PROCEEDING OF THE NINTH COMBINED AGRESCO MEETING OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT SDAU, SARDARKRUSHINAGAR DURING 6-8 MAY, 2013

The Ninth Combined meeting of Agricultural Research Council (AGRESCO) of SAUs of Gujarat was held at Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar during 6-8 May, 2013 under the Chairmanship of Dr. K. Sreedharan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar, Dr. N.C. Patel, Hon'ble Vice Chancellor, JAU, Junagadh, Dr. A.R. Pathak, Hon'ble Vice Chancellor, NAU, Navsari and Dr. A.M. Shekh, Hon'ble Vice Chancellor, AAU, Anand are remain present on the occasion. All the University Officers, Deans of various faculties of SAUs, Directors, the officers from line departments of Gujarat state, Associate Directors of Research, the conveners of different sub-committees of SAUs, the senior scientists/professors of SAUs has attended the meeting.

Dr. R.M. Chauhan, Director of Research and Dean, Post Graduate studies, SDAU, Sardarkrushinagar welcome the Chief Guest, Hon'ble Vice Chancellors of JAU, NAU and AAU, all three Director of Research, Director of Extension Education, Deans of all SAUs, Officers from line departments and all the participants and gave a brief summary of the research activities of SDAU, Sardarkrushinagar.

Dr. A.M. Shekh, Hon'ble Vice Chancellor, AAU, Anand informed the house about the new research initiatives started by AAU, Anand for the betterment of farming community. He emphasized priority of research on food and nutritional security, residue free quality produce, bio-technology, nano-technology and mitigating the ill effect of climate change.

In his address, Dr. A.R. Pathak, Hon'ble Vice Chancellor, NAU, Navsari told that there is a good coordination among the SAUs, which is essential for exchanging ideas and framing sound research programmes in the interest of

farmers of Gujarat. He highlighted the importance of research work on protected cultivation, bio-technology, nano-technology. He stressed that breeders should put their whole hearted efforts to develop such breeding material which can perform better under changing climatic conditions.

Dr. N.C. Patel, Hon'ble Vice Chancellor, JAU, Junagadh stressed the necessity of developing marketing technologies, protected cultivation, consultancy and management services, fertigation, capacity building and smart farming. He added that though the universities have made very good progress in research, we yet need to see how best these technologies can be best accepted by the farmers.

In his Presidential address, Dr. K. Sreedharan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar emphasized on creation of research infrastructure facilities for accelerating the research. He highlighted the importance and need for research work on transgenic research, nutrition, processing and value addition and mechanization. He also emphasized to formulate technology for women empowerment in the agriculture sector.

Dr. A.M. Patel, Associate Director of Research, SDAU, Sardarkrushinagar and Organizing Secretary proposed the vote of thanks.

Proceeding of 9th Combined AGRESCO meeting of SAU's held at S.D. Agricultural University, Sardarkrushinagar, during 6th-8th May, 2013.

Recommendations in various disciplines/ varieties in various crops and new technical programme for the year 2013-14 were presented by respective convener of AGRESCO sub committees of SAU's i.e, JAU, AAU, NAU and SDAU. These recommendations were discussed at length in various technical sessions and presented in committee wise here after.

9.1 CROP IMPROVEMENT:

Chairman : Dr. A.R.Pathak Honorable Vice Chancellor, NAU, Navsari

Co-chairman: Dr.K.B.Katheria, Director of Research, AAU, Anand

Rapporteurs : Dr. A.M.Mehta, RS (Rice), AAU, Anand

Dr. Y.Ravindrababu, RS (Pulse), SDAU, S.K.Nagar

The details of Recommendations and new technical programmes presented, discussed and approved during the session are as under.

Universities	Varietal Recommendation				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	5	5	-	-	17	16
JAU	**2**	**2**	**2**	**2**	**4**	**4**
NAU	5	5	-	-	4	4
SDAU	4	3	-	-	4	4
Total	16	15	2	2	29	28

9.1.1 Anand Agricultural University

Recommendation for farming community

9.1.1.1 Crop: Rice (Variety: GAR-3)

Dr. Atul M. Mehta, Research Scientist (Rice) presented the proposal of the culture, NWGR-4005 (GAR-3).The proposed culture derived from a cross Gurjari x IET 14714, showed an overall 11.1% yield superiority over the check variety GR-11, possessing long slender grains and earlier by 7-10 days than Gurjari and GAR -13. It is moderate resistance against major diseases and pests besides having better cooking and milling qualities. The proposal was accepted by the house with following suggestions.

1) The diseases and pest resistance data of coordinated trials across different locations should be incorporated.
2) The performance of GAR-13 during the year 2005 to 2008 may please be verified.
3) The data in table 1 (a) at Sr.No.9 may be deleted.

[Action: Research Scientist (Rice) AAU]

9.1.1.2 Crop: Maize (Variety: GAYMH -1)

Dr. S. M. Khanorkar, Research Scientist (Maize) presented the proposal of a maize hybrid GAYMH -1 (Gujarat Anand Yellow Maize Hybrid 1).The proposed hybrid is the first public bred single cross hybrid with early maturity for the rainfed condition of the tribal belt of the Gujarat state. The hybrid possesses orange flint

grained cob like that of the local cultivars. The hybrid revealed 12.9% and 24.2% yield superiority over HQPM-1 (single cross hybrid) and GM-2 (Variety), respectively under Kharif rainfed conditions. The hybrid also out yielded all the national checks in Zone-V of the country. The seed of hybrid contains 70.8% starch, 12.2% protein, 3.9% oil, 0.329% tryptophan in protein and 2.855% lysine in protein. The proposal of the hybrid was accepted with the following suggestions

1) The shelling percentage of the proposed hybrid may please be verified.
2) The performance of the national check should be included in the proposal.
3) The disease reaction data of AICRP trials should be included in the final proposal.

[Action: Research Scientist (Maize) AAU]

9.1.1.3 Forage crops: Fodder Sorghum (Variety: CoFS-29)

Dr. H.P. Parmar, Research Scientist (Forage crops) presented the endorsement proposal of a forage sorghum variety Coimbatore Fodder Sorghum-29(CoFS-29).The proposed culture is a multicut, profusely tillering perennial grass called as grassy sorghum. It has tall plant stature with more leaf number. It revealed higher green fodder, dry matter and crude protein yield than the national check variety SSG-59-3. It is a highly palatable culture showing very less disease incidence was released by AICRP. It is recommended for endorsement for Gujarat with following suggestions.

1) The HCN content should be studied and noted.
2) The seed production technology should be studied keeping in view the agronomical management practices like different sowing dates.
3) In point no. 13 of the proposal, the data of Gujarat state should be included if available.

[Action: Research Scientist (Forage crops) AAU]

9.1.1.4 Forage crops: Guinea Grass (Variety JHGG – 8-1)

Dr. H.P. Parmar also presented the endorsement proposal of guinea grass variety JHGG – 8-1. It is a tall growing, high tillering and newly introduced forage

crop showing very quick and fast regeneration ability after every cut. It revealed 28.8, 71.0 and 47.1 per cent higher green forage yield and 16.9, 59.7 and 43.2 per cent higher dry matter yield over the national check varieties Bundel Guinea-1, PGG 616 and Riversdale respectively. As there is no guinea grass variety available in the state, the proposal was accepted by the house to grow it only for irrigated conditions in the Gujarat state.

[Action: Research Scientist (Forage crops) AAU]

9.1.1.5 Vegetables Crops: Brinjal (Variety: GAOB-2)

Dr. J. A. Patel, Convener, AAU, Anand presented the proposal of a brinjal variety Gujarat Anand Oblong Brinjal -2 (GAOB-2). At Anand station, proposed variety exhibited 35.73 and 28.74 per cent higher fruit yield over the check varieties GOB-1 and GJB-2, respectievly. The variety contained higher Vitamin C, Anthocyanin and total soluble sugars, with lower amount of total phenols as compared to the check variety GOB-1. It also revealed lower incidence of little leaf disease and low population of whitefly as compared to both the checks. It was recommended for cultivation in the Middle Gujarat conditions.

[Action: Research Scientist (Vegetables Crops) AAU]

9.1.1.6 Dill seed: variety Gujarat Anand Vegetable Dill seed -1 (GAVD-1)

The house suggested that the culture may be tested for one more year in dill seed growing areas at Jagudan, Sanand, Anand and Achhalia/ Navsari locations. After that the proposal may be presented next year for the consideration of the house.

[Action: Associate Research Scientist, Sanand, AAU]

9.1.1.7 Desi Cotton variety Gujarat Anand Desi Cotton 2 (GADC-2)

As it is a pre-release proposal of desi cotton, it was suggested by the house that the culture may be further evaluated in trials at Viramgam, Dhandhuka and Arnej locations. After that the proposal may be presented next year for the considerations of the house.

[Action: Associate Research Scientist, Viramgam, AAU]

9.1.2 JUNAGADH AGRICULTURAL UNIVERSITY

Recommendation for farming community

9.1.2.1 Crop: Cotton (Variety: GJC 101)

Dr. M.S. Pithia, Convener, JAU, Junagadh presented the proposal of a Cotton culture GJHV-460 (Gujarat Junagadh Cotton 101). The farmers of non Bt cotton (Gossypium hirsutum) growing areas of Gujarat state are advised to grow variety GJ. Cot-101 under irrigated condition. This variety has recorded a seed cotton yield of 2107 kg/ha, which was 13.5, 39.9, 18.7 and 48.1 per cent higher than the local check varieties viz., G. Cot-18 in South Saurashtra Agro-climatic Zone, G.Cot-10 in South Gujarat Agro-climatic Zone, G. Cot-16 in North Gujarat Agro-climatic Zone and zonal check LRA-5166 in Central Agro-climatic Zone, respectively. The calculated lint yield 676 kg/ha was produced by GJ. Cot-101, which was 9.6, 23.8, 17.5 and 41.7 per cent higher than local check varieties G.Cot-18, G.Cot-10, G.Cot-16 and zonal check LRA-5166, respectively. It has 32.0 per cent ginning outturn and 18.34 per cent oil content in seed. This variety is medium in maturity. It is found moderately resistant to Alternaria leaf spot disease.

[Action: Research Scientist, Cotton Research Station, JAU, Junagadh]

9.1.2.2 Crop: Sugarcane (Variety: GS – 5)

Dr. M.S. Pithia, Convener, JAU, Junagadh presented the proposal of a Sugarcane variety CoN 05071(Gujarat Sugarcane-5) for endorsement. The farmers of South Saurashtra Agro-climatic Zone growing sugarcane crop are advised to grow sugarcane variety CoN 05071 (Gujarat Sugarcane 5) for getting higher cane and sugar yield. This variety has recorded 121.20 t/ha cane yield in plant crop which was 17.44, 16.44 and 19.20 per cent higher as compared to check varieties viz., Co 85004, CoN 03131 and CoC 671, respectively. Ratoon crop of this variety also gave 35.24, 31.81 and 62.54 per cent higher cane yield (97.59 t/ha) over check varieties viz., Co 85004, CoN 03131 and CoC 671, respectively. It is an early maturing variety.

[Action: Research Scientist, Sugarcane Research Station, JAU, Kodinar]

9.1.2 .3 Recommendation for Scientific Community: Seed dormancy

Testing of fresh seed dormancy in bunch groundnut varieties

For scientific community a recommendation was proposed to avoid production losses due to pod germination in field under late and excess rainfall conditions during kharif at maturity time. The fresh seed dormancy was studied in nine high yielding bunch groundnut varieties and it was recommended to grow Groundnut varieties TG-26, TPG-41 and GG-6 possessing higher degree of seed dormancy.

(Action: Research Scientist Main Pearl Millet Research Station, JAU, Jamnagar)

9.1.2.4 Molecular characterization of indigenous mango cultivars through DNA finger printing. Approved (details as per Basic Science subcommittee proceeding).

(Action: Professor& Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)

9.1.3 NAVSARI AGRICULTURAL UNIVERSITY

Recommendation for farming community

9.1.3.1Crop: Rice (Variety: GNR-4)

Dr. R. D. Vashi, Professor, (Pl. Breed), NAU proposed a Bio-fortified fine grain rice culture NVSR-303 (GNR-4). The propose culture was derived from a cross NAUR-1 x Lal Kada. It is a dwarf statured, fine grained culture possessing red colour kernel. In various categories of trials in South Gujarat over three years it revealed 103% yield increase over Lal Kada and 11.2 % over GR-11. The proposed strain should moderate resistance against major diseases and insect pests. It is a first of its kind promising culture with high iron and dietary fiber content and therefore it was accepted by the house with following suggestions.

1) The data of Nawagam centre should be incorporated in the final proposal
2) The culture should be nominated in AICRIP trial.

[Action: Professor, Breeding, NAU]

9.1.3.2 Crop : Sugarcane (Variety: GNS-8)

Dr. D.U.Patel, Research Scientist (Sugarcane) presented the proposal of a promising sugarcane clone CoN 07072 (GNS-8). The proposed culture is an early maturing clone derived from the cross CoS 8436 X Co 86002. It registered 10.37 % cane yield increase over the check CoN 05071 in overall mean of eight plant and three ratoon trials. It was also found better in juice quality parameters over the check. The proposed clone appeared moderately resistance to red rot and wilt and resistance to whip smut. Overall, it was observed to be less infested by the major insect pest. The proposal was accepted by the house with following suggestion.

1) The name of the check should be written as Gujarat Sugarcane 5 rather than CoN 05071.

[Action: Research Scientist, Sugarcane, NAU]

9.1.3.3 Crop: Cotton (Variety: GN.Cot.22)

Dr. B.G.Solanki, Research Scientist (Cotton) presented the proposal for the release of a promising cotton strain GISV-218 (GN.Cot.22). The strain was derived from a cross of G.Cot.10 X GISV-140. The GISV-140 is developed through interspecific hybridization using G. stocksii, G. armoria and G. anomlum. It is a first of its kind variety developed through interspecific hybridization. It is immune to Jassid infestation. It was evaluated in 47 replicated trials at nine locations for seven years in irrigated as well as rainfed conditions beside several preliminary trials. On the basis of overall performance across the zones, the proposed strain recorded 8.1 to 45.7% yield superiority over different check varieties. Further, the new strain showed high level of resistance to sucking pests. The house approved the proposal of the strain with following suggestions.

1) The high CV% data should not be included and be properly mentioned.
2) DNA fingerprinting data, Gene identification for resistance need to be done.
3) It is immune to jassids and good source of jassid resistance hence be registered under PPV&FR

[Action: Research Scientist, Cotton, NAU]

9.1.3.4 Crop: Pigeonpea (Variety: GNT-2)

For the proposal of dual grain/vegetable Pigeonpea culture BP-06-33 (GNT-2), it was suggested by the house not to take seperate trials for grain and vegetable but for the dual purpose Pigeonpea, two pickings for vegetable purpose should be taken up and afterwards, it is to be left for grain purpose. The house suggested to evaluating the culture for one more year to generate more data.

Endorsement proposals:

9.1.3.5 Crop: Fodder sorghum Variety: CSV 21F (SRF 286)

Dr. D. U. Patel, Convener, CISC, NAU, Navsari. Proposed the endorsement of fodder Sorghum culture CSV 21F (SRF 286) developed by Surat centre. The proposed strain is a stable fodder variety identified by AICRP as national fodder sorghum variety in 2006. The culture registered 20.9% higher green fodder and 18.9% higher dry fodder yield than the check GFS-5. It showed very low HCN content. It has sweet and juicy stem capable of producing high biomass than GFS-5. As this is the first single cut fodder variety possessing lowest HCN content, it was accepted by the house to endorse the same for Gujarat.

9.1.3.6 Coriander (Variety: COR-29)

The culture COR-29 recorded 19.1 and 35.2% yield increment over GCR-2 (local check) and Hisar Anand (National check) on pooled basis over three years at Navsari respectively. For the endorsement proposal of Coriander culture COR-29 the house opined that as the culture is identified by AICRP (Spices) for the whole Gujarat state, a joint proposal should be presented by Research Scientist (Seed Spices) Jagudan and NAU, Navsari. The house approved the endorsement proposal with a suggestion that the revised proposal may be prepared by Research Scientist (Seed Spices) Jagudan for further submitting in State Seed Sub-Committee.

