticides in Amreli district **Modified Title:** Knowledge and adoption of the farmers about botanical pesticides in Amreli district	**Approved with following suggestion:** 1. Recast the title as "Knowledge and adoption of the farmers about botanical pesticides in Amreli district". 2. Replace word "farmer" with "farmers" in first objective. 3. Recast second objective as "To find out knowledge of the farmers about botanical pesticides". 4. Replace word "pesticide" with "pesticides" in third objective. (**Action:** Senior Scientist & Head, Krishi Vigyan Kendra, JAU, Amreli)	**Approved**
17.6.3.70	Attitude of farmers towards Agro-met advisory service	**Approved with following suggestion:** 1. Investigators should not be more than four including PI. 2. In methodology add the sentence "Teacher made scale will be used for measuring attitude". 3. Replace word "find out" with "measure" in second objective. 4. Delete fourth objective. (**Action:** Senior Scientist & Head, Krishi Vigyan Kendra, JAU,Amreli)	**Approved**

17.6.3.71	Changes in eating habits and dietary pattern amid COVID-19 pandemic induced lockdown: A case of Saurashtra region, Gujarat	House decided to drop the study (**Action:** Senior Scientist & Head, Krishi Vigyan Kendra, JAU, Piplia)	**Dropped**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title	Suggestions	Remark
17.6.3.72	Yield gap analysis of major crops of Narmada district	**Approved with following suggestions** 1. Change 2nd objective as "To find out the extent of yield gap in major crops cotton, paddy, pigeon pea and soybean" 2. Change 3rd objective as, "To study relationship between the factors and yield gap in major crops" 3. In methodology mention sampling design and statistical tools. (**Action:** Senior Scientist & Head, KVK, NAU, Dediapada)	**Approved**
17.6.3.73	Impact of KVK activities in adopted villages of KVK Dangs	**Approved with following suggestions** 1. In methodology mention 10 villages will be selected with 3 years of adoption. 2. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Waghai)	**Approved**
17.6.3.74	Knowledge and Adoption of farmers about scientific cultivation of Pigeon pea in Surat district	**Approved with following suggestions** 1. In methodology give reason for purposive selection and remove "t" test. 2. Change 5th objective as, "To identify the constraints and to seek suggestions to overcome the constraints. 3. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Surat)	**Approved**

17.6.3.75	Nutritional Knowledge of SHG women in Surat District	**Approved with following suggestions** 1. In methodology descriptive statistics will be used and add statistical tools in methodology. (**Action:** Senior Scientist& Head, KVK, NAU, Surat)	**Approved**
17.6.3.76	Perception and adoption of recommended production technology of mango growers in Navsari district	**Approved with following suggestions** 1. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Navsari)	**Approved**
17.6.3.77	**Title:** Knowledge and adoption of recommended plant protection measures by mango growers in Navsari district **Modified Title:** Knowledge and adoption of recommended plant protection measures among mango growers in Navsari district	**Approved with following suggestions** 1. Modify title as, "Knowledge and adoption of recommended plant protection measures among mango growers in Navsari district" 2. Remove word "purposively" and increase number of villages in methodology. 3. Add statistical tools in methodology. (**Action:**Senior Scientist & Head, KVK, NAU, Navsari)	**Approved**
17.6.3.78	**Title:** Opinion of SSK trainees about training environment **Modified Title:** Feedback of trainees about training conducted by SSK	**Approved with following suggestions** 1. Modify title as, "Feedback of trainees about training conducted by SSK" 2. Change 2nd objective as, "To know the feedback about training conducted by SSK" 3. In methodology increase respondents minimum 200 and time duration will be 2 years. 4. Add statistical tools in methodology. (**Action:** Assistant Extension Educationist, SSK, NAU, Navsari)	**Approved**
17.6.3.79	Socio-economic consequences of COVID-19 pandemic on farming community in South Gujarat	**Approved with following suggestions** 1. Mention multistage random sampling method in methodology. 2. Add statistical tools in	**Approved**

		methodology. (**Action:** Professor & Head, Dept. of Social Sciences, ACHF, Navsari)	
17.6.3.80	Identification and prioritizing the thrust areas for agriculture research	**Approved with following suggestions** 1. Remove first objective. 2. Modify 2nd objective as, "To prioritize the thrust area for agriculture research" 3. Add statistical tools in methodology. (**Action:** HoD, Dept. of Ext. Edu.,NMCA, Navsari)	**Approved**
17.6.3.81	**Title:** Knowledge of dairy farmers of South Gujarat about zoonotic diseases **Modified Title:** Knowledge of dairy farmers about zoonotic diseases in South Gujarat	**Approved with following suggestions** 1. Modify the title as "Knowledge of dairy farmers about zoonotic diseases in South Gujarat" (**Action:** HoD, Vet. Ext., VCVS & AH, Navsari)	**Approved**
17.6.3.82	**Title:** Perception of peri-urban dairy farmers about climate change and strategies adapted **Modified Title:** Perception of peri-urban dairy farmers about climate change and adaptation strategies	**Approved with following suggestions** 1. Modify title as, "Perception of peri-urban dairy farmers about climate change and adaptation strategies" 2. Objective 3rd modify as, "To study the adaptation strategies adopted by peri-urban dairy farmers" 3. Specify the definition of peri-urban dairy farmers. (**Action:** HoD, Vet. Ext., VCVS & AH, Navsari)	**Approved**
17.6.3.83	Knowledge level of tribal farmers about improved cultivation practices of cashew in the Dangs district	**Approved with following suggestions** 1. Change the 4th objective as, "To study the constraints perceived by tribal farmers about cashew cultivation" 2. Increase sample size from 100 to 150. 3. Add statistical tools in methodology. (**Action**: Principal, Polytechnic in Agriculture, NAU, Waghai)	**Approved**
17.6.3.84	Effectiveness of Extension methods used by KVK for Transfer of Agricultural	**Not Approved.** (**Action:** Senior Scientist & Head, KVK, NAU,	**Dropped**

	Technology	Vyara, Tapi)	
17.6.3.85	**Title:** Knowledge and Adoption about Scientific Cultivation Practices of *summer* Green Gram by the farmers in Tapi district **Modified Title:** Knowledge and Adoption about Scientific Cultivation Practices of *summer* Green Gram among the farmers in Tapi district"	**Approved with following suggestions** 1. Modify title as," Knowledge and Adoption about Scientific Cultivation Practices of *summer* Green Gram among the farmers in Tapi district" 2. Modify 5th objective as, "To identify the constraints and seek their suggestions in adoption of scientific cultivation practices of s*ummer* Green Gram" 3. In methodology give reason for purposive sampling, remove t test and increase sample size up to 150 respondents. 4. Add statistical tools in methodology. (**Action**: Senior Scientist & Head, KVK, NAU, Vyara, Tapi)	**Approved**
17.6.3.86	**Title:** Knowledge and attitude of tribal women towards sickle cell anemia status in Tapi district **Modified Title:** Knowledge of tribal women towards sickle cell anemia status in Tapi district	**Approved with following suggestions** 1. Modify title as, "Knowledge of tribal women towards sickle cell anemia in Tapi district" 2. Remove objective number 4th and 5th. 3. Change dependent variable as knowledge of sickle cell anemia. 4. Time duration of project will be 3 years. 5. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Vyara, Tapi)	**Approved**
17.6.3.87	Use of pesticides among cotton growers in controlling insect-pests and diseases in Narmada district	**Not Approved.** (Action: Senior Scientist & Head, KVK, NAU, Dediapada)	**Dropped**
17.6.3.88	**Title:** Knowledge and adoption of Fall Army Worm management technology in Narmada district	**Approved with following suggestions** 1. Title modify as, "Knowledge and adoption of Fall Army Worm management technology among tribal	**Approved**

	Modified Title: Knowledge and adoption of Fall Army Worm management technology among tribal farmers in Narmada district	farmers in Narmada district" 2. Add one new objective as number 3, "To find out the relationship between personal profile of tribal farmers with their level of knowledge and extent of adoption" 3. Add 3rd objective as 4th one, "To find out the constraints and seek suggestions from tribal farmers about Fall Army Worm management technology" 4. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Dediapada)	
17.6.3.89	**Title:** Indigenous cattle (Dagari): Conserving for future generation **Modified Title:** Rearing practices followed by tribal farmers for Dagari cow	**Approved with following suggestions** 1. Modify title as, "Rearing practices followed by tribal farmers for Dagari cow" 2. Change objectives as, 1) To study the selected characteristics of the Dagari cow owners 2) To study the level of knowledge of Dagari cow owners about distinguish characteristics of Dagari cow 3) To study the utility of Dagari cow by Dagari cow owners 4) To study the rearing practices adopted by Dagari cow owners 3. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Dediapada)	**Approved**
17.6.3.90	**Title:** Adoption of water and sanitation hygiene practices among tribes of Narmada district **Modified Title:** Drinking water related hygiene practices prevailing among tribal of Narmada	**Approved with following suggestions** 1. Modify title as, "Drinking water related hygiene practices prevailing among tribal of Narmada district" 2. Change 1st objective as, "To study the profile of tribal" 3. Change 3rd objective as, "To	**Approved**

	district	find out relationship between profile of tribal and their extent of adoption" 4. Add statistical tools in methodology. (**Action**: Senior Scientist &Head, KVK, NAU, Dediapada)	
17.6.3.91	Adoption of Improved banana production technology in Narmada district	**Approved with following suggestions** 1. Change 1st objective as, "To study the profile of tribal banana growers" 2. Change 2nd objective as, "To study the extent of adoption of improved banana production technology among tribal banana growers" 3. Change 3rd objective as, "To study relationship between profile and extent of adoption of improved banana production technology among tribal banana growers" 4. Change 4th objective as, "To find out the constraints and seek suggestions from tribal banana growers in adoption of improved banana technology" 5. In methodology select 6 villages from each taluka, thus total sample size will be 120. 6. Add statistical tools in methodology. (**Action:** Senior Scientist & Head, KVK, NAU, Dediapada)	**Approved**
17.6.3.92	Entrepreneurial behavior of dairy farm women in Bharuch District	**Approved with following suggestions** 1. Change 1st objective as, "To study the profile of dairy farm women" 2. Change 3rd objective as, "To elicit the problems faced by the dairy farm women in dairy enterprise and seek their suggestions to overcome the problems" 3. Duration of study will be 3 years thus, sample size will become 360. 4. Add statistical tools in	**Approved**

		methodology. (**Action:** HoD, Department of Agril. Extension, CoA, NAU, Bharuch)	
17.6.3.93	**Title:** Constraints in adoption of recommended plant protection practices of Cotton in Bharuch district **Modified Title:** Adoption of recommended plant protection practices among Cotton growers in Bharuch district	**Approved with following suggestions** 1. Modify title as, "Adoption of recommended plant protection practices among Cotton growers in Bharuch district" 2. Add statistical tools in methodology. (**Action:** HoD, Department of Agril. Extension, CoA, NAU, Bharuch)	**Approved**
17.6.3.94	**Title:** Perception of farmers about technological traits of GNP 2 variety of Tur in Bharuch district **Modified Title:** Feedback of farmers about GNP 2 variety of Pegionpea in Bharuch district	**Approved with following suggestions** 1. Modify title as, "Feedback of farmers about GNP 2 variety of Pegionpea in Bharuch district 2. Change 2nd objective as, "To study the feedback of respondents about Pegionpea variety GNP 2" 3. Duration of study will be 2 years thus, sample size will become 300. 4. Add statistical tools in methodology. (**Action**: HoD, Department of Agril. Extension, CoA, NAU, Bharuch)	**Approved**
17.6.3.95	**Title:** Capacity building of farmers through training on organic farming practices in Bharuch district of Gujarat State **Modified Title:** Capacity building of farmers through training on organic farming practices by KVK Chaswad"	**Approved with following suggestions** 1. Modify title as, "Capacity building of farmers through training on organic farming practices by KVK Chaswad" 2. Change 4th objective as, "To know the direct and indirect effect of independent variables on organic farming practices" 3. Add statistical tools in methodology. (**Action:** HoD, Department of Agril. Extension, CoA, NAU, Bharuch)	**Approved**

17.6.3.96	Total Factor Productivity Growth of Sugar Industry in South Gujarat Region	**Approved** (**Action:** HoD, Dept. of Agril. Econ., NMCA, Navsari)	**Approved**
17.6.3.97	Economic Impact of Agro meteorological Advisory Services for Paddy and Sugarcane in Navsari District	**Not Approved.** (**Action:** HoD, Dept. of Social Sciences, ACHF, Navsari)	**Dropped**
17.6.3.98	Economics of Rabi Sorghum Production in Bharuch district of South Gujarat	**Approved with following suggestions** 1. Add CACP cost concept in Methodology 2. In methodology replace the word" jower" with "sorghum" (**Action:** Assistant Professor, Dept. of Agril. Econ., CoA, Bharuch)	**Approved**
17.6.3.99	Awareness and purchase intention of consumers towards online purchase of fruits and vegetables in Navsari city	**Not Approved** (**Action:** Assistant Professor, Planning cell- DR Office, Navsari)	**Dropped**
17.6.3.100	Seasonal variations and Forecasting in Wholesale Prices of Okra in Surat Market	**Approved** (Action: Principal, AABMI, NAU, Navsari)	**Approved**
17.6.3.101	**Title:** The impact of COVID-19 induced lockdown on the wholesale prices of major agricultural commodities in Gujarat **Modified Title:** The effect of COVID-19 induced lockdown on the wholesale prices of selected agricultural commodities in Gujarat”	**Approved with following suggestions** 1. Modify title as, “The effect of COVID-19 induced lockdown on the wholesale prices of selected agricultural commodities in Gujarat” 2. Investigator should be maximum four 3. Remove the word" major" and replace with "selected "in objective 1 and 2. (**Action:** Principal, AABMI, NAU, Navsari)	**Approved**
17.6.3.102	**Title:** Sources of Risk and Management Strategies among Vegetable Farmers in South Gujarat **Modified Title:** Risk and Management practices adopted by vegetable farmers in South Gujarat	**Approved with following suggestions** 1. Modify title as, “Risk and Management practices adopted by vegetable farmers in South Gujarat 2. Other staff as investigator should be removed 3. Change 2th objective as, To identify the major sources of risk in the vegetable production as perceived by vegetable farmers.	**Approved**

		4. Change 3rd objective as, To analyse the risk management practices adopted by vegetable farmers 5. In methodology, replace the word "perception" by "adoption". 6. Use teachers made scale for risk management practices 7. Mention statistical tools. (**Action:** Principal, AABMI, NAU, Navsari)	
17.6.3.103	Impact of National horticulture mission in Gujarat	**Approved with following suggestions** 1. Remove name of one investigator (**Action:** HoD, Dept. of Social Sciences, ACHF, Navsari)	**Approved**
17.6.3.104	**Title:** Economics of Gram Production in Tapi District of South Gujarat **Modified Title:** Economics of major vegetable crops in Tapi district of South Gujarat	**Approved with following suggestions** 1. Modify title as, "Economics of major vegetable crops in Tapi district of South Gujarat" 2. Change the 1st objective as, To study the cost and returns of major crops. 3. Change 2nd objective as, To identify the constraints related to major vegetable crops cultivation. 4. In methodology: • Increase sample size i.e. 360 • Use CACP cost concept • Period of study will be 2 year (**Action:** Principal, Agril. Econ., Polytechnic in Agriculture, Vyara	**Approved**
17.6.3.105	**Title:** Export Performance of major Fruits of India **Modified Title:** Export Performance of major fresh and processed fruits of India	**Approved with following suggestions** 1. Modify title as "Export Performance of major fresh and processed fruits of India" 2. Change methodology accordingly 3. Use data more than 10 years (**Action:** Assistant Professor, Agril. Economics, CoA, Waghai)	**Approved**

17.6.3.106	**Title:** Management Performance of FPO's in South Gujarat **Modified Title:** Performance of FPO's in South Gujarat	**Approved with following suggestions** 1. Modify title as "Performance of FPO's in South Gujarat" 2. Change objective 2nd as, To examine the performance of the FPOs in South Gujarat 3. Change objective 3rd as, To identify the constraints faced by the FPOs and to seek their suggestions to overcome the constraints in performing their activities. 4. Change methodology as per the suggestion of the house. (**Action:** Assistant Professor, Registrar Office, NAU, Navsari	**Approved**
17.6.3.107	**Title:** Yield Gap and Profitability Analysis of Bt Cotton in Bharuch District of South Gujarat **Modified Title:** Yield Gap and Economic Analysis of Bt Cotton in Bharuch District of South Gujarat	**Approved with following suggestions** 1. Modify title as "Yield Gap and Economic Analysis of Bt Cotton in Bharuch District of South Gujarat" 2. Change 1st objective as, To estimate economics of Bt cotton producers 3. Replace word "breeders" with "breeding" in methodology 4. Study period reduced to one year (**Action:** Assistant Professor, Agril. Economics, CoA, Bharuch)	**Approved**
17.6.3.108	**Title:** Economics and Resource Use Efficiency of Brinjal cultivation in Surat district of Gujarat **Modified Title:** Economics and Resource Use Efficiency of Brinjal cultivation in Surat district	**Approved with following suggestions** 1. Modify title as "Economics and Resource Use Efficiency of Brinjal cultivation in Surat district" 2. Change objective 1st as, To study growth and instability in area, production and productivity of Brinjal crop 3. Change objective 3rd as, To examine the resource use efficiency of Brinjal crop production	**Approved**

		4. Change objective 4th as, To identify the constraints in Brinjal crop cultivation 5. Replace "south Gujarat" with "Surat" in methodology. 6. Mention sampling design in methodology. 7. Study period reduced to one year (**Action:** HoD, Dept. of Agril. Econ., NMCA, Navsari)	
17.6.3.109	**Title:** Time series analysis of cauliflower prices in selected markets of Gujarat **Modified Title:** Price behavior and forecasting of cauliflower prices in Gujarat	**Approved with following suggestions** 1. Modify title as "Price behavior and forecasting of cauliflower prices in Gujarat" 2. Remove the word selected markets of Gujarat from 1st & 2nd objective. 3. Study period should be 2year. (**Action:** HoD, Dept. of Agril. Econ., NMCA, Navsari)	**Approved**
17.6.3.110	Awareness, Expectation and Influencing Factors for Alumni Involvement among the students of Navsari Agricultural University, Navsari	**Not Approved** (**Action:** Principal, AABMI, NAU,Navsari)	**Dropped**
17.6.3.111	**Title:** Survey data analysis using different statistical tools **Modified Title:** Application of different statistical tools for survey data analysis	**Approved with following suggestions** 1. Modify title as" Application of different statistical tools for survey data analysis" 2. Investigator should not be more than four. (**Action:** HoD, Dept. of Agril. Stat., NMCA, Navsari)	**Approved**
17.6.3.112	Population growth study of sheath mites in different rice cultivars using statistical models	**Approved** (**Action:** HoD, Dept. of Agril. Stat., CoA, Bharuch)	**Approved**
17.6.3.113	Evaluation and development of yardstick of CV for mango experiments for South Gujarat region	**Approved** (**Action:** Assistant Professor, Dept. of Agril. Stat., ACHF, Navsari)	**Approved**

General Suggestions:

1. Minimum 300 sample size should be required for the recommendation on one year cross section data
2. If sample size is not sufficient (i.e. 100 to 150 or less) then recommendation can be made after conducting the same study for two years/Seasons with the total sample of minimum 300 respondents (In case of Orchard, FLD, New varietal trial etc.). The second year study should be conducted considering the same study area/same village/same constraints/like weather/nature/rare event etc.
3. If research study is related to secondary data then recommendation can be made considering minimum 15 to 20 years data.
4. In case of specific nature of the study, where large sample size is not possible (i. e. study on private companies, Industries, organizations etc.), under that circumstances recommendation/information/message should be made from minimum sample size of 100.
5. All the members of social science subcommittee shall follow the prescribed format for NTP and recommendations as per Annexure I.

Annexure I

Format for New Technical Programme

The new technical programme shall be **prepared as per prescribed format (given below)** in Arial font size 11 pt in 1.15 space with margin of 1.25 inch in left side, 1 inch on top and bottom as well as 1 inch on right side in A/4 size paper both the side

Name of Department/office	
Title	
Principal Investigator (1)	
Co Investigators(3)	
Period of Study	
Introduction:	
Objectives: 1. 2. 3.	
Methodology: ➢ **Location of Study:** ➢ **Research Design:** ➢ **Sampling Design: Sampling frame and Procedure for selection of respondents** ➢ **Data Collection Tools &Techniques:** ➢ **Statistical Tools for analyzing data :**	

Format for recommendation

The report shall be **prepared as per prescribed format (given below)** in Arial font size 11 pt in 1.15 space with margin of 1.25 inch in left side, 1 inch on top and bottom as well as 1 inch on right side in A/4 size paper both the side.

<table>
<tr><td>Name of Department/office</td><td></td></tr>
<tr><td>NTP code</td><td></td></tr>
<tr><td>Title</td><td></td></tr>
<tr><td>Principal Investigator</td><td></td></tr>
<tr><td>Co Investigators</td><td></td></tr>
<tr><td>Period of Study</td><td></td></tr>
<tr><td colspan="2">Introduction:</td></tr>
<tr><td colspan="2">Objectives:
1.
2.
3.</td></tr>
<tr><td colspan="2">Methodology:</td></tr>
<tr><td colspan="2">Results and Discussion:</td></tr>
<tr><td colspan="2">Conclusion/s:</td></tr>
<tr><td colspan="2">Recommendation/Message :if any
For farming community(English and Gujarati):

For scientific community/policy makers(English):</td></tr>
</table>

17.7 ANIMAL HEALTH

27-29 April, 2021

Hon'ble Vice Chancellor, Dr. N. H. Kelawala, KU addressed to the Scientific Community regarding activities undertaken by KU during recent past viz., amendment of Kamdhenu University Act-2009 in which shifting of Veterinary, Dairy and Fishery Colleges from SAUs, Gujarat to Kamdhenu University, sanctioning of New Veterinary and Fishery College at Rajpur (Nava), Himmatnagar. He briefed about activities during Covid-19, including completion of education and extracurricular activities in smooth manner. He advised thorough discussion on New Technical Programme in the meeting in order to arrive at good outcome of the meeting and **Recommendation** for scientific community and farmers. He also congratulates the PI and Co-PI for their Research work.

Dr. D. B. Patil, Director of Research & Dean PG Studies, KU chaired the 17th Combined Meeting of **Animal Health Sub-Committee** of AGRESCO(Online) held at SDAU, Sardarkrushinagar on 27-29 April, 2021. He welcomed the scientist as well as Co-Chairman and Rapporteurs. He congratulates the scientist for their research work that they have conducted in the tough time of COVID-19 pandemic. He encouraged scientist to conduct innovative research work that will benefit the farmer's community of the state.

Chairman: Dr. D. B. Patil, Director of Research & Dean PG Studies, KU

Co-Chairman: Dr. Dr. D.V.Joshi, Dean, SDAU
Dr. P. H. Tank, Dean, JAU

Rapporteurs: Dr. H. C. Chauhan, SDAU
Dr. D. G. Ghodasara, AAU
Dr. U. D. Patel, JAU
Dr. C. V. Savaliya, NAU
Statistician : Dr. S. M. Upadhyay, JAU

17.7 Animal Health :

Executive Summary of Technical Session:

Sr. No.	University	Farmers Recommendation		Scientific Recommendation		New Technical Programme	
		Presented	Accepted	Presented	Accepted	Presented	Accepted
1	SDAU	1	1	3	3	20	20
2	JAU	1	1	6	6	0	0
3	NAU	0	0	3	3	15	12
4	AAU	0	0	7	7	13	13
5	KU	0	0	0	0	1	1
Total		**2**	**2**	**19**	**19**	**49**	**46**

17.7.1 Recommendations for Farmer's Community

Sardarkrushinagar Dantiwada Agricultural University

Sr. No.	Recommendations for Farmer's Community
17.7.1.1	**Title** : Incidence of lameness in horses **Recommendation** : "વરઘોડામાં ઉપયોગમાં લેવાતા ઘોડાઓ માં જ્યારે આગળના પગ ના મૂઠિયામાં સોજો અને લંગડાપણું જોવામળે ત્યારે પશુચિકિત્સક ની સલાહ મુજબ તેને એક્ષ-રે કરાવવાની ભલામણ છે" "In horses used for marriage procession, if swelling of fetlock and lameness of forelimb is observed, it is advised to take radiograph under guidance of Veterinarian" **Accepted with following suggestions** 1.Recast the **Recommendation** as below "વરઘોડામાં ઉપયોગમાં લેવાતા ઘોડાઓમાં જ્યારે આગળના મૂઠિયામાં સોજો અને લંગડાપણું જોવા મળે ત્યારે એક્ષ-રે ની સગવડ ધરાવતા પશુદવાખાનામાં લઈ જવાની સલાહ આપવામાં આવે છે"
	[**Action:** Professor & Head, Dept. of Surgery and Radiology, Vet. College, SDAU, Sardarkrushinagar.]
Junagadh Agricultural University	
17.7.1.2	**Title** : Clinical studies on physical, ultrasonographic and radiographic assessment of suspected cases of diaphragmatic hernia in buffaloes **Recommendation** for Farmers: ભેંસોમાં હઠીલો આફરો જોવા મળે અને સાથે ભેંસ નબળી પડે, મોઢામાંથી ખોરાક બહાર કાઢે, કઠણ પોદળો કરે તેવા કિસ્સામાં ઉદરપટલની સારણગાંઠ હોવાની શક્યતા રહે છે. હવે આવી સારણગાંઠની શસ્ત્રક્રિયા દ્વારા સફળ સારવાર શક્ય હોઈ, ભેંસોના માલિકે સત્વરે શસ્ત્રક્રિયાની સુવિધા ધરાવતાં પશુચિકિત્સાલયની મુલાકાત લેવી અથવા નિષ્ણાંત શલ્યચિકિત્સકનો સંપર્ક કરવાની ભલામણ કરવામાં આવે છે. Buffaloes showing chronic recurrent tympany, which are not responding to common therapeutic management with progressive reduction in appetite, tendency of regurgitation and presence of hard scanty feaces are suggestive of diaphragmatic hernia. Presently, surgical management of diaphragmatic hernia is possible at veterinary hospitals, buffalo owners are recommended to visit the nearby veterinary hospital or contact a veterinary surgeon. **Accepted with following suggestions** Suggestion/s: 1. Write "indicative" instead "suggestive" 2. Recast the **Recommendation** ભેંસોમાં હઠીલો આફરો જોવા મળે અને સાથે ભેંસ નબળી પડે, મોઢામાંથી ખોરાક બહાર કાઢે, કઠણ પોદળો કરે તેવા કિસ્સામાં ઉદરપટલ ની સારણગાંઠ હોવાની શક્યતા રહે છે, જેની શસ્ત્રક્રિયા દ્વારા સફળ સારવાર શક્ય હોઈ, ભેંસોના માલિકે સત્વરે શસ્ત્રક્રિયાની સુવિધા ધરાવતાં પશુ ચિકિત્સાલયની

	મુલાકાત લેવી અથવા નિષ્ણાંત શલ્યચિકિત્સક નો સંપર્ક કરવાની ભલામણ કરવામાં આવે છે. Buffaloes showing chronic recurrent tympany, not responding to common therapeutic management with progressive reduction in appetite, tendency of regurgitation and presence of hard scanty feaces are indicative of diaphragmatic hernia. As surgical management of diaphragmatic hernia is possible at veterinary hospitals, buffalo owners are recommended to visit the nearby veterinary hospital or contact a veterinary surgeon.
	[**Action:** HOD, Department of VCC, College of Veterinary Science & A. H., JAU, Junagadh].