[Action: Research Scientist, Seed Species, SDAU & Convener, CISC, NAU, Navsari]

9.1.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

Recommendation for farming community

9.1.4.1 Crop: Cotton (Variety: GD.Cot.Hy-1)

Dr M. H. Patel, Research Scientist, SDAU presented the proposal of G. hirsutum Cotton hybrid variety GD. Cot. Hy-1. The hybrid derived from a cross GT-84 X G.Cot.10. It registered over all 8.8 and 9.4 % seed cotton yield superiority respectively over the check G.Cot.Hy.10 and G.Cot.Hy.6 respectively in 23 trials undertaken across 8 years in Surat, Talod and Junagadh locations under irrigated conditions. Likewise it also registered over all 12.3 and 13.2 % lint yield superiority over the check G.Cot.Hy.10 and G.Cot.Hy.6 respectively. The hybrid GD.Cot.Hy-1 also recorded significant superiority over all checks for ginning percentage and boll weight. It was found resistant against sucking pest in general and jassids and thrips in particular. The proposal was therefore accepted by the house as a Non-Bt hybrid for the irrigated cotton growing area of the State.

The house further suggested that as G.Cot.10 is the male parent and its BG II version is available with the necessary approval of the competent authority, the commercialization as Bt hybrid may be explored.

[Action: Associate Research Scientist, Cotton, SDAU]

9.1.4.2 Crop: Carrot (Variety: GDC-1)

Dr. A.V. Agalodiya, Research Scientist (Seed Spices) presented the proposal of Gujarat Dantiwada Carrot-1 (GDC-1). This variety registered 14.3% and 45.5% yield superiority over check varieties Pusa Rudhira and Pusa Ashita respectively. It showed stable high root yield with better root quality besides possessing good plant type. The variety is found rich in β-carotene than the check varieties. The proposed variety has been recommended for cultivation across the Gujarat State as it is first time released in the State. The house accepted the proposal with following suggestions.

1) Fiber content of the variety should be worked out.
2) Pith to root ratio should be incorporated.

3) Root to shoot ratio should also be worked out.

[Action: Research Scientist, Seed Spices, SDAU]

9.1.4.3 Crop: Cow pea (Variety: GDVC -1)

Dr. A.V. Agalodiya, Research Scientist (Seed Spices) presented the proposal of Gujarat Dantiwada Vegetable Cowpea - 1. The proposed variety was deferred by the house due to inferior performance as compare to the variety GDVC-2

9.1.4.4 Crop: Cow pea (Variety: GDVC -2)

Dr. A.V. Agalodiya also presented the proposal of Gujarat Dantiwada Vegetable Cowpea - 2. The proposed variety revealed high stable green pod yield, better green pod quality, good plant type besides being less prone to diseases and pest. It has out yielded the check varieties Pusa phalguni and AVC 1 to the tune of 42.0 and 24.1%, respectively. The variety possesses more pod weight and number of pods/plant. High soluble protein (10.3%), total sugar (4.5%) and less crude fiber (15.1%) makes this variety more nutritive and palatable. The proposal was accepted by the house with following suggestions.

1) The details of pedigree should be incorporated in the final proposal.
2) ELISA for virus test and nematode resistance data should be reported.
3) For the large scale testing against virus and nematodes, a trial should be arranged in a plot of 1000 sq.mt at four SAU campuses i.e. Sardarkrushinagar, Anand, Junagadh and Navsari during *kharif* and summer seasons.

[Action: Research Scientist, Seed Spices, SDAU]

General recommendations:

1. Dr. A.R. Pathak, Honourable Vice Chancellor, NAU, suggested to constitute a committee under the chairmainship of Dr. A. N. Sabalpara, DOR, NAU and members Dr. B. G. Solanki Res. Sci. (Cotton), NAU, Surat, Dr. M. H. Patel Res. Sci. (Cotton), SDAU, Talod, Dr. J. A. Patel Res Sci (Cotton), AAU, Anand and Dr. M.D. Khanpara Res Sci (Cotton), JAU, Junagadh for deciding the rate of parental seeds of Bt Cotton hybrids.

2. The Chairman suggested to take 50 trials in clusters for large scale testing of all the varieties recommended for release.
3. Parental breeder seed of Castor should be procured by RS (C&M) from producing centers after its GOT at 10% lower rate.
4. All the crop specialist should prioritise the germplasm evaluation and characterization besides maintaining a catalogue register. The pre-breeding activities should be strengthened in all the crops.
5. Hybrid rice breeding programme should be strengthened and focused with combined efforts by the scientist at Navagam and Vyara centers.
6. DNA fingerprinting of all the released varieties, parental material of hybrids, as well as promising materials/lines should be undertaken.
7. Vegetable breeding programme should be strengthened at NAU, Navsari.
8. Concerned crop scientists of all the SAUs should jointly visit different research centres during crop season to monitor and discuss research activities.
9. For the endorsement of varieties nationally identified and developed by the breeders of other state, the proposal should be routed through concerned crop scientists.
10. For the exchange/sharing of germplasm / breeding material / genetical material a common proforma should be prepared by DOR of four SAUs of the Material Transfer Agreement (MTA).

Under the chairmanship of Dr. A. R. Pathak, Honourable Vice Chancellor, NAU a thorough discussion was held by all the participants for strengthening and focusing breeding research keeping in view the challenges like yield enhancement in climate change scenario and inbuilt biotic and abiotic stress tolerance.

9.2 Crop Production / NRM:

The recommendation session of the Crop Production / NRM subcommittee was held in Conference Hall, Department of Agronomy, C. P. College of Agriculture, S. D. Agricultural University, and Sardarkrushinagar under the chairmanship of Dr. A.M. Shekh, Hon'ble Vice Chancellor, AAU, Anand and Dr. R.G. Patil, Research Scientist (Soil and Water), NAU, Navsari acted as co-chairman. Dr. N.B. Babaria, Professor & Head (Ag. Chemistry and Soil Science), JAU, Junagadh and Dr. B.M. Patel, Associate Professor, Department of Agronomy, CPCA, SDAU, Sardarkrushinagar worked as rapporteurs. During this session, total of 72recommendations were screened and finalized. Similarly, the technical session II was chaired by Dr. K. P. Patel, Dean, BACA, AAU, Anand and co-chaired by Dr. M.K. Arvadia, Dean, N.M. College of Agriculture, NAU, Navsari. Dr. V.V. Sonani, Research Scientist, ARS, AAU, Derol and Dr. C.K. Patel, Associate Research Scientist, Main Cotton Research Station, NAU, Surat acted as rapporteurs for this session. The university wise summary of recommendations and new technical programmes is given below. During these sessions, 71 recommendations for farming community, 5 recommendations for scientific community were approved and 2 were confirmed as earlier recommendations. New technical programmes of 105 were screened and approved.

University	**Recommendations**						**New Technical Programme**	
	Farming community		**Scientific community**		**Confirmation of earlier recommendations**		**Proposed**	**Approved**
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**		
AAU	11	11	1	1	-	-	21	21
JAU	**19**	**19**	**2**	**0**	**-**	**-**	**27**	**27**
NAU	23	22	2	2	2	2	43	43
SDAU	19	19	2	2	-	-	15	14
Total	**72**	**71**	**7**	**5**	**2**	**2**	**106**	**105**

- In Recommendation of 9.1.3 of NAU how suggested to change the name of predicted instead of cheese and recommendation of 9.1.11 of AAU the variety (BDN-2) should not be mention**.**

9.2.1 Anand Agricultural University, Anand

A. Recommendations for the farming community

9.2.1.1 **Efficacy of NADEP compost in agro-climatic zone-III in improving yield and quality of pigeonpea**

The farmers of middle Gujarat agro climatic zone – III growing vegetable pigeon pea (var. AVPP 1) are advised to apply 2 t NADEP compost fortified with 500 kg castor cake along with 1 litre *Rhizobium* culture at sowing to meet the nitrogen requirement as well as getting higher yield, net return and better quality besides maintaining soil health.

(Action: Research Scientist, Pulse Res. Station, AAU, Vadodara)

9.2.1.2 **Agronomic managements of pigeon pea for yield maximization**

The farmers of middle Gujarat agro climatic zone – III growing pigeon pea (var. AGT 2) are advised to apply 20 kg S/ha in the form of gypsum (150 kg/ha) in addition to recommended dose of fertilizer (25:50:0 N:P:K kg/ha) for obtaining higher seed yield, net profit and better quality.

(Action: Research Scientist, Pulse Res. Station, AAU, Vadodara)

9.2.1.3 **Assessment of organic farming and inorganic nutrient supply system on yield and quality of pigeon pea**

The farmers of middle Gujarat agro climatic zone - III growing vegetable pigeon pea (var. Gujarat Tur 1) are advised to apply 25 kg N/ha through FYMat sowing for getting higher yield, net returns and better quality of green pod besides maintaining soil health.

(Action: Research Scientist, Pulse Res. Station, AAU, Vadodara)

9.2.1.4 **Effect of multi-micronutrients mixture grades on seed yield of lucerne**

The farmers of middle Gujarat agro climatic zone - III growing lucerne (Anand 2) on soils with marginal Zn and deficient Fe status are advised to apply 25 kg $ZnSO_4$ and 50 kg $FeSO_4$ per ha every year besides application of 20:40:40 kg NPK/ha to obtain higher seed yield and net

returns.

(Action: Research Scientist, Main Forage Research Station, AAU, Anand)

9.2.1.5 **Effect of irrigation schedules and nitrogen levels on seed production of oat**

The farmers of middle Gujarat agro climatic zone - III growing oat (Kent) for seed purpose are advised to apply six irrigations (each of 50 mm) i.e. first five irrigations at 15-20 days interval and 6th irrigation at 13-15 days interval after fifth irrigation. Further they are advised to apply N @ 75 kg/ha (50 % N at the time of sowing and remaining 50 % Nin two equal splits at 30 and 60 days after sowing in equal splits) for getting higher seed yield and net realization.

(Action: Research Scientist, Main Forage Research Station, AAU, Anand)

9.2.1.6 **Yield of soybean as influenced by dates of sowing and cultivars**

The farmers of middle Gujarat agro climatic zone - III growing soybean are advised to sow NRC 37 at onset of monsoon to get higher yield and net return.

(Action: Research Scientist, TRTC, AAU, Devgadhbaria)

9.2.1.7 **Response of *bidi* tobacco variety ABT 10 to nitrogen and topping**

The farmers of middle Gujarat agro climatic zone - III growing bidi tobacco (var. ABT 10) are advised to apply 180 kg N/ha) 45 kg N as basal through ammonium sulphate and remaining N through urea in 3 equal splits at 20, 40 and 60 DATP(and topping the crop after 24th leaf to get higher cured leaf yield and net return.

(Action: Research Scientist , BTRS, AAU, Anand)

9.2.1.8 **Weed management in Bt cotton**

The farmers of middle Gujarat agro climatic zone - III growing Bt cotton are advised to carry out inter culturing and hand weeding at 15, 30 and 45 days after sowing. Under labours shortage situation, pre-emergence application of pendimethalin @ 900 g/ha followed by IC+HW at 30 and

60 DAS or post emergence application (15-20 DAS) of either fenoxaprop-p-ethyl or quizalofop-ethyl @ 50 g/ha followed by IC+HW at 30 DAS for effective weed management.

(Action: Agronomist, DWSR, BACA, AAU, Anand)

9.2.1.9 **Effect of integrated nutrient management on productivity of transplanted pearlmillet in summer season**

The farmers of middle Gujarat agro climatic zone - III growing hybrid transplanted pearlmillet during summer season are advised to apply vermicompost @ 2 t/ ha and 120 kg N/ ha in two equal splits i.e. at transplanting and 30 DATP for securing higher yield, net return and better quality.

(Action: Prof. & Head, Dept. of Agronomy, AAU, Anand)

9.2.1.10 **This Recommendation is cross listed in plant protection Group also.**

Management of physiological wilting of Bt Cotton

The farmers of middle Gujarat agro climatic zone - III growing Bt cotton are advised to spray 0.5% urea + 0.5% $FeSO_4$ + 0.5% $ZnSO_4$ + 0.5% $MgSO_4$solution at 30, 60 and 90 DAS in addition to recommended dose of N for the minimizing reddening of leaves, physiological wilting and getting higher yield of Bt cotton.

(Action: Research Scientist, AICRP on STR, Dept. of Pl. Patho., BACA, AAU, Anand)

9.2.1.11 **Varietal response of pigeon pea to organic manures**

The farmers of middle Gujarat agro climatic zone - III are interested to grow pigeon pea organically are advised to prefer mid late variety BDN 2 and apply either vermicompost @ 1 t/ha or pressmud @ 5 t/ha or FYM @ 5 t/ha to get higher yield and maintain soil health.

The farmers of middle Gujarat agro climatic zone - III are interested to grow pigeon pea organically are advised to apply either

vermicompost @ 1 t/ha or pressmud @ 5 t/ha or FYM @ 5 t/ha to get higher yield and maintain soil health.

Suggestion: Variety (BDN-2) should not be mentioned.

N.B. Since this variety was tested we cannot remove the name. *(**Action:** Research Scientist, ARS, AAU, Derol)*

B. Recommendations for scientific community

9.2.1.12 **Effect of K, Mg and S on growth and yield of *Bt* Cotton**

The crop of *Bt* cotton grown on medium K and deficient S status soil may fertilized with 100 kg K (KCl), 100 kg $MgSO_4$ and 30 kg S (gypsum) per hectare each in two equal splits at 30 and 60 DAS besides recommended dose of N.

(Action: *Research Scientist, Micro Nutrient Research Project, AAU, Anand)*

9.2.2 Junagadh Agricultural University

Recommendations for farming community

9.2.2.1 Effect of sowing time and spacing on summer sesame

The farmers of South Saurashtra agro climatic zone - VII growing summer sesame are advised to sow the crop in second week of February by keeping 30 cm row spacing for obtaining higher yield and net realization.

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

9.2.2.2 Integrated weed management in summer sesame

The farmers of South Saurashtra agro climatic zone - VII growing summer sesame are advised to keep the crop weed free by hand weeding and interculturing. Under the shortage of labourers, apply quizalofop-ethyl 5% EC 40 g/ha (16 ml/10 lit.) as post-emergence at 20-25 DAS + 1 HW & IC at 45 DAS or pendimethalin 30 % EC 0.45 kg/ha (30 ml/10 lit.) as pre-emergence + 1 HW & IC at 30 DAS to get higher yield and net realization as well as effective weed management.

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

9.2.2.3 Evaluation of potentiality of organic farming for groundnut (*kharif*) -garlic (*rabi*) cropping sequence

The farmers of South Saurashtra agro climatic zone - VII adopting groundnut (*kharif*)-garlic (*rabi*) cropping sequence under organic farming are advised to apply FYM @ 2.5 t/ha to groundnut and 10 t/ha to garlic on sequence basis for securing higher net realization and maintaining soil fertility.

(Action: Professor & Head, Department of Agronomy, JAU, Junagadh and Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, Junagadh)

9.2.2.4 Response of chickpea to drip irrigation and integrated nutrient management

The farmers of South Saurashtra agro climatic zone - VII growing chickpea are advised to irrigate the crop through drip system at 0.8 PEF and apply recommended dose of fertilizer i.e. 20 : 40 N:P_2O_5 kg/ha along with FYM @ 1 t/ha to get higher yield and net realization.

The system details are as under

1.	Type of drip system	:	In line
2.	Lateral diameter	:	16 mm
3.	Lateral spacing	:	90 cm
4.	Dripper spacing	:	60 cm
5.	Dripper discharge	:	4 LPH
6.	Operating pressure	:	1.2 kg/cm^2
7.	Operating frequency	:	Alternate day
8.	Operating time	:	65 minutes

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

9.2.2.5 Response of summer sesame to drip irrigation and nitrogen levels

The farmers of South Saurashtra agro climatic zone - VII growing sesame in summer season are advised to irrigate the crop through drip system at 1.0 PEF with laying in paired row (30-60-30

cm) and apply 40 kg N/ha along with 25 kg P_2O_5/ha to get higher yield and net return**.**

The system details are as under

1.	Type of drip system	:	In line
2.	Lateral diameter	:	16 mm
3.	Lateral spacing	:	90 cm
4.	Dripper spacing	:	60 cm
5.	Dripper discharge	:	4 LPH
6.	Operating pressure	:	1.2 kg/cm^2
7.	Operating frequency	:	Alternate day
8.	Operating time	:	2 hrs and 35 minutes

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

9.2.2.6 Evaluation of tillage practices in pigeonpea

The farmers of South Saurashtra agro climatic zone - VII growing pigeonpea are advised to till the field by cross cultivation followed by blade harrowing and subsoiling between two rows to get higher yield and net realization**.**

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

9.2.2.7 Permanent plot experiment on integrated nutrient supply system for a cereal based crop sequence

The farmers of South Saurashtra agro climatic zone - VII adopting pearlmillet (*kharif*)-wheat (*rabi*) cropping sequence are advised to apply FYM @ 8 t/ha and 50% RDF (40:20:25 N:P_2O_5:K_2O kg/ha) to pearlmillet and 120:60:25 N:P_2O_5:K_2O kg/ha to wheat to get higher yield and net realization as well as to maintain soil fertility.

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

9.2.2.8 Integrated weed management in castor under irrigated condition

The farmers of South Saurashtra agro climatic zone - VII growing castor are advised to keep the crop weed free by hand weeding and interculturing. Under paucity of farm labourers, they are advised to apply pendimethalin 30 % EC 1 kg/ha (67 ml/10 lit.) as pre-emergence + quizalofop-ethyl 5 % EC 0.05 kg/ha (20 ml/10 lit.) as post emergence (25 days after sowing) for effective weed control as well as to get higher yield and net returns.

(Action: Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)

9.2.2.9 Integrated nutrient management in okra

The farmers of South Saurashtra agro climatic zone - VII growing okra during summer season are advised to apply FYM @ 10 t/ha + half RDF (75:25:25 N:P_2O_5:K_2O kg/ha) to get higher yield and net profit.

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

9.2.2.10 Integrated nutrient management in ridge gourd

The farmers of South Saurashtra agro climatic zone - VII growing ridge gourd during summer season are advised to apply FYM @ 5 t/ha and 25:12.5:12.5 N:P_2O_5:K_2O kg/ha to get higher yield and net return.

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

9.2.2.11 Study of intercropping system with bunch groundnut under rainfed condition

The farmers of North Saurashtra agro climatic zone - VI (AES-XV) growing bunch groundnut under rainfed condition may also take either greengram or sesame as intercrop by keeping row ratio of 1:1

or 3:1 to get higher yield and net return. The mothbean cultivation either as sole crop or intercrop with groundnut was not found remunerative.

(Action: Research Scientist, Dry Farming Research Station, JAU, Targhadia)

9.2.2.12 Feasibility of the organic farming in respect to sustain soil productivity under rainfed agriculture

The farmers of North Saurashtra agro climatic zone - VI (AES-IV) interested to follow groundnut-sesame crop rotation under organic farming during *kharif* are advised to apply compost @ 1.25 t/ha + vermicompost @ 165 kg/ha + castor cake @ 75 kg/ha to groundnut and compost @ 5 t/ha + vermicompost @ 650 kg/ha + castor cake @ 300 kg/ha to sesame along with groundnut shell mulching @ 1 t/ha, biofertilizer (Rhizobium & Azotobacter) to both the crops @ 1.5 kg/ha and Trichoderma @ 2.5 kg/ha for obtaining higher net returns and sustaining soil fertility under rainfed condition.

(Action: Research Scientist, Dry Farming Research Station, JAU, Targhadia)

9.2.2.13 Response of summer sesame to date of sowing and row spacing

The farmers of North Saurashtra agro climatic zone - VI growing sesame in summer season are advised to sow the crop in third week of February at a spacing of 30 cm x 10 cm to get higher yield and net return.

(Action: Research Scientist, Agril. Research Station, JAU, Amreli)

9.2.2.14 Response of sugarcane varieties to wider row spacing

The farmers of South Saurashtra agro climatic zone - VII interested to grow sugarcane at wider row spacing are advised to plant sugarcane variety Gujarat Sugarcane-5 (CoN 05071) at 90 cm distance or in paired rows (30:150 cm) to get higher cane yield and net returns.

(Action: Research Scientist, Main Sugarcane Research Station, JAU, Kodinar)

9.2.2.15 Irrigation and nutrient management in *rabi bajra*

The farmers of South Saurashtra agro climatic zone - VII growing bajra in *rabi* season are advised to apply nine irrigations i.e. two common irrigations for germination and the remaining seven irrigations at 10 days interval to get higher yield and net realization. Farmers are also advised to apply fertilizer @ 120:60 N: P_2O_5 kg/ha and potassium on soil test basis.

(Action: Professor & Head, Department of Seed Science & Technology, JAU, Junagadh and Research Scientist, Main Millet Research Station, JAU, Jamnagar)

9.2.2.16 Effect of multi-micronutrient formulations on wheat

The farmers of South Saurashtra agro climatic zone - VII growing wheat are advised to apply multi-micronutrients mixture Grade-V @ 40 kg/ha or apply micronutrients on soil test basis beside to recommended dose of fertilizer (120:60 N:P_2O_5 kg/ha) to get higher yield and net returns.

(Action: Professor & Head, Department of Agril. Chemistry & Soil Sci., JAU, Junagadh and Research Scientist, Wheat Research Station, JAU, Junagadh)

9.2.2.17 Efficacy of multi-micronutrient formulations for improving crop production in castor

The farmers of South Saurashtra agro climatic zone - VII growing castor are recommended to apply micronutrients on soil test basis or four sprays of multi-micronutrients mixture Grade-IV @ 1% at 45, 60, 75 and 90 DAS besides recommended dose of fertilizer (75:50:50 N:P_2O5:K_2O kg/ha) to get higher yield and net returns.

(Action: Professor & Head, Department of Agril. Chemistry & Soil Sci., JAU, Junagadh and Research Scientist, Main Oilseeds

Research Station, JAU, Junagadh)

9.2.2.18 Effect of multi-micronutrient formulations on pigeonpea

The farmers of South Saurashtra agro climatic zone - VII growing pigeonpea are advised to apply micronutrients on soil test basis or multi-micronutrient mixture Grade-V @ 40 kg/ha besides recommended dose of fertilizer (25:50:0 N:P_2O_5:K_2O kg/ha) to get higher yield and net returns.

(Action: Professor & Head, Department of Agril. Chemistry & Soil Sci., JAU, Junagadh and Research Scientist, Pulses Research Station, JAU, Junagadh)

9.2.2.19 Balance nutrient management in groundnut (monsoon)–wheat (winter) cropping sequence on LTFE basis

The farmers of South Saurashtra agro climatic zone - VII adopting groundnut (*kharif*)-wheat (*rabi*) cropping sequence are advised to apply FYM @ 10 t/ha + 6.25:12.5 N:P_2O_5 kg/ha through fertilizer to groundnut and 120:60:60 N:P_2O_5:K_2O kg/ha through fertilizer only to wheat for securing higher net return and maintaining soil fertility.

(Action: Professor & Head, Department of Agril. Chemistry & Soil Sci., JAU, Junagadh and Professor & Head, Department of Agronomy, JAU, Junagadh)

9.2.3 NAVSARI AGRICULTURAL UNIVERSITY

A. Recommendations for farming community

9.2.3.1 Response of cabbage to graded doses of fertilizers under different levels of soil organic carbon

Farmers of South Gujarat having soil containing organic C from 0.4 to 0.6 and 0.8 per cent and above are advised to apply N:P:K @ 150:75:75 kg/ha and 125:62.5:62.5 kg/ha, respectively, to cabbage for achieving

higher yield and net profit. Adoption of this package of fertilizer application also improves physico-chemical properties of soil.

Schedule of fertilizer application:

Fifty per cent of N and 100% P and K of fertilizer should be applied as basal. The remaining 50% N should be applied in two equal splits at 25 and 50 DATP.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.2 **Effect of growing conditions and P fertilizer scheduling with and without application of banana pseudostem enriched sap on biomass yield of fenugreek**

Farmers of South Gujarat growing fenugreek-fenugreek in sequence under shade net house during November-December are advised to prefer the following practices for higher yield and net income.

1. They should prefer cultivation of fenugreek under open field or 30 % shade net house condition, if available.
2. They should apply recommended dose of P (@ 20 kg P_2O_5/ha as basal to individual crop.
3. Apply two sprays (I-10 DAS and II-20 DAS) of 2% enriched sap (banana pseudostem based).

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.3 **Effect of pre-harvest production technology of banana (*Musa paradisiaca* L.) on yield and qualitative evaluation of various processed products**

The banana growers of South Gujarat are recommended to follow integrated nutrient management system (PFDC package) for realizing more net profit than organic or inorganic alone nutrient management system. Further, adoption of INM or organic alone maintain the soil fertility also.

Recommendation for the banana processing industries:

Based on the pooled results of physico-chemical quality parameters and shelf life, following variety and nutrient management are recommended for fruits and its processed products.

Fruit:

Criteria	Suitable Variety + NMS	Values
Shelf life	i. Basarai + Organic	14-15 Days
	ii. Mahalaxmi + Organic	
Overall Acceptability	i. Basarai + Organic	8.7
	ii. Mahalaxmi + Organic	8.5
	iii. Grand Naine + Organic	8.2
	iv. Basarai + PFDC package	8.2

Processed products:

Products	Suitable Variety + NMS	Value (O.A.)
Wafer	i. Grand Naine + Organic>INM>Inorganic	>7
	ii. Basarai + Organic	
Flour	i. Grand Naine + Organic	>8
	ii. Basarai + Organic	
	iii. Mahalaxmi + Organic	
Fig	i. Grand Naine + Organic	~ 8
	ii. Mahalaxmi + Organic	
	iii. Basarai + Organic	
Ketchup	i. Grand Naine + Organic	~ 8
	ii. Basarai + Organic	
	iii. Mahalaxmi + Organic	
Puree	i. Grand Naine + Organic	~ 8
	ii. Mahalaxmi + Organic	
	iii. Basarai + Organic	
Cheese	i. Grand Naine + Organic	~ 8
	ii. Mahalaxmi + Organic	
	iii. Basarai + Organic	

OA: Overall acceptability

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.4 **Intercropping studies in banana under drip irrigation**

The farmers of South Gujarat adopting drip irrigation in banana planted during September-October are recommended to take onion as intercrop for realizing higher net income. Four rows of onion (*i.e*. 40 cm) should be planted on both sides of banana row by leaving about 20 cm space on all the sides of stem + 8 rows (80 cm) in between two rows of banana or 8 rows (80 cm) of onion only in between two rows of banana. This intercropping system also improves the land use efficiency.

They are further advised to apply respective recommended doses of

fertilizer to both the crops.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.5 **Influence of different growing conditions on yield of leafy vegetables during summer season**

Farmers of South Gujarat growing leafy vegetable under different shade net house during summer season are advised to select leafy vegetable in following preferential order for realizing higher income.

Shade net (%)	**Suitable crop (Summer)**
75	Fenugreek > Coriander
50	None (fenugreek, coriander, Amranthus and Spinach)
30	Amranthus > Spinach
Open field	Amranthus

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.6 **Study on levels and schedules of N fertigation in castor (*Rabi*)**

The farmers of coastal areas (AES-IV) of South Gujarat heavy rainfall agro climatic zone growing *rabi* hybrid castor are advised to apply N @ 120 kg/ha through drip in 8-12 splits at an interval of 10-15 days starting from 20 days after sowing. By adopting this fertigation schedule, farmers can get higher yield and net profit over control (N @ 80 kg/ha through drip in 4 splits at an interval of 20 days). Basal dose of P_2O_5 should be applied.

The system details are:

Type of drip system	:	On line
Lateral spacing (cm)	:	180
Lateral diameter (mm)	:	16
Dripper discharge rate (lph)	:	8
Dripper spacing (cm)	:	120
Operating pressure (kg/cm^2)	:	1.20
Operation frequency	:	Alternate day
Schedule for drip irrigation	:	November - January : 75-105 minutes February - April : 90-140 minutes

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.7 **Optimization of manuring in organically grown onion in coastal area of South Gujarat**

Farmers of coastal areas (AES-IV) of South Gujarat heavy rainfall

zone can grow onion profitably during *rabi* season either organically (under drip method of irrigation) or under INM system (surface irrigation). For organic cultivation, they are advised to apply 40 kg N/ha through biocompost as basal and 40 kg N/ha through castor cake at 40 DAT. Adoption of organic nutrient management systems also improves soil properties.

Schedule of irrigation:

Drip irrigation method:			
Type of drip system	:	On line	
Lateral spacing (cm)	:	120	
Lateral diameter (mm)	:	16	
Dripper discharge rate (*lph*)	:	4	
Dripper spacing (cm)	:	60	
Operating pressure (kg/cm^2)	:	1.20	
Operation frequency	:	Alternate day	
Schedule for drip irrigation	:	December-February : 50-75 minutes	
		March- April : 90-140 minutes	
Surface irrigation method :		**Irrigation interval:**	
Total 7 to 8 irrigation		December : 19 days	
(0.8 IW/CPE, Depth: 60 mm)		January- February : 11-17 days	
		March : 9-15 days	

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.8 **Effect of organics on productivity of paddy (*kharif*) - castor (*rabi*) sequence in presence and absence of fertilizer in coastal areas**

The farmers of coastal areas of South Gujarat (AES-IV) intended to follow paddy (*kharif)*-castor (*rabi)* sequence are advised to take *dhaincha* as green manure crop before *kharif* paddy along with application of 75 per cent recommended dose of fertilizer (90:30:0 NPK kg/ha) to paddy crop only for getting higher yield and net realization.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.9 **Weed management in irrigated drilled paddy (Aerobic rice)**

The farmers of South Gujarat heavy rainfall zone (AES-III) growing irrigated drilled paddy (aerobic rice) are advised to apply pendimethalein

@ 1.0 kg/ha as pre emergence for effective weed control or hand weeding followed by inter culturing at 20 and 40 DAS or Bispyribac sodium @ 45 g/ha as post emergence at 20 DAS for effective weed control and realizing higher net income.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.10 **Study on seed rate and spacing in irrigated drilled paddy (Aerobic rice)**

The farmers of South Gujarat heavy rainfall zone (AES-III) intended to follow aerobic rice cultivation are advised to use 40 kg/ha seed rate and sow their crop at 30 cm row spacing for getting higher yield and net return.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.11 **Moisture management in sugarcane**

Sugarcane growers of South Gujarat heavy rainfall zone (AES III) are advised to prepare land by mould board plough and plant at a row spacing of 75 cm in combination with recommended practices of irrigation for getting higher cane yield and net return.

*(**Action :** Res. Sci., Reg. Sugarcane Res. Sta., Navsari)*

9.2.3.12 **Optimizing irrigation schedule in sugarcane under different planting methods (For tropical region)**

Sugarcane growers of South Gujarat heavy rainfall zone (AES-III) are advised to plant sugarcane crop with paired cum trench planting (at 30:150 cm row spacing) and to irrigate the crop with 15 irrigations each of 80 mm depth (0.9 IW/CPE). The first irrigation should be given at the time of planting and rests at 19-20 days interval during winter season and 13-14 days interval during summer season for getting higher cane yield and net return.