17.7.2 Recommendations for Scientific Community

Sardarkrushinagar Dantiwada Agricultural University	
17.7.2.1	**Title** : Incidence of lameness in horses **Recommendation** : "In Marwadi horses used for marriage procession, remodeling of sesamoid with or without enthesophyte proliferation at sesamoid and large metacarpus were most commonly observed (71.43 %, 10/14) in bowed tendon, hence radiographic examination of fetlock is recommended" **Accepted with following Suggestions:** In Marwadi horses used for marriage procession remodeling of sesamoid with or without enthesophyte proliferation at sesamoid and large metacarpus were most commonly observed (71.43 %, 10/14) in bowed tendon, hence veterinarians are advised to evaluate presence of the same during formulating treatment strategy. [**Action**: Professor & Head, Dept. of Surgery and Radiology, Veterinary College, SDAU, Sardarkrushinagar.]
17.7.2.2	**Title** : "Efficacy of entomopathogenic nematode against ticks" **Recommendation** : "It is recommended to use the entomopathogenicnematode, *Heterorhabditis indicia* as a biological agent to control ticks as it induced 88.6% and 73.33% mortality of adult *Hyalommaanatolicum*and*Rhipicephalusmicroplus,* respectively at 5000 infected juveniles per petri dish concentration,in*in vitro* bioassay.*"* **Accepted** [**Action**: Professor & Head, Dept. of Parasitology, Veterinary College, SDAU, Sardarkrushinagar.]
17.7.2.3	**Title** : Effect of Kurrypatta (Murrayakoenigii) and Bili (Aeglemarmelos) in management of anoestrus bovines" **Recommendation** : "It is recommended thatanoestrus condition in crossbred cows and buffaloes could be effectively managed by feeding of shed dried powder of Curry leaves (*Murrayakoenigii*) @ 210mg/kg body weight and Bael leaves (*Aeglemarmelos*) @ 270mg/kg body weight once daily for 9 days. "

	Accepted with following Suggestions: Recast as per below 1. "It is recommended that anoestrus condition in crossbred cows and buffaloes could be effectively managed by feeding shed dried powder of Curry leaves (*Murrayakoenigii*) @ 210mg/kg body weight and Bael leaves (*Aeglemarmelos*) @ 270mg/kg body weight once daily for 9 days. [**Action**: Professor & Head, Dept. of Gynaecology, Veterinary College, SDAU, Sardarkrushinagar.]
Junagadh Agricultural University	
17.7.2.4	**Title** : Clinical studies on physical, ultrasonographic and radiographic assessment of suspected cases of diaphragmatic hernia in buffaloes **Recommendation**: To arrive at confirmatory diagnosis of diaphragmatic hernia in buffaloes, ultrasonography and radiography provided interdependent prognostic features and the ultrasonography additionally facilitated to locate the reticulum in relation with adjacent thoracic structures than reticular location and manner of contr**Action**. **Accepted with following Suggestions:** Suggestion/s: 1.Write "For" in place of "To arrive at" For confirmatory diagnosis of diaphragmatic hernia in buffaloes, ultrasonography and radiography provided interdependent prognostic features and the ultrasonography additionally facilitated to locate the reticulum in relation with adjacent thoracic structures than reticular location and manner of contr**Action**. **Action**: HOD, Department of TVCC, College of Veterinary Science & A. H., JAU, Junagadh
17.7.2.5	**Title** : Isolation and identification of active ingredients of selected medicinal plants and evaluation of *in-vitro* antioxidant and antidiabetic effects **Recommendation**: Preparative-HPLC isolates of n-butanol fr**Action**s of *Enicostemaaxillare* (Mamejavo) leaves (EAPF) and *Cassia absus* (Chimed) seeds (CAPF) possess good *in-vitro* antioxidant effects. The EAPF owing significant *in-vitro*antidiabetic activity due to presence of isolated secoiridoid glycoside compound, swertiamarin (0.2 % w/w). **Accepted with following Suggestions:** Suggestion/s: 1. Delete EAPF and CAPF 2. Recast the **Recommendation** The preparative-HPLC isolates of n-butanol fr**Action**s of *Enicostemaaxillare* (Mamejavo) leaves and *Cassia absus* (Chimed) seeds possess good *in-vitro* antioxidant effects. The preparative-HPLC isolate of n-butanol fr**Action** of *Enicostemaaxillare* leaves also owing significant *in-vitro* antidiabetic activity

due to presence of secoiridoid glycoside compound, swertiamarin (0.2 % w/w).

[**Action**: HOD, Department of Veterinary Pharmacology & Toxicology, College of Veterinary Science & A. H., JAU, Junagadh].

17.7.2.6

Title : Evaluation of antioxidant potential of *Cassia absus* in cadmium-induced oxidative stress model of Zebrafish (*Daniorerio* Hamilton, 1822)

Recommendation :

Feeding of Cassia absus seed powder @ 10 mg/fish/day has ameliorated the oxidative stress mediated pathological changes in liver, kidney, gills and brain of zebrafish exposed to 1 ppm cadmium chloride for 21 days. The various flavonoid compounds with antioxidant effect like isovitexin, 7,8,3',4',5'-pentamethoxyflavone, luteolin 7-rhamnosyl(1->6)galactoside, prunin and mirificin have been identified to be present in seeds of Cassia absus.

Accepted

Action: HOD, Department of Veterinary Pharmacology & Toxicology, College of Veterinary Science & A. H., JAU, Junagadh.

17.7.2.7

Title : Morphological and molecular identification of ticks infesting the domestic and wild animals

Recommendation:

The PCR primers designed by Veterinary College, Junagadh Agricultural University can be used for the identification of *Hyalommaanatolicum*, *Rhipicephalus (Boophilus) microplus* and *Rhipicephalus sanguineus* through amplification and sequence analysis.

Primer seq (5'→ 3')	Species of ticks	Targeted genes	Size of amplicon
attttaccgcgatgaa	*R. (B.) microplus*	Cytochrome Oxidase 1	1539 bp
ttatttaataataatattattttga			
attttaccgcgatgaatat	*R. sanguineus*		1539 bp
ttacttaagaataatattattttg			
ttttgggtcctgagccg	*H. anatolicum*		818 bp
taaatatatgatgcgcccat			
attctcatcggtctaaactcag	*R. (B.) microplus*	16S rRNA	987 bp
gtaccttttgcattaggggt			
ccctagagtatttatttcatta	*H. anatolicum*		820 bp
atacgtacctttagcattag			
aaaaaagtatcctaatccaacatc	*R. sanguineus*		912 bp
agaaaataaaatgtacctttagca			

Accepted

Action: HOD, Department of Veterinary Parasitology, College of Veterinary Science & AH and Department of Biotechnology, JAU, Junagadh

17.7.2.7

Title : Development of rapid blood processing method for the detection of haemoprotozoan parasites through polymerase chain re**Action** (PCR)

Recommendation:

The currently developed and optimized blood lysate method is an alternative to

	purified whole blood genomic DNA for molecular detection (PCR) of haemoprotozoans such as *Babesia*, *Theileria* and *Trypanosoma*in cattle, buffaloes, horses and dogs which is rapid, cost effective, less chances of cross-contamination, more convenient and can be run in resource poor laboratories. **Accepted with following Suggestions:** Suggestion/s: 1. Mention the name of college and University 2. Recast the **Recommendation** The blood lysate method developed and optimized by Veterinary College, Junagadh Agricultural University is an alternative to purified whole blood genomic DNA for molecular detection (PCR) of haemoprotozoans such as *Babesia*, *Theileria* and *Trypanosoma* in cattle, buffaloes, horses and dogs is rapid, cost effective with less chances of cross-contamination, and is more convenient to operate under resource constraint laboratories. [**Action**: HOD, Department of Veterinary Parasitology, College of Veterinary Science & AH, JAU, Junagadh]
17.7.2.8	**Title** : Assessment of blood gas, acid-base and electrolyte alterations during diaphragmatic herniorrhaphy in buffaloes **Recommendation**: The buffaloes suffering from diaphragmatic hernia exhibits metabolic alkalosis, hypokalemia and hypochloremia. So it is recommended to use suitable corrective fluid therapy for post-operative management **Accepted with following Suggestions:** Suggestion/s: 1. Make one sentence and recast **Recommendation** The buffaloes suffering from diaphragmatic hernia exhibits metabolic alkalosis, hypokalemia and hypochloremia, warranting suitable corrective fluid therapy during surgical treatment. [**Action**: HOD, Department of Veterinary Medicine, College of Veterinary Science & A. H., JAU, Junagadh]
17.7.2.9	**Title** : Assessment of blood gas, acid-base and electrolyte alterations during diaphragmatic herniorrhaphy in buffaloes **Recommendation**: The buffaloes suffering from diaphragmatic hernia exhibits metabolic alkalosis, hypokalemia and hypochloremia. So it is recommended to use suitable corrective fluid therapy for post-operative management **Accepted with following Suggestions:** Suggestion/s: 1. Make one sentence and recast **Recommendation** The buffaloes suffering from diaphragmatic hernia exhibits metabolic alkalosis,

	hypokalemia and hypochloremia, warranting suitable corrective fluid therapy during surgical treatment. [**Action**: HOD, Department of Veterinary Medicine, College of Veterinary Science & A. H., JAU, Junagadh]
Navsari Agricultural University	
17.7.2.10	**Title** : Postnatal gross-morphometrical and histomorphological studies on the spleen of goat (Capra hircus) **Recommendation** : The histoarchitecture of splenic parenchyma show distinct red pulp and white pulp during various stages of development and the average number of white pulp per square mm area of spleen is decreased from the age of twelve months onwards in goats. **Accepted.** [**Action**: Professor & Head, Dept. of Veterinary Anatomy, Vet. College, NAU, Navsari]
17.7.2.11	**Title** : Molecular detection of theileriosis and anaplasmosis in bovine **Recommendation** : The cytochrome b gene primers (Forward 5'- tttggaggccaaacagttgg - 3': Reverse 5'- cctgccattgccaaaagtcc- 3') are useful for the specific detection of *Theileriaannulata* in bovine with 401 bpamplicon using PCR. **Accepted.** [**Action**: Professor & Head, Dept. of Veterinary Parasitology, Vet. College, NAU, Navsari]
17.7.2.12	**Title** : Molecular detection of theileriosis and anaplasmosis in bovine **Recommendation** : The Anaplasmamarginale is distributed in infected whole, anterior and posterior half of the body of Rhipicephalus *(Boophilus) microplus* and also in its eggs, indicative of transovarian transmission **Accepted** [**Action**:Professor & Head, Dept. of Veterinary Parasitology, Vet. College, NAU, Navsari]
Anand Agricultural University	
17.7.2.13	**Title** : Studies on sub-acute toxicity of Cinnamon oil (*Cinnamomumzeylanicum*) in rats **Recommendation** : Repeated oral administration of cinnamon oil up to 200 mg/kg body weight once daily for 28 days did not reveal any toxic effects in Wistar rats. **Accepted** [**Action**: Professor & Head, Dept. of Pharmacology & Toxicology, Vet. College, AAU, Anand.]

17.7.2.14	**Title** : Study on Pharmacokinetic – Pharmacodynamic (PK-PD) integration of cefpirome in sheep **Recommendation** : Based on pharmacokinetic-pharmacodynamic integration, the recommended intramuscular dosage regimen of cefpirome for sheep is 10 mg/kg body weight repeated at 12 hour interval. **Accepted with following suggestion** Suggestions: 1. instead of hour use word “hrs”. [**Action**: Professor & Head, Dept. of Pharmacology &Toxicology, Vet. College, AAU, Anand]
17.7.2.15	**Title** :*In Vitro* Embryo Production and Pregnancy Rates from OPU-IVEP using Sexed Semen in Cattle **Recommendation** : 3.HF crossbred cows yielded significantly (p<0.05) higher number of oocytes (25.1±3.3), cleavage rate (83.4±2.2%), blastocyst rate (40.2±3.8 %) and number of embryos (9.5±1.6) per ovum pick-up (OPU) than the Gir and Sahiwal cows. Grade 3 and grade 4 oocytes recovered through OPU converted in to good quality blastocysts when co-cultured with grade 1 and 2 oocytes and they had positive correlation with cleavage rate (r = 0.3) and blastocyst rate (r = 0.4, p<0.05). **Accepted.** [**Action**: Professor & Head, Dept. of Gynaecology and Obstetrics, Vet. College, AAU, Anand]
17.7.2.16	**Title** :*In Vitro* Embryo Production and Pregnancy Rates from OPU-IVEP using Sexed Semen in Cattle **Recommendation** : Significantly (p<0.05) higher cleavage rates were observed In both indigenous and crossbred embryos with conventional semen (43.5±7.5% and 67.8±7.5%) than sex-sorted semen (39.2±7.1% and 26.3±7.5%). The overall blastocyst rate (22.6±3.9% vs. 4.3±3.8%) and embryos (n=35/200 oocytes vs. n=9/238 oocytes) obtained were also significantly (p<0.05) higher using conventional semen as compared to sex-sorted semen. Higher pregnancies were achieved in crossbred cows than indigenous cows (40.0 vs. 17.6%). Pregnancy rates with embryos from conventional semen and sex-sorted semen were nearly similar (25.0 vs 28.6%). **Accepted.** [**Action**: Professor &Head,Dept. of Gynaecology and Obstetrics, Vet. College, AAU, Anand.]

17.7.2.17	**Title** : Evaluation of Cryoprotective and Capacitation Inhibitory Potential of Mifepristone, Sericin and Taurine in TYFG Extender for Bovine Semen **Recommendation** : It is recommended to fortify Tris fructose yolk glycerol (TFYG) extender with Mifepristone (10 µg/ml), Sericin (5 mg/ml) and Taurine (4 mg/ml), particularly Mifepristone, as it improves significantly the post-thaw sperm progressive motility, viability and HOS reactivity (membrane integrity), with reduced percentages of capacitated (B pattern) and acrosome reacted (AR pattern) sperm and lipid peroxidation in respect of MDA, SOD and GPx activity with enhance *in vivo* fertility over the control TFYG extender in both Gir and Murrah bull semen. **Accepted.** [**Action**: Professor &Head,Dept. of Gynaecology and Obstetrics, Vet. College, AAU,
17.7.2.18	**Title** : Development of Rapid Multiplex PCR Method for Simultaneous Detection of Gram-Negative Foodborne Pathogens **Recommendation** : Multiplex PCR standardized using a combination of following set of primers; including one set of primer developed by AAU, Anand can be employed for simultaneous detection of *Campylobacter spp*., *Escherichia coli*, pathogenic *Salmonella* spp., and*Shigella*spp. from raw meat.

Organism	Primer Name	Primer Sequence (5’-3’)	Amplicon Size (bp)
Campylobacter spp.	16S-F	ATCTAATGGCTTAACCATTA	851
	16S-R	GTAACTAGTTTAGTATTCCGG	
Escherichia coli	uidA-F	GTCACGCCGTATGTTATTG	530
	uidA-R	CCAAAGCCAGTAAAGTAGAAC	
Pathogenic *Salmonella* spp.	invA-F	GTGAAATTATCGCCACGTTCGGGCAA	285
	invA-R	TCATCGCACCGTCAAAGGAACC	
*Shigella*spp.	ipaH-F	TGATGCCACTGAGAGCTGTG	399
	ipaH-R	AGTACAGCATGCCATGGTCC	

Accepted

[**Action**:Professor and Head, Dept. of VPH, Vet. College, AAU, Anand]

17.7.2.19	**Title** :Studies on Ketamine-Medazolam, Isoflurane and Sevoflurane Induction and Maintenance with and without Butorphanol Premedication in Birds **Recommendation** : A. Administration of Ketamine (25 mg/kg b.wt.) and Midazolam (0.5 mg/kg b.wt.) (KM) mixture intramuscularly, is recommended for induction of anaesthesia based on quality of anaesthesia produced in injured birds B. Administration of Butorphanol (1.5 mg/kg) intramuscularly as premedication agent, is recommended for safer induction using inhalant anaesthetic agents Isoflurane and Sevoflurane in birds

	C. Sevoflurane 5-7% for induction & 3-4% for maintanance has quick and smooth induction and recovery as compared to Isoflurane 3-4% for induction & 1-2% formaintananceanaesthesia in birds **Accepted** [**Action**:Professor & Head, Surgery & Radiology Dept., Vet. College, AAU, Anand]

17.7.3 New Technical Programmes

Total 49 New Technical Programmes were presented, and 46 NTPs were approved with/without suggestions as mentioned below.

Sr. No.	Title	Suggestions
Sardarkrushinagar Dantiwada Agricultural University		
17.7.3.1	Antibacterial, antioxidant and cytotoxicity effect of nano selenium *in vitro.*	**Accepted with following Suggestions:** 1. Complete the programme in 2 years. [**Action**: HOD, Dept. of Biotechnology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.2	Wound healing effect of polyherbal extracts in rat	**Accepted with following Suggestions:** 1. Include local name of plants which are to be used in experiment. [**Action**: HOD, dept. of Pharmacology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.3	Pharmacokinetic inter**Action** of orally administered marbofloxacin with thymoquinone in rabbits.	**Accepted** [**Action**: HOD, dept. of Pharmacology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.4	Integration of pharmacokinetic data with MIC of fluoroquinolones.	**Accepted** [**Action**: HOD, dept. of Pharmacology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.5	Herb-mineral feed additive formulation for maintaining infection-freehealth and improving performance of milking cows and buffaloes.	**Accepted with following Suggestions:** 1. It is be presented in animal production group and get approval from them [**Action**:HOD, Dept. of Pharmacology, Vet.College,SDAU, Sardarkrushinagar.]
17.7.3.6	Detection, Molecular charcaterisation and Seroepidemiologyof Bovineephemeral fever virus (BEFV)	**Accepted** [**Action**: HOD, Dept. of Microbiology, Vet. College, SDAU, Sardarkrushinagar.]

17.7.3.7	Evaluation of resistance in ticks against synthetic pyrethroid compounds by esterase enzyme assay	**Accepted** [**Action**: HOD, Dept. of Parasitology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.8	Prevalence of gastrointestinal parasites in ruminants of Banaskantha district.	**Accepted** [**Action**: HOD, Dept. of Parasitology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.9	Acute and subacute oral toxicity study of *Marchadi*(*Catharanthuspusillus*) extract in Wistar rats	**Accepted** [**Action**: HOD, Dept. of Pathology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.10	Serum Amyloid A concertation in various clinical condition of horses	**Accepted** [**Action**: PI through HOD, dept. of RADIC, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.11	Immunohistochemical expression of proliferating cell nuclear antigen (PCNA) in squamous epithelial neoplasms of animals and its correlation with histopathological classification and grading.	**Accepted:** [**Action**: HOD, Dept. of Pathology, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.12	Molecular evaluation of *Theileriosis* in small ruminants	**Accepted with following Suggestions:** 1. Replace word "evaluation" with "Detection" [**Action**: HOD, Dept. of Medicine, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.13	The effect of intra uterine infusion of N-acetylcysteine in endometritic mares	**Accepted** [**Action**: HOD, dept. of Gynaecology& Obstetrics, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.14	Study of blood flow parameters of middle uterine artery in uterine torsion affected cows and buffaloes	**Accepted with following Suggestions:** 1. Remove word uterine torsion only use "torsion". From the **Title** 2. Use word "to evaluate" in objective. [**Action**: HOD, Dept. of Gynaecology & Obstetrics, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.15	Blood urea nitrogen, creatinine and calcium as survival predictors of referred bovine dystocia	**Accepted with following Suggestions:** 1. Change the **Title** as per below. "Predictive prognostic values of certain blood biochemical indices in referred bovine dystocia cases". [**Action**: HOD, dept. of Gynaecology & Obstetrics, Vet. College, SDAU,

		Sardarkrushinagar.]
17.7.3.16	Effect of fodder beet feeding on semen production in Mehsana buffalo bulls	**Accepted** [**Action**: HOD, Dept. of Gynaecology & Obstetrics, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.17	Studies on sperm morphometry of fresh and frozen-thawed bull semen	**Accepted** [**Action**: HOD, Dept. of Gynaecology & Obstetrics, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.18	Comparative evaluation of Egg-yolk and Soy based extenders on Kankrej bull semen	**Accepted with following Suggestions:** 1. Include morphology parameter. [**Action**: HOD, Dept. of Gynaecology & Obstetrics, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.19	Assessment of soybean and egg yolkbased extenders for cryopreservation of Mehsana buck semen	**Accepted with following Suggestions:** 1. Include morphology parameter. [**Action**: HOD, Dept. of Gynaecology & Obstetrics, Vet. College, SDAU, Sardarkrushinagar.]
17.7.3.20	Molecular characterization of carbapenem resistant in family Enterobacteriaceae from bovine milk samples	**Accepted with following Suggestions:** 1. Use the word members of the family in **Title** [**Action**: HOD, Dept. of Public Health, Vet. College, SDAU, Sardarkrushinagar.]
NavsariAgricultural University		
17.7.3.21	Postnatal gross anatomical and histomorphological studies on the heart of goat.	**Accepted with following Accepted Accepted with following Suggestions:** 1. Specify age group 1-3 years in group III [**Action**: Professor and Head, Dept. of Veterinary Anatomy, Vet. College, NAU, Navsari.]
17.7.3.22	Study on antibiogram pattern of bacterial organisms associated with pyoderma infection in dogs.	**Accepted with following Suggestions:** 1. While collecting the samples from pyoderma affected part, also include healthy part of the skin to screen the normal flora. 2. Most commonly used Antibiotic used for treatment of pyodermacases . [**Action**: Professor and Head, Dept. of Veterinary Microbiology, Vet. College, NAU, Navsari.]

17.7.3.23	Serodiagnosis of *Peste des petits ruminants* (PPR) in goats from South Gujarat.	**Accepted with following Suggestions:** 1. Specify the detection of Abs or Ag and accordingly write objectives and Materials and methods. 2. If detection of Ag than some selected samples must be collected for histopathology. [**Action**: Professor and Head, Dept. of Veterinary Pathology, Vet. College, NAU, Navsari.]
17.7.3.24	Clinico-diagnostic and therapeutic study of otitis externa in dogs.	**Accepted with following suggestions:** 1. From objective No.2 remove standardize. [**Action**: Professor and Head, Dept. of Veterinary Surgery & Radiology, Vet. College, NAU, Navsari.]
17.7.3.25	Comparative study of anaesthetic regimens of butorphanol or buprenorphine with dexmedetomidine as preanaestheticand propofol as induction & maintenance anaesthesia in dogs.	**Accepted** [**Action**: Professor and Head, Dept. of Veterinary Surgery & Radiology, Vet. College, NAU, Navsari.]
17.7.3.26	Therapeutic Efficacy of Intermittent Haemodialysis (IHD) in Renal Disorders in Dogs.	**Accepted** [**Action**: Professor and Head, Dept. of Veterinary Medicine, Vet. College, NAU, Navsari.]
17.7.3.27	Cryosurvival quality of Surti buck spermatozoa in TRIS-egg yolk citrate extender supplemented with lemongrass *(Cymbopogonflexuosus)* leaves extract.	**Accepted with following Suggestions:** 1. Add HOST test and post thaw motility parameters. [**Action**: Professor and Head, Dept. of Veterinary Gynaecology& Obstetrics, Vet. College, NAU, Navsari.]
17.7.3.28	Comparative efficacy of different concentrations of egg yolk for cryopreservation of Surti Buck semen.	**Accepted with following Suggestions:** 1. **Add HOST test** and post thaw motility parameters. [**Action**: Professor and Head, Dept. of Veterinary Gynaecology& Obstetrics, Vet. College, NAU, Navsari.]
17.7.3.29	Comparative study of Ketamine and Propofol as an induction as well as maintenance anaesthetic agent with diazepam for reproductive tract surgery in female dogs.	**Diferred** [**Action**: Professor and Head, Dept. of Veterinary Gynaecology& Obstetrics, Vet. College, NAU, Navsari.]
17.7.3.30	To study electrocardiographic and echocardiograhic features of cardiac diseases in dogs from south Gujarat.	**Accepted with following Suggestions:** 1. In objective use canine word. 2. Name the biomarkers to be studied.

		3. Specify statistical analysis method [**Action**: Professor and Head, Veterinary Clinical Complex, Vet. College, NAU, Navsari.]
17.7.3.31	Therapeutic efficacy of cloprostenol alone or in combination with cabergoline in canine open pyometra.	**Accepted with following Suggestions:** 1. Take only one group and modify accordingly. [**Action**: Professor and Head, Veterinary Clinical Complex, Vet. College, NAU, Navsari.]
17.7.3.32	Potable quality assessment of house hold water supply in Navsari city.	**Diferred** [**Action**: Professor and Head, Dept. of Veterinary Public Health, Vet. College, NAU, Navsari.]
17.7.3.33	Microbial air quality assessment of various departmental laboratories of Veterinary College, Navsari.	**Diferred** [**Action**: Professor and Head, Dept. of Veterinary Public Health, Vet. College, NAU, Navsari.]
17.7.3.34	Studies on effect of different ecbolic agents on post-partum reproductive performance in surti buffalo.	**Accepted with following Suggestions:** Duration should be of 2 years. [**Action**:Unit Head, Livestock Research Station, NAU, Navsari.]
17.7.3.35	Comparison of film forming solution on wound healing in rats.	**Accepted with following Suggestions:** 1. Instead of Diethyl ether use barbiturate or other suitable analytics. 2. See the feasibility of using liposomal curcumin in place of haldi powder. [**Action**: Professor and Head, Dept. of Veterinary Pathology, Vet. College, NAU, Navsari.]
Kamdhenu University		
17.7.3.36.	Etiodiagnosis of Bacterial Mastitis in Milch Animals of HimmatnagarTalukar, Gujarat **(Centre: PGIVER, Kamdhenu University, Rajpur, Himmatnagar)**	**Accepted with following suggestions:** 1. Increase number of animals and decrease number of villages. For example, keep minimum 30 randomly selected villages and 10 respondents or animals per village for suitable statistical analysis. 2. Screen subclinical mastitis at organized farms and screen clinical mastitis at unorganized farms in randomly selected villages. (**Action**: Assistant Professor, PGIVER, KU, Rajpur, Himmatnagar)

Anand Agricultural University		
17.7.3.37	To evaluate immunomodulatory activity of clove oil (*Syzygiumaromaticum*) in broiler.	**Accepted** [**Action**: Professor and Head, Dept. of Pharmacology & Toxicology, Vet. College, AAU, Anand.]
17.7.3.38	Studies on etio-diagnosis and haemato-biochemical alterations of mange in goats.	**Accepted with following Suggestions:** 1. Modify the **Title** as "in mange infested goats". 2. Minimum number of animals for the study must be 50 (N=50) [**Action**: Professor and Head,Dept. of Medicine, Vet. College, AAU, Anand]
17.7.3.39	Study on Prevalence of Dermatophytosis in dogs.	**Accepted with Suggestions:** 1. Minimum number of animals for the study must be 50 (N=50) [**Action**: Professor and Head,Dept. of Medicine, Vet. College, AAU, Anand]
17.7.3.40	Detection of vancomycin resistant staphylococci in animals	**Accepted** [**Action**: Professor and Head,Dept. of Microbiology, Vet. College, AAU, Anand.]
17.7.3.41	Ovum Pick-Up and *In Vitro* Embryo Production from Buffaloes with Ovarian Stimulation and its Pregnancy Rates	**Accepted with following Suggestion:** 1. Statistical method should be specified. [**Action**: Professor and Head,Dept. of Gynaecology and Obstetrics, Vet. College, AAU, Anand]
17.7.3.42	Effect of Nutritional Management of Transition Period on Serum Endocrine, Metabolic and Mineral Profile and Postpartum Fertility in Gir Cows	**Accepted** [**Action**: Professor and Head, Dept. of Gynaecology and Obstetrics, Vet. College, AAU, Anand]
17.7.3.43	Effect of Feeding Distillers Dried Grains with Solubles (DDGS), Soya DOC and Roughage on Advancing Age at Puberty in Crossbred Heifers	**Accepted** [**Action**: Professor and Head, Dept. of Gynaecology and Obstetrics, Vet. College, AAU, Anand]
17.7.3.44	Development of Rapid Multiplex PCR method for simultaneous detection of gram-positive foodborne pathogens.	**Accepted** [**Action**: Professor and Head, Department of VPH, Vet. College, AAU, Anand]
17.7.3.45	Determination of prevalence of *Clostridium perfringens*in fish and their environment	**Accepted** [**Action**: Professor and Head, Department of VPH, Vet. College, AAU, Anand]

17.7.3.46	Application of physiotherapy in the clinical cases of canine	**Accepted** [**Action**: Professor and Head, Department of Surgery and Radiology, Vet. College, AAU, Anand]
17.7.3.47	Studies on ultrasonographic examination of abdomino-pelvic organs in various diseased condition of dogs	**Accepted** Suggestions: [**Action**: Professor and Head, Department of Surgery and Radiology Vet. College, AAU, Anand]
17.7.3.48	Clinical studies on surgical anaesthesia using Tiletamine-Zolazepam for induction with and without Xylazine premedication and Isoflurane for maintenance of anaesthesia in dogs	**Accepted with following Suggestion:** 1. Specify statistical method [**Action**: Professor and Head, Department of Surgery and Radiology, Vet. College, AAU, Anand]
17.7.3.49	Clinical Studies on affections of Teat and Udder in Goats	**Accepted** [**Action**: Professor and Head, Department of VCC, Vet. College, AAU, Anand]

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17.8 ANIMAL PRODUCTION AND FISHERIES SCIENCE

Date: 3-5 May, 2021

Chairman	**:**	Dr. S. R. Chaudhary, Director of Research, NAU, Navsari
Co-chairman	**:**	Dr. V. B. Kharadi, Principal, Veterinary college, Navsari
		Dr. M. N. Brahmbhatt , Principal, Veterinary College, Anand
Rapporteurs	**:**	Dr. S. S. Patil, Associate Professor , Animal nutrition, Veterinary College, Sardarkrushinagar,
		Dr. S.V. Shah, Professor & Head, LPM, Veterinary College Anand.
		Dr. Anshu Ahlawat, Associate Professor, AGB, Veterinary College, Junagadh
		Dr. S.S. Chaudhary , Professor & Head, Dept. of Physiology & Biochemistry, Veterinary College, Navsari
		Dr. R. V. Borichangar, Fisheries College, Navsari
Statistician		Dr. S.M.Upadhyay, Professor & Head, College of Agriculture,JAU, Junagadh

The 17th Combined Joint AGRESCO meeting for Animal production and Fisheries Science of SAUs of Gujarat & Kamdhenu University for approval of recommendations was hosted by Sardarkrushinagar Dantiwad agricultural university through online video conferencing mode during 3-5 may, 2021.