*(**Action :** Res. Sci., Reg. Sugarcane Res. Sta., Navsari)*

9.2.3.13 **Preparation of quality vermicompost and compost through use of varying nutrient-rich substrates**

1) Preparation of vemicompost

Farmers of South Gujarat specially those cultivating banana are advised to utilize banana pseudo stem for preparing quality vermicompost by mixing it with cattle dung in the ratio of 1:1 (w/w) = cattle dung: banana pseudo stem (chopped to 2 to 3 cm size) with addition of 5% rock phosphate through process of partial decomposition of raw materials by decomposing culture for one month and subsequently by vermicomposting through use of earthworm (*Eudrilus euginae*) for about 2 months to obtain superior quality vermicompost with C:N ratio of 16:1 and total N,P and K content of about 2.4%, 1.4% and 0.7%, respectively. Further, farmers are advised to make alternate layers (5 to 6 layers each with 6 to 7 cm depth) of cattle dung and banana pseudo stem.

2) Preparation of compost

Farmers of south Gujarat specially those cultivating banana are advised to utilize banana pseudo stem for preparation of quality compost by mixing it with cattle dung in the ratio of 1:1 (w/w) =cattle dung: banana pseudo stem (chopped to 2 to 3 cm size) with addition of 5% rock phosphate through process of microbial decomposition of raw materials for 53- 55 days i.e. in about 35 days less time as compared duration for preparation of vermicompost, by use of spraying solution of microbial consortium (Effective Micro-organisms) to obtain good quality compost with C:N ratio of 18.8:1 and total N, P and K content of about 2.1%, 1.6% and 0.8%, respectively. Further, farmers are advised to make alternate layers (5 to 6 layers each with 6 to 7 cm depth) of cattle dung and banana pseudo stem.

Procedure for preparing spraying solution of microbial consortium:

It involves two steps. Firstly activated effective micro-organisms (AEM) solution is prepared from stock solution of microbial consortium, by mixing 2 lit molasses or 2 kg jaggery and 1 lit EM stock solution in 17

lit of water. The prepared solution is then kept in an air tight clean plastic container leaving no air inside the container. Then the container is stored for 7-10 days in shade, away from sunlight at ambient temperature. Gas is allowed to be released by opening the cap of the container for few seconds once in 24 hours. When whitish layer of yeast starts appearing on surface of the solution after 7-10 days with a pleasant smell, the AEM is ready when pH drops below 3.5. In the 2nd step, about 30lit spraying solution of microbial consortium is prepared by mixing 500ml lit AEM & 300 g of jaggery with 30 lit of water in a plastic bucket.

*(**Action :** Res. Sci., Soil Science, Navsari)*

9.2.3.14 **Optimization of castor production under resource constraints**

Farmers of South Gujarat heavy rainfall zone (AES-III) growing irrigated castor (GCH-7) during *rabi* season are advised to follow recommended practices of weed management, fertilizer application and need based plant protection to achieve higher yield and net profit. However, under the situations of resource constraints, the resources should be prioritized in order of 'Weed management > Fertilizer application > Plant protection.'

*(**Action :** Asstt. Res. Sci., Agronomy, AICRP on Castor, Navsari)*

9.2.3.15 **Effect of spacing on the performance of castor**

Farmers of South Gujarat heavy rainfall zone (AES-III) growing irrigated castor (GCH-7) during *rabi* season are advised to sow the crop at 120 cm x 90 cm spacing.

*(**Action :** Asstt. Res. Sci., Agronomy, AICRP on Castor, Navsari)*

9.2.3.16 **Response of castor to fertilizers**

Farmers of South Gujarat heavy rainfall zone (AES-III) growing irrigated castor (GCH 7) during *rabi* season are advised to apply 120 kg N/ha in three equal splits for achieving higher seed yield and economic

returns. One-third nitrogen should be applied as basal and remaining at 35-40 and 75-80 DAS. Phosphorous and potassium application should be made on soil test basis.

*(**Action :** Asstt. Res. Sci., Agronomy, AICRP on Castor, Navsari)*

9.2.3.17 **Response of castor to sulphur**

Farmers of South Gujarat heavy rainfall zone (AES-III) growing irrigated castor (GCH 7) during *rabi* season on soil having medium to high status of available sulphur need not to apply sulphur as it was not found beneficial.

*(**Action :** Asstt. Res. Sci., Agronomy, AICRP on Castor, Navsari)*

9.2.3.18 **Management of leaf reddening in *Bt* cotton (RCH-2 BG-II)**

Farmers of South Gujarat agro climatic zone- II (AES 2) growing *Bt* cotton are advised to apply recommended dose of fertilizer based on soil test value + FYM 10 t/ha + one spray of 2% urea at flowering stage and one spray of 1% urea + 1% $MgSO_4$ during boll development stage for minimizing leaf reddening and obtaining higher seed cotton yield and net return.

*(**Action :** Res. Sci., Agronomy, Main Cotton Res. Station, Surat)*

9.2.3.19 **Response of single cut fodder sorghum genotypes to different levels of NPK**

The farmers of South Gujarat agro climatic zone- II (AES-II) growing *kharif* fodder sorghum are advised to apply 120:60:00 kg NPK/ha (50% N and whole P as basal and remaining 50% N at 30 DAS) for getting higher fodder yield and net profit.

*(**Action :** Associate. Res. Sci., Agronomy, Main Sorghum Res. Sta., Surat)*

9.2.3.20 **Study of critical period of crop-weed competition in *rabi* castor under South Gujarat conditions**

The farmers of South Gujarat heavy rainfall zone (AES-III) are

advised to keep the *rabi* castor field weed free from 45-90 days after sowing which is critical period for crop weed competition for getting higher yield and profit.

*(**Action :** Prof. & Head, Dept. of Agronomy, NMCA, Navsari)*

9.2.3.21 **Identification and/or diversification of present crop sequence**

The farmers of South Gujarat heavy rainfall zone (AES-III) are advised to adopt the paddy-sorghum (G)-sorghum ratoon (G) sequence or paddy - sweet corn - black gram crop sequence for securing higher production and net income. However, for maintaining soil health and securing higher production farmers are advised to adopt paddy - greengram - groundnut crop sequence.

*(**Action :** Prof. & Head, Dept. of Agronomy, NMCA, Navsari)*

9.2.3.22 **Effect of different proportion of organics on productivity of pit planted sugarcane under organic farming system**

The farmers of South Gujarat who have adopted organic farming in sugarcane with pit method of planting (diameter 0.6 m and depth 0.45 m spaced at 2.4 m x 1.2 m) are advised to apply 1.4 kg vermicompost + 0.43 kg castor cake or 0.4 kg neem cake per pit at the time of filling the pits and 0.7 kg vermicompost + 0.215 kg castor cake or 0.2 kg neem cake at the time of tillering as first split and repeat the same dose at the time of earthing up as second split.

Note:

- Plant two eye budded 8 setts/pit treated with *Trichoderma* and *Pseudomonas.*
- Apply 100 ml/pit of 0.5% *Azotobacter* and 0.5% PSB at the time of planting and 0.5% *Acetobacter* at the time of earthing up.
- Apply two combine spray of cow urine and butter milk each @ 2% at tillering and cane development stage.

*(**Action :** Professor, Dept. of SSAC, ACHF, Navsari)*

9.2.3.23 **Integrated weed management in *kharif* sorghum**
Not Accepted.
*(**Action :** Associate. Res. Sci., Agronomy, Main Sorghum Res. Sta., Surat)*

B. Recommendations for scientific community

9.2.3.1 **Characterization of natural resources of Vanarasi area**

Based on the characterization of natural resources of Vanarasi area, following conclusions are emerged.

- ***Highly suitable existing crops:***

  Field crops: Paddy, Pigeon pea, Sorghum, Okra and Cowpea

  Horticultural crops: Mango, Ber and Aonla

  Forest trees: Teak, Ain, Arjun, Kher, Mahuda, Katesavar and Palas

- ***Existing crop but not suitable:*** Sugarcane
- ***Highly suitable new crops/trees (proposed):*** Soybean, Nizer, Moringa, Strawberry, White Jamun, Harida and Jackfruit.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.2 **Integrated nutrient management in soybean (summer) under different land configurations**

Growing soybean during summer season under South Gujarat conditions was not found remunerative due to low yield levels.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

C Confirmation of earlier recommendations

9.2.3.1 **Evaluation of yield performance of new rice genotype under different fertility levels**

From the results and economics, it is concluded that for fine grain genotypes and NAUR-1 optimum dose of N is 100 kg N/ha which confirm the earlier recommendation for the same group of varieties.

*(**Action :** Res. Sci., Soil & Water, SWMRU, Navsari)*

9.2.3.2 **Studies on seed cane economy in sugarcane cultivation**

Sugarcane growers of South Gujarat heavy rainfall zone (AES-III) are advised to plant sugarcane crop with two bud sett and 100 per cent of recommended seed rate (50,000 eye bud) for getting higher cane yield and net return.

*(**Action :** Res. Sci., Reg. Sugarcane Res. Sta., Navsari)*

9.2.4 Sardar Krushinagar Dantiwada Agricultural University

A. Recommendations for farming community

9.2.4.1 **Effect of organic manures and inorganic fertilizers and their integration on cotton-late sown wheat cropping sequence**

The farmers of North Gujarat agro climatic zone (AES-I) adopting cotton - wheat (late sown) cropping sequence under organic farming are advised to apply either 25 % N from FYM + 75 % N from castor cake or 75 % N from FYM + 25 % N from fertilizer to both the crops for securing higher yield.

*(**Action :** Professor & Head, Department of Agronomy, CPCA, SDAU, SKNagar)*

9.2.4.2 **Nitrogen management through organics on cluster bean –wheat cropping sequence**

The farmers of North Gujarat agro climatic zone (AES-I) adopting cluster bean –wheat cropping sequence under organic farming are advised to apply either 100 % N from castor cake or 25 % RDN from FYM + 75 % RDN from castor cake to both the crops for securing higher yield and net realization.

*(**Action :** Professor & Head, Department of Agronomy, CPCA, SDAU, SKNagar)*

9.2.4.3 **Nitrogen management through organics on castor–pearlmillet (TP) cropping sequence**

The farmers of North Gujarat agro climatic zone (AES-I) adopting castor-transplanted summer pearlmillet cropping sequence under organic farming are advised to apply either 50 % N from FYM + 50 % N from castor cake or 25 % N from FYM + 75 % N from castor cake or 100 % N from castor cake to both the crops for securing higher yield and net realization.

*(**Action :** Professor & Head, Department of Agronomy, CPCA, SDAU, SKNagar)*

9.2.4.4 **Maize based intercropping cropping under rainfed conditions**

The farmers of North Gujarat agro climatic zone (AES-1) growing maize (GM 2) on medium black soils under rainfed conditions are advised to adopt sole castor or intercropping system of maize+castor (1:1 row ratio) for securing higher yield and net return.

*(**Action :** Research Scientist (Agronomy), AICRP for Dryland Agriculture, SKNagar)*

9.2.4.5 **Relay cropping in green gram**

The farmers of North Gujarat agro climatic zone (AES-1) are advised to sow castor (90 cm x 60 cm) at onset of monsoon as sole crop for getting higher yield and net return. For covering the risk, farmers may adopt relay cropping systems of castor in greengram. Greengram should be sown in paired row (30-60-30 cm) and castor should be sown in between two pairs as a relay crop before harvest/picking of the greengram.

*(**Action :** Research Scientist (Agronomy), AICRP for Dryland Agriculture, SKNagar)*

9.2.4.6 **Integrated nutrient management in pearlmillet under rainfed condition**

The farmers of North Gujarat agro climatic zone (AES-1) growing pearlmillet crop under rainfed conditions are advised to apply either 50 % RDN through urea + 50 % RDN through FYM or 75 % RDN through urea + 25 % RDN through FYM for getting higher yield, net return and maintaining soil fertility.

*(**Action :** Research Scientist (Agronomy), AICRP for Dryland Agriculture, SKNagar)*

9.2.4.7 **Integrated nitrogen management in rainfed maize**

The farmers of North Gujarat agro climatic zone (AES-I) growing maize on medium black soils under rainfed condition are advised to apply either 50 % RDN through urea + 50 % RDN through FYM or 75 % RDN through urea + 25 % RDN through FYM for getting higher yield, monetary return and maintaining soil fertility.

*(**Action :** Research Scientist (Agronomy), AICRP for Dryland Agriculture, SKNagar)*

9.2.4.8 **Intercropping studies in grain amaranth**

The farmers of North Gujarat agro climatic zone (AES-I) growing amaranth on light textured soils are advised to adopt amaranth + gram (1:1) intercropping system at uniform row spacing of 45 cm for securing higher yield and net return.

*(**Action :** Assist. Res. Sci. (Agronomy), AICRN on UUC, CCI, SDAU, SKNagar)*

9.2.4.9 **Phosphorus management in pearlmillet-greengram crop rotation under**

rainfed conditions

The farmers of North Gujarat agro climatic zone (AES-1) following crop rotation of rainfed pearlmillet - greengram are advised to fertilize the pearlmillet crop at alternate year with 50 % recommended dose of phosphorus (12.5 kg P_2O_5/ha) + 50 % RDN through FYM (6250 kg) + PSB along with application of recommended dose of nitrogen to both the crops every year for getting higher net realization.

*(**Action :**Assist. Res. Sci. (Agronomy), Centre for Agroforestry, FC&GB, SKNagar)*

9.2.4.10 **Orobanche management through herbicides and other practices in mustard**

The mustard growing farmers of North Gujarat agro climatic zone (AES 1) are advised to apply glyphosate @ 0.25% on moist soil at 42-45 DAS (after second irrigation) using protector hood on nozzle to control *orobanche*.

*(**Action :** Assoc. Res. Sci. (Agronomy), Main Castor-Mustard Research Station, SKNagar)*

9.2.4.11 **Integrated nutrient management in mustard**

The farmers of North Gujarat agro climatic zone (AES 1) growing mustard on light textured soil are advised to apply 75 % recommended dose of N (37.5 kg) and P_2O_5 (37.5 kg) each along with seed treatment of bio - fertilizers (*Azotobacter* + PSB) for realizing higher yield and net return.

*(**Action :** Assoc. Res. Sci. (Agronomy), Main Castor-Mustard Res. Station, SKNagar)*

9.2.4.12 **Effect of different inter and intra row spacing on seed yield of castor GCH 7**

The farmers of North Gujarat agro climatic zone (AES I) growing irrigated castor (GCH 7) are advised to dibble the crop at 150 cm x 120 cm for getting higher yield and net realization.

*(**Action :** Assoc. Res. Sci. (Agronomy), Main Castor-Mustard Res. Station,*

SKNagar)

9.2.4.13 **Evaluation of deoiled castor cake as manure in mustard- pearlmillet cropping sequence**

The farmers of North Gujarat agroclimatic zone adopting mustard - summer pearlmillet sequence on light textured soil are advised to fertilize mustard with 50 % N from DOC (510.2 kg, 4.9 % N content) and 50 % N from chemical fertilizers. Summer pearlmillet should be fertilized with recommended dose of fertilizer.

*(**Action :** Assoc. Res. Sci. (Agronomy), Main Castor-Mustard Res. Station, SKNagar)*

9.2.4.14 **Studies on irrigation management in clusterbean.**

The farmers of North Gujarat agro climatic zone (AES-1) growing clusterbean (GG 2) on light textured soil during *kharif* are advised to apply one irrigation either at vegetative or 50 % flowering or grain development stage, if crop experiences moisture stress for obtaining higher seed yield and better economics.

*(**Action :** Assoc. Res. Sci. (Agronomy), Centre of Excellence for Res. on Pulses, SKNagar)*

9.2.4.15 **Nursery management in rustica tobacco**

The farmers of North Gujarat agro climatic zone (AES-IV) growing nursery of rustica tobacco are advised to prepare raised bed and follow soil solarization with 25 micron clear plastic from middle of April to end of May (45 days) for getting healthy and more number of seedlings with the higher net return. Before preparation of raised bed one irrigation should be applied.

*(**Action :** Assoc. Res. Sci. (Agronomy), Agricultural Research Station, SDAU, Ladol)*

9.2.4.16 **Effect of spacing and date of sowing on summer sesame under North Gujarat region**

Farmers of North Gujarat agro climatic zone (AES V) growing sesame (var. G. Til 2) during summer are advised to sow the crop during last week of February at 45 cm row spacing for securing higher yield and net return.

*(**Action :** Res. Sci., Cotton Research Station, Talod)*

9.2.4.17 **Studies of spacing and fertilizer requirement of *kharif* sesame under North Gujarat region**

Farmers of North Gujarat agro climatic zone (AES – V) growing *kharif* sesame (var. G. Til 2) on sandy loam soil are advised to sow the crop at 45 cm spacing and apply 50 kg N + 25 kg P_2O_5/ha for securing higher yield and net return.

*(**Action :**Res. Sci., Cotton Research Station, Talod)*

9.2.4.18 **Nutrient management on green manuring–potato-summer pearlmillet cropping sequence**

The farmers of North Gujarat agro climatic zone (AES-I) adopting green manuring–potato-summer pearl millet cropping sequence are advised to apply recommended doses of fertilizer to potato crop (220-110-220 NPK kg/ha) and summer pearlmillet crop (120-60-0 NPK kg/ha) to get higher production and net realization.

The farmers interested in organic farming can apply 50 % RDN through FYM+50 % RDN through castor cake in green manuring–potato-summer pearlmillet cropping sequence.

*(**Action :** Professor & Head, Department of Agronomy, CPCA, SDAU, SKNagar)*

9.2.4.19 **Nutrient management on pearlmillet - mustard cropping sequence**

The farmers of North Gujarat agro climatic zone (AES-I) adopting pearlmillet-mustard cropping sequence are advised to apply recommended dose of fertilizer to pearlmillet (80-40-00 NPK kg ha^{-1}) and mustard (50-50-00 NPK kg ha^{-1}) crops to get higher production and net return.

*(**Action :** Professor & Head, Department of Agronomy, CPCA, SDAU, SKNagar)*

B. Recommendations for scientific community

9.2.4.20 **Identification of *Kharif* trap crops to reduce *Orobanche* seed load in *rustica* tobacco**

None of the *kharif*crops*viz.,* sorghum, sesamum, maize, pearl millet, cowpea, green gram, cluster bean green manure, cluster bean, sunnhemp green manure and black gram could minimize the seed load (in soil) of *Orobanche* in *rustica* tobacco.

*(**Action:** Assoc. Res. Sci. (Agronomy), Agril. Research Station, SDAU, Ladol)*

9.2.4.21 **Delineation of nutrient status of soils of Patan district and their relationship with soil properties**

The soils of Patan district are sandy to loamy sand in texture and neutral to alkaline in reaction. The soils of Patan district are low in organic carbon content and low to medium in available P_2O_5, S, DTPA – Fe and Zn, whereas medium to high in available K_2O content. The available Mn and Cu status is high.

*(**Action :** Res. Sci. (Soil Sci.), CIL, Directorate of Research, SDAU, SKNagar)*

9.3 PLANT PROTECTION:

The details of recommendations presented and approved during the technical sessions are as under :

Discipline	AAU		JAU		NAU		SDAU		TOTAL	
	Farming	Scientific	Farming	Scientific	Farming	Scientific	Farming	Scientific	Farming	Scientific
Ento.	11	18	08	01	03	03	03	01	25	23
Pl.Path	02	01	02	--	02	04	01	--	07	05
TOTAL	**13**	**19**	**10**	**01**	**05**	**07**	**04**	**01**	**32**	**28**

9.3.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Entomology (11 + 18 = 29)

(A) For farming community (11)

9.3.1.1 Farmers of middle Gujarat growing mustard are advised to spray any of the following insecticides twice, first at 1.5 aphid index and second after 15 days.

1. Dimethoate 30 EC @ 0.03% (10 ml/ 10 litre of water) [150 g a.i./ ha]
2. Imidacloprid 70 WG @ 0.014% (2 g/ 10 litre of water) [70 g a.i./ ha]
3. Thiamethoxam 25 WG @ 0.01% (4 g/ 10 litre of water) [50 g a.i./ ha]

The pre-harvest interval of 30 days is recommended for imidacloprid and thiamethoxam. As per CIB recommendation, dimethoate is safe at harvest from residue point of view.

ભલામણ:

મધ્ય ગુજરાતના રાયડો ઉગાડતા ખેડૂતોને મોલોના નિયંત્રણ માટે નીચે જણાવેલ પૈકીની કોઇપણ એક જંતુનાશકનો પ્રથમ છંટકાવ ૧..૫ મોલો આંક્ને અનુસરીને અને બીજો છટકાવ ૧૫ દિવસે કરવાની ભલામણ કરવામાં આવે છે.

૧. ડાયમેથોએટ ૩૦ ઇ.સી. ૦.૦૩% (૧૦ મિ.લિ./ ૧૦ લિટર પાણી) [૧૫૦ ગ્રામ સ.ત./ હેક્ટર]

૨. ઇમીડાક્લોપ્રીડ ૭૦ ડબલ્યુ જી ૦.૦૧૪% (૨ ગ્રામ/ ૧૦ લિટર પાણી) [૭૦ ગ્રામ સ.ત./ હેક્ટર]

૩. થાયામેથોક્ષામ ૨૫ ડબલ્યુ જી ૦.૦૧% (૪ ગ્રામ/ ૧૦ લિટર પાણી) [૫૦ ગ્રામ સ.ત./હેક્ટર]

ઇમીડાક્લોપ્રીડ અને થાયામેથોક્ષામ ના છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો ગાળો ૩૦ દીવસ જાળવવો જ્યારે સીઆઇબીની ભલામણ મૂજબ ડાયમીથોએટ કાપણી વખતે સલામત જણાયેલ.

(Action: **Prof. & Head, Dept. of Entomology, BACA, AAU, Anand**)

9.3.1.2 The farmers of middle Gujarat growing *Bt* cotton are advised to spray any of the following insecticides on initiation of sucking pests (aphid, leafhopper, whitefly and thrips) and subsequently two sprays at 15 days interval.

1) Imidacloprid 17.8 SL @ 0.009 % (5 ml/ 10 litre of water) (44.5 g a.i./ha)

2) Diafenthiuron 50 WP @ 0.05% (10 g/ 10 litre of water) (250 g a.i./ha)

The pre-harvest interval of 30 days is recommended for imidacloprid and diafenthiuron.

ભલામણ:

મધ્ય ગુજરાતના બીટી કપાસ ઉગાડતા ખેડૂતોને ચૂસિયાં પ્રકારની જીવાતો (મોલો, તડતડીયાં, સફેદમાખી અને થ્રિપ્સ) નાં નિયંત્રણ માટે નીચે દર્શાવેલ કોઇપણ એક જંતુનાશકની જીવાતના ઉપદ્રવની શરૂઆત થયે અને ત્યારપછી ૧૫ દિવસના ગાળે બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે.

૧. ઇમીડાકલોપ્રીડ ૧૭.૮ એસએલ@ ૦.૦૦૯ %(૫ મિ.લિ./૧૦ લિટર પાણી) (૪૪.૫ ગ્રામ સ.ત /.હેક્ટર).

૨. ડાયફેન્થુરોન ૫૦ ડબલ્યુપી @ ૦.૦૫ % (૧૦ ગ્રામ /૧૦ લિટર પાણી) (૨૫૦ ગ્રામ સ.ત /હેકટર)

ઇમીડાકલોપ્રીડ અને ડાયફેન્થુરોનના છેલ્લા છંટકાવ અને વીણી વચ્ચેનો ગાળો ૩૦ દિવસ જાળવવો.

(Action: Prof. & Head, Dept. of Entomology, BACA, AAU, Anand)

9.3.1.3 The farmers of middle Gujarat growing black gram are advised to spray emamectin benzoate 5 WG @ 0.0025 % (5 g/ 10 litre of water; 7.5 g a.i./ha) or flubendiamide 480 SC @ 0.01% (2 ml/10 litre of water; 28.8 g a.i./ha) at the initiation of pest incidence for the control of pod borers.

The pre-harvest interval of 20 and 11 days is recommended for emamectin benzoate and flubendiamide, respectively.

ભલામણ:

મધ્ય ગુજરાતના અડદની ખેતી કરતા ખેડૂતોને શિંગો કોરી ખાનાર ઇયળોના નિયંત્રણ માટે એમામેકટીન બેન્ઝોએટ ૫ ડબલ્યુજી @ ૦.૦૦૨૫% (૫ ગ્રામ/ ૧૦ લિટર પાણી) [૭.૫ ગ્રામ સ.ત./ હેકટર] અથવા ફ્લુબેન્ડીઆમાઇડ ૪૮૦ એસસી @ 0.૦૧% (૨ મીલી/૧૦ લીટર પાણી) (સ.ત. ૨૮.૮ ગ્રા./હે.) જીવાતના ઉપદ્રવની શરૂઆત થયે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. એમામેકટીન બેન્ઝોએટ અને ફ્લુબેન્ડીઆમાઇડના છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો ગાળો અનુક્રમે ૨૦ અને ૧૧ દિવસ જાળવવો.

(Action: Prof. & Head, Dept. of Entomology, BACA, AAU, Anand)

9.3.1.4 The farmers of middle Gujarat growing wheat are advised to treat the seeds before 12 hours of sowing with any one of the following insecticides for the control of termite.

1. Chlorpyriphos 20 EC @ 4 ml in 50 ml water /kg seed (0.8 g a.i./ kg seed)
2. Fipronil 5 SC @ 5 ml in 50 ml water /kg seed (0.025 g a.i./ kg seed)

ભલામણ:

મધ્ય ગુજરાતના ઘઉં ઉગાડતા ખેડૂતોને ઊધઇના નિયંત્રણ માટે નીચે પૈકી કોઇપણ એક જંતુનાશકનો વાવણીના ૧૨ કલાક પહેલા બીજ માવજત આપીને વાવેતર કરવાની ભલામણ કરવામાં આવે છે.

૧. ક્લોરપાયરીફોસ ૨૦ ઈસી ૪ મિ.લિ. ૫૦ મિ.લિ. પાણીમાં/કિ.ગ્રા. બિયારણ (0.૮ ગ્રામ સ.ત./ કિ.ગ્રા. બિયારણ)

૨. ફીપ્રોનીલ ૫ એસસી ૫ મિ.લિ. ૫૦ મિ.લિ. પાણીમાં / કિ.ગ્રા. બિયારણ (૦.૦૨૫ ગ્રામ સ.ત./કિ.ગ્રા. બિયારણ)

(Action: Prof. & Head, Dept. of Entomology, BACA, AAU, Anand)

9.3.1.5 For the control of mango hoppers, the farmers of middle Gujarat are advised to spray any one of the following insecticides at 5 nymphs per inflorescence.

1) Imidacloprid 17.8 SL @ 0.009 % (5 ml/ 10 litre of water)
2) Acetamiprid 20 SP @ 0.01% (5 g /10 litre of water)
3) Thiamethoxam 25 WG @ 0.0125% (5 g /10 litre of water)

The pre-harvest interval of 45 days is recommended for imidacloprid, acetamiprid and thiamethoxam.

ભલામણ:

આંબામાં મધિયાના નિયંત્રણ માટે મધ્ય ગુજરાતના ખેડૂતોને પાંચ બચ્ચા પ્રતિ મોર જોવા મળે ત્યારે નીચે પૈકી

કોઇપણ એક જંતુનાશકનો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે.

૧. ઇમીડાકલોપ્રીડ ૧૭.૮ એસ.એલ @ ૦.૦૦૯ % (૫ મિ.લિ./ ૧૦ લિટર પાણી)

૨. એસીટામીપ્રીડ ૨૦ એસ.પી. @ ૦.૦૧% (૫ગ્રામ/ ૧૦ લિટર પાણી)

૩. થાયોમેથોક્ઝામ ૨૫ ડબલ્યુજી @ ૦.૦૧૨૫% (૫ ગ્રામ/ ૧૦ લિટર પાણી)

ઇમીડાકલોપ્રીડ, એસીટામીપ્રીડ અને થાયોમેથોક્ઝામના છંટકાવ અને ઊતાર વચ્ચેનો ગાળો ૪૫ દિવસ જાળવવો.

(Action: Prof. & Head, Dept. of Entomology, BACA, AAU, Anand)

9.3.1.6 Farmers of middle Gujarat growing chickpea are advised to follow below mentioned Bio-Intensive Pest Management module for the management of pod borer and wilt disease.

1. Seed treatment with *Trichoderma viride* (2 x 10^6 cfu /g) @ 8 g /kg seed at the time of sowing against wilt disease.
2. Use of FYM @ 1 ton/ha enriched with *T. viride* (2 x 10^6 cfu /g) (2 kg/ ton of FYM) for wilt disease.
3. Planting marigold (*Tagetes erecta*) on the borders of chickpea field as trap crop for *Helicoverpa armigera*
4. Installation of pheromone traps @ 40 traps/ha at 15 days after sowing for trapping *H. armigera* moths
5. Installation of 'T' shaped bird perches @ 100 /ha at 15 days after germination.
6. Alternate spray of HaNPV @ 250 LE /ha and Neem Seed Kernel Extract @ 5 % during vegetative stage, at flowering stage and at pod formation stage for the suppression of *H. armigera*.

ભલામણ:

મધ્ય ગુજરાતના ચણાની ખેતી કરતા ખેડૂતોને લીલી ઇયળ તથા સુકારાના નિયંત્રણ માટે નીચે પ્રમાણેનું મોડ્યુલ અનુસરવાની સલાહ આપવામા આવે છે .

1. સુકારાના નિયંત્રણ માટે બીજને *ટ્રાઇકોડર્મા વિરિડી* (૨ × ૧૦^{૬} સી.એફ.યુ/.ગ્રામ) ૮ ગ્રામ/ કીલો પ્રમાણે બીજ માવજત આપવી.
2. *ટ્રાઇકોડર્મા વિરિડી* (૨ × ૧૦^{૬} સી.એફ.યુ/.ગ્રામ) (૨ કિ.ગ્રા/હે.) ભેળવેલ સેન્દ્રીય ખાતર ૧ ટન/ હેકટર નો ઉપયોગ કરવો .

3. ચણાના પાકની ફરતે I5\HZ 5FS હજારી ગલગોટાનુ વાવેતર કરવું.
4. લીલી ઇયળના કુંદા પકડવા માટે ફેરોમોન ટ્રેપ ૪૦ પ્રતિ હેકટર પ્રમાણે પાક વાવવાના ૧૫ દિવસ પછી ખેતરમાં ગોઠવવા.
5. પાક ઉગવાના ૧૫ દિવસ પછી પક્ષીઓ બેસવા માટેના ટેકા ૧૦૦ ટેકા પ્રતિ હેકટર પ્રમાણે ગોઠવવા .
6. લીલી ઇયળનો ઉપદ્રવ જણાય તો એચ એન પી વી ૨૫૦ લાર્વલ યુનિટ પ્રતિ હેકટર અને લીમડાના મીંજનું દ્રાવણ ૫ ટકા વારાફરતી પાન આવવાની અવસ્થા , કુંલ અવસ્થા તથા પોપટા બનવાની અવસ્થાએ છાંટવાની ભલામણ છે .

(Action: Research Scientist, Bio-control Res. Laboratory, AAU, Anand)

9.3.1.7 Farmers of middle Gujarat growing okra are advised to follow below mentioned Bio Intensive Pest Management module for the management of pests of okra.

1) Sowing of the crop during first week of May.

2) Soil application of *Paecilomyces lilacinus* (2 x 10^6 cfu /g) @ 25 kg /ha (Talc base formulation)

3) Seed treatment with thiamethoxam 70 WS @ 2.8 g /kg seed (2 g. a.i./kg seed).

4) Installation of pheromone traps @ 60 /ha for each mass trapping the moths for each of *Helicoverpa armigera* and *Earias vittella*.

5) Regular clipping of the shoots infested by spotted bollworm.

6) Need base alternate spray of NSKE @ 5 %, *Bt* [5 x 10^7 spores /mg] @ 1.5 kg /ha and *Beauveria bassiana* (2x10^8 cfu /g) @ 30 g /10 litre water.