Dr. S. R. Chaudhary, Director of Research, Navsari Agricultural University as a Chairman of the technical session welcomed Co-chairmen and rapporteurs of the session, University officers, Deans, Conveners of AGRESCO Subcommittee and other members who have joined the meeting from various SAUs and KU. Dr. V. B. Kharadi, Principal, Veterinary college, Navsari and Dr. M. N. Brahmbhatt , Principal, Veterinary College, Anand acted as Co-chairmen. Dr. S. S. Patil, Associate Professor , Animal nutrition, Veterinary College, Sardarkrushinagar, Dr. S.V. Shah, Professor & Head, LPM, Vetyerinary College Anand, Dr. Anshu Ahlawat, Associate Professor, AGB, Veterinary college, Junagadh as well as Dr. S.S. Chaudhary , Professor & Head, Dept. of Physiology & Biochemistry, Veterinary College, Navsari acted as rapporteurs during the session. Dr. R. V. Borichangar, Fisheries College, Navsari worked as Additional rapporteur. Dr. S.M. Upadhyay, Professor & Head, College of Agriculture, JAU, Junagadh gave expertise as Statistician during the session. As per the schedule recommendations were presented by conveners/ scientists of respective SAUs and KU. The proposed recommendations were approved after thorough discussion amongst the members of the house after suitable modifications as per suggestions. The vote of thanks was administered at the end of session by Dr. H.D. Chauhan, Convener, Animal Production, C.P. College of Agriculture, SDAU, Sardarkrushinagar.

Summary:

University	Farmers recommendations		Scientific recommendations		New Technical Programmes	
	Presented	Accepted	Presented	Accepted	Presented	Accepted
SDAU	03	03	04	01	06	06
AAU	06	06	02	02	24	24
JAU	13	13	07	04	---	---
NAU	04	04	----	---	18	17
KU	---	---	01	01	04	04
Total	26	26	14	08	52	51

Total 26 recommendations were approved for farmer's community out of 26 recommendations presented whereas, 8 recommendations were approved out of 14 recommendations presented with/without modifications suggested as mentioned in the table.

17.8.1 Recommendations for Farmer's Community

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

17.8.1.1

Title: Calculating Feed Efficiency in lactating Mehsana Buffaloes at Livestock Research Station

The farmers are recommended to rear Mehsana breed of buffaloes due to better feed to milk conversion efficiency.

મહેસાણી ઓલાદની ભેંસોમાં ખોરાકનું દૂધમાં રૂપાંતર કરવાની ક્ષમતા સારી હોવાથી પશુપાલકોને મહેસાણી ઓલાદ પાળવાની ભલામણ કરવામાં આવે છે.

Approved as above after incorporating following suggestion/s:

1. Remove the figures from recommendation and recast it

(**Action:** Unit Head**,** Livestock Research Station, Sardarkrushinagar)

17.8.1.2

Title: Characterisation of production and reproduction traits in relation to feeding practices in camels of north Gujarat region

It is recommended to the camel herder of Kutch district particularly the Banni area that the main fodder in Banni area, *Boken*and *Lano* having low level of crude protein than the minimum required level for lactating camels, so they are advised to graze their camels alternatively in Banni grassland as well as in other areas which have the feeds and fodders like *Khair*, *Fung-vel* and *Vevdi* with higher CP values.

કચ્છ જિલ્લાના બન્ની વિસ્તારના મુખ્ય ઘાસચારા એવા બોકન અને લાણોમાં પ્રોટીનનું પ્રમાણ ખુબ જ ઓછું હોવાથી.. દુધ ઉત્પાદન કરતા ઊંટ માટે ઊંટ પાલકોને વૈકલ્પિક વિસ્તારો કે જ્યાં વધુ પ્રોટીનમુલ્ય ધરાવતા ઘાસચારા જેવા કે ખેર, ફુંગ-વેલ અને વેવડી હોય, ત્યાં પણ તેમના ઊંટ ચરાવવા માટે ભલામણ કરવામાં આવે છે.

Approved as above after incorporating following suggestion/s:

1. Remove the figures and recast it

(**Action:** Professor & Head, Dept. of, Animal Genetics and Breeding, Vet. College, Sardarkrushinagar)

17.8.1.3	**Title:** Effect of rumen protected choline supplementation on production performance of Kankrej cows
	Kankrej livestock keepers are recommended that rumen-protected choline chloride should be supplemented in the diet of Kankrej cow at the rate of 50 g/day for one month pre-partum and two months post-partum for increase in milk production and net economic return. કાંકરેજ પશુધન ઉછેર કરતાં પશુપાલકોને ભલામણ કરવામાં આવે છે કે ગાય દીઠ દૈનિક ૫૦ ગ્રામ રૂમેન-સંરક્ષિત કોલીન ક્લોરાઇડ પુરક ખોરાક તરીકે વિયાણ પહેલાં એક માસ અને વિયાણ બાદના બે માસ સુધી ખવડાવવાથી વધુ દૂધ ઉત્પાદન અને કુલ આવકમાં વધારો મળે છે. **Approved as above after incorporating following suggestion/s:** 1. Remove the figures 2. Incorporate net return in recommendation **3.** Incorporate the complete name of choline as choline chloride
	(Action: Professor & Head**,** Animal Nutrition, Vet. College, Sardarkrushinagar)

ANAND AGRICULTURAL UNIVERSITY

17.8.1.4	**Title:** Effect of feeding by pass fat on reproductive and productive performance of lactating Surti buffaloes around parturition.
	Farmers are recommended to supplement bypass fat 130g/day for 30 days prepartum followed by 30 g/kg milk yield/day for 90 days postpartum to Surti buffaloes for enhancing milk production and net realization. પશુપાલકોને ભલામણ કરવામાં આવે છે કે, સૂરતી ભેંસોને બાયપાસ ફેટ આધારિત પૂરક દાણ વિયાણના ૩૦ દિવસ પહેલા દૈનિક ૧૩૦ ગ્રામ અને વિયાણ બાદ નેવું દિવસ સુધી દૈનિક ૩૦ ગ્રામ/ લિટર દૂધ ઉત્પાદન પ્રમાણે ખવડાવવાથી દૂધ ઉત્પાદન અને ફેટના ટકામાં વધારો થાય છે **Approved as above after incorporating following suggestion/s:** 1. Make necessary corrections in table number 7
	(Action: Professor and Head, RBRU, Vet. College, Anand)
17.8.1.5	**Title:** Effect of supplementation of Solid State Fermentation (SSF) Biomass on growth performance of crossbred heifers:
	The cattle owners are advised that supplementation of Solid State Fermented biomass @ 3 % in TMR for crossbred heifers improves daily growth rate by 12 % with 7 % reduction in feed cost per kg gain in weight. પશુપાલકોને ભલામણ કરવામાં આવે છે કે ઉછરતી સંકર વાછરડીઓને કુલ મિશ્રિત આહારના ૩ ટકા પ્રમાણે સોલીડ સ્ટેટ ફર્મેટેડ બાયોમાસ ખવડાવવાથી તેમના દૈનિક વૃધ્ધિ દરમાં ૧૨ ટકા નો વધારો તેમજ પ્રતિ કિલો વૃધ્ધિ દર માટેના ખોરાકીય ખર્ચમાં ૭ ટકા નો ઘટાડો થાય છે. **Revised & Approved as above**
	(Action: Professor and Head, ANRS, Veterinary College, Anand)

17.8.1.6	**Title:** Effect of feeding Ashwagandha and Shatavari roots on growth of Surti kids
	The goat keepers are recommended to feed total mixed ration incorporated with combination of 1.25% Ashwagandha roots & 1.25% Shatavari roots to growing Surti male kids during 9-12 months of age to improve body weight gain by 62%, feed conversion efficiency by 64% with 38% higher return over feed cost. બકરાપાલકોને ભલામણ કરવામાં આવે છે કે, સુરતી નર લવારાઓને નવ માસથી બાર માસની ઉંમર સુધી ૧.૨૫ ટકા અશ્વગંધાના મૂળ અને ૧.૨૫ ટકા શતાવરીના મૂળનુ મિશ્રણ ઉમેરીને કુલમિશ્રિત પશુઆહાર આપવાથી તેમના વૃધ્ધિદરમા ૬૨ ટકા તેમજ ખોરાક રૂપાંતરણ ક્ષમતામાં ૬૪ ટકા વધારા સાથે ખોરાકીય ખર્ચ ઉપરાંત ૩૮ ટકા વધારે આવક થાય છે. **Revised & Approved as above**
	(Action: Professor and Head, ANRS, Veterinary College, Anand)
17.8.1.7	Title: Methane mitigation in lactating crossbred cows under different feeding regimes
	Livestock owners are recommended that feeding crossbred cows with total mixed ration with 60% concentrate mixture, 20% wheat straw and 20% soyabean gotar reduces daily methane emission by 21%. પશુપાલકોને ભલામણ કરવામાં આવે છે કે, સંકર ગાયોને ૬૦ ટકા સુમિશ્રીત દાણ, ૨૦ ટકા ઘઉં કુંવળ અને ૨૦ ટકા સોયાબીન ગોતર લઈ બનાવેલ કુલમિશ્રિત આહાર આપવાથી પશુઓ દ્વારા ઉત્સર્જીત દૈનિક મિથેનના પ્રમાણમાં ૨૧ ટકા ઘટાડો થાય છે. **Revised & Approved as above**
	(Action: Professor and Head, ANRS, Veterinary College, Anand)
17.8.1.8	**Title:** Methane mitigation by dietary interventions and its effect on growth performance of buffalo calves
	Livestock owners are advised that along with Total Mixed Ration (50:50), feeding 500 g green neem leaves daily to buffalo calves increases growth rate by 15 % and reduces daily methane emission by 11 %. Moreover, feeding Total Mixed Ration (50:50) with 5 % sea weeds (*Sargassum johnstonii*) to buffalo calves reduces daily methane emission by 12 %. પશુપાલકોને ભલામણ કરવામાં આવે છે કે, ઉછરતા પાડાઓને કુલ મિશ્રિત આહાર સાથે દૈનિક ૫૦૦ ગ્રામ લીમડાના લીલા પાન ખવડાવવાથી મિથેન વાયુના ઉત્સર્જનમાં ૧૧ ટકા નો ઘટાડો અને વ્રુધ્ધિ દરમાં ૧૫ ટકા નો વધારો જોવા મળે છે. વધુમાં ૫ ટકા દરિયાઇ વનસ્પતિ (સારગેસમ જોંસ્ટોની) લઇને બનાવેલ કુલ મિશ્રિત આહાર આપવાથી દૈનિક મિથેનના ઉત્સર્જનમાં ૧૨ ટકા નો ઘટાડો જોવા મળે છે. **Revised & Approved as above**
	(Action: Professor and Head, ANRS, Veterinary College, Anand)
17.8.1.9	**Title:** Effect of feeding maize on growth and coloration of Molly fish (*Poecilia sphenops)*
	It is recommended to ornamental fish farmers that the inclusion of GAYMH-1 maize variety @ 4% in the feed of orange molly fish is optimal for weight gain and body color enhancement. રંગબેરંગી માછલીનો ઉછેર કરતા મત્સ્યપાલકોને ભલામણ કરવામાં આવે છે કે, ઓરેન્જ મોલી માછલીના

	ખોરાકમાં મકાઈની જીએવાયએમએચ-૧ જાતને ૪ ટકા પ્રમાણે મિશ્રીત કરી આપવાથી તેના વૃધ્ધિ દર અને શરીરના રંગમાં વધારો કરી શકાય છે. **Approved**
	(Action: Unit Head, KVK, Devataj, AAU, Anand)

JUNAGADH AGRICULTURAL UNIVERSITY

17.8.1.10	**Title:** Association of body weight and biometric measurements with egg production and quality performance in White Leghorn layers.
	Poultry farmers are recommended to select white leghorn pullets with higher body weight and shank length at 14th, 16th and 18th week to get higher egg weight at 25th week of age. મરઘાંપાલન કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ૨૫ માં સપ્તાહની ઉંમરે વધુ વજનવાળા ઈંડા મેળવવા માટે, ૧૪, ૧૬ અને ૧૮ સપ્તાહની ઉંમરે વધુ શારીરિક લંબાઈ અને પગની લંબાઈ ધરાવતા વ્હાઈટ લેગહોર્ન મરઘાં પસંદ કરવા જોઈએ. **Revised & Approved as above**
	(Action: Prof. & Head, Dept. of ILFC, College of Vet. Sci. & A.H., Junagadh)
17.8.1.11	**Title:** Test-day recording as a tool to predict lactation milk yield in Gir cows.
	Livestock owners are recommended to predict lactation milk yield of Gir cows with precision of 99% by sum-up of milk yield records at weekly interval, till the cow dries, using the equation 3.09+6.96×Sum and even sum-up of milk yield records at fortnightly interval, till the cow dries, using the equation 11.74+14.87×Sum. પશુપાલકોને ભલામણ કરવામાં આવે છે કે, ગીર ગાય વસુકે ત્યાં સુધી અઠવાડિયાના અંતરે નોંધેલ દૂધ ઉત્પાદનના સરવાળાને સૂત્ર ૩.૦૯+૬.૯૬×સરવાળો માં ઉપયોગ કરીને તેમજ પખવાડીયાના અંતરે નોંધેલ દૂધ ઉત્પાદનના સરવાળાને સૂત્ર ૧૧.૭૪+૧૪.૮૭×સરવાળો વડે ગીર ગાયના વેતરના દુધ ઉત્પાદનનો અંદાજ ૯૯ ટકા ચોકસાઈ સાથે મેળવી શકાય છે. **Revised & Approved as above**
	(Action: Unit Head, Bull Mother Farm, JAU Amreli)
17.8.1.12	**Title:** Test-day recording as a tool to predict lactation milk yield in Jaffarabadi buffaloes
	Livestock owners are recommended to predict lactation milk yield of Jaffarabadi buffalo with precision of 98% by sum-up of milk yield records at weekly interval, till the buffalo dries, using the equation 12.36+6.92×Sum and even sum-up of milk yield records at fortnightly interval, till the buffalo dries, using the equation 21.32+14.69×Sum. પશુપાલકોને ભલામણ કરવામાં આવે છે કે, જાફરાબાદી ભેંસ વસુકે ત્યાં સુધી અઠવાડિયાના અંતરે નોંધેલ દૂધ ઉત્પાદનના સરવાળાને સૂત્ર ૧૨.૩૬ + ૬.૯૨ × સરવાળો માં ઉપયોગ કરીને તેમજ પખવાડીયાના અંતરે નોંધેલ દૂધ ઉત્પાદનના સરવાળાને સૂત્ર ૨૧.૩૨ + ૧૪.૬૯ × સરવાળો વડે તેના વેતરના દુધ ઉત્પાદનનો અંદાજ ૯૮ ટકા ચોકસાઈ સાથે મેળવી શકાય છે. **Revised & Approved as above**
	(Action: Unit Head, Bull Mother Farm, JAU Amreli)

17.8.1.13	**Title:** Effect of replacing concentrate mixture with moringa (*moringa oliefera*) leaf meal on growth performance and blood biochemical profiles in Gir calves.
	It is recommended to Gir cow owners to feed Moringa (*Moringa oleifera*) leaf meal by replacing 75% (1.125 -1.150 kg) of protein requirement (from concentrate) for noticeable increase in growth rate in Gir calves. ગીર ગૌપાલકોને ભલામણ કરવામાં આવે છે કે ગીર વાછરડામાં કુલ નત્રલ પદાર્થોની જરૂરિયાતનો ૭૫ ટકા એટલે કે ૧.૧૨૫ -૧.૧૫૦ કિ.ગ્રામ સરગવાના સૂકા પાંદડામાંથી પૂરી પાડવામાં આવે તો વૃધ્ધિદરમાં નોંધપાત્ર વધારો થાય છે. **Approved**
	(Action: Unit Head, Cattle Breeding Farm, JAU, Junagadh)
17.8.1.14	**Title:** Studies on nutritive value and feeding levels of Hedge Lucerne (*Desmanthus virgatus*) on milk production and composition in Gir cattle
	It is recommended to Gir cow owners of saurashtra region that Hedge Lucerne grass can be used instead of concentrate for fulfilment of 50% crude protein requirement of milch animals to maintain milk production and fat percentage with high returns. સૌરાષ્ટ્ર વિસ્તારના ગીર ગાયપાલકોને ભલામણ કરવામાં આવે છે કે દૂધાળા પશુઓની દૈનિક પ્રોટીન જરૂરીયાતના ૫૦ ટકા જરૂરીયાત દાણના બદલે દશરથઘાસ દ્વારા પૂર્ણ કરવામાં આવે તો દૂધ ઉત્પાદન તથા ફેટની જાળવણી કરી વધુ નફો મેળવી શકાય છે. **Revised & Approved as above**
	(Action: Unit Head, Cattle Breeding Farm, JAU, Junagadh)
17.8.1.15	**Title:** Composition and diversity of fish and shell fish catch of trawl net along the Mangrol coast, Gujarat
	During year 2017-2020, total 85 marine species were recorded in catch composition of trawl net operated by the Mangrol fishermen which includes 68 fin fishes and 17 shellfish. Ribbonfish, Threadfin bream, Croaker, Cuttle fish and Squid form a major proportion of the catch. The maximum catch of Ribbonfish during February to April, Threadfin bream during September to November, Croaker during February to March and Cuttlefish during August month were recorded. Fishermen of Mangrol are recommended to fish the above- mentioned fish groups which are more available in the particular fishing ground. માંગરોળ ખાતે ટ્રોલનેટ દ્વારા થતી માછીમારીમાં વર્ષ ૨૦૧૭-૨૦૨૦ દરમ્યાન કૂલ ૮૫ દરિયાઈ પ્રજાતિઓ નોંધાઈ છે, જેમાં ૬૮ ફીનફીશ અને ૧૭ શેલફીશ સામેલ છે. મત્સ્યપકડાશમાં બગા, રાનીફીશ, ધોમા, દેડકા અને નરસિંગા મુખ્ય પ્રજાતિના જૂથ વધુ પ્રમાણમાં જોવા મળેલ છે. ફેબ્રુઆરીથી એપ્રિલ દરમિયાન રિબનફિશ, સપ્ટેમ્બરથી નવેમ્બર દરમિયાન રાનીફીશ, ફેબ્રુઆરીથી માર્ચ દરમિયાન ધોમા અને ઓગસ્ટ મહિનામાં દેડકાનો મહતમ જથ્થો જોવા મળેલ છે. આથી માછીમારોને ત્યાં માછીમારી કરવા ભલામણ કરવામાં આવે છે. **Revised & Approved as above**
	(Action: Prof. & Head, Dept. of Fisheries Engg., College of Fisheries Sci., Veraval.)
17.8.1.16	**Title:** Catch composition of commercial gill net operated along the Mangrol coast, Gujarat.
	Fishermen fishing with gill nets on the Mangrol coast are recommended to target

	carangids, croaker, lizard fishes, clupeids and mackerels during post monsoon months, carangids, croaker, lizard fish and cephalopods during winter and carangids, clupeids, croaker and ribbon fish during summer for better catch. Total 41 marine species were recorded in catch composition gill net operated along the Mangrol coast which includes 38 finfishes and 3 shell fishes. માંગરોળ કાંઠે ગીલનેટ વડે માછીમારી કરનારા માછીમારોને ભલામણ કરવામાં આવે છે કે વધુ જથ્થામાં માછલી પકડવા માટે ચોમાસા પછીના મહિનાઓમાં કેરેન્જીડ, ધોમા, ભુન્ગર, ક્લુપીડ અને બાંગડા, શિયાળા દરમિયાન કેરેન્જીડ, ધોમા, ભુન્ગર અને સીફ્લોપોડસ અને ઉનાળા દરમિયાન કેરેન્જીડ, ક્લુપીડ, ધોમા અને બગાને લક્ષ્ય બનાવવી. માંગરોળ દરિયાકાંઠા ખાતે થતી ગીલનેટ માછીમારીમાં કુલ ૪૧ દરિયાઇ પ્રજાતિઓ નોંધાઈ છે જેમાં ૩૮ ફીનફીશ અને ૩ શેલફીશ સામેલ છે. **Revised & Approved as above**
	(Action: Prof. & Head, Dept. of Fisheries Resource Management, College of Fisheries Sci., Veraval.)
17.8.1.17	**Title:** Effect of Chitosan coating on the quality of Silver Pomfret (*Pampus argenteus*) steak in modified atmosphere packaging during chilled storage
	It is recommended to fish processors to apply 1.0% Chitosan coating on Silver Pomfret *(Pampus argenteus)* steaks before packing in modified atmosphere packaging (40% CO_2, 30% N_2, 30% O_2) for better quality as well as longer shelf life up to 32 days during chilled storage (2°C to 4°C temperature). મત્સ્ય ઔદ્યોગિક એકમોને ભલામણ કરવામાં આવે છે કે, સિલ્વર પોમ્ફ્રેટ (પાપલેટ) નીસ્ટીકને મોડીફાઈડ એટમોસફીયર પેકેજીંગ (40ટકા CO_2, 30ટકા N_2, 30 ટકા O_2) માં પેક કરવાં પહેલાં ૧.૦ ટકા કાઈટોસન કોટીંગ કરવામાં આવે તો સિલ્વર પોમ્ફ્રેટની ગુણવત્તા અને આયુષ્ય નીચા તાપમાને (૨°C થી ૪°C) સંગ્રહ સમયે ૩૨ દિવસો સુધી વધારી શકાય. **Approved**
	(Action: Prof. & Head, Dept. of Harvest & Post-harvest Tech., College of Fisheries Sci., Veraval.)
17.8.1.18	**Title:** Development of shelf stable, ready to fry fish crackers from bull eye fish *(Priacanthus hamrur)* meat and its quality characterization during storage
	Seafood processors are recommended to use 40:60 ratio of bulls eye fish meat : tapioca starch flour along with addition of 1 % xanthan gum for the production of fish crackers with improved quality, lesser oil absorption, better utilization of fish meat and expanded shelf life up-to 150 days under ambient storage temperature in LDPE pouch packaging. મત્સ્ય પ્રક્રિયાકારોને ભલામણ કરવામાં આવે છે કે ફીશક્રેકર/માછલીની વેફરના ઉત્પાદન માટે ડોલા માછલી અને ટેપીઓકા સ્ટાર્ચનું પ્રમાણ ૪૦:૬૦ રાખી સાથે ૧ ટકા ઝેન્થીન ગમ ભેળવવામાં આવે તો ઉચ્ચ ગુણવત્તાવાળી, ઓછું તેલ સંગ્રહ (શોષક) કરતી, મત્સ્યના માંસના મહત્તમ ઉપયોગ સાથે ૧૫૦ દિવસ સુધીની આવરદાવાળી ફીશ ક્રેકર એલ.ડી.પી.ઈ.(LDPE) પેકેજીંગમાં સંગ્રહ કરી શકાય છે. **Approved**
	(Action: Prof. & Head, Dept. of Harvest & Post-harvest Tech., College of Fisheries Sci., Veraval.)