ભલામણ:

મધ્ય ગુજરાતના ભીંડાની ખેતી કરતા ખેડૂતોને જીવાતોના નિયંત્રણ માટે નીચે મુજબનું જૈવ આધારિત મોડ્યુલ અનુસરવાની સલાહ આપવામા આવે છે.

1. મે માસનાપ્રથમ અઠવાડિયામાં ભીડાની વાવણી કરવી.
2. *પેસીલોમાઇસીસ લીલાસીનસ* (૨ × ૧૦^{૬} સી.એફ.યુ./ગ્રામ) ૨૫ કિલો/હેકટર પ્રમાણે જમીનમાં આપવુ.
3. વાવણી સમયે બિયારણને થાયામિથોક્ષામ ૭૦ ડબ્લ્યુએસ, ૨.૮ ગ્રામ પ્રતિ કિલો બીજ (૨.૦ ગ્રા.સ.ત./કિલો બીજ) પ્રમાણે માવજત આપવી.

4. લીલી ઇયળ અને કાબરી ઇયળના ફૂદાં આકર્ષવા માટે દરેકના ૬૦ ફેરોમોન ટ્રેપ/હેકટર પ્રમાણે ખેતરમાં ગોઠવવા.
5. કાબરી ઇયળથી નુકસાન પામેલ ડૂંખોને નિયમિત રીતે તોડી નાશ કરવો.
6. જરૂરિયાત મુજબ લીંબોળીના મીંજનુ દ્રાવણ ૫ ટકા, બી.ટી. પાવડર (૫ × ૧૦^{૭} સ્પોર્સ/મિ.ગ્રા.) ૧.૫ કિલો પ્રતિ હેકટર તથા બીવેરિયા બેઝિયાના (૨ x ૧૦^{૯} સી. એફ. યુ. /ગ્રામ) ૩૦ ગ્રામ/૧૦ લિટર પાણીમાં મિશ્ર કરી વારાફરતી છંટકાવ કરવો.

(Action: Research Scientist, Biocontrol Res. Laboratory, AAU, Anand)

9.3.1.8 Farmers of middle Gujarat growing cowpea are advised to spray any one of the following insecticides for the control of pod borer, *Maruca vitrata* at the initiation of flowering and subsequent two sprays at 15 days interval.

1. Flubendiamide 480 SC @ 0.014 % (3.0 ml/ 10 litre water)
2. Chlorantraniliprole 18.5 SC @ 0.006 % (3.0 ml/ 10 litre water)

The pre-harvest interval of one day is recommended for flubendiamide and chlorantraniliprole.

ભલામણ:

મધ્ય ગુજરાત વિસ્તારમાં શાકભાજી માટેની ચોળીની ખેતી કરતાં ખેડૂતોને શીંગ કોરી ખાનાર ઇયળના નિયંત્રણ માટે નીચે પૈકી કોઇપણ એક જંતુનાશકનો પ્રથમ છંટકાવ ફૂલ બેસવાની અવસ્થાએ અને ત્યારબાદ બે છંટકાવ ૧૫ દિવસના અંતરે કરવાની ભલામણ કરવામાં આવે છે .

૧ .ફ્લુબેન્ડીયામાઇડ ૪૮૦ એસ.સી .@ ૦.૦૧૪ %(૩ મિ.લિ ./૧૦ લિટર પાણી)

૨ .ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસ.સી .@ ૦.૦૦૬% (૩ મિ.લિ ./૧૦ લિટર પાણી)

ફ્લુબેન્ડીયામાઇડ અને ક્લોરાન્ટ્રાનીલીપ્રોલના છેલ્લા છંટકાવ અને વીણી વચ્ચેનો ગાળો ૧ દિવસનો જાળવવો.

(Action: Asstt. Res. Sci., Main Vegetable Research Station, AAU, Anand)

9.3.1.9 For the control of thrips in chilli up to 45 days after transplanting, the farmers of middle Gujarat are advised to treat the seeds with imidacloprid 70 WS @ 7.5 g /kg (5.25 g a.i. /kg seed) before seeding in nursery and dipping roots of the seedlings in imidacloprid 17.8 SL @ 10 ml /10 litre water or thiamethoxam 25 WG @ 10 g /10 litre water for two hours before

transplanting.

ભલામણ:

મધ્ય ગુજરાત વિસ્તારના મરચીની ખેતી કરતાં ખેડૂતોને ૪૫ દિવસ સુધી થ્રિપ્સના અસરકારક નિયંત્રણ માટે ધરૂવાડીયામાં બીજ નાંખતા પહેલા ઇમીડાક્લોપ્રીડ ૭૦ ડબલ્યુ.એસ. @ ૭.૫ ગ્રામ/ કિલો (૫.૨૫ ગ્રા.સ.ત. /કિલો બીજ) પ્રમાણે બીજ માવજત આપવી અને ધરૂના મૂળને ફેરરોપણી કરતાં પહેલા બે કલાક માટે ઇમીડાક્લોપ્રીડ ૧૭.૮ એસ.એલ. @ ૧૦ મિ.લિ./ ૧૦ લીટર પાણી અથવા થાયામીથોક્ઝામ ૨૫ ડબલ્યુ.જી @ ૧૦ ગ્રામ /૧૦ લીટર પાણીમાં બોળી ફેરરોપણી કરવાની ભલામણ છે.

(Action: Asstt. Res. Sci., Main Vegetable Research Station, AAU, Anand)

9.3.1.10 The farmers of middle Gujarat growing pigeon pea are advised to give any of the following insecticides on initiation of lepidopteran pod borers and subsequently two sprays at 20 days interval.

1. Chlorantraniliprole 18.5 SC @ 0.006% (3 ml/ 10 litre water)

2. Emamectin benzoate 5 WG @ 0.0025% (5 g/ 10 litre water)

3. Flubendiamide 48 SC @ 0.01% (2 ml/ 10 litre water).

The pre-harvest interval of 29, 14 and 10 days is recommended for chlorantraniliprole, emamectin benzoate and flubendiamide, respectively.

ભલામણ:

મધ્ય ગુજરાતના તુવેરની ખેતી કરતા ખેડૂતોને તુવેરની શિંગો કોરી ખાનાર ઇયળોના નિયંત્રણ માટે નીચે પૈકી કોઇપણ એક જંતુનાશક દવાની જીવાતના ઉપદ્રવની શરૂઆત થયે અને ત્યાર પછી ૨૦ દિવસના ગાળે બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે .

1 ક્લોરેન્ટ્રેનીલિપ્રોલ ૧૮.૫ એસ.સી .@ ૦.૦૦૬% (૩ મિ.લિ/૧૦ લિટર પાણી)

2 એમામેકટીન બેંઝોએટ ૫ ડબલ્યુજી @ ૦.૦૦૨૫% (૫ ગ્રામ/૧૦ લિટર પાણી)

3 ફ્લુબેન્ડીયામાઈડ ૪૮૦ એસ.સી .@ ૦.૦૧ % (૨ મિ.લિ/.૧૦ લિટર પાણી)

ક્લોરેન્ટ્રેનીલિપ્રોલ, એમામેકટીન બેંઝોએટ અને ફ્લુબેન્ડીયામાઈડના છેલ્લા છંટકાવ અને વીણી વચ્ચેનો ગાળો અનુક્રમે ૨૯, ૧૪ અને ૧૦ દિવસનો જાળવવો.

(Action: Asstt. Res. Sci., Agricultural Research Station, AAU, Derol)

9.3.1.11 Farmers of middle Gujarat growing paddy are advised to apply cartap hydrochloride 4G @ 25 kg /ha (1 kg a.i. /ha) and monocrotophos 36 WSC @ 0.04 % (10 ml /10 liter of water) alternately in infested spot /patch for the control of yellow stem borer and leaf folder.

As per the CIB recommendations, both the insecticides are safe from residue point of view.

ભલામણ :

મધ્ય ગુજરાતના ડાંગરની ખેતી કરતાં ખેડૂતોને ગાભમારાની ઇયળ તથા પાન વાળનાર ઇયળના નિયંત્રણ માટે સ્પોટ માવજતથી કાર્ટેપ ૪ જી ૨૫ કિ.ગ્રા પ્રતિ હેકટર (૧ કિ.ગ્રા સ.ત ./હેકટર) અને મોનોક્રોટોફોસ ૩૬ ડબલ્યુ એસ.સી .@ ૦.૦૪ % (૧૦ મિલિ/ ૧૦ લિટર પાણી) નો વારાફરતી છંટકાવ કરવાની ભલામણ કરવામાં આવે છે .

સીબીઆઇ ની ભલામણ મુજબ આ બંન્ને જંતુનાશકો કાપણી સમયે સલામત જણાયેલ છે.

(Action: Asso. Res. Sci. (Ento.), Main Rice Res. Station, AAU, Navagam)

(B) For scientific community (18)

9.3.1.12 Two foliar sprays of acephate in brinjal at 10-day interval @ 560 g a.i. ha^{-1} starting from fruiting stage resulted in its residue below MRL 0.1 µg g^{-1} (LOQ) in brinjal if fruits are harvested 10^{th} day after the second spray. Therefore, PHI of 10-day could be suggested if acephate is recommended on brinjal.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.13 Two foliar sprays of profenophos in brinjal at 10-day interval @ 500 g a.i. ha^{-1} starting from fruiting stage resulted in its residue below EU MRL of 0.05 µg g^{-1} in brinjal fruits if harvested 15^{th} day after the second spray. Therefore, PHI of 15-day could be suggested if profenophos is recommended on brinjal.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.14 Two foliar sprays of triazophos in brinjal at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below the MRL of 0.05 µg g^{-1} (LOQ) in brinjal if fruits are harvested 15^{th} day after the second spray. Therefore, PHI of 15-day could be suggested if triazophos is recommended on brinjal.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.15 Two foliar sprays of chlorpyriphos in cabbage at 10-day interval @ 300 g a.i. ha^{-1} starting from head formation stage resulted in its residue below EU/Codex MRL of 1.0 µg g^{-1} in cabbage if harvested even one hour (0-day) after the second spray. Therefore, PHI of 1-day could be suggested if

chlorpyriphos is recommended on cabbage.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.16 Two foliar sprays of profenophos in cabbage at 10-day interval @ 500 g a.i. ha^{-1} starting from head formation stage resulted in its residue below EU MRL of 0.05 µg g^{-1} in cabbage if heads are harvested 7^{th} day after the second spray. Therefore, PHI of 7-day could be suggested if profenophos is recommended on cabbage.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.17 Two foliar sprays of acephate in capsicum at 10-day interval @ 560 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residues below MRL of 0.1 µg g^{-1} (LOQ) in capsicum fruits if harvested 15^{th} day after the second spray. Therefore, PHI of 15-day could be suggested if acephate is recommended on capsicum.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.18 Two foliar sprays of profenophos in capsicum at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below 0.05 µg g^{-1} (LOQ) in capsicum if fruits are harvested from 10^{th} day after the second spray. Therefore, PHI of 10-day could be suggested if profenophos is recommended on capsicum.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.19 Two foliar sprays of quinalphos in capsicum at 10-day interval @250 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below EU MRL of 0.05 µg g^{-1}in capsicum if fruits are harvested 1 day after the second spray. Therefore, PHI of 1-day could be suggested if quinalphos is recommended on capsicum.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.20 Two foliar sprays of triazophos in capsicum at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below the MRL of 0.05 µg g^{-1} (LOQ) in capsicum if fruits are harvested 7^{th} day after the second spray. Therefore, PHI of 7-day could be suggested if triazophos is recommended on capsicum.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.21 Two foliar sprays of chlorpyriphos in cauliflower at 10-day interval @ 300 g a.i. ha^{-1} starting from curd formation stage resulted in its residue below EU

MRL of 0.05 µg g^{-1} in cauliflower if harvested 15th day after second spray. Therefore, PHI of 15-day could be suggested if chlorpyriphos is recommended on cauliflower.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.22 Two foliar sprays of cypermethrin in cauliflower at 10-day interval @ 50 g a.i. ha^{-1} starting from curd formation stage resulted in its residue below EU MRL of 0.05 µg g^{-1} in cauliflower curd if harvested 5th day after the second spray. Therefore, PHI of 5-day could be suggested if cypermethrin is recommended on cauliflower.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.23 Two foliar sprays of profenophos in cauliflower at 10-day interval @ 500 g a.i. ha^{-1} starting from curd formation stage resulted in its residue below EU MRL 0.05 µg g^{-1} in cauliflower curd if harvested 7th day after the second spray. Therefore, PHI of 7-day could be suggested if profenophos is recommended on cauliflower.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.24 Two foliar sprays of acephate in chilli at 10-day interval @ 560 g a.i. ha^{-1} starting from fruiting stage resulted in its residue below the Codex MRL of 5.0 µg g^{-1} one hour after application. Therefore, PHI of 1-day could be suggested if acephate is recommended on chilli.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.25 Two foliar sprays of cypermethrin in chilli at 10-day interval @ 50 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below EU MRL of 0.5 µg g^{-1} in chilli if fruits are harvested on even 1 hour (0-day) after the second spray. Therefore, PHI of 1-day could be suggested if cypermethrin is recommended on chilli.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.26 Two foliar sprays of profenophos at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residues below the MRL of 0.05 µg g^{-1} (LOQ & EU MRL) in chilli fruits if harvested 10th day after the second

spray. Therefore, PHI of 10-day could be suggested if profenophos is recommended on chilli.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.27 Two foliar sprays of cypermethrin in tomato at 10-day interval @ 50 g a.i. ha^{-1} starting from fruiting stage resulted in its residues below EU MRL of 0.5 µg g^{-1} in tomato if fruits are harvested even one hour (0-day) after the second spray. Therefore, PHI of 1-day could be suggested if cypermethrin is recommended on tomato.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.28 Two foliar sprays of profenophos in tomato at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below EU MRL of 10.0 µg g^{-1} in tomato even if fruits are harvested one hour (0-day) after the second spray. Therefore, PHI of 1-day could be suggested if profenophos is recommended on tomato.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

9.3.1.29 Two foliar sprays of triazophos in tomato at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below the MRL of 0.05 µg g^{-1} (LOQ) in tomato if fruits are harvested 10^{th} day after the second spray. Therefore, PHI of 10-day could be suggested if triazophos is recommended on tomato.

(Action: Asso. Res. Sci., AINP on Pesticide residue, AAU, Anand)

Plant Pathology (2 + 1 = 3)

(A) For farming community (1)

9.3.1.30 The farmers of middle Gujarat growing vegetables in nematode sick fields are advised to grow root knot resistant varieties *i.e*. cowpea variety - Anand Vegetable Cowpea-1 in *Kharif* and tomato variety Hisar Lalit in *Rabi* for three years to manage root-knot nematode population.

ભલામણ:

મધ્ય ગુજરાત વિસ્તારમાં ગંઠવા કૃમિનો ઉપદ્રવ હોય તેવી જમીનમાં શાકભાજી ઉગાડતા ખેડુતોએ સતત ત્રણ વષ માટે ચોમાસામાં ચોળીની ગંઠવા કૃમિ પ્રતિકારક જાત આણંદ શાકભાજી ચોળી ૧ તથા શિયાળામાં ટામેટીની ગંઠવા કૃમિ પ્રતિકારક

જાત હિસાર લલિતનું વાવેતર કરવાની ભલામણ છે, જેથી ગંઠવા કૃમિનુ પ્રમાણ ઘટાડી શકાય છે.

(Action : Prof. & Head, Dept. of Nematology, BACA, AAU, Anand)

(B) For scientific community (1)

9.3.1.31 Rice genotypes viz., IET- 21267, IET- 20937, IET- 20594, IET- 20923, IET- 21463, IET- 20235, IET- 20334, IET- 21176, IET- 21216, CB 05-031, CB-07-115**,** NWGR-5072 and CR-2428-9 were found to have multiple resistance reaction against Bacterial blight (*Xanthomonas oryzae* pv. *Oryzae)*, blast (*Pyricularia grisea)* and Sheath rot (*Sarocladium oryzae*) diseases under artificial inoculation and high disease pressure conditions in the field. These genotypes can be used in breeding programme for developing resistant varieties.