<table>
<tr><td rowspan="3">17.8.1.19</td><td>Title: Supplementation of selected marine macro algae in practical diets for Indian major carp, Cirrhinus mrigala fry</td></tr>
<tr><td>It is recommended to fish farmers to supplement the marine algae powder of Porphyra tenera 6%, or Gracilaria corticata 8% or Ulva raticulata 6% in feed of Indian major carp Cirrhinus mrigala fry fed 10% of bodyweight twice a day to enhance the growth.
આથી મત્સ્યપાલકોને ભલામણ કરવામાં આવે છે કે ભારતીય કાર્પ માછલી (મ્રિગલ) ફ્રાયને (દિવસમાં બે વખત શરીરના વજનના ૧૦ ટકાના પ્રમાણસર) ખોરાકમાં પુરક આહાર તરીકે દરિયાઈ શેવાળ પોરફાયરા તેનેરા ૬ ટકા અથવા ગ્રેસીલેરીયા કોર્ટિકટા ૮ ટકા અથવા અલવા રેટીક્યુલાટા ૬ ટકા નો પાઉડર ઉમેરવાથી વૃદ્ધીમાં વધારો થઇ શકે છે.
Approved</td></tr>
<tr><td align="right">(Action: Prof. & Head, Dept. of Aquaculture, College of Fisheries Sci., Veraval.)</td></tr>
<tr><td rowspan="3">17.8.1.20</td><td>Title: Survival and growth of Pearl oyster in cages in Gulf of Kachchh at Sikka and Okha.</td></tr>
<tr><td>The fish farmers interested to grow pearl oyster in Gujarat are recommended that the pearl oysters grow well in the Gulf of Kachchh with survival rate of 98.3% for the duration of 47 days. The aqua farmers are advised to grow pearl oyster in cages having lesser water current and wave action.
ગુજરાતમાં મોતી છીપ ઉછેર કરવા ઈચ્છતા મત્સ્યપાલકોને ભલામણ કરવામા આવે છે કે કચ્છના અખાતમાં મોતી છીપ ૪૭ દિવસના સમયગાળામાં ૯૮.૩ ટકા જેટલા જીવંતદર સાથે સારી રીતે ઉછેર થઇ શકે તેમ છે. પાંજરામાં મોતી છીપ ઉછેર કરવા ઈચ્છતા ખેડૂતોને પાણીના ઓછા પ્રવાહવાળા અને ઓછા મોજા આવતા હોઈ એવો વિસ્તાર પસંદ કરવા ભલામણ કરવામાં આવે છે.
Revised & Approved as above</td></tr>
<tr><td align="right">(Action: Unit Head, Fisheries Research Station, JAU, Sikka.)</td></tr>
<tr><td rowspan="3">17.8.1.21</td><td>Title: Effect of different level of protein on the growth and survival of Terapon jarbua (Forsskal, 1775) fry</td></tr>
<tr><td>Fish farmers rearing Terapon jarbua fry (Crescent banded tiger fish) are recommended to utilize feed containing 40% crude protein at the rate of 10% of fish body weight, twice a day, for higher growth and survival rate for a period of 60 days.
ટેરાપોન જર્બુવા ફ્રાય (ક્રીસેન્ટ બેન્ડેડ ટાયગર ફિશ, હજામડો) ઉછેર કરતા મત્સ્ય ખેડૂતોને ભલામણ કરવામાં આવે છે કે માછલીને ૬૦ દિવસ સુધી તેના શરીરના વજનના ૧૦ ટકા દરથી ૪૦ ટકા પ્રોટીનયુક્ત ખોરાક, દિવસમાં બેવાર આપવાથી સારો વિકાસ અને જીવંતદર મેળવી શકાય છે.
Revised & Approved as above</td></tr>
<tr><td align="right">(Action: unit Head, Fisheries Research & Training Center, JAU, Mahuva.)</td></tr>
<tr><td rowspan="3">17.8.1.22</td><td>Title: Studies on sole feeding of Marvel (Dicanthium annulatum) grass on milk production and milk composition in lactating Gir cows</td></tr>
<tr><td>It is recommended to Gir cow owners that sole feeding of green jinjavo grass or green maize fodder is not advisable to milch animals, as it reduces milk production.
ગીર ગૌપાલકોને ભલામણ કરવામાં આવે છે કે દૂધાળા પશુઓને ફક્ત લીલો જીંજવો ઘાસ અથવા લીલી મકાઈ ખવડાવવાથી દૂધ ઉત્પાદન ઘટતું હોવાથી એકલું ખવડાવવું હિતાવહ નથી.
Revised & Approved as above</td></tr>
<tr><td align="right">(Action: Unit Head, Cattle Breeding Farm, JAU, Junagadh)</td></tr>
</table>

NAVSARI AGRICULTURAL UNIVERSITY

17.8.1.23	**Title:** Time motion study at organized farm
	Livestock keepers are recommended that one milker can milk 9 H.F. crossbred cows or 13 Surti buffaloes in a day and daily management of one H.F. crossbred cow and one Surti buffalo require 42.37 and 38.30 minutes, respectively. પશુપાલકો ને ભલામણ કરવામાં આવે છે કે એક ગોવાળ રોજ ૯ એચ.એફ. સંકર ગાયો અથવા ૧૩ સુરતી ભેંસોનું દોહન કરી શકે છે અને એક એચ.એફ. સંકર ગાય અને એક સુરતી ભેંસ માટેની દૈનિક માવજતની તમામ કામગીરી માટે અનુક્રમે ૪૨.૩૭ અને ૩૮.૩૦ મીનીટ જરૂરી છે. **Approved as above after incorporating following suggestion/s:** 1.Recast recommendation stating time required for daily management activities
	(Action: Unit Head, LRS, NAU, Navsari)
17.8.1.24	**Title:** Effect of rumen protected niacin supplementation on sweating rate, oxidative stress and skin temperature during summer in Surti buffaloes.
	Farmers are recommended that dietary supplementation of rumen protected niacin at 6 g/animal/day in summer to lactating Surti buffaloes increases sweating rate, decreases skin surface temperature and increases milk production. પશુપાલકોને ભલામણ કરવામાં આવે છે કે, ઉનાળામાં દૂધાળી સુરતી ભેસોને પ્રતિદિન ૬ ગ્રામ રૂમેનસંરક્ષિત નીએસીન પૂરક આહાર તરીકે આપવાથી પરસેવાનો દર વધે છે, ત્વચાનું તાપમાન ઘટે છે અને દૂધઉત્પાદનમાં વધારો થાય છે. **Approved as above after incorporating following suggestion/s:** 1. Recast the recommendation after adding sweating rate and skin surface temperature and delete quantity of increase in milk.
	(Action: Professor & Head, Dept. of Physiology and Biochemistry, Vet. College, Navsari)
17.8.1.25	**Title: Impact of Light Sources on Broiler Performance**
	The poultry farmers of Gujarat are recommended to use White LED as a source of light for rearing of broilers. It has no adverse effect on live body weight and Feed Conversion Ratio. It also reduces cost of electricity up to 88% as compared to incandescent bulb light. ગુજરાતના બ્રોઈલર ઉછેર કરતા મરઘાં પાલકોને લાઈટ સ્ત્રોત તરીકે વ્હાઈટ એલઈડીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ લાઈટનો પક્ષીના વિકાસદર અને ખોરાકને વજનમાં રૂપાંતરીત કરવાની ક્ષમતા ઉપર કોઈ વિપરીત અસર થતી નથી. જે સામાન્ય બલ્બની તુલનામાં વીજળીનો ખર્ચ પણ ૮૮ ટકા સુધી ઘટાડે છે. **Approved as above after incorporating following suggestion/s:** 1. Recast recommendation using word broilers and reduces cost of electricity upto 88% and correct language
	(Action: Professor & Head, ILFC, Vet. College, Navsari)
17.8.1.26	**Title:** Assessment of feeding practices, nutritional status and gap for lactating buffaloes in Tapi district.
	The livestock keepers of Tapi district are recommended to offer additional 0.8

	kg compound concentrate mixture having 20% CP to the buffaloes yielding 4-7 kg/d milk in order to fulfill the nutrient requirement. તાપી જીલ્લાના પશુપાલકોને ભલામણ કરવામાં આવે છે કે, ૪-૭ કી.ગ્રા. દૈનિક દૂધ આપતી ભેંસોની પોષકતત્વોની જરૂરીયાત પૂરી કરવા માટે ૨૦ ટકા પ્રોટીન ધરાવતું વધારાનું ૦.૮ કી.ગ્રા. સમતોલ દાણ પ્રતિદિન આપવું જોઈએ. **Approved as above after incorporating following suggestion/s:** 1. Recast recommendation stating 20% CP instead of 16%
	(Action: Professor & Head, Dept. of Animal Nutrition, Vet. College, Navsari)

17.8.2 Recommendations for Scientific Community

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

Sr. No.	Particular
17.8.2.1	**Title:** Determination of suckling allowance in Mehsana buffaloes
	In Mehsana buffalo, based on suckling allowance total lactation yield is calculated by adding 302 liters of milk to the milk collected in pail.
	Dropped
	(Action: Unit Head, Livestock Research Station, Sardarkrushinagar)
17.8.2.2	**Title:** Modelling of growth curve in farm bred broiler rabbits
	Relatively higher estimates of growth curve parameter (K) indicated that the growth performance of White Giant breed of rabbit is better in comparison to Soviet Chinchilla in intensive management under cage rearing system. Further, superior goodness of fit statistic values warrant use of Gompertz model ($yt = \alpha\ \exp[-b \exp(-kt)] + \varepsilon t$) and VonBertalanffy $yt = \alpha\,([1 - b\ \exp(-kt]3 + \varepsilon t$ model of growth curve fitting for White Giant and Soviet Chinchilla rabbits, respectively.
	Recommendation approved
	(Action: Professor & Head, Dept. of Animal Genetics and Breeding, Vet. College, Sardarkrushinagar)
17.8.2.3	**Title:**Characterisation of production and reproduction traits in relation to feeding practices in camels of north Gujarat region
	Separate collection of camel milk in Kutch district has led to increase the camel herd strength in comparison to other three districts viz.Banaskantha, Patan and Mehsana. Hence, to boost the camel production system in other three districts also, dairy co-operatives are recommende to procure camel milk separately.
	Dropped
	Action: Professor & Head, Dept. of Animal Genetics and Breeding, Vet. College, Sardarkrushinagar

17.8.2.4	**Title:** Effect of calf separation on Maternal Behaviour of Kankrej cows
	To assess the stress behaviour of Kankrej cows after separation from their calves it is recommended for the scientific community that use the Alert Behaviour Score card (1-4 point scale) viz. 1- Highly active and alert; 2- Active and alert; 3- Indifferent; and 4-Apathetic and also consider the effect of calf separation is more intense and prominent in primiparous than multiparous Kankrej cows behaviour.
	Suggestion/s: Program is extended for one more year
	(Action: Professor & Head, Deptt. of LPM, Vet. College, Sardarkrushinagar)

ANAND AGRICULTURAL UNIVERSITY

17.8.2.5	**Title:** Study on progesterone profile of milk in buffaloes for early pregnancy diagnosis under farm and field
	For early pregnancy diagnosis in buffaloes, progesterone assay by RIA on milk samples collected earliest by 19th day post-breeding gives 100 % accuracy for non-pregnancy and 88% accuracy for pregnancy.
	Approved
	(Action: Professor and Head, RBRU, Anand)
17.8.2.6	**Title:** Dietary interventions for designer milk production in dairy cattle
	Feeding flaxseed and mustard seed @ 4.5 % in Total Mix ration to dairy cows significantly increase concentration of oleic acid by 32 % and total unsaturated fatty acid up to 29. % while decrease concentration of Palmitic acid up to 3.1 % and total saturated fatty acid up to 29.5 % in milk fat respectively. **Recommendation revised and approved as above**
	(Action: Professor and Head, ANRS, Anand)

JUNAGADH AGRICULTURAL UNIVERSITY

17.8.2.7	**Title:** Studies on sole feeding of Marvel (*Dicanthium annulatum*) grass on milk production and milk composition in lactating Gir cows
	Sole feeding of green marvel grass or green maize fodder is not advisable to milch animals, as animals failed to sustain milk production
	Dropped
	(Action: Unit Head, Cattle Breeding Farm, JAU, Junagadh)
17.8.2.8	**Title:** Studies on nutritive value and feeding levels of Hedge Lucerne (*Desmanthus virgatus*) on milk production and composition in Gir cattle
	It is informed to the scientists that Hedge Lucerne (*Desmanthus virgatus*) grass has 16.49 % Digestible Crude Protein (DCP) and 51.64 % Total digestible Nutrients (TDN)
	Dropped
	(Action: Unit Head, Cattle Breeding Farm, JAU, Junagadh)

17.8.2.9	**Title:** Composition and diversity of fish and shell fish catch of trawl net along the Mangrol coast, Gujarat
	During 2017-20, total 85 marine species were recorded in catch composition of trawl net operated by the Mangrol fishermen, which included 68 fin-fishes. Ribbonfish, Threadfin bream, Croaker, Cuttle fish and Squid form a major proportion of each catch. The highest availability of Ribbonfish during February to April, Threadfin bream during September to November, Croaker during February to March and Cuttlefish during August month were reported
	Dropped
	(Action: Professor & Head, Dept. of Fisheries Engg., College of Fisheries Sci.,Veraval.)
17.8.2.10	**Title:** Surveillance of shrimp diseases in shrimp farms of Gujarat
	It is informed to the scientific community that during 2015-2020, several diseases like White spot disease (WSD), *Enterocytozoon hepatopenaei* (EHP) infection, white faces, white gut and black gill disease were observed throughout the culture period. *Enterocytozoon hepatopenaei* (EHP) infection and Infectious Myonecrosis (IMN) are newly emerging diseases observed in Shrimp farms of Gujarat.
	Approved
	(Action: Prof. & Head, Dept. of Aquaculture, College of Fisheries Sci., Veraval.)
17.8.2.11	**Title:** Study of heavy metal analysis in the selected spp. of cephalopod, shrimp and fish of Saurashtra region
	The concentration of heavy metals in the muscles of fishes, cephalopods and shrimp samples collected from Saurashtra sea coast (Arabian sea) are in the range of As (1.62±1.10 to 3.46±0.28), Be (0.12±0.02 to 0.43±0.02), Fe (24.02±1.53 to 88.41±1.4), Zn (22.12±1.63 to 44.40±2.08), Cd (0.02±0.01 to 1.51±0.01), Sb (12.33±0.57 to 84.91±2.63), Sn (0.87±0.03 to 12.91±0.18), Cu (03.24±1.14 to 18.18±2.12), Co (0.96±0.01 to 5.43±0.04), Ni (1.96±0.20 to 4.61±0.48), Pb (0.15±0.10 to 0.43±0.02), Cr (0.23±0.05 to 1.22±0.03), Ba (0.23±0.03 to 8.63±0.36) and Hg (0.22±0.03 to 0.47±0.04) ppm. Level of heavy metals in liver was found more than in the muscles of fishes, while it was higher in the tentacles than muscles of cephalopods. All heavy metals observed were within the universally accepted limits.
	Approved
	(Action: Unit Head, Fisheries Research Station, JAU, Okha.)
17.8.2.12	**Title:** Diversity and distribution of Opisthobranch fauna at Sikka coast
	It is informed to scientific community that the Sikka coast, located in Gulf of Kachchh, Gujarat harbours forty-seven species from 35 genera belonging to 18 families of Opisthobranch fauna viz. *Hydatina physis, Berthellina citrina, B. delicata, Doriopsis granulosa, Atagema rugosa, A. spongiosa, A. tristis, Jorunna funebris, Thordisa villosa, Rostanga* sp., *Peltodoris murrea, Carminodoris* sp.1, *Carminodoris* sp.2, *Sclerodoris tuberculata, Taringa sublutea, Tayuva lilacinaPlocamopherus ceylonicus, Thecacera sp., Hypselodoris infucata, Goniobranchus bombayanus, G. fidelis, Goniobranchus sp., Mexichromis mariei, Phyllidiella zeylanica, Dendrodoris fumata, D. atromaculata, Doriopsilla miniata, Bornella stellifera, Janolus toyamensis, J. flavoanulatus, Melibe viridis,*

	Phestilla lugubris, Phestilla sp., Trinchesia yamasui, Baeolidia salaamica, Anteaeolidiella poshitra, Phidiana militaris, Cratena poshitraensis, Pteraeolidia semperi, Sakuraeolis gujaratica, Bakawan rotundata, Philinopsis speciosa, Aplysia oculifera, Elysia ornata, E. expansa, E. thompsoni and E. tomentosa.
	Approved
	(Action: Unit Head**,** Fisheries Research Station, JAU, Sikka.)
17.8.2.13	**Title:** Breeding and larval rearing of Opisthobranch fauna (*Elysia tomentosa, Hypselodoris infucata, Erronea onyx* (Cowry)
	It is informed to scientific community that Elysia tomentosa, Hypselodoris infucata and Erronea onyx (cowry) can successfully rear and bred in captive condition. They can be reared in glass aquaria with seawater with ambient tempe rature and salinity. The fecundity of Elysia tomentosa ranged from 70,000 to 88,000 during the study and the egg ring size ranged from 100-550 mm and width measured 1 mm. The egg ring colour remains yellow. The size of embryo in the egg ring measured 78.96 *118.44 μ. The size of embryo after three days' reaches to 87*104.4 μ while size of larvae after 10 days reaches to 102*158μ. The incubation period extends up to 7-10 days. The fecundity of Hypselodoris infucata ranged from 40,000 to 1,25,000 and egg ring size ranged from 17-22 cm. The width of egg ring measured 0.5 cm. The colour of the egg remains off white which turns into light creamish at the time of hatching. The size of embryo in the ring measured 157*157 μ while the size of larvae measured 171* 250 μ and 265* 265 μ at the interval of 15 and 22 days respectively. The incubation period extends up to 5 -10 days. The Erronea onyx (Cowry) shows remarkable parental care by perching its eggs throughout incubation period. The number of egg capsule (gelatinous) ranged from 300-400 depending upon the size of brooders. The number of embryos per capsule ranged from 60-131 number. Incubation period extends up to 30-35 days. Egg capsule size was ranged from 1316*987μ to 1827*2896 μ. The size of embryo ranges from 158*118 μ. The size of larvae after 8 days of hatching reaches to the 240*290 μ while after 15 days the size reaches to the 235*566 μ.
	Aapproved
	(Action: Unit Head, Fisheries Research Station, JAU, Sikka.)

KAMDHENU UNIVERSITY

17.8.2.14	**Title:** Complete nutritional profiling of a few locally available ingredients to design economically viable aqua feeds
	It is recommended, that the partial replacement of fish oil (FO) with cotton oil (CO) &fish meal (FM)with roasted guar corma meal (RGCM) can be incorporated up to 50% whereas, the replacement of cotton seed cake(CSC) with de-oiled groundnut oil cake (DGOC) up to 75% in the formulated feed of *Oreochromis niloticus* found suitable in terms of growth performance and economical conversion ratio. **Approved as above after incorporating following suggestion/s:** 1. To screen the selected conventional & non-conventional plant & animal origin feed ingredients for its possible use in practical diets **of *Oreochromis niloticus*** 2. Correct the spelling of trial
	(Action: Unit head, PGIFER, Kamdhenu University, Gandhinagar)

17.8.3 New Technical Programmes

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

17.8.3.1	**Title:** Relationship between Udder and Leg Hygiene Scores and Subclinical Mastitis
	Approved with following suggestion/s: 1. Consider two seasons as rainy and other 2. Consider LRS as control and Commercial farms as treatment
	(Action: Professor & Head, Deptt. Of LPM, Vet. College, Sardarkrushinagar)
17.8.3.2	**Title:** Identification of optimum Heat Stress model based on various test-day production traits in Mehsana Buffaloes
	Approved with following suggestion/s: 1. Use THI indices in title by replacing model word 2. Instead of various production traits use test day milk and fat yield
	(Action: Professor & Head, Animal Genetics and Breeding, Vet. College, Sardarkrushinagar)
17.8.3.3	**Title:** Effects of fennel (*Foeniculum vulgare*) seed powder supplementation on growth performance, haemato-biochemical profile and faecal characteristics in Mehsana goat kids
	Approved with following suggestion/s: 1. Use Mehsana kids instead of Mehsana goat kids in title 2. Estimate growth hormone if facility is available
	(Action: Professor & Head, Animal Nutrition, Vet. College, Sardarkrushinagar)
17.8.3.4	**Title:** Effects of fennel (*Foeniculum vulgare*) seed powder supplementation on growth performance, haemato-biochemical profile and faecal characteristics in Kankrej calves
	Approved with following suggestion/s: 1. Estimate growth hormone if facility is available
	(Action: : Professor & Head, Animal Nutrition, Vet. College, Sardarkrushinagar)
17.8.3.5	**Title:**Lymphocyte proliferation assay and Phagocytic activity in dystocia and endometritic bovines
	Approved
	(Action: Professor & Head, Physiology and Biochemistry,Vet. College, Sardarkrushinagar)
17.8.3.6	**Title:**Herb-mineral feed additive formulation for maintaining infection-free health and improving performance of milking cows and buffaloes
	Approved
	(Action: Professor & Head, Pharmacology and toxicology, Vet. College, Sardarkrushinagar)

ANAND AGRICULTURAL UNIVERSITY

17.8.3.7	**Title:** Comparative Performance of Preweaned Crossbred Calves (HF×K) reared on different levels of proteins
	Approved with following suggestion/s: 1. Following blood / serum parameters will be included: Total protein, albumin, SGOT, SGPT, Creatinine and total cholesterol while Leptin, Insuline like growth factor (IGF-1) and T3 and T4 hormones.
	(Action: Unit Head**,** LRS, AAU, Anand)
17.8.3.8	**Title:** Performance of Preweaned Crossbred Calves (HF X K) under different Milk Feeding Methods and Frequencies
	Approved with following suggestion/s: 1. Following blood / serum parameters will be included: Total protein, albumin, SGOT, SGPT, Creatinine and total cholesterol while Leptin, Insuline like growth factor (IGF-1) and T3 and T4 hormones.
	(Action: Unit Head**,** LRS, AAU, Anand)
17.8.3.9	**Title:** Performance of preweaned crossbred calves (HF X K) under different milk feeding regimes
	Approved with following suggestion/s: 1. Following blood / serum parameters will be included: Total protein, albumin, SGOT, SGPT, Creatinine and total cholesterol while Leptin, Insuline like growth factor (IGF-1) and T3 and T4 hormones.
	(Action: Unit Head**,** LRS, AAU, Anand)
17.8.3.10	**Title:**Optimization of concentrate roughage ratios in total mixed ration for preweaned crossbred (HF X K) calves
	Approved
	(Action: Unit Head**,** LRS, AAU, Anand)
17.8.3.11	**Title:** Performance of preweaned crossbred calves (HF X K) on protein base replacement of calf starter with *Moringa oleifera* leaves (MOL)
	Approved
	(Action: Unit Head**,** LRS, AAU, Anand)
17.8.3.12	**Title:** Study on Comparative efficiency of different oestrus/ovulation synchronization protocols in Surti Goats
	Approved
	(Action: Unit Head, Pashupalan Sanshodhan Kendra, AAU, Anand)
17.8.3.13	**Title:** Accuracy of three different techniques of early pregnancy diagnosis in Surti goats
	Approved
	(Action: Unit Head, Pashupalan Sanshodhan Kendra, AAU, Anand)
17.8.3.14	**Title:** Effect of supplementation of antioxidants during peripartum period on reproductive efficiency of Surti Goats.

	Approved with following suggestion/s: 1. Remove name of company and estimate Vit. E/Selenium from blood/serum if possible.
	(Action: Unit Head, Pashupalan Sanshodhan Kendra, AAU, Anand)
17.8.3.15	**Title:** Effect of different floor space allowances on performance of post-weaned Surti kids under stall-Fed Condition
	Approved with following suggestion/s: 1. estimate IGF-1
	(Action: Unit Head, Pashupalan Sanshodhan Kendra, AAU, Anand)
17.8.3.16	**Title:** Study on assessment of *In vitro* maturation rate of frozen-thawed oocytes by slow cooling and vitrification methods
	Approved
	(Action: Unit Head, RBRU, AAU, Anand)
17.8.3.17	**Title:** Reproductive and productive performance of Surti buffaloes as influenced by feeding of different protein levels around parturition.
	Approved with following suggestion/s: 1. Specify interval of blood collection.
	(Action: Unit Head, RBRU, AAU, Anand)
17.8.3.18	**Title:** Optimization of dietary protein and energy level of Ankaleshwar breed.
	Approved with following suggestion/s: 1. Modified title is 'Optimization of dietary protein and energy level of Ankaleshwar breed of poultry'
	(**Action:** Professor & Head**,** Poultry Research Station, AAU, Anand)
17.8.3.19	**Title:** Determination of optimum body weight at housing (16 week) of native chicken of North Gujarat (Aravali) for obtaining maximum production performance.
	Approved
	(**Action:** Professor & Head**,** Poultry Research Station, AAU, Anand)
17.8.3.20	**Title:** Methane production potential of adult cattle and buffalo on maintenance ration.
	Approved
	(Action: Professor & Head, Animal Nutrition Research station, Anand)
17.8.3.21	**Title:** Methane mitigation in crossbred dairy cows using legume straw based TMR.
	Approved
	(Action: Professor & Head, Animal Nutrition Research station, Anand)
17.8.3.22	**Title:** Effect of feeding mango stone kernel on methane mitigation and growth performance of calves.
	Approved with following suggestion/s: 1. Modified title is 'Effect of supplementing mango stone kernel and green gram gotar on methane mitigation and growth performance of calves

	(Action: Professor & Head, Animal Nutrition Research station, Anand)
17.8.3.23	**Title:** NGS based SNP genotyping in Genes related to egg production and egg weight in Anand Synthetic White Leghorn and Anand Bantamised White Leghorn Chicken
	Approved
	(Action: Professor & Head, Dept. of Animal Biotechnology, AAU, Anand)
17.8.3.24	**Title:** Phytochemical screening and characterization of antiproliferative potential of *Ocimum Basilicum L.* (Basil/Damro), *Punica Granatum L.* (Pomegranate) through *in vitro* cell lines.
	Approved
	(Action: Professor & Head, Dept. of AGB, Vet. College, Anand)
17.8.3.25	**Title:** Development of protocol for real time PCR based detection of Infectious Bovine Rhinotracheitis (IBR) from bovine semen samples.
	Approved
	(Action: Professor & Head, Dept. of AGB, Vet. College, Anand)
17.8.3.26	**Title:** Study of genetic divergence among the different native breeds / populations of chicken in and around Gujarat
	Approved
	(Action: Professor & Head, Dept. of AGB, Vet. College, Anand)
17.8.3.27	**Title:** Effect of floor space allowance on behavioral response of Surti goats.
	Approved
	(Action: Professor & Head, Dept. of LPM, Vet. College, Anand)
17.8.3.28	**Title:** Effect of floor space allowance on behavioral response of indigenous sheep
	Approved
	(Action: Professor & Head, Dept. of LPM, Vet. College, Anand)
17.8.3.29	**Title:** Assessment of the effect of vitamin E supplementation on level of oxidative stress in pre weaned crossbred calves.
	Approved
	(Action: Professor & Head, Dept. of Physiology & Biochemistry,Vet. College, Anand)
17.8.3.30	**Title:** Comparative study on haemato-biochemical profiles of surti goats bearing single and twin fetus during peripartum period
	Approved with following suggestion/s: 1. To estimate following parameters: NEFA, BHBA, CBC and Serum calcium.
	(Action: Professor & Head, Dept. of LPM, Vet. College, Anand)

NAVSARI AGRICULTURAL UNIVERSITY

17.8.3.31	**Title:** Managemental practices and products processing followed by *Gaushalas* of south Gujarat
	Approved with following suggestion/s: 1. Mention criteria for selection of Gaushala. 2. Mention indegeneous breed of cattle, housing index in observation.
	(Action: Unit Head, LRS, NAU, Navsari.)
17.8.3.32	**Title:** Estimation of genetic trends for growth related traits in Surti goats
	Approved with following suggestion/s: 1. Mention years for which data will be collected and method/model used for estimation of genetic trends
	(Action: Unit Head, LRS, NAU, Navsari.)
17.8.3.33	**Title:** Effect of steaming-up on growth performance of grazing Surti goats and their kids in high rainfall zone of south Gujarat
	Approved with following suggestion/s: 1. One extra treatment with 200 g of concentrate and 10 animals in each group.
	(Action: Unit Head, LRS, NAU, Navsari.)
17.8.3.34	**Title:** Metabolomic study of Gir cow urine
	Approved
	(Action: Professor & Head, Veterinary Physiology & Biochemistry,Vet. College, Navsari)
17.8.3.35	**Title:** Development of multiplex PCR for detection of canine parvo virus, canine coronavirus and canine distemper virus in dogs.
	Approved with following suggestion/s: 1. Text mentioned in observation to be included in experimental detail and add observations to be included
	(Action: Professor & Head, Animal Biotechnology Vet. College, Navsari)
17.8.3.36	**Title:** SNP study in genes related to prolificacy of Surti goats
	Approved
	(Action: Professor & Head, ILFC, Vet. College, Navsari**)**
17.8.3.37	**Title:** Impact of bedding materials on performance of commercial broilers
	Approved with following suggestion/s: 1. In treatment T2 serrated paper to be used and in T4 Chaffed paddy straw
	(Action: Professor & Head, ILFC, Vet. College, Navsari**)**
17.8.3.38	**Title:** Effect of corn Silage feeding on growth performance of Surti goat
	Approved with following suggestion/s: ✓ Modified the title with the words **‘forage replacement with corn silage’** instead of only corn silage.