(Action: Asso. Res. Sci. (Plant Patho.), Main Rice Res. Station, AAU, Nawagam)

9.3.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

AGIL. ENTOMOLOGY (8 + 1 = 9)

(A) For farming community (8)

9.3.2.1 Field efficacy of newer acaricides for the management of mites in garlic

For effective and economical management of mite in garlic under South Saurashtra Agro-limatic Zone, two sprays of abamectin 1.9 EC @ 0.003 % (16 ml / 10 litre water) or carbosulfan 25 EC @ 0.05 % (20 ml/ 10 litre water) or difenthiuron 50 WP @ 0.07 % (14 g /10 litre water) at 15 days interval starting from mite infestation are recommended.

The pre-harvest interval of 27 days is recommended for abamectin, carbosulfan and difenthuron.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં લસણના પાકમાં કથીરીના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે એબામેકટીન ૧.૯ ઈ.સી. ૦.૦૦૩ ટકા (૧૬ મિલિ/૧૦ લિટર પાણી) અથવા કાર્બોસલ્ફાન ૨૫ ઈસી ૦.૦૫ ટકા (૨૦ મિલિ/૧૦ લિટર પાણી) અથવા ડાયફેન્થુરોન ૫૦ વે.પા. ૦.૦૭ ટકા (૧૪ ગ્રામ/૧૦ લિટર પાણી) ના બે છંટકાવ, પ્રથમ છંટકાવ કથીરીનો ઉપદ્રવ જોવા મળે ત્યારે અને બીજો છંટકાવ ત્યારબાદ ૧૫ દિવસ પછી કરવાની ભલામણ છે. એબામેકટીન, કાર્બોસલ્ફાન અને

ડાયફેન્થુરોનના છંટકાવ અને કાપણી વચ્ચેનો ગાળો ૨૭ દિવસનો જાળવવો.

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

9.3.2.2 Field efficacy of bio-pesticides against pest complex of okra

For effective and economical bio-pesticide based management of *Kharif* okra pests *viz.*, jassid and fruit and shoot borer, two sprays of *Metarhizium anisopliae* (cfu 1 x 10^{7}/g) @ 4 g/lit 15 days interval starting from the pest infestation are recommended under South Saurashtra Agro-climatic Zone.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ભીંડાના પાકમાં તડતડીયા તથા ફળ અને ડૂંખ કોરીખાનાર ઈયળના અસરકારક અને અર્થક્ષમ જૈવિક નિયંત્રણ માટે *મેટારીઝીયમ એનીસોપ્લી* (સી એફ યુ ૧×૧૦^{૭} / ગ્રામ)૫ ગ્રામ પ્રતિ લિટર ના બે છંટકાવ, પ્રથમ છંટકાવ જીવાતનો ઉપદ્રવ જોવા મળે ત્યારે અને બીજો છંટકાવ ત્યારબાદ ૧૫ દિવસ પછી કરવાની ભલામણ છે.

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

9.3.2.3 Bio efficacy of newer miticides against mites in cluster bean

For effective and economical management of mites in cluster bean under South Saurashtra Agro-climatic Zone, two sprays of difenthiuron 50 WP @ 0.07 % (14.0 g/10 lit water) or abamectin 1.9 EC @ 0.003 % (16 ml/ 10 litre water) or buprofezin 25 EC @ 0.025% (10 ml/ 10 litre water) at 15 days interval starting from mite infestation are recommended.

The pre-harvest interval of 10, 1, 10, 1 day (s) is recommended for difenthiuron, abamectin, buprofezin and dicofol, respectively.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ગુવારના પાકમાં કથીરીના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ડાયફેન્થુરોન ૫૦ ડબલ્યુ.પી. ૦.૦૭ ટકા (૧૪ મિલિ/૧૦ લિટર પાણી) અથવા એબામેકટીન ૧.૯ ઈ.સી. ૦.૦૦૩ ટકા (૧૬ મીલી/૧૦ લીટર પાણી) અથવા બુપ્રોફેઝીન ૨૫ ઈ.સી. ૦.૦૨૫ ટકા (૧૦ મિલિ/૧૦ લિટર પાણી) ના બે છંટકાવ, પ્રથમ છંટકાવ કથીરીનો ઉપદ્રવ જોવા મળે ત્યારે અને બીજો છંટકાવ ત્યાર બાદ ૧૫ દિવસ પછી કરવાની ભલામણ છે.

ડાયફેન્થુરોન ૫૦ ડબલ્યુ.પી. (૯૫૮ ગ્રામ સક્રિય તત્વ/હે.), એબામેકટીન ૧.૯ ઈ.સી. (૪૧ ગ્રામ સક્રિય તત્વ / હે.), અને બુપ્રોફેઝીન ૨૫ ઈ.સી. (૩૪૨ ગ્રામ સક્રિય તત્વ/ હે.) ના છેલ્લા છંટકાવ અને શિંગો

ઉતારવા વચ્ચે અનુક્રમે ૧૦ , ૧ , અને૧૦ દિવસનો સમયગાળો જાળવવો.

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

9.3.2.4 Field efficacy of bio-pesticides against inflorescence pests of mango

For higher fruit setting and effective management of inflorescence sucking pests *viz*., hopper, thrips and flower bug in mango orchard under South Saurashtra Agro-climatic Zone, two sprays of bio-pesticides, *Beauveria bassiana* (cfu $1x10^7$/g) @ 20 g/ 10 lit water or *Verticillium lecanii* (cfu 1 $x10^7$/g) @ 20 g/ 10 lit water at 15 days interval starting from pests infestation are recommended.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં આંબાના બગીચામાં વધુ ફળ મેળવવા અને મોરની ચૂસિયા જીવાતો (મધિયો, થ્રિપ્સ, ફૂલના ચૂસિયાં)ના અસરકારક નિયંત્રણ માટે જૈવિક કીટનાશક, બિવેરીયા બાઝીયાના (સી એફ યુ ૧×૧૦^૭ / ગ્રામ) (૨૦ ગ્રામ/૧૦ લિટર પાણી) અથવા વર્ટીસીલીયમ લેકાની (સી એફ યુ ૧×૧૦^૭ /ગ્રામ) (૨૦ ગ્રામ/૧૦ લિટર પાણી) ના બે છંટકાવ, પ્રથમ છંટકાવ જીવાતોનો ઉપદ્રવ શરૂ થયે અને બીજો છંટકાવ ત્યાર બાદ ૧૫ દિવસ પછી કરવાની ભલામણ છે.

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

9.3.2.5 Field efficacy of different insecticides against the leaf webber of mango

For effective management of leaf webber in mango orchard under South Saurashtra Agro-climatic Zone, two sprays of profenophos 50 EC @ 0.05 % (10 ml/10 litre water) or novaluron 10 EC @ 0.01 % (10 ml /10 litre water) or spinosad 45 SC @ 0.015 % (3 ml /10 litre water) or quinalphos 25 EC @ 0.05 % (20 ml/10 litre water) or carbaryl 50 WP @ 0.2 % (40 g/10 litre water) at 15 days interval starting from leaf webber infestation are recommended.

ખેડૂત ઉપયોગી ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં આંબાના બગીચામાં પાનનાં ઝાળાં બનાવતી ઈયળના અસરકારક નિયંત્રણ માટે પ્રોફેનોફોસ ૫૦ ઈ.સી. ૦.૦૫ ટકા (૧૦ મિલિ/૧૦ લિટર પાણી) અથવા નોવાલ્યુરોન ૧૦ ઈ.સી. ૦.૦૧ ટકા (૧૦ મિલિ/૧૦ લિટર પાણી) અથવા સ્પીનોસાડ ૪૫ એસ. સી. ૦.૦૧૫ ટકા (૩ મિલિ/૧૦ લિટર પાણી) અથવા કવીનાલફોસ ૨૫ ઈ.સી. ૦.૦૫ ટકા (૨૦ મિલિ/૧૦ લિટર પાણી) અથવા કાર્બારીલ ૫૦ વે.પા. ૦.૨ ટકા (૪૦ ગ્રામ/૧૦ લિટર પાણી) ના બે છંટકાવ, પ્રથમ છંટકાવ પાનનાં ઝાળાં

બનાવતી ઈયળનો ઉપદ્રવ જોવા મળે ત્યારે અને બીજો છંટકાવ ત્યાર બાદ ૧૫ દિવસ પછી કરવાની ભલામણ છે.

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

9.3.2.6 Management of shoot fly and stem borer in *bajra* crop

Farmers of North Saurashtra Agro-climatic Zone growing *kharif* pearl millet are advised to treat the seeds either with thiamethoxam 35 FS @ 9.0 ml/kg or imidacloprid 600 FS @ 8.75 ml/kg at the time of sowing followed by spray either of profenophos 40% + cypermethrin 4% ready mix 44 EC @ 0.044% (10 ml/10 litre of water) or cartap hydrochloride 50 SP @ 0.05 % (10 g/10 litre of water) or thiodicarb 75 WP @ 0.15% (2 g/10 litre of water) at 30 days after germination of the crop for effective and timely management of shoot fly and stem borer.

ભલામણ:

ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારનાં ચોમાસુ બાજરો ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે સાંઠાની માખી તેમજ ગાભમારાની ઈયળનું અસરકારક અને સમયસર નિયંત્રણ કરવા માટે બાજરાના બીજને વાવેતર વખતે થાયામિથોકઝામ ૩૫ એફ. એસ. (૯.૦ મિલિ/કિ.ગ્રા. બીજ) અથવા ઈમીડાકલોપ્રીડ ૬૦૦ એફ.એસ. (૮.૭૫ મિલિ/કિ. ગ્રા. બીજ)નો પટ આપીને વાવેતર કર્યા બાદ પાકના ઉગાવા પછી ૩૦ દિવસે પોફેનોફોસ ૪૦% + સાયપરમેથીન ૪% તૈયાર મિશ્રણ ૪૪ ઈ.સી. ૦.૦૪૪% (૧૦ મિલિ/ ૧૦ લિટર પાણી) અથવા કારટેપ હાઈડ્રોકલોરાઈડ ૫૦ એસ.પી. ૦.૦૫ % (૧૦ ગ્રામ / ૧૦ લિટર પાણી) અથવા થાયોડીકાર્બ ૭૫ ડબલ્યુ. પી. ૦. ૧૫ % (૨ ગ્રામ/૧૦ લિટર પાણી) નો છંટકાવ કરવો.

Suggestions:

1. The recommendation is deferred due to want of residue data.

2. Once the residue data generated, the recommendation will be approved next year.

(Action:Res. Sci. (Millet), Pearl Millet Research Station, JAU, Jamnagar)

9.3.2.7 Ecofriendly management of sesame leaf webber, *Antigastra catalaunalis* Duponchel under rainfed condition

The farmers of North Saurashtra Agro-climatic Zone, cultivating sesame under rainfed condition are advised to give two sprays of cartap hydrochloride 50 SP 0.075 % (15 g/10 lit water) or Neem Seed Kernel Extract 3% (300 g/10 lit water) for effective and economic control of the leaf webber. The first spray should be applied when the pest population reach at 5 larvae / 20 plants (ETL)

and second spray at 15 days after the first spray.

The residue of cartap hydrochloride in sesame seeds at 30 days after second spray was found below detection limit.

ભલામણ:

ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિભાગના ચોમાસુ તલ નું વાવેતર કરતાં ખેડૂતોને સલાહ આપવામાં આવે છે કે માથા બાંધનાર ઈયળનાં અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે કીટનાશક કારટેપ હાઈડ્રોકલોરાઈડ ૫૦ એસપી ૦.૦૭૫% (૧૫ ગ્રામ/૧૦ લિટર પાણી) અથવા લીંબોળીનાં મીંજનો અર્ક ૩ % (૩૦૦ ગ્રામ/૧૦ લિટર પાણી) નાં બે છંટકાવ ૧૫ દિવસે કરવા. પ્રથમ છંટકાવ જીવાતની ક્ષમ્યમાત્રાએ (૫ ઈયળ / ૨૦ છોડ) પહોચે ત્યારે અને બીજો છંટકાવ ૧૫ દિવસ બાદ કરવો.

કારટેપ હાઈડ્રોકલોરાઈડ @ ૦.૦૭૫ % ના છેલ્લા છંટકાવ બાદ ૩૦ દિવસે તલના બીજમાં દવાના અવશેષો રહેતા નથી.

(Action:Res. Sci. (DF), Main Dry Farming Research Station, JAU, Targhadia)

9.3.2.8 Chemical control of sucking pests through foliar application of new insecticides in cotton

Farmers of South Saurashtra Agro-climatic Zone, growing cotton are advised to apply three sprays of imidacloprid 200 SL @ 40 g a.i. /ha (4 ml/10 litre water) or thiamethoxam 25 WG @ 25 g a.i./ha (2 g/10 litre water) or acephate 75 SP @ 750 g a.i./ha (20 g/10 litre water) for effective and economic control of sucking pests (jassids and whitefly) at 15 days interval starting from the pest infestation. The waiting period of thiamethoxam 25 WG @ 25 g a. i/ha should be maintained 21 days between last spray and harvesting of the crop. The residue of imidacloprid 200 SL @ 40 g a.i. /ha and acephate 75 SP @ 750 g a.i./ha after first and second picking was found below detection level in the cotton lint and seeds.

The pre-harvest interval of 104 days is recommended for imidacloprid, thiamethoxam and acephate.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેતઆબોહવાકીય વિસ્તારના કપાસ ઉગાડતા ખેડૂતોને, ચૂસિયાં જીવાતો (લીલા તડતડીયા અને સફેદમાખી) ના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ઈમીડાકલોપ્રિડ ૨૦૦ એસ એલ ૪૦ ગ્રામ સક્રિય તત્વ (૪ મિલિ / ૧૦ લિટર પાણીમાં) અથવા થાયમિથોકઝામ ૨૫ ડબ્લ્યુ જી, ૨૫ ગ્રામ સક્રિય તત્વ (૨ ગ્રામ/ ૧૦ લિટર પાણીમાં) અથવા એસીફેટ ૭૫ એસ પી ૭૫૦ ગ્રામ સક્રિય તત્વ (૨૦ ગ્રામ / ૧૦ લિટર પાણીમાં) પ્રતિ હેકટરના ત્રણ છંટકાવની ભલામણ છે. પ્રથમ છંટકાવ જીવાતની શરૂઆત થયે કરવો અને પછીના બે છંટકાવ ૧૫ દિવસના અંતરે કરવા. થાયમિથોકઝામ ૨૫ ડબ્લ્યુ જી, ૨૫ ગ્રામ સક્રિય તત્વ પ્રતિ હેકટરના છેલ્લા છંટકાવ અને કપાસ ઉતારવા વચ્ચે ૨૧ દિવસનો સમય જાળવવો. કપાસની પ્રથમ અને બીજી વીણી પછી રૂ અને બીજમાં ઈમીડાકલોપ્રિડ ૨૦૦ એસ એલ ૪૦ ગ્રામ સક્રિય તત્વ અને એસીફેટ ૭૫ એસ પી ૭૫૦ ગ્રામ સક્રિય તત્વ પ્રતિ

હેકટરના અવશેષો નિયતમાત્રાથી નીચે માલૂમ પડેલ છે. ઈમીડાકલોપ્રિડ, થાયમિથોકઝામ અને એસીફેટ ના છંટકાવ અને વીણી વચ્ચેનો ગાળો ૧૦૪ દિવસ જાળવવો.

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

(B) For scientific community

9.3.2.9 Evaluation of different chickpea varieties to bruchid (*Challosobruchus chinesis* L.) damage in storage

Varieties of chickpea *viz.*, Chaffa, ICCL 86111, GG 4 and Dahod Yellow were found comparatively less susceptible and Phule G 0517 and PKV 4 as more susceptible to bruchid in stored chickpea.