	New title : Effect **forage replacement with corn Silage** feeding on growth performance of Surti goat
	(Action: Professor & Head, ILFC, Vet. College, Navsari**)**
17.8.3.39	**Title:** Effect of soybean and sunflower oil supplementation on production performance and rumen metabolites in Surti does
	Approved with following suggestion/s: 1. Mention milk fatty acid in objective 1. 2. Level of Soybean oil and sunflower oil will be decided on the basis of in vitro study
	(Action: Professor & Head, Animal Nutrition, Vet. College ,Navsari)
17.8.3.40	**Title:** Effect of different sources of rumen protected fat supplementation to Dangi cattle during peripartum phase.
	Dropped
	(Action: Professor & Head, Animal Nutrition, Vet. College ,Navsari)
17.8.3.41	**Title:** Effect of boron supplementation through drinking water on performance indices in commercial broilers
	Approved with following suggestion/s: 1. Remove the word indices from title of the project, calculate economics, body weight to be recorded biweekly
	(Action: Professor & Head, Dept. of Animal Science, College of Agriculture, N.A.U., Navsari)
17.8.3.42	**Title:** Nutritional evaluation of commonly available feedstuffs used for livestock feeding in Bharuch district
	Approved
	(Action: Professor & Head, Dept. of Animal Science, College of Agriculture, N.A.U., Bharuch)
17.8.3.43	**Title:** Evaluation of value added Chicken egg balls incorporated with different levels of Finger Millet flour.
	Approved with following suggestion/s: 1. It should also be presented in FPT
	(Action: Professor & Head, Dept. of LPT, Vet. College, Navsari)
17.8.3.44	**Title:** Adoption of scientific goat rearing practices by tribal of Tapi district
	Approved with following suggestion/s: 1. It should also be presented in social science
	(Action: Unit Head**,** KVK, Vyara, NAU, Navsari.)
17.8.3.45	**Title :** Evaluate the production potential of Asian seabass (*Lates calcarifer*) and Ladyfish (*Sillago sihama)* in plastic lined pond
	Approved with following suggestion/s: 1. Remove treatment 2 & 4

	(Action: Unit Head, College of Fisheries Science, NAU, Navsari.)
17.8.3.46	**Title:** Effect of salinity on growth and survival of *Sillago sihama* juveniles.
	Approved
	(Action: Unit Head, College of Fisheries Science, NAU, Navsari.)
17.8.3.47	**Title:** Target animal bio-safety evaluation of Florfenicol in feed administration to marine and freshwater fishes
	Approved
	(Action: Unit Head, College of Fisheries Science, NAU, Navsari.)
17.8.3.48	**Title:** Tissue depletion and withdrawal period estimation of Florfenicol in feed administration to *Cirrhinus mrigala* advance fingerlings
	Approved
	(Action: Unit Head, College of Fisheries Science, NAU, Navsari.)

KAMDHENU UNIVERSITY

17.8.3.49	**Title :** Study of Existing Barn and Animal Hygiene Practices and their relation with Mammary and Hoof affections in Milch Cattle and Buffaloes in Sabarkantha District
	Approved
	(Action: Unit Head, Kamdhenu University, Gandhinagar)
17.8.3.50	**Title :**Expression of selected biomarker candidate genes to confer in vitro maturation of oocytes in Indian buffaloes
	Approved
	(Action: Unit Head**,** Kamdhenu University, Gandhinagar)
17.8.3.51	**Title :**Status of Fish Disease and Health Management Practices in Rural Freshwater Aquaculture of Tapi District of Gujarat
	Approved with following Suggestions: 1. To include following parameters in the questionnaire • Pond area • Culture *spp.* • Pond preparation
	(Action: Unit Head, PGIVR, Kamdhenu University, Rajpur)
17.8.3.52	**Title :**Survey Study on Socio-economic Status of Fish farmers and Fishermen of Tapi District, Gujarat
	Approved with following Suggestions: 1. To include following parameters in the questionnaire • Best Management Practice in Inland aquaculture • Details of mesh size during capture aquaculture
	(Action: Unit Head, PGIVR, Kamdhenu University, Rajpur)

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17.9 AGRICULTURAL ENGINEERING

Date: 08-10/06/2021
Venue: IT Cell conference hall, SAUs

Chairman: Dr. B. S. Deora, Director of Research & Dean, P.G. Studies, SDAU, S.K. Nagar

Co-Chairman: Dr. N. K. Gontia, Principal and Dean, Agril. Engg. Faculty, JAU, Junagadh

Co-Chairman: Dr. R. Subbaiah, Principal and Dean, Agril. Engg. Faculty, AAU, Anand

Conveners : Dr. B.S. Deora, SDAU, S.K. Nagar

Conveners : Dr. K.B. Jhala, JAU, Junagadh

Conveners : Dr. R.S. Parmar, AAU, Anand

Conveners : Dr. S.H. Sengar, NAU, Navsari

Rapporteur: Dr. H. D. Rank, Research Scientist, RTTC, JAU, Junagadh

Rapporteur: Dr. Pankaj Gupta, Assoc. Professor, FMP, AAU, Godhra

Rapporteur: Dr. Jaydip Makwana, Assistant Professor, CNRM, SDAU, SK Nagar

Rapporteur: Dr. A. P. Lakkad, Assistant Professor, SWCE, CAET, NAU, Dediyapada

Statistician: Dr. M. K. Chaudhary, Professor, SDAU, SK Nagar

The 17th meeting of the combined AGRESCO of Agricultural Engineering Sub Committee for SAUs of Gujarat was held online through Google meet Platform during 8-10 June, 2021. Amid COVID-19 pandemic environment, the IT cells of SAUs (SDAU, S.K.Nagar/ AAU, Anand/ JAU, Junagadh/ NAU, Navsari) coordinated the meeting through online conference portal. At the outset Dr. R. M. Chauhan, Hon. Vice-chancellor, SDAU, Sardarkrushinagar extended the warm welcome to all Agricultural Engineers from SAUs of Gujarat. He emphasized the engineering fraternity to focus on the farmers' need based research, ethics and moralities in scientific research. Dr. Z. P. Patel, Hon. Vice Chancellor, NAU, Navsari encouraged the faculty of Engineering to come up with innovative and applicable findings. The meeting was later steered under the Chairmanship of Dr. B. S. Deora, Director of Research, SDAU, SK Nagar, along with Co-Chairmen, Dr. N. K. Gontia, Principal and Dean, CAET, JAU, Junagadh and Dr. R. Subbaiah, Principal and Dean, CAET, AAU, Godhra. The recommendations and new technical programmes were presented by respective conveners and Principal Investigator, as per followings:

SUMMARY OF RECOMMENDATIONS

University	Recommendations		Farming Community			Scientific Community		
	Proposed	Accepted	Approved	Deferred	Total	Approved	Deferred	Total
AAU	7	7	2	0	2	5	0	5
JAU	10	10	10	0	10	0	0	0
NAU	10	9	7	1*	7+1*	1+1**	0	1+1**
SDAU	7	6	4	1	5	2	0	2
Total	**34**	**32**	**23**	**1+1***	**24+1***	**8+1****	**0**	**8+1****

***** To be presented next year with incorporation of suggestions.
******Approved as Scientific Information.

17.9.1 Recommendations : Farming community

ANAND AGRICULTURAL UNIVERSITY

17.9.1.1 Development and evaluation of mini tractor operated strip till multi crop planter cum fertilizer applicator

The farmers are recommended to use the mini tractor operated multi crop planter cum fertilizer applicator developed by Anand Agricultural University to sow the seeds of different crops like green gram, black gram, castor, maize, soybean and pigeon pea. The planter has provision to adjust the row to row and seed to seed spacing as per crop requirement. The maximum speed to operate the machine, and respective effective field capacity, percentage saving in time and cost of sowing over conventional methods for different crops would be achieved as shown in Table:

Crop	Speed of operation, km/h	Effective field capacity, ha/h	Saving over conventional method, %	
			Time	cost of operation
Green Gram	3	0.321	85.96*	67.16*
Black Gram	3	0.324	86.09*	67.47*
Castor	2	0.278	96.40**	68.81**
Maize	3	0.389	76.87*	45.81*
Soybean	3	0.353	83.02*	60.19 *
Pigeon pea	3	0.378	76.15*	44.23*

* Bullock drawn plough with funnel type seeding attachment
** Manual dibbling method

ખેડૂતોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ મીની ટ્રેક્ટર સંચાલિત મલ્ટી ક્રોપ પ્લાન્ટર કમ ફર્ટિલાઈઝર એપ્લિકેટરથી તુવેર, મકાઈ, દિવેલા, અડદ, મગ અને સોયાબીન પાકોની વાવણી કરવા ભલામણ કરવામાં આવે છે. આ પ્લાંટરમાં ચાસથી ચાસ અને દાણાથી દાણાનું અંતર પાકની જરૂરિયાત મુજબ ગોઠવી શકાય તેવી સગવડ છે. જુદા જુદા પાકોની વાવણી માટે સદર મશીનની મહતમ ગતિ તેમજ કાર્યક્ષમતા અને તે મુજબ પારંપારિક વાવણી પદ્ધતિની સરખામણીએ સમયમાં અને વાવેતર ખર્ચમાં નીચેના કોષ્ટકમાં દર્શાવ્યા મુજબ ઘટાડો (ટકાવારી પ્રમાણે) થાય છે.

પાક	મહતમ ગતિ કિ.મી. / કલાક	કાર્યક્ષમતા, હે. / કલાક	પારંપારિક વાવણી પધ્ધતિની સરખામણિએ થયેલ ઘટાડો, %	
			સમયમાં	વાવેતર ખર્ચમાં
મગ	૩	૦.૩૨૧	૮૫.૯૬*	૬૭.૧૬*
અડદ	૩	૦.૩૨૪	૮૬.૦૯*	૬૭.૪૭*
દિવેલા	૨	૦.૨૭૮	૯૬.૪૦**	૬૮.૮૧**
મકાઈ	૩	૦.૩૮૯	૭૬.૮૭*	૪૫.૮૧*
સોયાબીન	૩	૦.૩૫૩	૮૩.૦૨*	૬૦.૧૯*
તુવેર	3	૦.૩૭૮	૭૬.૧૫*	૪૪.૨૩*

* બળદથી ચાલતા હળ સાથે ઓરણી જોડીને
** હાથ વડે દાણા વાવવાણી પદ્ધતિ

Approved

[**Action:** The Principal & Dean, CAET, AAU, Godhra]

17.9.1.2	**Performance evaluation of seedbed preparation implements for wheat crop in Bhal Agro-climatic Condition**
	The farmers of the Bhal region are recommended to use one pass of cultivator followed by one pass of Rotavator to save cost of tillage operation (up to 68.38%) and saving in time (up to 37.11%) without change in yield as compared with traditional tillage practice (two pass of cultivator plus two pass of Bhal Kaliya) for seedbed preparation in wheat cultivation.
	ભાલ વિસ્તારમાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે ઘઉંના પાક માટે જમીનની તૈયારી કરવા માટે એકવાર કલ્ટીવેટર અને પછી એકવાર રોટાવેટર દ્વારા ખેડ કરવાથી ઉત્પાદનમાં ફેરફાર થયા વિના પરંપરાગત ખેડ પધ્ધતિ (બે વાર કલ્ટીવેટર અને બે વાર ભાલ કલીયા) ની સાપેક્ષમાં ખેડ ખર્ચમાં (૬૮.૩૮% સુધી) અને સમયમાં (૩૭.૧૧% સુધી) બચત થાય છે.
	Approved
	[**Action:** The Senior Scientist & Head, KVK, Arnej]

JUNAGADH AGRICULTURAL UNIVERSITY

17.9.1.3	**Development and Evaluation of Manually Operated Jamun Harvesting Device**
	The farmers are recommended to use the manually operated branch shaking type harvesting device for Jamun fruits developed by the Junagadh Agricultural University. The device has 228 % higher harvesting capacity, and reduction in harvesting cost and harvesting losses up to 49% and 18 %, respectively as compared to manual picking method.
	ખેડૂતોને જૂનાગઢ કૃષિ યુનીવર્સીટી દ્વારા વિકસાવવામાં આવેલ માનવ સંચાલિત ડાળીઓ હલાવવાનાં સાધનથી જાંબુ ઉતારવા ભલામણ કરવામાં આવે છે. માણસ દ્વારા હાર્વેસ્ટીંગ કરવાની સરખામણીએ આ સાધન વડે હાર્વેસ્ટીંગ કરવાથી હાર્વેસ્ટીંગ ક્ષમતામાં ૨૨૮ % સુધી વધારો, ફળો ઉતારવાના ખર્ચમાં ૪૯ % અને ફળમાં થતી નુકશાનીમાં ૧૮ % સુધી ઘટાડો થાય છે.
	Approved
	[**Action-** The Principal & Dean, CAET, JAU, Junagadh]
17.9.1.4	**Effect of Packaging on Storage Behaviour of Chickpea Grain**
	The farmers, entrepreneurs and large scale storage unit holder are recommended to pack chickpea (7.50 % moisture content, wb) in PP woven laminated bag or PICS bags. It retains food and seed quality of chickpea storage up to 12 months and reduces storage losses.
	ખેડૂતો, ઉદ્યોગકારો અને મોટાપાયે સંગ્રહ એકમ ધારકોને ચણાનાં (૭.૫ % ભેજ) પેકેજીંગ માટે પી.પી.વુવન લેમીનેટેડ બેગ અથવા પી.આઇ.સી.એસ. બેગનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. જેથી ચણાનો બાર માસ સુધી સંગ્રહ કરવા છતાં તેની ખાદ્ય અને બીજ તરીકેની ગુણવતા જળવાય છે અને નુકશાનીમાં ઘટાડો થાય છે.
	Approved
	[**Action-** The Principal & Dean, CAET, JAU, Junagadh]

17.9.1.5	**Studies on Bio-char Production and Gaseous Fuel for Thermal Purpose Through Open-core Gasification of Biomass.**
	The farmers and entrepreneurs are recommended to use the gasifier designed by the Junagadh Agricultural University having thermal capacity 80 MJ/h for production of biochar and thermal energy. The maximum gasification efficiency -75.59% and biochar - 24.91% are obtained at gas flow rate 22 Cu. m/h by using shredded cotton stalk as feed stalk.
	ખેડૂતો અને ઉધોગ સાહસિકોને બાયોચાર અને ઉષ્મા ઉર્જાના ઉત્પાદન માટે **જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ** ૮૦ મેગાજુલ/કલાકની ઉષ્મા ઉર્જા ક્ષમતા ધરાવતા ગેસીફાયરનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. જેમાં શ્રેડેડ કપાસની સાઠીના ટુકડાનો ઉપયોગ કરી ૨૨ઘન મીટર/કલાક ગેસના પ્રવાહે મહતમ ગેસીફિકેશન કાર્યક્ષમતા (૭૫.૫૯%) અને મહતમ બાયોચાર (૨૪.૯૧%) મેળવી શકાય છે.
	Approved
	[**Action**- The Principal & Dean, CAET, JAU, Junagadh]
17.9.1.6	**Studies on Crop Cultivation under Solar Photovoltaic Power Plant Panels**
	The farmers of Gujarat state are recommended to use JAU model Agrivoltaic system designed by Junagadh Agricultural university for cultivation of *Rabi* tomato to get an additional income along-with electricity generation.
	ગુજરાત રાજ્યના ખેડુતોને ભલામણ કરવામાં આવે છે કે, **જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ** મોડેલ એગ્રિવોલ્ટેઈક સિસ્ટમનો ઉપયોગ કરી વીજ ઉત્પાદન સાથે શિયાળુ ટામેટાના પાકની ખેતી દ્વારા વધારાની આવક મેળવી શકાય છે.
	Approved
	[**Action**- The Principal & Dean, CAET, JAU, Junagadh]
17.9.1.7	**Design and Development of Pomegranate Juice Extractor**
	The farmers and entrepreneurs are recommended to use pomegranate juice extractor developed by Junagadh Agricultural University to reduce the cost of juice extraction with quality juice.
	ખેડુતો અને ઉદ્યોગ સાહસિકોને દાડમના જયુસ એકસ્ટ્રેશનના ખર્ચમાં ઘટાડા સાથે ગુણવત્તાયુકત જયુસ મેળવવા જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ દાડમ માટેનું જયુસ એકસ્ટ્રેકટર વાપરવા માટે ભલામણ કરવામાં આવે છે.
	Approved
	[**Action**- The Principal & Dean, CAET, JAU, Junagadh]
17.9.1.8	**Low Temperature Grinding of Spices (Fenugreek)**
	The processors are recommended to grind fenugreek seed feed at low temperature (-10±2 ˚C) and using coolant (propylene glycol) circulation (15 lpm) through jacketed grinding mill for better recovery of biochemical compounds, volatile oil and volatile compounds.
	પ્રોસેસરોને મેથીના પાવડરમાં જીવરાસાયણીક તત્વો, ઉડ્ડયનશીલ તેલ અને અન્ય

	ઉડ્ડયનશીલ તત્વો વધુ સારા જાળવવા માટે નીચા તાપમાને (–૧૦± ૨°સે) મેથીનાં દાણાને જેકેટેડ દળવાની મીલમાં કુલન્ટ (પ્રોપીલીન ગ્લાઇકોલ)(૧૫ લીટર પ્રતિ મિનિટ) ફેરવીને દળવા માટે ભલામણ કરવામાં આવે છે.
	Approved
	[**Action**- The Principal & Dean, CAET, JAU, Junagadh]
17.9.1.9	**Design and Development of Low Cost On-farm Sesame Dehuller**
	The sesame producers and processers are recommended to use a low cost sesame dehuller developed by Junagadh Agricultural University for dehulling of sesame seed. The sesame seeds are required to be soaked in water for 120 min. and then dehulling to be carried out for 6 min in developed machine at 150 rpm dehulling speed for getting maximum efficiency (79.29 %). The estimated sesame dehulling benefit cost ratio by this machine is 1.95.
	તલના ઉત્પાદકો અને પ્રોસેસર્સને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ઓછા ખર્ચમાં તલની ફોતરી કાઢવાનું યંત્ર અપનાવવા માટે ભલામણ કરવામાં આવે છે. તલને ૧૨૦ મિનીટ માટે પાણીમાં પલાળી અને વિકસાવવામાં આવેલ યંત્રમાં ૧૫૦ આર.પી.એમ. પર ૬ મિનીટ માટે તલની ફોતરી દુર કરવાની પ્રક્રીયા કરવાથી યંત્રની ઉચ્ચ કાર્યક્ષમતા (૭૯.૨૯%) મળે છે. આ યંત્રમાં તલની ફોતરી દુર કરવાનો લાભ અને ખર્ચનો ગુણોતર ૧.૯૫ મળે છે.
	Approved
	[**Action**- The Research Scientist, ARS, JAU, Amreli]
17.9.1.10	**Development of Online Screen-Gravel Filter for Groundwater Recharge**
	The farmers, NGOs, line department of Government of Gujarat are recommended to adopt online screen cum sand groundwater recharge filter developed by the Junagadh Agricultural University. The developed filter consists of sand filtration layer placed in between two composite screens viz. macro screen and micro screen. It avoids excavation and construction work. It is portable, easy to clean and auto flushing requiring to wash or change a sand layer in every year. It has a filtration efficiency of more than 80%. Filter Specifications: • Bottom composite screen : Macro screen is underlain micro screen • Thickness sand filtration bed 15 cm and size of sand 1mm • Top composite screen : Micro screen is underlain macro screen • Macro screen : 18 gauge GI having 40 % perforation of 12 mm circular holes • Micro screen: S.S. 304 grade having 0.75 mm screen size.
	ખેડુતો, બીન-સરકારી સંસ્થાઓ અને ગુજરાત સરકારના વિભાગોને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ઓનલાઇન સ્ક્રીન કમ સેન્ડ ભૂગર્ભ જળ રિચાર્જ ફિલ્ટરને અપનાવવાની ભલામણ કરવામાં આવે છે. રિચાર્જ ફિલ્ટરમાં મેક્રોસ્ક્રીન અને માઇક્રોસ્ક્રીનની બનેલ બે સંયુક્ત-જાળીયોની વચ્ચે રેતીનુ પડ ભરવામાં આવે છે. તેમાં ખોદકામ અને બાંધકામની જરૂર રહેતી નથી,

તે પોર્ટેબલ, ઓટો-ફ્લશિંગ અને સાફ કરવું સરળ છે. ફિલ્ટરની રેતીના પડને દર વર્ષે એકવાર ધોવાની અથવા બદલવાની જરૂર રહેશે. તેની ગાળણ કાર્યક્ષમતા ૮૦% કરતા વધુ છે,

ફિલ્ટરની વિગત:

- તળિયાની સંયુક્ત-જાળી : માઇક્રોસ્ક્રીનની ચેમેક્રોસ્ક્રીન રાખવામાં આવે છે
- રેતીનાં પડની જાડાઈ ૧૫ સેમી, રેતીની સાઈજ ૧ મીમી
- ઉપરની સંયુક્ત-જાળી : મેક્રોસ્ક્રીનની ચેમાઇક્રોસ્ક્રીન રાખવામાં આવે છે
- મેક્રોસ્ક્રીન : ૧૨ મીમી નાં ૪૦% ગોળ છિદ્રોની ૧૮ ગેજની જી.આઇ, ની જાળી
- માઇક્રોસ્ક્રીન : ૦૭૫. મીમી જાડાઈની ૩૦૪ ગ્રેડની સ્ટેનલેસ સ્ટીલની જાળી

Approved

[**Action**- The Principal & Dean, CAET, JAU, Junagadh]

17.9.1.11 Effect of Drip Lateral Geometry on Productivity of Wheat

The farmers' of South Saurashtra Agro climatic Zone growing wheat are advised to adopt drip irrigation for acquiring higher yield (upto 29%), higher net return (upto 51%) and saving upto 18 % irrigation water over control.

Details of drip system	Irrigation scheduling
Lateral spacing : 67.5 cm Dripper spacing: 60cm Dripper discharge: 4 lph (16-4-60, 3 rows of wheat per lateral) Operating pressure : 1.2 kg/cm^2	At alternate days interval a) November: 30 min b) December: 50 min c) January: 1 hour d) February: 1 hour 10 minute

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં ઘઉંનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે,ઘઉંના પાકમાં ટપક પિયત પધ્ધતિથી પિયત આપવાથી વધારે ઉત્પાદન (૨૯% **સુધી**), વધારે આવક (૫૧% **સુધી**) મેળવી શકાય છે તેમજ ૧૮% **સુધી** પાણીની બચત થાય છે.

ટપક પદ્ધતિ અંગેની માહિતી	ડ્રીપ ચલાવવાનો સમય
લેટરલનું અંતર : ૬૭.૫ સેમી ડ્રીપર નું અંતર : ૬૦ સેમી ડ્રીપરનો પ્રવાહ દર : ૪ લી / કલાક (૧૬-૪-૬૦, ઘઉંની ત્રણ હારવચ્ચે એક લેટરલ) પરિચાલનનું દબાણ: ૧.૨ કિગ્રા/ચો.સેમી	એકાંતરે દિવસેનીચે મુજબ પિયત આપવું અ. નવેમ્બર : ૩૦ મિનીટ બ. ડીસેમ્બર: ૫૦ મિનીટ ક. જાન્યુઆરી : ૧ કલાક ડ. ફેબ્રુઆરી : ૧ કલાક ૧૦ મિનીટ

[**Action**- The Research Scientist(Agril.Engg), RTTC, JAU, Junagadh]

17.9.1.12 Adaption to Climate Change: Effect of Hydrogel and Organic Manures to Mitigate Abiotic Stress in Groundnut

The farmers of North Saurashtra Agro-climatic Zone growing groundnut under dry farming conditions are recommended to apply hydrogel @ 2.5 kg/ha before sowing (1:10 mixture of hydrogel and sand through drilling in the furrow) and FYM @10 t/ha for mitigating moisture stress during dry spells and obtaining maximum rain water use efficiency, higher productivity and net returns.

	ઉતર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના સુકી ખેતીની પરિસ્થિતિમાં મગફળી નું વાવેતર કરતા ખેડૂતોને બે વરસાદ વચ્ચેના સુકાગાળા દરમ્યાન પાકને ભેજની ખેંચ ઓછી કરવા તેમજ વધારે ઉત્પાદન અને આર્થિક વળતર સાથે વરસાદના પાણીની મહતમ કાર્યક્ષમતા મેળવવા માટે વાવણી પહેલાં ૨.૫ કિલોગ્રામ પ્રતિ હેક્ટર હાઇડ્રોજેલ (૧:૧૦ના પ્રમાણમાં હાઇડ્રોજેલ અને રેતી મિક્ષ કરી ચાસમાં ઓરીને આપવા) અને ૧૦ ટન છાણીયું ખાતર પ્રતિ હેક્ટર પ્રમાણે આપવાની ભલામણ કરવામાં આવે છે.
	Approved
	[**Action**- The Research Scientist, MDFRS, Targhadiya]

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17.9.1.13	**Effect of laser leveling on water use efficiency and growth of gram crop**
	The farmers of South Gujarat growing irrigated Gram (GG-3) are recommended to adopt laser land leveling technique to provide 0.2 per cent longitudinal slope for getting higher gram yield, net return and water saving.
	દક્ષિણ ગુજરાતમાં પિયત ચણા (જી. જી. ૩) ઉગાડતા ખેડૂતોને ચણાનું વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા તેમજ પાણીની બચત કરવા માટે લેસર લેવલરનો ઉપયોગ કરી ૦.૨ ટકા સમાંતર ઢાળ આપીને પાક લેવા ભલામણ કરવામાં આવે છે.
	Approved
	[**Action**- The Principal, CAET, NAU, Dediapada]
17.9.1.14	**Design and development of economical manual harvesting tool**
	Fodder grower are recommended to use ergonomically designed manual harvesting tool developed by the Navsari Agricultural University to achieve harvesting capacity of 0.016 ha/h, to reduce up to 37 percent harvesting cost and save harvesting time.
	ઘાસચારાના ઉત્પાદકોને નવસારી કૃષિ યુનિવર્સીટી દ્વારા વિકસાવેલ માનવ ચલિત (અર્ગોનોમીક્લ ડિઝાઇન) કાપણીનું સાધન વાપરવાની ભલામણ કરવામાં આવે છે. જેની કાર્યક્ષમતા ૦.૦૧૬ હેક્ટર/કલાક છે અને ૩૭ ટકા સુધી કાપણીની લાગત અને સમય ની બચત કરી શકાય છે.
	[**Action**- The Principal, CAET, NAU, Dediapada]
17.9.1.15	**Comparative Studies on the different drying methods of ber fruits (*Ziziphusmauritiana*L).**
	The farmers are recommended to dry ber fruits by washing it with 0.3% sodium hydroxide in hot water at 40 ºC for 1 min followed by rinsing in tap water and tray drying at 60 ºC for 24 h or sun drying at 136 h to obtain good quality dried ber with 25.44 % or 28.42 % moisture content (w.b.), respectively and can get good rate return from the market
	ખેડૂતોને ભલામણ કરવામા આવે છે કે, ગુણવત્તા સભર સુકવેલ બોર બનાવવા માટે બોરને અનુક્રમે ૦.૩% સોડીયમ હાઈડ્રોકસાઈડના ૪૦ ºC ગરમ દ્રાવણમાં એક મિનિટ

	સુધી રાખી અને ત્યારબાદ નળના સાદાપાણી થી ધોઈ, ટ્રે ડ્રાયરમાં ૬૦ °C તાપમાને ૨૪ કલાક અથવા સુર્યપ્રકાશમાં ૧૩૬ કલાક સુધી સુકવણી કરવાથી તેનો અંતીમ ભેજ અનુક્રમે ૨૫.૪૪ % અથવા ૨૮.૪૨ % મળે છે જેનો બજારમા સારા ભાવનું વળતર મળી શકે છે.
	Approved
	[**Action**- The Principal, CAET, NAU, Dediapada]
17.9.1.16	**Study on drying characteristics of bitter gourd *(Momordicacharantia L.)*.**
	Farmers, processors and entrepreneurs are recommended to prepare better quality dried bitter gourd chips by slicing washed and trimmed bitter gourd into 5 mm thickness followed by boiled water blanching at 100 ^{0}C for 5 min and dipping into chilled 0.2 % KMS solution for 10 min thereafter soaking in 3 % salt solution for 90 min and drying in tray dryer at 60 °C temperature for 7 hours up to a final moisture content of 5±1 % (w.b).
	ખેડૂતો, પ્રસંસ્કરણકારો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે કારેલાની સારી ગુણવત્તા વાળી સુકી ચિપ્સ બનાવવા માટે કારેલાને ધોઇ અને ડીંટીયા તોડી ૫ મીમી જાડી ચીરીઓ પાડ્યા બાદ ૧૦૦° સે. ઉકાળેલ પાંણીમાં ૫ મીનીટ માટે બ્લાંન્ચીંગ અને ૦.૨% કે.એમ.એસ.ના ઠંડા દ્રાવણમાં ૧૦ મિનીટ સુધી ડુબાડી ત્યાર પછી ૩% મીઠાના દ્રાવણમાં ૯૦ મિનીટ માટે બોળી, ટ્રે ડ્રાયરમાં ૬૦° સે.તાપમાને ૭ કલાક પર અંતીમ ભેજ ૫ ±૧ % (વે.બે.) થાય ત્યાં સુધી સુકવણી કરવી.
	Approved
	[**Action**- The Principal, CAET, NAU, Dediapada]
17.9.1.17	**Design, development and performance evaluation of mixed mode cabinet solar dryer.**
	Deferred – To present in next year with following suggestions: 1) Release committee report needs to be attached for recommendation 2) Sensory evaluation of the dried products should be done. 3) Reduce moisture content of drying of dried product. 4) Recast the language of recommendation
	[**Action**- The Principal, CAET, NAU, Dediapada]
17.9.1.18	**Modification of NAU designed hold-on type power operated paddy thresher**
	Farmers are recommended to use modified hold on type paddy thresher (Threshing drum made by PVC plastic) developed by Navsari Agricultural University operated with 0.5 horsepower electric motor and having approximate 101.3 kg/h capacity and 98.6 % threshing efficiency which reduces 67.0 % labour compared to manual threshing.
	ડાંગર પકવતાં ખેડુતોને નવસારી કૃષિ યુનીવર્સીટી દ્વારા વિકસાવવામાં આવેલ પીવીસી પ્લાસ્ટિક થ્રેશિંગ ડ્રમ સાથે હોલ્ડ ઓન પ્રકારના ડાંગર ઝુડવાના ૦.૫ હોર્સપાવર વિધુત મોટરથી ચાલતા યંત્રનો ઉપયોગ કરવા ભલામણ કરવામાં આવે છે. યંત્ર અંદાજીત ૧૦૧.૩ કિલોગ્રામ પ્રતિ કલાકે ડાંગર ઝુડવાની ક્ષમતા સાથે ૯૮.૬ ટકા કાર્યક્ષમતા ધરાવે છે અને હાથથી ડાંગર ઝુડવા કરતા ૬૭.૦ ટકા ઓછા મજૂરોની જરૂરીયાત પડે છે.
	Approved
	[Action- The Principal, NMCA, NAU, Navsari]

17.9.1.19 Effect of lateral and open drain spacing on growth and yield of *kharif* sown pigeon pea with irrigation through drip during *rabi* season under South Gujarat conditions

The farmer of South Gujarat are recommended to grow pigeon pea during late *kharif* season in paired row at a spacing of 60 x 30:180 cm (2.4 m between two pair and 60 cm in pair) and irrigate after cessation of monsoon through drip lateral placed at 2.4 m. Further, they are also advised to prepare open drain (60 cm top width and 30 cm depth) after every four pairs (9.6 m) before monsoon to drain out excess rain water for getting higher yield and net profit than close paired spacing (1.8 m) without open drain.

The system details are:	*Operating time (minute):*
Lateral spacing : 2.4 m	September : 138 –150
Dripper spacing : 0.6 m	October : 150-175
Dripper discharge : 4 lph	November : 175-140 (To be confirmed)
Operating pressure : 1.2 kg/cm^2	December : 130-95 (To be confirmed)
Operating frequency: Alternate day	January : 95-110 min
	February : 110-125 min
	March : 125 min to harvest

Note: At the time of flower initiation, irrigation should be shut down for 20-25 day for imposing water stress

દક્ષિણ ગુજરાતનાં ખેડૂતોને ચોમાસાની પાછલી મોસમમાં ૬૦×૩૦:૧૮૦ સે.મી. ની જોડીયા હારમાં (બે જોડ વચ્ચનું અંતર ૨.૪ મી અને જોડની અદરનું અંતર ૬૦ સે.મી.) તુવેરનું વાવેતર કરી ચોમાસા પછી જોડની વચ્ચે ૨.૪ મી અંતરે ટપક પધ્ધતિની લેટરલ મુકી પિયત આપવાની ભલામણ કરવામાં આવે છે. વધુમાં વરસાદ દરમ્યાન ખેતરનું વધારાનું પાણી બહાર કાઢ વા ચેમાસા પહેલાથી દરેક ચાર જોડ પછી (૯.૬૦ મીટર) ખુલ્લી નિતાર નીક (ઉપરની પહોળાઈ ૬૦ સે.મી. અને ઉડાઈ ૩૦ સે.મી.) બનાવવાની સલાહ આપવામાં આવે છે, જેથી ખુલ્લી નીક વગર નજીક વાવેલ જોડ (૧.૮ મીટર) કરતા વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે.

ટપક પધ્ધતિની વિગતઃ	**પધ્ધતિ ચલાવવાનો સમય (મીનીટ):**
બે નળી વચ્ચેનું અંતર : ૨.૪ મી	સપ્ટેમ્બર : ૧૩૮ થી ૧૫૦
ટપકણીયા વચ્ચેનું અંતર : ૦.૬ મી	ઓકટોબર :૧૫૦ થી ૧૭૫
ટપકણીયાનો પ્રવાહ : ૪ લી / કલાક	નવેમ્બર :૧૭૫ થી ૧૪૦
પધ્ધતિનું દબાણ : ૧.૨૦ કિગ્રા /મી^{2}	ડિસેમ્બર :૧૩૦ થી ૯૫
પધ્ધતિ ચલાવવાનો ગાળો : એકાન્તરે દિવસે	જાન્યુઆરી : ૯૫ થી ૧૧૦
	ફેબ્રુઆરી : ૧૧૦ થી ૧૨૫
	માર્ચ થી કાપણી : ૧૨૫ મીનીટ

નોંધ : ફૂલ આવવાના સમયે પાણીની ખેચ ઊભી કરવા ૨૦ થી ૨૫ દિવસ માટે પિયત આપવાનું બંધ કરવું.

Approved

[**Action**- The Research Scientist, SWMRU, NAU, Navsari]

17.9.1.20 Evaluation of irrigation interval for summer rice in respect to irrigation depth

The farmers of South Gujarat growing summer rice (GNR-3) in *kyari* land (heavy black soil) are recommended to give 40 mm depth of flood irrigation

	at alternate day (up to 76-80 days) for getting 20 % more net returns and saving of 360 mm depth of water (18.6 %) without decrease in grain yield than conventional irrigation scheduling.
	દક્ષિણ ગુજરાતનાં કયારી જમીનમાં (વધુ કાળી) ઊનાળુ ડાંગર (જીએનઆર–3) પકવતા ખેડુતોને ભલામણ કરવામાં આવે છે કે, એકાંતરા દિવસે ૪૦ મીમી ઉંડાઇનું પિયત રેલાવીને (૭૬-૮૦ દિવસો સુધી) આપવાથી ચિલાચાલુ પિયત કરતા ડાંગરના ઊત્પાદનમાં ઘટાડા વગર 20 ટકા વધું ચોખ્ખો નફો અને 3૬0 મીમી ઉંડાઇના પિયત પાણીની બચત (૧૮.૬ ટકા) મળે છે.
	Approved
	[**Action**- The Research Scientist, SWMRU, NAU, Navsari]

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

17.9.1.21	**Dehydration of date palm halves using different drying methods**
	The farmers and processors are recommended to use a solar cabinet dryer for the drying of fresh date halves (variety: Zahidi) for about 2 days after blanching at 85 ^{o}C for 2 minutes to obtain nutritious powder form dried product for further processing. Drying in a solar cabinet dryer saves about 10 days and results in more economical return compared to the open sun drying.
	ખેડૂતો તેમજ પ્રસંસ્કરણકારોને ભલામણ કરવામાં આવે છે કે તાજી ખારેકના (વેરાઈટી : ઝાહીદી) ફાડીયાને ૮૫°સે. તાપમાને ગરમ પાણીમાં ૨ મિનીટ સુધી બ્લાન્ચીગ કર્યા બાદ સોલાર કેબિનેટ ડ્રાયર (સૂર્ય ઉર્જાથી ચાલતું સુકવણી માટેનું સાધન) માં અંદાજિત ૨ દિવસ સુકવણી કરવાથી સૂકવેલી ખારેકનો પાવડર આગળની પ્રક્રિયા માટે પોષણ યુક્ત જણાય છે .ખૂલ્લા તડકામાં સૂકવણીની તુલનાએ સોલાર કેબિનેટ ડ્રાયરમાં સૂકવણી કરવાથી લગભગ ૧૦ દિવસની બચત થાય છે તેમજ વધુ આર્થિક વળતર મળે છે.
	Approved
	[**Action**: The Principal & Dean, CREEE, SDAU, S.K. Nagar]
17.9.1.22	**Design and development of solar photovoltaic panel cleaning system**
	The automatic solar photovoltaic panel cleaning system developed by Sardarkrushinagar Dantiwada Agricultural University is recommended for a waterless cleaning of a 5 kWp solar power plant having single-layered continuous solar panels of 1.64 m length. Three passes of cleaning operation by the system may improve power generation to the tune of 15.0 to 25.0 per cent. The payback period of the system was found to be about 4.37 years.
	સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ સ્વચાલિત સૌર પેનલ સફાઈ પ્રણાલિ ૫.0 કિ.વૉ. ક્ષમતાના, ૧.૬૪ મીટર લંબાઈની એક સ્તરીય સળંગ પેનલ ધરાવતા પાવર પ્લાન્ટની પાણીના ઉપયોગ વિના સફાઈ માટે યોગ્ય છે. પ્રણાલિને સૌર પેનલની લાઈન ઉપર ત્રણ વાર ફેરવવાથી વીજ ઉત્પાદનમાં ૧૫ થી ૨૫ ટકાનો વધારો મળી શકે છે. પ્રણાલિના ખર્ચનો વળતર સમય અંદાજીત ૪.૩૭ વર્ષ છે.
	Approved
	[**Action**: The Principal & Dean, CREEE, SDAU, S.K. Nagar]

17.9.1.23	**Development of low cost overflow protection and temperature control system for overhead water tank**
	The users are recommended to use the *Temperature Control cum Overflow Protection System for water* in the overhead storage tank, developed by Sardarkrushinagar Dantiwada Agricultural University. The system, using water circulation system by pumping the water from sump at ground level, maintains 36°C water temperature in overhead tank and keeps the water level at a constant.
	ઓવરહેડ સ્ટોરેજ ટાંકીમાં પાણીના તાપમાન નિયંત્રણ માટે **સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ** તાપમાન નિયંત્રણ કમ ઓવર ફ્લો પ્રોટેક્શન સિસ્ટમનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. સિસ્ટમ જમીન પરની ટાંકીના પાણીને પમ્પીંગ કરીને પાણીના પરિભ્રમણ પ્રણાલીના ઉપયોગ **દ્વારા** ઓવરહેડ ટાંકીમાં પાણીનું સ્તર અને તાપમાન 36°C જાળવી રાખે છે.
	Approved
	[**Action**: The Principal & Dean, CREEE, SDAU, S.K. Nagar]
17.9.1.24	**Design and development of single axis solar tracker to enhance efficiency of PV array for better operation of water pumping system**
	Deferred
	[**Action**: The Principal & Dean, CREEE, SDAU, S.K. Nagar]
17.9.1.25	**Development of solar powered insect trap**
	The farmers are recommended to use solar powered insect trap with white LED light developed by Sardarkrushinagar Dantiwada Agricultural University for maximum attraction of nocturnal insects.
	ખેડૂતોને નિશાચર કીટકોના આકર્ષણ માટે સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી ધ્વારા વિકસિત સૌર સંચાલિત પ્રકાશ પિંજર સફેદ એલઈડી લાઈટ સાથે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.
	Approved
	[**Action**: The Principal & Dean, CREEE, SDAU, S.K. Nagar]

17.9.2 Recommendations : Scientific community

ANAND AGRICULTURAL UNIVERSITY

17.9.2.1	**Development of rapid measurement system for angle of repose of grains**
	The educational institutes/ scientists/ entrepreneurs/ processors/ farm equipment manufacturers are advised to use low-cost angle of repose apparatus developed at Anand Agricultural University for measuring of angle of repose using any image analysis free software available for various grains at different moisture contents.
	Approved
	[**Action:** The Principal & Dean, CAET, AAU, Godhra]

17.9.2.2	**Development of a web interface to analyze location specific rainfall data**
	The researchers and scientists are recommended to use text mining technique based web tool developed by Anand Agricultural University for viewing and downloading taluka rainfall data (xls format) prepared from GSDMA data source for different research activities.
	Approved
	[**Action:** The Principal & Dean, CAET, AAU, Godhra]
17.9.2.3	**Remote Sensing and GIS based approach for identifying prospective water harvesting sites in the Panam sub-watershed of Mahi River Basin, India**
	Using remote sensing (RS) & geographical information system (GIS) techniques several possible sites for Check dams, Percolation tanks and Nala bunds structures for groundwater recharge were identified and are suggested as promising recharge structures in the Panam catchment. The results are useful to hydrologists, decision-makers and planners for quickly determining areas that have groundwater recharge potential. Information derived from this study can be used to suggest to farmers, government, NGO's and other stakeholders on best water conservation practices and sustainable use of the water resource.
	Approved
	[**Action:** The Principal, CoA, AAU, Vaso]
17.9.2.4	**Study on the relationship between weather parameters and rice productivity for Kheda district Using Data Mining Approaches**
	The researchers and scientists are recommended to use "Correlation AttributeEval" algorithm for feature selection and function based "Sequential Minimal Optimization (SMO)" algorithm for classification in data mining approaches of rice yield prediction using weekly weather parameters.
	Approved
	[**Action:** The Principal & Dean, CAIT, AAU, Anand]
17.9.2.5	**Development of interface for Veterinary Microbiology Diagnostic Report Management System**
	The Veterinary Microbiology Diagnostic Report Management interface is developed for the Department of Veterinary Microbiology, College of Veterinary Science and Animal Husbandry, Anand Agricultural University, Anand. This system provides the online platform for the management of preparation of veterinary microbiology diagnostic reports. It is recommended to use by the Veterinary Microbiology departments of SAUs of the state.
	Approved
	[**Action:** The Director, IT, AAU, Anand]

JUNAGADH AGRICULTURAL UNIVERSITY: Nil

NAVSARI AGRICULTURAL UNIVERSITY

17.9.2.6	**Development of Erodibility Map for Dang district**
	Soil erodibility of Dang district varies from 0.18 to 0.44 with the mean value of 0.33. About 44.5% area having high erodibility value >0.34, showed higher susceptibility to erosion, while 24.3% area having low erodibility <0.29

	showed comparatively lower susceptibility to erosion. The highest soil erodibility was found in soil sample of Satbabla village which contains 52.36% sand, 30.26% silt and 17.38% clay, while the soil erodibility was lowest in sample of Borkhet village which contains 48.1% sand, 14.29% silt and 37.61% clay and has lowest percentage of silt as compared to all the other samples.
	Approved as scientific information.
	[**Action**- The Principal, NMCA, NAU, Navsari]
17.9.2.7	**Development of dynamic mobile app to rectify the updation of Kisan Mitra app of NAU**
	The prototype model of mobile based application developed by Navsari Agricultural University (*KisanMitra 2.0*) can be used as advancement version of earlier developed *KisanMitra* mobile application for agricultural information dissemination to the farming community.
	Approved
	[**Action**- The Principal, NMCA, NAU, Navsari]

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

17.9.2.8	**Estimation of reference evapotranspiration using Artificial Neural Networks for Sardarkrushinagar**
	The scientists, Policy makers and Irrigation planners in North Gujarat Agro Climatic Zone- IV (AES-I) are recommended to use the SDAU developed ANN model (5-11-1, consists of 5 input variables i.e. maximum and minimum temperature, relative humidity, wind speed, sunshine hours; 11 neurons in hidden layer; 1 output ET_0) to estimate reference evapotranspiration for agricultural water management.
	Approved
	[**Action**: The Research Scientist, CNRM, SDAU, S.K. Nagar]
17.9.2.9	**Design and development of prototype savonius wind turbine**
	The scientific and industrial communities are recommended that, the vertical axis Savonius wind turbine developed by Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar was found to perform with a cut-in wind speed of 3.5 m/s and the maximum battery charging rate recorded was 0.52 V/hr.
	Approved
	[**Action**: The Principal & Dean, CREEE, SDAU, S.K. Nagar]

17.9.3 NEW TECHNICAL PROGRAMMES

SUMMARY

New Technical Programmes			
University	**Proposed**	**Approved**	**Deferred**
AAU	13	11+1*	1
JAU	10+1**	10+1**	0
NAU	11+2**	8+2**	3
SDAU	3	3	0
Total	**37+3****	**32+1*+3****	**4**

***** Approved as filler trial

****** NTP accepted in other sub-committee, presented here for fine tuning suggestions.

ANAND AGRICULTURAL UNIVERSITY

17.9.3.1	**Development of Pest & Disease Video Classification Model using Deep Learning (CNN)**
	Approved with following suggestion: 1) Objective should be modified as "To develop a classifier for classification of plant based pest and dieses videos"
	[**Action:** Professor and Head, Department of AIT, CAIT, Anand]
17.9.3.2	**Neural Network to Estimate the Rice Yield of Kheda District Using Weather Parameters**
	Approved with following suggestion: 1) Wind speed should be included as an input parameter. 2) Check model with output with actual field data for 2 to 3 years
	[**Action:** Professor and Head, Department of AIT, CAIT, Anand]
17.9.3.3	**OSBORNE Index Selection for Poultry**
	Approved **1)** Add one scientist from veterinary faculty.
	[**Action:** Professor and Head, Department of AIT, CAIT, Anand]
17.9.3.4	**Brassicaceae Family Ontology Development**
	Approved
	[**Action:** Professor and Head, Department of AIT, CAIT, Anand]
17.9.3.5	**Crop Surveillance and Monitoring using Unmanned Aerial Vehicle (UAV)**
	Approved with following suggestion: 1) Recast the methodology as per discussion 2) Write the height of observations, image resolution, field area, microclimate variation parameters
	[**Action:** Director, IT, AAU, Anand]
17.9.3.6	**Smart Farming using Artificial Intelligence (ChatBot)**
	Approved with following suggestion: 1) Remove the word "ChatBot" from the title
	[**Action:** Director, IT, AAU, Anand]

17.9.3.7	**Classification of soil fertility for Anand District of Gujarat using machine Learning Techniques**
	Approved
	[**Action:** Director, IT, AAU, Anand]
17.9.3.8	**Transformation of Information through Multimedia Based Interactive Media for AAU Museum, ATIC Center and SSK**
	Deferred
	[**Action:** Director, IT, AAU, Anand]
17.9.3.9	**Web and mobile based application for Asset Management using smart RFID tagging**
	Approved as filler trial, present it next year as New Technical Programme
	[**Action:** Director, IT, AAU, Anand]
17.9.3.10	**Performance Evaluation of Time-Volume based and Soil Moisture Sensor based Automated Drip Irrigation System in Pearl Millet Crop**
	Approved with following suggestions: 1) In treatments, irrigation levels is based on Actual ET instead of CPE 2) Present sensor evaluation data 3) Calculate crop evapotrnspiration form moisture sensor data
	[**Action:** Professor and Head, Department of AE, CA, Vaso]
17.9.3.11	**Design and development of solar powered pellet machine for biogas slurry**
	Approved with following suggestion:. 1) Add "Shattering Index" in methodology / observation to be taken section. 2) Modify objective-2 by including physical parameters instead of fuel
	[**Action:** Professor and Head, Department of REE, CAET, Godhra]
17.9.3.12	**Experimental Investigation of energy yield from Bifacial Silicon Solar photovoltaic (PV) module and its comparison with monofacial solar photovoltaic module**
	Approved with following suggestions: 1) Design suggested by the House needs to be adopted. 2) East – west orientation of mono facial conventional solar system should be incorporated as a treatment 3) Compare it with bifacial solar panel
	[**Action:** Professor and Head, Department of BEAS, CAET, Godhra]
17.9.3.13	**Fruit quality determination by using Ultrasonic Technique of Non-destructive evaluation method**
	Approved with following suggestions: 1) Objectives should be recasted as: • To develop a method for determination of the fruit quality by using ultrasonic testing method • To analyze output for determination of the defect location.
	[**Action:** Professor and Head, Department of BEAS, CAET, Godhra]

JUNAGADH AGRICULTURAL UNIVERSITY

17.9.3.14	**Hydraulic Study of Rain Pipe Irrigation System under Solar Photo-Voltaic Pump**
	Approved with following suggestion: 1) In observation to be recorded,add the overlapping measurement at proposed pressure levels.
	[**Action**-Research Scientist(Agril.Engg), RTTC, Junagadh]
17.9.3.15	**Performance of Broccoli under Different Cultivation Methods**
	Approved with following suggestions: 1) For soilless culture, check the doze of fertilizer 2) Add micro/macro nutrients in soil less media reatments. 3) Objective 3 should be modify as "To evaluate the techno-economic feasibility of broccoli under different cultivation methods"
	[**Action**- Head, REE, CAET, Junagadh]
17.9.3.16	**Development of Solar Powered Weeder**
	Approved with following suggestions: 1) Title should be modified as "Development of solar based power weeder" 2) Objective should be modified as: • To develop solar operated walking type power weeder • To evaluate techno-economic performance of developed solar operated walking type power weeder. 3) It is suggested to compare with the traditional power weeder 4) Lithium ion battery should be used if available 5) Option of central solar charging station may be considered if possible
	[**Action**- Head, REE, CAET, Junagadh]
17.9.3.17	**Development of Water Flow Diversion System for Border Irrigation**
	Approved with following suggestion: 1) Add "horizontal sill" in configuration of water flow diversion devise for energy dissipation of flow.
	[**Action**- Head, REE, CAET, Junagadh]
17.9.3.18	**Development of Solar Tunnel Dryer for Local Spices**
	Approved with given suggestion: 1) Objective 4 be revised as"To study the techno-economic feasibility of solar tunnel drying". 2) In observation to be recorded, add moisture content at the end, collection efficiency, moisture ratio
	[**Action**- Head, REE, CAET, Junagadh]
17.9.3.19	**Performance of Field Crops and Shade Resistance Vegetable Crops Under the Agri-Voltaic System**
	Approved with following suggestions: 1) In objective, replace the word "different crop" with "cotton, groundnut and cucumber" 2) In objective 2, replace the word "Shading pattern" with "Shadow

	Pattern" 3) Mention the irrigation method, level and frequency for various crops in experimental details 4) Mention gross/net plot size
	[**Action**- Head, REE, CAET, Junagadh]
17.9.3.20	**Application of Microwave Technology for Disinfestations of Groundnut Kernels**
	Approved
	[**Action**-Head, PFE, CAET, Junagadh]
17.9.3.21	**Standardization of Process Technology for Preparation of Peanut Sauce**
	Approved
	[**Action**-Head, PFE, CAET, Junagadh]
	Study of Preparation, Packaging and Storage of Passion Fruit Beverages
	Approved (In FPE Sub committee) 1) State the sacalabilities of research outcomes of this experiment in production and ,experiment stating area India in justification of the/Gujarat ..consumption pattern of passion fruits
	[**Action**-Head, PFE, CAET, Junagadh]
17.9.3.22	**Standardization of Process Parameters for Sesame Spread Preparation**
	Approved with following suggestion: 1) Crop variety should be mentioned.
	[**Action**-Research Scientist, ARS, Amreli]
17.9.3.23	**Development and Evaluation of Defatted Sesame Flour Incorporated Protein Enriched Extruded Products**
	Approved
	[**Action**-Research Scientist, ARS, Amreli]

NAVSARI AGRICULTURAL UNIVERSITY

17.9.3.24	**Development of dry powder from mahua (*Madhuca longifolia)* flower.**
	Approved with following suggestions: 1) Title should be modified as "Drying of mahua flower for powder" 2) Recast the objectives as: • To optimize the drying parameter for good quality of powder • To evaluate quality parameter of dried mahua flower powder • To analyze the techno-economical feasibility of dried mahua flower powder 3) Add "To study the drying kinetic of dried mahua flower using various existing mathematical models" in objective 4 4) In treatments, Replace "Tray load" with "Bed thickness" 5) Value of vitamin C, potassium, iron and calcium of fresh and final product must be measured
	[**Action**-Head, PFE, CAET, Dedia.]

17.9.3.25	**Measurement of actual evapotranspiration of *various crops* of South Gujarat by adaption of low budget lysimeter.**
	Approved with following suggestions: 1) Title should be modified as "Development of low cost weighing type lysimeter and measurement of actual evapotranspiration of *various crops* of South Gujarat" 2) Recast the objectives as: • To develop low costweighing type lysimeter • To evaluate the performance of developed weighing type lysimeter • To determine the actual evapotranspiration and Crop Coeffcient (K_c) of various crops at different stages by developed lysimeter 3) Add derivation of crop coefficient for major crops of South Gujarat. 4) Select the crops which can be grown in lysimeter in such a way that plant spacing, row spacing and plant density can be matched with actual field conditions. 5) Take at least 3 replications after consulting Agric. Statistician. 6) Take only major seasonal crops of the region.
	[**Action**-Head, Deptt. of Agril.Engg. NMCA, Navsari]
17.9.3.26	**Combine effect of drip and micro sprinkler irrigation in bitter gourd and leafy vegetable (coriander) under two tier cropping system**
	Approved with following suggestions: 1) In treatments, the level of irrigation should be followed as 0.4, 0.6 and 0.8 PEF for drip and sprinkler irrigation system 2) For better comparison, also take control treatment outside 3) Also, check the CV of irrigation system during the experiment
	[**Action**-Research Scientist, SWMRU, Navsari]
17.9.3.27	**Study on Technical feasibility and Development of Online Digital Medicinal Plants Identification and Knowledge Management System**
	Approved with following suggestions: 1) Objective should be recasted as "To develop Online Digital Medicinal Plant Identifier and Knowledge Management System" 2) Addin the objective "To analyze the Knowledge Management System through Machine Learning System"
	[**Action**-Dean, AABMI, NAU, Navsari]
17.9.3.28	**Design and performance evaluation of solar photovoltaic cooking System**
	Deferred
	[Action-Head, REE, CAET, Dedia.]
17.9.3.29	**Evaluation of box and concentrating type solar cooker for feasibility of herbal oil**
	Approved with following suggestions: 1) Title should be modified as "Feasibility of box and concentrating Solar Cooker for formulation of herbal oil" 2) Objectives should be modified as: • To evaluate the performance of solar cooker for herbal oil production from selected herbs

	• To evaluate the formulation of produced herbal oil 3) Compare with herbal oil available in market.
	[**Action**-Head, REE, CAET, Dedia.]
17.9.3.30	**Effect of Various Tillage Practices in Established Mango Orchard**
	Approved with following suggestions: 1) Mention timing and tillage depth for all treatments 2) In observation to be recorded, add hydraulic conductivity
	[Action-Head, Agril.Engg. NMCA, Navsari]
17.9.3.31	**Conduct survey of solar pumps installed in farmers field in DediapadaTaluka.**
	Deferred
	[**Action**-Head, BEAS, CAET, Dedia.]
17.9.3.32	**Development of Erodibility Map for DediapadaTaluka**
	Deferred
	[**Action**-Head, BEAS, CAET, Dedia.]
17.9.3.33	**Response of drip irrigation on growth and yield of D x T coconut (*Cocusnucifera* L.) hybrid under south Gujarat condition.**
	Approved with following suggestions: 1) Mention Design of Treatment as RBD 2) Ring pattern drip system may be used and compare with parallel system of laterals.
	[**Action**-Head, NRM, COF,ACHF Navsari]
17.9.3.34	**Standardizing Drip Irrigation Schedule of Dragon (*Kamlam*) Fruit in UV stabilized polybag**
	Approved with following suggestion: 1) In experimental design, Replace word "Replication" with "Repetition"
	[**Action**-Head, NRM, COF,ACHF Navsari]
NTP from other sub-committee presented for information and useful suggestions	
	Effect of Blanching and Drying on Quality of Oyster Mushroom (*Pleurotusostreatus*)
	Already presented in PFE committee. Approved with the following suggestions Mention vacume pressure
	[**Action**-Head, CE on PHT, Navsari]
	Forecasting of monthly scheme flow of Tapi river, Gujrat
	Approved with following suggestions: Already presented in CJI of Basic Science group. Approved with the following suggestions: 1) Stochastic modelling of stream flow forecasting may be used. 2) Use wavelet based ANN for forecasting.

	3) Work in transformed domain by preserving statistical properties or historical series. 4) Add in the objective “to prepare regional water harvestingplanbased on discharge”.
	[Action-Head, Agril.Engg. NMCA, Navsari]

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

17.9.3.35	**Fertigation scheduling for muskmelon**
	Approved with following suggestion: 1) Title may be recasted as “Impact of irrigation and fertigation on muskmelon”
	[**Action**: The Research Scientist, CNRM, SDAU, S.K. Nagar]
17.9.3.36	**Reduction of chemical oxygen demand of effluent generated from pigment industry**
	Approved
	[**Action**: The Principal, CREEE, SDAU, S.K. Nagar]
17.9.3.37	**Effect of Agrivoltaic System on Power Generation and Crop Productivity**
	Approved **Programme be carried out in consulatation with JAU**
	[**Action**: The Principal, CREEE, SDAU, S.K. Nagar]
ON GOING PROGRAMMES	
16.9.3.10	**Standardization of the recipe for preparation of RTS drinks from fennel**
	Approved
	[**Action**: The Principal, CREEE, SDAU, S.K. Nagar]

Additional Suggestions:

1.	Each university must prepare a consolidated report incorporating all the programmes.
2.	A recommendation for release of an equipment/implement should have recommendation of a duly constituted release committee as per the norms.
3.	New technical programme and recommendation should be in a prescribed format/ guidelines.
4.	A committee consisting of Director of Research & Dean, P.G. Studies, SDAU; Deans (CAET, Junagadh and CAET, Godhra), and Director of IT (JAU and AAU) be constituted to set up guideline for formulation IT related technical programme.

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17.10 DAIRY SCIENCE AND FOOD PROCESSING TECHNOLOGY & BIO ENERGY

May 10-12, 2021

TECHNICAL SESSION (Recommendations & New Technical Programmes)

Chairman	:	Dr. J. B. Upadhyay, Principal & Dean, SMC College of Dairy Science, AAU, Anand
Co- Chairman	:	Dr. R.F. Sutar, Dean, CoFPTBE., AAU, Anand
	:	Dr. V. M. Ramani, Principal and Dean, College of Dairy Science, Kamdhenu University, Amreli
Rapporteurs:	:	Dr. A. K. Makwana, AAU, Anand
	:	Dr. Ramesh V., SDAU, SK Nagar
	:	Dr. Tanmay Hazra, Kamdhenu University
	:	Dr. Devraj, NAU, Navsari
Statistician:	:	Dr. M.K. Chaudhary, SDAU, SK Nagar

Presentation of recommendations and new technical programmes by Conveners of SAUs

Name		Designation & University
1	Dr. S. H. Akbari	Associate Professor and Head, FPO, College of FPTBE, AAU, Anand
2	Dr. Ashish Dixit	Assistant Professor and Head, FPO, SDAU, SK Nagar
3	Dr. Vimal Ramani	Principal & Dean, College of Dairy Science, KU, Amreli

SUMMARY FOR 17th MEETING OF COMBINED AGRESCO

Name of University	No. of Recommendations				No. of New Technical Programmes	
	Industry / Entrepreneurs / Farming Community		Scientific Community / Policy Makers			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	13	13	01	01	20	20
SDAU	02	02	00	00	02	02
NAU	01	01	00	00	04	04
KU	01	01	01	00	00	00
Other Sub Committee	01	01	00	00	01	01
Total	**18**	**18**	**02**	**01**	**27**	**27**

17.10.1 RECOMMENDATION FOR FARMING COMMUNITY/ ENTREPRENEURS ANAND AGRICULTURAL UNIVERSITY, ANAND

17.10.1.1	Technology for development of fermented milk powder
	Recommendation for industry & entrepreneurs A technology developed by Anand Agricultural University, Anand for the manufacture of 'Fermented Milk Powder' has potential to yield 'Ready-to-reconstitute' product (Buttermilk); such powder has a shelf life of 120 days at ambient (37±2°C) storage temperature packaged in metalized Pet-Polyester/Polyfilm pouches (85µ thick). **ભલામણ** આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા 'રેડી-ટુ-રીકોન્સ્ટીટ્યુટ છાશ નો પાવડર' ના ઉત્પાદન માટે વિકસિત પદ્ધતિ મુજબ તૈયાર થયેલ પાવડરને મેટ-પેટ/પીઈ (Met-PET/PE) પાઉચમાં (~૮૫ µ) પેક કરવામાં આવે ત્યારે ૩૭±૨°સે તાપમાને ૧૨૦ દિવસ સુધી સાચવણી કરી શકાય છે.
	Approved
	Suggestions: Nil **(Action:** HOD, DPO, DSC, AAU, Anand)
17.10.1.2	Technology for manufacture of milk based multigrain *Ladoo*
	Recommendation for industry & entrepreneurs Anand Agricultural University, Anand recommends a technology for manufacture of gluten-free Multi Grain Ladoo with acceptable qualitative properties from multigrain flour composed of pearl millet, chickpea, ragi; along with Khoa, Ghee and sugar. The developed product has a shelf life of 28 days at room temperature (37±2°C) and 120 days at refrigeration temperature (7±2°C) when wrapped in aluminium foil (12 µ) and packed in polypropylene (PP) plastic container with lid. **ભલામણ** આણંદ કૃષિ યુનિવર્સિટી,આણંદ દ્વારા 'વિવિધ ધાનના મિશ્રણથી તૈયાર કરેલ ગ્લૂટેન-મુક્ત લાડુ' ના ઉત્પાદન માટે પદ્ધતિ વિકસિત કરવામાં આવેલ છે, જેમા બાજરો, ચણા, રાગી ના લોટના મિશ્રણમા માવો, ઘી તથા મોરસ ભેળવી ગુણવત્તા વાળા લાડુ બનાવી શકાય છે. ભલામણ મુજબ વિવિધ ધાનના મિશ્રણથી તૈયાર કરેલ લાડુને એલ્યુમિનિયમ ફોઇલ (~૧૨µ) માં લપેટીને પ્લાસ્ટિક ડબ્બામાં પેક કરવામાં આવે ત્યારે ૩૭±૨°સે તાપમાને ૨૮ દીવસ અને ફ્રીજના (૭±૨°સે) તાપમાને ૧૨૦ દિવસ સુધી સાચવણી કરી શકાય છે.
	Approved
	Suggestions: Suggestions for minor text changes has been duly incorporated **(Action:** HOD, DT, DSC, AAU, Anand)

17.10.1.3	Development of indicator based method for detection of selected vegetable oils adulteration in ghee
	Recommendation for industry & entrepreneurs Anand Agricultural University, Anand, has developed a method to detect the presence of cotton seed oil, hydrogenated vegetable oil (HVO) and palm oil adulteration in ghee by quantitative analysis of reduction of DPPH indicator by spectrophotometric method. Samples giving more than 25 per cent reduction of DPPH after 15 min reaction period measured at wavelength of 517 nm indicates the presence of the adulterants. **ભલામણ** ઘી માં થતી કપાસિયા તેલ, હાઈડ્રોજીનેટેડ વનસ્પતિ તેલ (HVO) અને પામ તેલની ભેળસેળ ચકાસવા માટે ડીપીપીએચ (DPPH) નાં રીડકસન આધારિત સ્પેક્ટ્રોફોટોમેટ્રિક પદ્ધતિ, આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવવામાં આવી છે. 15 મિનિટનાં સમયગાળા બાદ 517 nm તરંગ લંબાઈ ઉપર 25 ટકા કરતાં વધારે DPPH નું રીડકસન ઘી માં આ તેલની ભેળસેળ સૂચવે છે.
	Approved
	Suggestions: Nil **(Action:** HOD, DC, DSC, AAU, Anand)
17.10.1.4	Evaluation of Lactic Acid Bacteria for β-galactosidase activity and its use in preparation of lactose hydrolysed milk
	Recommendation for industry & entrepreneurs A protocol is developed by Anand Agricultural University, Anand for the production of β-galactosidase enzyme from Lactobacillus cultures [*Lactobacillus helveticus* MTCC 5463, *Lactobacillus rhamnosus* NK2 & *Lactobacillus casei* NK9] as well as for preparation of sensorially acceptable lactose hydrolyzed milk using the partially purified β-galactosidase enzyme by adding @ 2% in sterilized reconstituted skim milk and incubation at 37^0C/12h. **ભલામણ** આણંદ કૃષિ વિશ્વવિદ્યાલય, આણંદ દ્વારા લેક્ટોઝ હાયડ્રોલાઈઝડ દૂધ બનાવવાની પદ્ધતિ વિકસાવવામાં આવી છે જેમાં લેકટોબેસિલસ કલ્ચર (દૂધના સુક્ષ્મજીવાણું) લેકટોબેસિલસ હેલ્વેટીકસ MTCC 5463, લેકટોબેસિલસ રામનોસસ NK2 અને લેકટોબેસિલસ કેસી NK9 માંથી બીટા-ગેલેકટોસીડેઝ એન્ઝાઈમ તારવીને આંશિક રીતે શુદ્ધ કરવામાં આવેલ છે. આ આંશિક રીતે શુદ્ધ કરેલ બીટા-ગેલેકટોસીડેઝ એન્ઝાઈમને ખુબ જ ઓછા ફેટ વાળા દૂધમાં (સ્ટરીલાઈઝડ રીકન્સટીટ્યુટેડ સ્કીમ મિલ્ક) ૨ % પ્રમાણથી ઉમેરીને ૩૭°સે. તાપમાને ૧૨ કલાક ઈન્ક્યુંબેટ કરી લેક્ટોઝ હાયડ્રોલાઈઝડ દૂધ બનાવી શકાય છે.
	Approved
	Suggestions: Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, DM, DSC,AAU, Anand)

<table>
<tr><td>17.10.1.5</td><td>Development of ready to reconstitute coffee powder</td></tr>
<tr><td></td><td>Recommendation for industry & entrepreneurs
Anand Agricultural University, Anand recommends method for preparation of Ready-to-Reconstitute (RTR) coffee mix powder by drying the admixture of coffee decoction (70:30, Arabica: Robusta, 30 % TSS) and milk concentrate (30% TS) in the ratio of 1:5 (w/w) by vacuum tray drying method which has storage stability of 9 months at room temperature (37 ± 2°C) when packed in glass jar. Sensorial acceptable coffee beverage can be obtained on reconstitution of 25 g of such RTR coffee mix powder to 150 ml water.
ભલામણ
આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વ્રારા રેડી ટુ રિકન્સ્ટીટયુટ કોફી મિક્ષ પાઉડર બનાવવા માટેની પધ્ધતિ વિકસવવામાં આવેલ છે. આ પધ્ધતિમાં 30% દ્વ્રાવ્ય ઘનતત્વો વાળી ઘટ્ટકોફી (૭૦:૩૦,એરબિકા:રોબસ્ટા) અને ૩૦% ઘનતત્વોવાળા ઘટ્ટદુધને ૧:૫ ના પ્રમાણમાં મેળવીને વેક્યુમ ટ્રે ડ્રાયર દ્વ્રારા પાઉડર બનાવીને કાચની બરણીમાં સામાન્ય તાપમાને (૩૭±૨°સે) ૯ મહિના સુધી સંગ્રહી શકાય છે. ૨૫ ગ્રામ કોફી પાઉડર ને ૧૫૦ મિલી પાણીમાં ભેળવીને સ્વાદ માં સ્વીકાર્ય એવી કોફી બનાવી શકાય છે.</td></tr>
<tr><td></td><td>Approved</td></tr>
<tr><td></td><td>Suggestions: Suggestion for minor text changes has been duly incorporated.
(Action: HOD, DE, DSC, AAU, Anand)</td></tr>
<tr><td>17.10.1.6</td><td>Design and development of a solar based incubation room</td></tr>
<tr><td></td><td>Recommendation for industry & entrepreneurs
Dairy Industry and Entrepreneurs are recommended to adopt the solar based incubation room developed by Anand Agricultural University, Anand for incubation of fermented dairy products. The solar based incubation room having capacity of 100 crates (1200 litres) can work 24x7 with solar fraction of 0.81 to 1.00. The payback period of the air heating system is 3 years and 8 months.
ભલામણ
ડેરી ઉદ્યોગ અને આથવણ કરેલ ડેરી પેદાશોના ઉત્પાદન માટે ઈચ્છુક ઉદ્યોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસિત સૌર ઉર્જા આધારીત ઈન્ક્યુબેશન રૂમ અપનાવવાની ભલામણ કરવામાં આવે છે. સદર 100 ક્રેટ્સ (1200 લિટર) ની ક્ષમતાવાળા સૌર આધારિત ઈંક્યુબેશન રૂમ 0.81 થી 1.00 ની સોલર અપૂર્ણાંક સાથે 24x7 કામ કરી શકે છે. આવી એર હીટિંગ સિસ્ટમનો વળતરનો સમયગાળો 3 વર્ષ અને 8 મહિનાનો છે.</td></tr>
<tr><td></td><td>Approved</td></tr>
<tr><td></td><td>Suggestions: Nil
(Action: HOD, DE, DSC, AAU, Anand)</td></tr>
</table>

17.10.1.7	Energy saving potential through partial homogenization of milk over conventional homogenization
	Recommendation for industry & entrepreneurs Anand Agricultural University, Anand recommends process involving partial homogenization of market milk as it utilizes lower pressure and less energy with additional benefits of about 68% reduction in energy usage over use of conventional homogenization of milk. **ભલામણ** આણંદ કૃષિ વિશ્વવિધ્યાલય, આણંદ દ્વારા બજારમાં વેચાતા દૂધ માટે આંશિક હોમોજીનાઈજેશન પ્રક્રિયાની ભલામણ કરવામાં આવે છે જેમાં પરંપરાગત પધ્ધતિની સરખામણીમાં ૬૮% જેટલી ઉર્જાની બચત કરી શકાય છે.
	Approved
	Suggestions: Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, DE, DSC, AAU, Anand)
17.10.1.8	Technology for production of Indian gooseberry (Aonla) murabba
	Recommendation for industry & entrepreneurs The entrepreneurs interested in the production of Indian gooseberry (aonla) shredded murabba are advised to adopt the processing technology developed for the purpose by Anand Agricultural University, Anand. The technology involves the blanching of aonla fruits in water at 100°C for 6 min followed by shredding through 5 mm stainless shredder. Final product is prepared by using aonla shred (54.25%), sugar (40.75%) and spices mix (5%) having 116.66 (mg/100g) ascorbic acid (Vitamin C) followed by thermal processing. The developed aonla shredded murabba can be stored safely for 180 days at the ambient condition. **ભલામણ** આમળામાંથી છીણ ટાઈપ મુરબ્બાનાં ઉત્પાદનમાં રસ ધરાવતા ઉદ્યોગકારોને આણંદ કૃષિ વિશ્વવિદ્યાલય, આણંદ ધ્વારા વિકસાવવામાં આવેલ તાંત્રિકતાનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ તાંત્રિકતામાં આમળા ફળને ૧૦૦ °સેલ્સીયસ તાપમાને પાણીમાં ૬ મીનીટ સુધી બ્લાન્ચ કરી ૫ એમએમ સાઈઝનાં સ્ટેનલેશ સ્ટીલનાં શ્રેડર વડે છીણ કરવામાં આવે છે. ફાઈનલ પ્રોડકટ બનાવવા માટે છીણ કરેલ આમળા (૫૪.૨ %)ખાંડ (૪૦.૭૫%)અને મરીમસાલા મીક્ષ (૫%)નાં પ્રમાણમાં રાખી કે જેમા વિટામિન સી ૧૧૬.૬૬ (મિગ્રા/૧૦૦ગ્રામ) રહેલુ હોય છે તેને ત્યારબાદ થર્મલ પ્રક્રિયા કરીને તૈયાર કરવામાં આવે છે. આ રીતે તૈયાર થયેલ છીણ ટાઈપના આમળા મુરબ્બાને ૧૮૦ દિવસ સુધી સામાન્ય તાપમાને સંગ્રહી શકાય છે.
	Approved
	Suggestions: 1. Include uniform unit for Ascorbic acid content (mg/100 g or mg/100 ml) 2. Include Vitamin C content in the recommendation. 3. Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, FPT, FPTBE, AAU, Anand**)**

17.10.1.9	Development of production technology for vegetable based juice from carrot and tomato
	Recommendation for industry & entrepreneurs The entrepreneurs interested in the production of vegetable based blended juice from carrot and tomatoes are advised to adopt processing technology developed for the purpose by the Anand Agricultural University, Anand. The technology involves the blanching of 15 mm carrot slices in water at 100°C for 8.5 min. Blended juice is prepared by optimizing carrot juice (50.03 ml), tomato juice (50.00 ml), lime juice (6.92 ml) and mint extract (8.48 ml) having 12.28 (mg/100 ml) ascorbic acid (Vitamin C) followed by thermal processing at 85°C for 20 min. The developed blend juice can be stored safely for 90 days at the ambient condition. **ભલામણ** ગાજર અને ટામેટા આધારીત શાકભાજી મિશ્રીત રસના ઉત્પાદનમાં રસ ધરાવતા ઉદ્યોગકારોને આણંદ કૃષિ વિશ્વવિદ્યાલય, આણંદ ધ્વારા વિકસાવવામાં આવેલ તાંત્રિકતાનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ તાંત્રિકતામાં મિશ્રીત રસ બનાવવા માટે ૧૫ મીમી ગાજરની સ્લાઈસીસને ૧૦૦° સેલ્સીયસ તાપમાને ૮ મીનીટ ૩૦ સેકંડ માટે બ્લાન્ચ કરવામાં આવે છે. મિશ્રીત રસ બનાવવા માટે ગાજર જ્યુસ (૫૦.૦૩ મિલિ), ટમેટા જ્યુસ (૫૦.૦૦ મિલિ) , લીંબુ જ્યુસ (૬.૯૨ મિલિ) અને ફુદીનાનો અર્ક (૮.૪૮મિલિ) નાં નિશ્રિત પ્રમાણમાં રાખી કે જેમા વિટામિન સી ૧૨.૨૮ (મિગ્રા/૧૦૦મિલિ) રહેલુ હોય છે તેને ત્યારબાદ ૮૫° સેલ્સીયસ તાપમાને ૨૦ મીનીટ સુધી થર્મલ પ્રક્રિયા કરીને તૈયાર કરવામાં આવે છે. આ રીતે તૈયાર થયેલ મિશ્રીત રસ ને ૯૦ દિવસ સુધી સામાન્ય તાપમાને સંગ્રહી શકાય છે.
	Approved
	Suggestions: 1. Include uniform unit for Ascorbic acid content (mg/100 g or mg/100 ml) 2. Mention the experiment combinations as per RSM and the optimised parameters. 3. Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, FPT, FPTBE, AAU, Anand**)**
17.10.1.10	Process development of cereals-based product enriched with garden cress for lactating women
	Recommendation for industry & entrepreneurs The entrepreneurs and food processors interested in manufacture of nutri-cereal based products are advised to adopt the production technology of garden cress enriched *Laddoos* developed by Anand Agricultural University, Anand. The technology involves malting of wheat, finger millet and garden cress grains followed by drying and roasting. All the roasted grains are milled to obtain flour. Final product is prepared using wheat flour, finger millet flour and garden cress flour. To prepare *Laddoos*, ghee is heated, in which mixed flour and powdered sugar are added, mixed well and *Laddoos* are made from this heated

	mixture. This product provides 500 kcal/100g energy, while it contains 144.65, 4.28 and 241.00 mg/100 g of calcium, iron and phosphorus respectively. This product is costing around Rs.136/kg. **ભલામણ** પોષક અનાજ આધારિત બનાવટોના ઉત્પાદનમાં રસધરાવતા ઉદ્યોગ સાહસિકો અને ખાદ્ય પ્રક્રિયકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ અસેળિયાયુક્ત લાડુ બનાવવાની પદ્ધતિને અનુસરવાની સલાહ છે. આ તકનીકમાં ઘઉં, રાગી અને અસેળિયાને ફણગાવી તેને ટ્રે ડ્રાયરમાં સૂકવ્યા બાદ તેઓને શેકવામાં આવે છે. આ શેકેલા અનાજને દળીને તેનો લોટ તૈયાર કરવામાં આવે છે. અંતિમ ઉત્પાદ બનાવવા માટે ઘઉંનો લોટ, રાગી નો લોટ અનેઅસેળિયા નો લોટ લેવામાં આવે છે. લાડુ બનાવવા માટે ઘી ગરમ કરી, તેમાં લોટ નાખી, થોડું શેકાયા પછી બુરુ ખાંડ ભેળવવામાં આવે છે. આ મિશ્રણના એક સરખા લાડુ વાળવામાં આવે છે. આ લાડુમાંથી ૫૦૦ કેલરી/૧૦૦ ગ્રામ ઉર્જા તેમજ અનુક્રમે ૧૪૪.૬૫, ૪.૨૮ અને ૨૪૧ મિ.ગ્રા./૧૦૦ ગ્રામ કેલ્શિયમ, લોહતત્વ અને ફોસ્ફરસ મળે છે. આ લાડુની કિંમત રુ ૧૩૬ પ્રતિ કિલો જેટલી પડે છે.
	Approved
	Suggestions: 1. Check the desirability score of optimized product. 2. Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, FPT, FPTBE, AAU, Anand)
17.10.1.11	Standardization of moringa pulping technique using brush type pulper
	Recommendation for industry & entrepreneurs The entrepreneurs and food processors interested in extraction of Moringa pod pulp are recommended to adopt the technology developed by Anand Agricultural University, Anand. This technology involves selection of matured moringa pods, cleaning, cutting pods of 65 mm length followed by hot water blanching at 95 ^{o}C for 9 min. The pulp can be extracted from blanched pods using brush type pulp extractor with 2.7 kg/min feed rate, 1260 rpm shaft speed and 3 mm pore size sieve, which gives extraction efficiency of 97.70% . **ભલામણ** સરગવાની શીંગોનાં પલ્પ નિષ્કર્ષણમાં રસ ધરાવતા ઉદ્યોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં પરિપક્વ સરગવાની શીંગોને બરાબર સાફ કરી, ૬૫ મીમી લંબાઈ માં કાપી, ૯૫°સે તાપમાને પાણીમાં ૯ મિનીટ બ્લાન્ચ કરવા. બ્લાન્ચ કરેલી સરગવાની શીંગોને ફીડ દર ૨.૭ કિ.ગ્રા. પ્રતિ મિનીટે બ્રશ પ્રકારનાં પલ્પરમાં શાફ્ટની ગતિ ૧૨૬૦ આર.પી.એમ અને ૩ મીમીની જાળી રાખવાથી, ૯૭.૭ % કાર્યક્ષમતાથી પલ્પ કાઢી શકાય છે.
	Approved
	Suggestions: 1. Check the desirability score of optimized product. 2. Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, FPT, FPTBE, AAU, Anand)

17.10.1.12 Production technology for defatted pumpkin seed flour

Recommendation for industry & entrepreneurs

The entrepreneurs and food processors interested in producing protein rich pumpkin seed powder are recommended to adopt the production technology developed by Anand Agricultural University, Anand. The technology involves sprouting of pumpkin seed at controlled temperature and relative humidity for 4 days followed by drying to a moisture level of 15-16 %. The ground seeds are defatted and dried at controlled temperature to get powder with less than 3% moisture. The powder packed in aluminum laminate bags can be stored for 90 days at ambient temperature (30±2°C). The pumpkin seed powder contains 66 % protein which can be used as a protein supplement.

ભલામણ:

પ્રોટિનથી સમધ્ધ કોળાના બીજ પાવડર બનાવવામાં રસ ધરાવતા ઉદ્યોગસાહસિકો અને ઉદ્યોગકારોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવવામાં આવેલ પદ્ધતિ ઉપાયોગ ભલામણ કરવામાં આવે છે આ પદ્ધતિમાં આખા કોળા બીજને નિયંત્રિત તાપમાન અને ભેજનં પ્રમાણ રાખીને કોળાના બીજને ૪ દિવસ સુધી ફણગાવ્યા બાદ તેમાં ૧૫-૧૬ ટકા ભેજ રહે ત્યાંસુધી સૂકવણી કરી દળેલા કોળાના બીજના લોટને ડીફેટીંગ કરી નિયંત્રિત તાપમાને ૩ ટકા ભેજ રહે ત્યાંસુધી સુકવણી કરી બનાવેલ લોટને એલ્યુમિનિયમ લેમિનેટ બેગમાં ભરીને ૩૦±૨°સે. તાપમાને ૯૦ દિવસ સુધી સંગ્રહ કરી શકાય છે. તેના પાવડરમાં ૬૬ ટકા પ્રોટીન હોય છે જેનો ઉપયોગ પ્રોટીન પૂરક (સપ્લીમેન્ટ) તરીકે કરી શકાય છે.

Approved

Suggestions: Suggestion for minor text changes has been duly incorporated.

(Action: HOD, FPT, AAU, Anand)

17.10.1.13 Development of low fat omega fatty acid enriched cake

Recommendation for industry & entrepreneurs

Satisfactory omega fatty acid rich cake can be prepared by adding 7.5g of chia seed, 12.5g of flaxseed, 60g of walnut, 10ml of oil, and 50g of flaxseed gel in 70g of refined wheat flour using a technology developed by the Anand Agricultural University, Anand. The product has 5.25% less fat and ratio of ω-6 to ω-3 is 4.92 whereas ratio of control cake is 43.82. The bakery industry and entrepreneurs interested in production of such cake are recommended to follow the same.

ભલામણ

ઓમેગાફેટીએસીડથી સમૃધ્ધ અને ઓછા ફેટ ધરાવતી કેકનું ઉત્પાદન કરવા બેકરી વાનગીઓના ઉત્પાદકો અને ઉદ્યોગસાહસિકોને આણંદ કૃષિયુનિવર્સીટી દ્વારા વિકસાવેલ ટેકનોલોજીનો ઉપયોગ કરવા ભલામણ કરવામાં આવેછે. આવી કેક બનાવવા ૭૦ગ્રામ મેંદો, ૭.૫ ગ્રામ ચિયાસીડ, ૧૨.૫ ગ્રામ અળસી, ૬૦ ગ્રામ અખરોટ, ૧૦ મિ.લી. તેલ અને ૫૦ ગ્રામ અળસીની જેલનો ઉપયોગ કરવામાં આવેછે. આવી કેકમાં ઓમેગા ૬ ઓમેગા ૩ ફેટીએસીડનો રેશીઓ ૪.૯૨ હોય છે. જયારેકે સામાન્ય કેકમાં આવો રેશીઓ ૪૩.૮૨ છે. આ કેકમાં ફેટનું પ્રમાણ સામાન્ય કેક કરતા ૫.૨૫% ઓછુ હોય છે.

Approved

Suggestions: Nil

(Action: HOD, Polytechnic College in Food Science & Nutrition, AAU, Anand)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SKNAGAR

17.10.1.14	**Technological Intervention for Fortification of Omega-3 Fatty Acids in Milk**
	Recommendation for industry & entrepreneurs Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar developed a technology for fortification of *Kankrej* cow milk with omega 3 fatty acid. The standardized process involves preparation of an emulsion using 2.86% cream (having 69.53% fat) + 0.6% flaxseed oil + 0.3% maltodextrin used its incorporation in to skim milk @ 0.42% fat to get fortified milk with 3.0% fat, and thereafter its homogenization and pasteurization. The fortified milk can be stored for 6 days at 4±1°C without any adverse changes in the sensory and chemical quality. **ભલામણ** સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનીવર્સીટી, સરદારકૃષિનગર દ્વારા કાંકરેજ ગાયના દુધને ઓમેગા-૩ ફેટી એસીડ થી સમૃધ્દ્ર કરવાની તકનીક વિકસાવવામાં આવી છે . આ નિયત કરેલ પ્રકિયામાં ઈમલશન બનાવવા માટે ૨.૮૬ % ના દરે ક્રીમ (૬૯.૫૩ % ચરબીવાળું), અળસીનું તેલ ૦.૬૦% ના દરે અને માલટોડેકસટ્રીન ૦.૩૦% ના દરે આવું મિશ્રાણ કરીને તેને સ્કીમ મિલ્ક (૦.૪૨% ચરબીવાળું) માં ૩.૦% ચરબી જળવાઈ રહે તે પ્રમાણે મિશ્ર કરી ને ત્યારબાદ તેનું હોમોજીનાઈઝેશન અને પશ્ચ્યુરાઈઝેશન કરવાની ભલામલ કરવા આવે છે. ઓમેગા-૩ ફેટી અસીદ થી સમૃધ્દ્ર કરેલા દૂધને ૪ ±૧ °C તાપમાને ૬ દિવસ સુધી તેમાં કોઈપણ પ્રકારના સ્વાદકીય ફેરફારો અને રસાયણિક ગુણધર્મો મા ફેરફાર થયા વગર સંગ્રહ કરી શકાય છે.
	Approved
	Suggestion: 1. It should be kept in mind that flaxseed oil and Maltodextrin are considered as adulterants in milk As per FSSAI. 2. Suggestion for minor text changes has been duly incorporated **(Action:** HOD, DDC, CDT, SDAU, SK Nagar)
17.10.1.15	**Development of *Lassi* fortified with Noni juice**
	Recommendation for industry & entrepreneurs It is recommended that the process developed at Sardarkrushinagar Dantiwada Agricultural University to prepare "Noni *Lassi*". Adding at the rate of 2 % noni juice to regular lassi during its preparation, which is similar with regular *lassi* in respect to its sensory characteristics. The product is also affordably priced as compared to regular *Lassi*. **ભલામણ** આથી ભલામણ કરવામાં આવે છે કે સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી, સરદારકૃષિનગર ધ્વારા વિકસાવેલ નોની લસ્સી બનાવવા માટે ૨ ટકા ના દરે નોની નો રસ સામાન્ય રીતે બનાવવા માં આવતી લસ્સી માં ભેળવવા માં આવે. જેનાથી ગુણવત્તાની દ્રષ્ટીએ આ નોની યુક્ત લસ્સી સાદી લસ્સી જેવીજ અને કિમંત ની દ્રષ્ટીએ પોષાય તેવી બને છે.

	Approved
	Suggestion: 1. Homogenization should be done at 45° C. 2. Lassi added with 2% noni juice should be characterized for phytonutrient present in noni. 3. 2% level is quite low for noni juice to call juice lassi as enriched. 4. Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, DDT, CDT, SDAU, SK Nagar)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

17.10.1.16	Standardization of technology for minimal processing of fresh cut potatoes (*Solanum tuberosum L.*)
	Recommendation for industry & entrepreneurs It is recommended to the processors and entrepreneurs that minimally processed fresh cut potatoes can be prepared by blanching for 3 minutes along with 1.0 per cent calcium chloride ($CaCl_2$) and cooling for 15 minutes by dipping in the solution of 0.05 per cent citric acid and 0.1 percent potassium meta bisulphite (KMS) followed by excess water removal. The fresh cut potatoes can be successfully stored for 16 days at refrigerated temperature when packed in 200 gauge LDPE bags with acceptable quality. **ભલામણ** પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે, બટાકાના ટુકડાને ઉકળતા પાણીમાં ૧% કેલ્શિયમ ક્લોરાઈડ ઉમેરી ૩ મીનીટ સુધી રાખી (બ્લાન્ચીંગ) તરત જ ઠંડા પાણીમાં ૦.૦૫% સાઈટ્રીક એસીડ અને ૦.૧% પોટેશીયમ મેટા બાય સલ્ફાઈટ (કે.એમ.એસ.) નાંખી ૧૫ મીનીટ સુધી ડુબાડી રાખવા. ત્યારબાદ વધારાનું પાણી દૂર કરી બટાકાના ટુકડાને ૨૦૦ ગેજ એલ.ડી.પી.ઈ. (લો ડેન્સીટી પોલી ઈથીલીન) બેગમાં પેક કરી નીચા તાપમાને (ફ્રીજમાં) ૧૬ દિવસ સુરક્ષિત રીતે સંગ્રહ કરી ઉચ્ચ ગુણવત્તા જાળવી શકાય છે.
	Approved
	Suggestion: 1. Mention type of blanching in the recommendation. 2. Mention temperature of blanching. 3. Provide physical data for texture/firmness of the potato cubes. 4. Provide data for quantitative value of browning. 5. Cost criteria should be included. 6. Suggestion for minor text changes has been duly incorporated. **(Action:** HOD, PHT, ACHF, NAU, Navsari)

KAMDHENU UNIVERSITY, GANDHINAGAR

17.10.1.17	Study on process standardization and optimization of reduced sugar fennel based lassi
	Recommendation for industry & entrepreneurs A satisfactory quality reduced sugar fennel based lassi using 10.98% fennel juice (prepared by soaking fennel into the water at the ratio of 1:2 followed grinding and filtration) and 15.64% sugar (with 50% replacement of sugar with equivalent low- calorie sweetener Sugar free Natura) can be prepared. The product can be stored for 12days at 7±2oC, when packed in PET bottle. **ભલામણ** ઓછી ખાંડવાળી વરિયાળી આધારિત લસ્સી, ૧૦.૯૮% વરિયાળીનો રસ (૧:૨ ના પ્રમાણમાં પાણીમાં વરિયાળી પલાળી, પીસી અને ગાળીને) અને ૧૫.૬૪% ખાંડ (૫૦% ખાંડના બદલામાં લો- કેલરી સ્વીટનર સુગર ફ્રી નેચુરા) નો ઉપયોગ કરીને સંતોષકારક ગુણવત્તામાં તૈયાર કરી શકાય છે. ઉત્પાદનને પીઈટી બોટલમાં પેક કરી ૭ ± ૨૦સે તાપમાને ૧૨ દિવસ માટે સંગ્રહિત કરી શકાય છે.
	Approved
	Suggestions: 1. Mention variety of fennel. 2. Mention the fennel juice content 11 instead 10.98. 3. Mention the TS of fennel juice. 4. You have used fennel extract. So correct it as it is not juice. 5. Write intense sweetener instead of artificial sweetener. 6. Overall score is higher than individual score in sensory evaluation (flavour, taste etc.). It is doubtful. 7. Mention product to water ratio in table. 8. Mention the viscosity of final product. **Action:** HOD, DDT, CDT, KU, Gandhinagar

OTHER SUB-COMMITTEE (ANIMAL PRODUCTION)

17.10.1.18	Development of shelf stable, ready to fry fish crackers from bull eye fish (*Priacanthus hamrur*) meat and its quality characterization during storage
	Recommendation for industry & entrepreneurs Seafood processors are recommended to use 40:60 ratio of bulls eye fish meat: tapioca starch flour along with addition of 1 % xanthan gum for the production of fish crackers with improved quality, lesser oil absorption, better utilization of fish meat and expanded shelf life up-to 150 days under ambient storage temperature in LDPE pouch packaging. આથી મત્સ્ય પ્રક્રિયાકારોને ભલામણ કરવામાં આવે છે કે ફીશ ક્રેકર/માછલીની વેફરના ઉત્પાદન માટે

	ડોલા માછલી અને ટેપીઓકા સ્ટાર્ચ નું પ્રમાણ ૪૦:૬૦ રાખી સાથે ૧% ઝેન્થીન ગમ ભેળવવામાં આવે તો ઉચ્ચ ગુણવત્તા વાળી, ઓછું તેલ સંગ્રહ (શોષક) કરતી, મત્સ્ય ના માંસના મહત્તમ ઉપયોગ સાથે ૧૫૦ દિવસ સુધી ની આવરદા વાળી ફીશ ક્રેકર એલ.ડી.પી.ઈ. (LDPE) પેકેજીંગ માં સંગ્રહ કરી શકાય છે.
	Approved
	Suggestion: Nil **(Action:** HOD, Fish Processing Technology, College of Fisheries Science, JAU, Veraval)

17.10.2 RECOMMENDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

17.10.2.1	Studies on quality changes and aging effect in selected rice varieties under different storage conditions
	Recommendation for scientific information Three popular local varieties of milled rice viz. GR-11, Ambika and Krishna Kamod were stored under ambient condition in two types of packaging material (bag and metalized bin) to study the effect of aging on rice. It was observed that for all three varieties of rice there was no significant change ($p<0.05$) in physical properties (i.e. length, width, thickness, bulk density, true density, porosity, sphericity and weight of 1000 grains) and proximate composition (i.e. moisture, fat, fiber, protein, ash and carbohydrates) over the study period of 36 months. However, for both the packaging material it was observed that significant changes ($p<0.05$) in total phenolic compound, cooking quality and pasting viscosity of rice of all selected varieties took place during initial eleven months of storage under ambient condition. The study revealed that phenolic compound and pasting viscosity increased, whereas water uptake and solid loss decreased with increase in the storage period. Over a period of time the rice structure changed to compact mass by filling up the cracks due to physical transformation as observed from the SEM analysis. Therefore, the water uptake and solid loss decreased. Hence, for both packaging materials under ambient storage, aging of rice facilitated desired changes to improve quality of cooked rice.
	Approved
	Suggestion: Nil **Action:** HOD, PHET, FPT, AAU, Anand

KAMDHENU UNIVERSITY, GANDHINAGAR

<table>
<tr><td>17.10.2.2</td><td>Development of Carrot Juice Based Reduced Sugar Milk Drink</td></tr>
<tr><td rowspan="3"></td><td>Recommendation for scientific community :
Recommended optimum formulation for carrot juice based reduced sugar milk drink includes: milk with 4.0 %fat and 9.5% Solid not fat content, 8% sugar (with 50% replacement of sugar with sugar free Natura diet sugar) and carrot (Nantes variety) juice at the rate of 20%. The product remained acceptable up to 14 days at 7± 1 °C, when packed in glass bottle and thermized at 75 °C for 1 min.</td></tr>
<tr><td>Not Approved</td></tr>
<tr><td>Suggestions:
The recommendation can be brought next year with the following suggested work:
1. Proximate analysis of the carrot should be added.
2. Juice preparation method is not right.
3. Analyse the Biochemical characterization of carrot and final product
4. Carrot juice recovery should be mentioned
5. Homogenization of the carrot juice is to be included.
6. Cost of carrot juice should be mention to work out the final cost of the product
7. Recommendation can be kept for industry/entrepreneur category
8. The experiment should be conducted for one more year considering the above suggestions.
(Action: HOD, DDT, CDT, KU, Gandhinagar)</td></tr>
</table>

17.10.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

Project Code	Project Title
17.10.3.1	Technology for development of partially dehydrated *Peda* mix
	Approved **Suggestion/s: Nil**
	Action: HOD, DT, DSC, AAU, Anand
17.10.3.2	Evaluation of Jaggery as value added ingredient in peda
	Approved with suggestion/s: 1. Storage temperature should be 20° ± 2° C instead of 37° ± 2° C
	Action: HOD, DT, DSC, AAU, Anand
17.10.3.3	Validation of qualitative tests for detection of selected carbohydrate based adulterants in *khoa*
	Approved **Suggestion/s: Nil**
	Action: HOD, DC, DSC, AAU, Anand
17.10.3.4	Evaluation of antioxidant activity of Cheddar cheese whey and *paneer* whey
	Approved **Suggestion/s: Nil**
	Action: HOD, DC, DSC, AAU, Anand
17.10.3.5	Development of synbiotic creamed cottage cheese
	Approved with following suggestion/s: 1. Reference for methods to be used for (a) ACE inhibitory activity (b) Antioxident activity
	Action: HOD, DM, DSC, AAU, Anand
17.10.3.6	Purification and characterization of antioxidative and antihypertensive peptides from whey protein hydrolysate
	Approved **Suggestion/s: Nil**
	Action: HOD, DM, DSC, AAU, Anand
17.10.3.7	Development of probiotic dietary preparation for prevention and treatment of obesity
	Approved with suggestion/s: 1. Treatment and observations to be taken must be mentioned. (It should be simple written as per GSTBM)
	Action: HOD, DM, DSC, AAU, Anand
17.10.3.8	Evaluation of probiotic cultures for their potential antiobesity effects
	Approved **Suggestion/s: Nil**
	Action: HOD, DDM, DSC, AAU, Anand

17.10.3.9	Process mechanization for production of *Thabdi*
	Approved with suggestion/s 1. Write textural properties instead of Rheological properties
	Action: HOD, DE, DSC, AAU, Anand
17.10.3.10	In-container process development for extended shelf-life *paneer*
	Approved **Suggestion/s: Nil**
	Action: HOD, DE, DSC, AAU, Anand
17.10.3.11	Process mechanization for production of extended shelf life *khoa*
	Approved **Suggestion/s: Nil**
	Action: HOD, DE, DSC, AAU, Anand
17.10.3.12	Evaluating the effect of heat treatment on the rheological parameters of cream with varying fat percentages
	Approved **Suggestion/s: Nil**
	Action: HOD, DE, DSC, AAU, Anand
17.10.3.13	Title: Post-Harvest management of some important middle crops of Gujarat (Sub title: Production of premium quality powder with maximum retention of essential oil using cryogenic grinding of dill seed)
	Approved **Suggestion/s: Nil**
	Action: HOD, PHET, FPTBE, AAU, Anand
17.10.3.14	Process development for nutritive extruded snack utilizing amaranth grain
	Approved with following suggestion/s: 1. During storage study , sensory analysis should be done. 2. Specify the tests to be carried out for physico-chemical, textural, microbial and nutritional analysis.
	Action: HOD, FPT, FPT, AAU, Anand
17.10.3.15	Effect of microwave on aflatoxin content of deoiled peanut cake
	Approved **Suggestion/s: Nil**
	Action: HOD, FPT, FPT, AAU, Anand
17.10.3.16	Standardization of drying technology for guava leaves powder
	Approved with suggestion/s: 1. Remove % from Antioxident activity.
	Action: HOD, FPT, FPT, AAU, Anand
17.10.3.17	Standardization of drying technology for lime leaves powder
	Approved with suggestion/s: 1. Remove % from Antioxident activity.
	Action: HOD, FPT, FPT, AAU, Anand

17.10.3.18	Development of Production Technology for Bottle Gourd based Carbonated Beverage
	Approved **Suggestion/s: Nil**
	Action: HOD, FPT, FPT, AAU, Anand
17.10.3.19	Title: Development of irradiation technology for agricultural, animal, dairy and food products (Sub title: Technology for continuous microwave drying of senna leaves)
	Approved with following suggestion/s: 1. Along with DPSS method, ABTS, FRAP method should also be performed. 2. Blanching must be added. 3. Microbial analyis to be included during storage. 4. Sample size should be mentioned. 5. Sun drying and Solar drying to be added. 6. Powder will be consider not leaves, partical size of powder to be mentioned. **7.** Storage study should be carried out till its accepibility on the basis of active ingradients.
	Action: HOD, FE, FPT, AAU, Anand
17.10.3.20	Technology for development of unconventional cauliflower and beetroot leaves powder
	Approved with following suggestion/s: 1. Blanching temperature (Diff.) and time to be taken as treatment for standardization. 2. Storage period must be 180 days or upto acceptable level. **3.** Anti-oxidant activity should also be performed.
	Action: HOD, Polytechnic in Food Science & Home Economic

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SK NAGAR

Project Code	Project Title
17.10.3.21	Estimation of antioxidant potential of lemongrass extract incorporated Herbal *Lassi*
	Approved with following suggestions: 1. Write microbiological quality instead of properties 2. Include only ABTS and DPPH for screening of extract.
	Action: HOD, DC, CDT, SDAU, Sardarkrushinagar

17.10.3.22	Evaluation of Nutritional and Sensory attributes of cake prepared from multigrain flour.
	Approved with following suggestions: 1. Storage study should be extended till acceptable quality. 2. Check the review of literature for utilization of multigrain flour and accordingly include the proportion of the blends. 3. During storage study carry out microbial and sensory analysis.
	Action: HOD, FSN, ACH, SDAU, Sardarkrushinagar

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Project Code	Project Title
17.10.3.23	Standardization of method for extraction of passion fruits (*Passiflora edulis*) juice
	Approved with following suggestions 1. Check the temperature of thermal treatment in such type of citric fruit. 2. Set the thermal treatment (low temperature) to check enzymatic activity. 3. ABTS or DPPH method should followed instead of total antioxidant. 4. Include appropriate time temperature combinations for pre-treatment and pasteurization of the juice.
	Action: HOD, PHT, ACHF, NAU, Navsari
17.10.3.24	Standardization of suitable blending proportion for preparation of spiced squash (appetizer) using passion fruits (*Passiflora edulis*) and bael fruits (*Aegle marmelos* L.)
	Approved with following suggestions: 1. Change title of the project as "Development of value added blended spiced fruit squash using passion (*Passiflora edulis*) and bael (*Aegle marmelos* L.) 2. Include the method for estimation of antioxidant activity of the product.
	Action: HOD, PHT, ACHF, NAU, Navsari
17.10.3.25	Standardization of formulation for preparation of fruit bar from sapota pulp
	Approved with following suggestions: 1. Add binding agent. 2. Indicate final moisture content of bar. 3. Specify storage study period and parameters.
	Action: HOD, PHT, ACHF, NAU, Navsari

17.10.3.26	Effect of blanching and drying on quality of oyster mushroom (*Pleurotus ostreatus*)	
	Approved with following suggestions: 1. Verify temperature of freeze drying. 2. Specify it as sublimation temperature. 3. Mention blanching method.	
	Action: HOD, PHT, ACHF, NAU, Navsari	

OTHER SUB-COMMITTEE (ANIMAL PRODUCT AND FISHERIES GROUP)

17.10.3.27	Evaluation of value added Chicken egg balls incorporated with different levels of Finger Millet flour
	Approved with following suggestions: 1. Treatment T_1 may be changed to T_0. If it is control, so that the treatment can be differentiated, T_1, T_2, T_3 for 5, 10, 15 % finger millet. 2. Please specify the parameters to be analyzed during storage. Whether all these parameters mentioned will be carried out for stored samples also. 3. Proteolytic activity should be checked during storage. 4. Mention the storage parameters and interval of testing during storage.
	Action: HOD, LPT, Veterinary College, NAU, Navsari

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Proceedings of 17thMeeting of Combined AGRESCO meeting of SAU's, Organic University and Kamdhenu University

PLENARY SESSION

Date: July 15, 2021 **Time: 09.00 am onwards**

Welcome address	Dr. B. S. Deora, Director of Research & Dean, PG studies, SDAU, Sardarkrushinagar
Chairman	Dr. R. M. Chauhan, Hon. VC, SDAU, Sardarkrushinagar
Co-Chairmans	Dr. N.H. Kelawala, Hon. VC, KU Dr. Z. P. Patel, Hon. VC, NAU Dr. K.B. Kathiria Hon. VC, AAU & Hon. VC, OU Dr. V.P. Chovatia Hon. VC, JAU
Rapporteurs	Dr. V. P. Ramani, ADR, AAU Dr. V.R Naik, ADR, NAU Dr. Pramod Mohnot, ADR, JAU Dr.L. D. Parmar, ADR, SDAU

The plenary session of 17th combined AGRESCO meeting due to Covid pandemic was held through virtual mode.

At the outset, Dr. B. S. Deora, Director of Research and Dean PG studies, SDAU, Sardarkrushinagar welcomed all the Hon'ble Vice Chancellors, Directors of Research & Dean PGS, Directors of Extension Education, Deans, Directors, ADRs, Conveners, rapporteurs and all the faculty members of various technical sub committees of all the sister universities, learned professors and scientists. In his welcome address, he briefed about outcome of results of recommendations and new technical programmes critically discussed and approved in respective sub committees of 17th Combined AGRESCO meeting. Total 35 new varieties comprising 9 from AAU, 7 from JAU, 13 NAU and 6 from SDAU were recommended for approval. Further, 231 technological recommendations for farming communities, 164 for scientific communities were also approved. In addition, 647 new technical programs for solutions of the applied and basic problems of agriculture and allied field were also approved in different sub committees meetings.

Following the welcome session, the presentation of proceeding of each sub committees by the respective conveners was made, wherein recommendations and new technical programmes of different sub committees were approved by the house.

Dr. J.R. Jat, Convener, Crop Production, SDAU presented the proceedings of crop production and Natural Resource Management sub-committee. Total 71 and 21 recommendations for farming and scientific community, respectively, were proposed and approved by the house. Total 86 new technical programmes were also approved.

(**Action:** Concerned Conveners of SAUs of SAUs)

Dr. C. M. Muralidharan, Convener, Crop Protection, SDAU presented the proceedings of the Plant Protection/Crop Protection Subcommittee. He presented that of the 42 and 55 proposals for farming community and scientific community, respectively and all were approved. It was suggested to write ‘પિંજર’ instead of ‘ટ્રેપ’ in gujarai paragraph of concerned recommendations. Total 181 new technical programmes from all SAUs also were also approved.

(**Action:** Concerned Conveners of SAUs of SAUs)

Dr. P. C. Joshi, Convener, Horticulture and Forestry, SDAU presented the proceeding of Horticulture and forestry Research Sub-committee of SAUs. The committee approved 30 recommendations for farmers, 2 recommendations for scientific community and 77 new technical programmes.

(**Action:** Concerned Conveners of SAUs of SAUs)

Dr. L. D. Parmar, Convener, Crop Improvement, SDAU presented the proceedings of Crop Improvement AGRESCO Sub-committee. Out of the 37 release proposals of improved crop varieties/hybrids, 35 entailing 9, 7, 13 and 6 from AAU, JAU, NAU and SDAU, respectively, were approved. Besides variety released, one recommendation for farming community from AAU and two recommendations for scientific community from JAU, were proposed and accepted by the house. It was suggested that recommendation paragraph should be start with area instead of crop/variety in the released proposals of hybrids/varieties and to give appropriate number instead of GR 22 (17.1.1.20) in consultation with MRRS, AAU, Navagam.

(**Action:** Concerned Conveners of SAUs)

Dr. B.S. Deora, Convener, Agricultural Engineering, SDAU presented the recommendations and new technical programmes finalized by Agricultural Engineering sub-committee. He presented 23 and 9 recommendations for farming community and scientific community, respectively and all were approved. Total 32 new technical programmes from all SAUs were also approved.

(**Action:** Concerned Conveners of SAUs)

Dr. S. K. Shah, Convener, Basic Science and Humanities, SDAU presented the proceeding of Basic Science and Humanity, Plant Physiology, Biochemistry and Biotechnology. One recommendation for farming community and 16 recommendations for scientific community as well as 38 new technical programmes and 3 for feeler trial were approved. It was also suggested that corrections/suggestions made by the house during presentation must be incorporated.

(**Action:** Concerned Conveners of SAUs)

Dr. K. P. Thakar, Convener, Social Science, SDAU presented the proceedings of Social Science Sub-committee. Thirteen recommendations for the Scientific community/Policy Makers/Message for Extension Agencies and 106 new technical programmes were approved. He also presented the general suggestions regarding sample size for formulation of new technical programmes and all suggestions were accepted by the house.

(**Action:** Concerned Conveners of SAUs)

Dr. R.M. Patel, Convener, Animal Health, SDAU presented the proceedings of Animal Health, Sub-committee. Two recommendations for farming community and 19 recommendations for scientific community were approved. Forty six new technical programmes from all SAUs and Kamdhenu University were also approved.

(**Action:** Concerned Conveners of SAUs)

Dr. H. D. Chauhan, Convener, Animal Production & Fisheries, SDAU presented the proceedings of Animal Production and Fisheries Sub-committee. He presented 26 and 8 recommendations for farming community and scientific community, respectively and all were approved. Fifty one new technical programmes from all SAUs and Kamdhenu University were also approved.

(**Action:** Concerned Conveners of SAUs)

Dr. Ashish Dixit, Convener, Dairy Science and Food Technology, SDAU, presented the recommendations and new technical programmes finalized by Dairy Science and Food Processing Technology & Bio-energy, sub-committee and new technical programmes. He presented 19 recommendations for Industry / Entrepreneurs / Farming Community / scientific community alogwith 26 new technical programmes and all were approved by the house.

(**Action:** Concerned Conveners of SAUs)

General suggestions for all Conveners:

1. Corrections/suggestions made by the house during presentation must be incorporated in the recommendation paragraph.
2. Name of the unit head instead of the concerned scientist name should be mentioned in the Action point for Recommendations/ New technical programmes.
3. Suggestion made during presentation on recommendations related to weed management, growth hormones, entomological, pathological are recommended for Gujarat instead of Agroclimatic zone.
4. Write ચોમાસું- શિયાળુ instead of ખરીફ- રવી in Gujarati paragraph
5. ખેડૂતોપયોગી ભલામણોમાં ગુજરાતી ફકરામાં જોડણી સુધારવી

(**Action:** All Conveners of SAUs)

CONCLUDING REMARKS:

Dr. V.P. Chovatia, Hon. Vice Chancellor, JAU, Junagadh expressed his view that recommendation should be in proper and easy language. He also suggested to plan new research experiments based on climate change. He congratulated to the scientists for approval of recommendations and NTP, and active participation in 17th Combined AGRESCO.

Dr. K.B. Kathiria, Hon. Vice Chancellor, AAU, Anand emphasized for multi-disciplinary research that the NTPs to be formulated as per the needs of farmers, small entrepreneur and multidisciplinary through brain storming. He also mentioned that patent and out comes should be taken into consideration while formulating new experiments. He suggested to strengthen the Basic Science considering the physiological aspect of Germplasm, chemical, biochemical and quality parameters. He congratulated to Hon. VC SDAU for organizing the 17th Combined AGRESCO through virtual mode.

Dr. Z. P. Patel, Hon. VC, NAU, Navsari in his speech expressed his view that farmers adoption study on recommendations should be taken up by social science group. He also appreciated all the scientists for their commendable work even under Covid pandemic situation.

Dr. N. H. Kelawala, Hon. VC, Kamdhenu University, Gandhinagar in his address appreciated the efforts of scientific faculty for bringing recommendations to the farming and scientific communities and also suggested to churn the new technical programmes. He also mentioned the vital role of Animal Health and its prospects.

Dr. R. M. Chauhan, Hon. Vice Chancellor, SDAU, Sardarkrushinagar expressed thanks to all the Hon. Vice chancellors for the cooperation for the online mode of presentation and timely completion of all the subcommittee meetings and finally the plenary session of 17th Combined AGRESCO.

The meeting ended with vote of thanks to the Chair and the esteemed members of the 17th Combined AGRESCO of SAUs and Kamdhenu University by Dr. L. D. Parmar, Associate Director of Research(Research).

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