White colour, smooth surface, large and very large seeded varieties (>22 g/100 seed weight) of chickpea were found more preferred for oviposition to bruchid, whereas white colour, large and very large seeded varieties (>22 g/100 seed weight) were found more preferred for development. Numbers of eggs and adult emergence have significant positive correlation with 100 seed weight and seed damage.

(Action: Res. Scientist (Chickpea), Pulse Research Station, JAU, Junagadh)

PLANT PATHOLOGY

(A) For farming community (2)

9.3.2.10 Management of root knot nematode, *Meloidogyne arenaria* in groundnut

The groundnut growing farmers of South Saurashtra Agro-climatic Zone are advised to apply talc based *Paecilomyces lilacinus* (cfu $1x10^6$/g) as seed treatment @ 10 g/kg seed or soil application of *Paecilomyces lilacinus* (cfu $1x10^6$/g) @ 2.5 kg/ha for effective and economical management of root knot nematode.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને મગફળીના પાકમાં મૂળના ગંઠવા કૃમિના

અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ટાલ્ક આધારીત પેસીલોમાયસીસ લીલાસીનસ ના પાઉડરની ૧૦ ગ્રામ પ્રતિ કિલો બીજની માવજત અથવા પેસીલોમાયસીસ લીલાસીનસ (સીએફયુ ૧ × ૧૦૯/ગ્રામ) ૨.૫ કિગ્રા/હે જમીનમાં આપવાની ભલામણ કરવામાં આવે છે.

(Action:Research Scientist, Main Oilseed Research Station, JAU, Junagadh)

9.3.2.11 Management of leaf blight disease in tomato

For economical and effective management of leaf blight disease *Alternaria solani* and to get higher tomato fruit yield, farmers of South Saurashtra Agro-climatic Zone, growing tomato in late *kharif* season are advised to apply three sprays of copper hydroxide 77 WP @ 0.2% (25 g/10 lit water) at 10 days interval starting from the initiation of the disease.

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના ચોમાસામા ટમેટાનુ પાછોતરુ વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, પાનના સુકારા રોગના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે રોગની શરૂઆત થયે કોપર હાઈડ્રોકસાઈડ ૭૭ વે.પા. @ ૦.૨ % (૨૫ ગ્રામ/૧૦ લીટર પાણી) ના ૧૦ દિવસના અંતરે ત્રણ છંટકાવ કરવા.

(Action:Res. Scientist (O & G), Vegetable Research Station, JAU, Junagadh)

9.3.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Entomology(3 + 3 = 6)

Farming community (3)

9.3.3.1 The eri silkworm rearer are advised that if dichlorvos 76 EC @ 0.05 % is used for the pest management in castor crop, leaves from such crop can be used only after 10 days of spraying for safe rearing of eri silkworm.

ભલામણ:

દિવેલાના રેશમના કીડા ઉછેર કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે દિવેલાના પાકમાં જીવાતોના નિયંત્રણ માટે ડાયકલોરવોસ ૭૬ઈ.સી. ૦.૦૫ % છંટકાવ કરેલ પાન ૧૦ દિવસ બાદ રેશમના કીડા ઉછેર માટે સલામત રીતે વાપરી શકાય છે.

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

9.3.3.2 For effective management of pod borer and pod fly in pigeon pea, farmers of South Gujarat are advised to apply two sprays of flubendiamide 20 WDG @ 50 g a.i./ha (5 g/10 litre water) first spray at the time of pod setting and second spray at 15 days after first spray for higher yield and better return. The pre-harvest interval (PHI) of 10 days is recommended for flubendiamide.

ભલામણ:

દક્ષિણ ગુજરાતનાં તુવેર ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે તુવેરમાં લીલી ઈયળ અને શિંગનીમાખીના અસરકારક નિયંત્રણ માટે ફલુબેન્ડીયામાઈડ ૨૦ ડબ્લ્યુ.ડી.જી. ૫૦ ગ્રામ સ. ત./હેકટર (૫ ગ્રામ/૧૦ લિટર પાણી)નો પ્રથમ છંટકાવ શિંગો બેસવાની અવસ્થાએ અને બીજો છંટકાવ ત્યાર બાદ પંદર દિવસના આંતરે કરવાથી વધુ ઉત્પાદન અને સારૂ વળતર મળે છે. ફલુબેન્ડીયામાઈડના છંટકાવ અને કાપણી વચ્ચેનો ગાળો ૧૦ દિવસ જાળવવો.

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

9.3.3.3 The cashew growers of South Gujarat are recommended to spray acetamiprid 20 SP @ 0.004 % (2 g/10 l water) at flushing, flowering and fruiting stages for effective control of tea mosquito bug (TMB) infesting cashew to gain higher raw nut yield.

The pre-harvest interval of 47 days is recommended for acetamiprid.

ભલામણ:

દક્ષિણ ગુજરાતમા કાજુની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે નવી ફૂટ, ફૂલો (મોર) અને ફળ બેસવાની અવસ્થાએ એસીટામીપ્રીડ ૨૦ એસ.પી. ૦.૦૦૪% (૨ ગ્રામ/૧૦ લિ. પાણી) નો છંટકાવ કરવાથી કાજુને નુકસાન કરતાં ટી મોસ્કીટો બગનું અસરકારક નિયંત્રણ કરી વધુ ઉત્પાદન મેળવી શકાય છે. એસીટામાપ્રીડના છંટકાવ અને ઉતાર વચ્ચેનો ગાળો ૪૭ દિવસ જાળવવો.

(Action: Asso. Res. Sci. Agri.Exp. Station, NAU, Paria)

(B) For scientific community (3)

9.3.3.4 The sapota fruit mite *Tuckerella kumaoensis* Gupta (Acari : Tuckerellidae) remains active round the year under South Gujarat agro-climatic situations III with higher population in the 18th to 20th Standard Meteorological Week (SMW). The mite population showed a significant positive correlation with

maximum temperature and it showed a significant negative correlation with morning and evening Relative Humidity.

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

9.3.3.5 Sugarcane genotypes viz., Co Snk 05104, CoVSI 05122, 2004 N 492, CoVSI 05123 and Co 05001 were found less susceptible against early shoot borer and top borer under field conditions.

(Action: Asso. Res. Sci. (Ento.), Main Sugarcane Res.Station, NAU, Navsari)

9.3.3.6 Sugarcane genotype 2004 N 492 was found less susceptible against scale insect whereas, genotypes 2004 N 492 and Co Snk 05101 were found moderately susceptible against mealy bug under field conditions.

(Action: Asso. Res. Sci. (Ento.), Main Sugarcane Res.station, NAU, Navsari)

Plant Pathology (2 + 4 = 6)

(A) **For farming community (2)**

9.3.3.7 Sugarcane growers of South Gujarat are advised to treat the setts with native Acetobacter-each ACN-1 & PSB-PBN-1 @300 ml/ha (each $1x10^8$ cfu/ml) by mixing together in one per cent jeggary solution as required for 30 minutes before planting and soil applications of native Acetobacter-ACN-1 &PSB-PBN-1 each @ **1**000 ml/ha ($1x10^8$ cfu/ml) mixed in pulverized soil (100 kg/ha); first at the time of planting and second at the time of earthing up along with 50:50:100% recommended dose of fertilizer of NPK to realize higher cane yield and save 50 per cent nitrogen and phosphorus in plant crop

ભલામણ:

દક્ષિણ ગુજરાતના ખેત આબોહવાકીય પરિસ્થિતી–ઉના શેરડીની ખેતી કરતા ખેડૂતોને સલાહ છે કે શેરડીનુંવધુ ઉત્પાદન મેળવવા તથા ૫૦ % નાઈટ્રોજન તેમજ ફોસ્ફરસયુકત રાસાયણિક ખાતરોની બચત કરવા માટેરાસાયણિક ખાતરની ભલામણના ૫૦ :૫૦ :૧૦૦ % ના.ફો.પો. તથા સ્થાનીક એસીટોબેકટર તેમજ પી.એસ.બી. કલ્ચર ૧ × ૧૦૮ સીએફયુ/ મીલીને ૧ ટકા ગોળના દ્રાવણમાં પ્રત્યેક ૩૦૦ મીલી/ હે પ્રમાણે મિશ્ર કરી શેરડીનાકટકાને ૩૦ મીનીટ માટે માવજત આપવી તેમજ સ્થાનીક એસીટોબેકટર અને

પી.એસ.બી.કલ્ચર (૧× ૧૦૯ સીએફયુ/ મીલી) પ્રત્યેક એક લીટર/ હે મુજબ ૧૦૦ કી.ગ્રા. ભરભરી માટી સાથે ભેળવી પ્રથમ વાવણી સમયે ચાસમાં અને બીજી વાર પાળા ચઢાવતી વખતે જમીનમાં આપવું.

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

9.3.3.8 Mango growers of South Gujarat are forewarned that powdery mildew infection in cv. Kesar occurs during third week of November to second week of December i.e. elongation of inflorescence still protected by bracts stage. Therefore, they are advised to adopt recommended plant protection measures at aforesaid time to avoid losses due to powdery mildew

ભલામણ:

દક્ષિણ ગુજરાતમાં આંબાની ખેતી કરતા ખેડૂતોને ચેતવણી આપવામાં આવે છે કે આંબાની કેસર જાતમાં ભૂકીછારાના રોગનો ઉપદ્રવ નવેમ્બરના ત્રીજા અઠવાડિયાથી ડિસેમ્બરના બીજા અઠવાડિયામાં (મોર ખુલવાની અવસ્થા) જોવા મળે છે. જેથી ખેડૂતોને સલાહ આપવામાં આવે છે કે ઉપરોકત સમય દરમ્યાન આંબાના પાકમાં ભૂકીછારાથી થતુ નુકસાન અટકાવવા ભલામણ મુજબના પાક સંરક્ષણના ઉપાયો કરવા.

(Action: Asso. Res. Sci. (Pl. Patho.), Agri. Exp. Station, NAU, Paria)

(B) For scientific community (4)

9.3.3.9 Sugarcane entries viz., Co 05001, Co 05008, Co 0403, CoSnk 03754, Co 0415, and Co 0416 were exhibited moderately resistant reaction to wilt disease in wilt sick plot**.**

(Action: Asso. Res. Sci. (Pl. Patho.), Main Sugarcane Res.Station, NAU, Navsari)

9.3.3.10 Sugarcane entries viz., Co 05001, CoVSI 05121, CoVSI 05123, 2004 N 596 and 2004 N 663 were found to be moderately resistant to red rot in plug and nodal inoculation methods.

(Action: Asso. Res. Sci. (Pl. Patho.), Main Sugarcane Res.Station, NAU, Navsari)

9.3.3.11 As the powdery mildew infection in mango cv. Kesar occurs during 47th to 50th SMW (1.33 to 18.00 PDI) therefore, scientific community are herewith informed that the following model should be used for timely forecasting of first appearance of disease in the benefit of farming community.

$$T_d = A_0 + \sum_{i=1}^{p}\sum_{j=0}^{1} a_{ij} Z_{ij} + \sum_{i,i'=1}^{p}\sum_{j=0}^{1} a_{ii'j} Z_{ii'j} + cT_f + e$$

$$Z_{ij} = \sum_{w=n_1}^{n_2} r_{iw}^{j} X_{iw},\ Z_{ii'j} = \sum_{w=n_1}^{n_2} r_{ii'w}^{j} X_{iw} X_{i'w}$$

Where

T_d Time of first appearance of disease (week)

T_f Week of flower bud initiation

X_{iw} Value of i^{th} weather variable in w^{th} week

r_{iw} Correlation coefficient between T_d and X_{iw}

$r_{ii'w}$ Correlation coefficient between T_d and product of X_{iw} and $X_{i'w}$

p Number of weather variables considered

n_1/n_2 Initial/final week for which weather data are included in the model

e error term distributed as N (0, ó^2)

A_0; aij; aiij; C are regression coefficients

Xi"w is value of ith weather variable in Wth week.

(Action: Asso. Res. Sci. (Pl. Patho.), Agri. Exp. Station, NAU, Paria)

9.3.3.12 Total fourteen microorganisms were isolated from *khira* of *dhokla and khaman* samples and preliminary study reveals that, among them ten isolates belongs to *Lactobacilli* and remaining were yeast.

(Action: Professor, FQTL, NAU, Navsari)

9.3.4 Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar

Entomology (3 +1 = 4)

(A) **Farming community (3)**

9.3.4.1 Farmers of North Gujarat Agro-climatic zone growing summer okra (Gujarat Okra 2) are advised to adopt following measures for effective and economical management of okra pests.

1) Seed treatment with imidacloprid 70 WS @ 5 g per kg seed

2) Mechanical collection and destruction of infested fruits with *Earias* larvae

3) Installation of yellow sticky traps @ 5/ha.

4) Application of azadirachtin 1500 ppm @ 30 ml / 10 litre at the initiation of

infestation and succeeding two sprays of profenophos 50 EC @ 25 ml / 10 litre at 15 days interval.

The Pre-harvest interval of 3 days is recommended for profenophos.

ભલામણઃ

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તારના ઉનાળુ ભીંડા (ગુજરાત ભીડા ૨) નું વાવેતર કરતા ખેડૂતો માટે ભીંડાની જીવાતો નું અસરકારક અને અર્થક્ષમ સંકલિત જીવાત વ્યવસ્થાપન કરવા માટે

૧. ઈમીડાકલોપ્રીડ ૭૦ ડબલ્યુ એસ ૫ ગ્રામ / કિ.ગ્રા. બીજ પ્રમાણે બીજની માવજત આપવી.

૨. કાબરી ઈયળથી નુકસાન પામેલ શિંગોને તોડી ઈયળ સાથે નાશ કરવો.

૩. પીળા ચીકણા ટ્રેપ નંગ ૫/હે ગોઠવવા.

૪. જીવાતના નુકસાનની શરૂઆત થયે પ્રથમ છંટકાવ એઝાડીરાકટીન ૧૫૦૦ પીપીએમ ૩૦ મિલિ / ૧૦ લિટર કરવો. ત્યાર બાદ પ્રોફેનોફોસ ૫૦ ઈસી ૨૫ મિલિ / ૧૦ લિટર દવાના બે છંટકાવ ૧૫ દિવસના આંતરે કરવાની ભલામણ છે. પ્રોફેનોફોસના છંટકાવ અને વીણી વચ્ચેનો ગાળો ૩ દિવસનો જાળવવો.

Action: **Asstt. Res. Sci. (Ento.), ARS, SDAU, Ladol**

9.3.4.2 Farmers of North Gujarat Agro-climatic zone growing chilli (Gujarat chilli-1) are advised to adopt the spray schedule as: Neem Seed Kernel Suspension 5 % at the initiation of infestation followed by triazophos 40 EC @ 25 ml / 10 litre, dicofol 18.5 EC @ 15 ml / 10 litre and acetamiprid 20 SP @ 1 g / 10 litre at 10 days interval for the effective and economical management of chilli pests.

ભલામણ

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તારના મરચી (ગુજરાત મરચી ૧) ઉગાડતા ખેડૂતોને મરચીની જીવાતોના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે જીવાતના નુકસાનની શરૂઆત થયે ૧૦ દિવસના અંતરે ક્રમશઃ લીંબોળીના મીંજનું ૫ % દ્રાવણ, ટ્રાયઝોફોસ ૪૦ ઈસી ૨૫ મિલિ/ ૧૦ લિટર, ડાયકોફોલ ૧૮.૫ ઈસી ૧૫ મિલિ/૧૦ લિટર અને એસીટામીપ્રીડ ૨૦ એસપી ૧ ગ્રામ /૧૦ લિટર પાણીમાં ભેળવી છંટકાવ કરવો.

Suggestion : The recommendation is deffered due to want of residue data.

[Action: **Asstt. Res. Sci. (Ento.), ARS, SDAU, Ladol**]

9.3.4.3 Farmers of North Gujarat Agro-climatic zone growing cauliflower are advised to adopt following module for effective and economical

management of cauliflower pests :

1) Grow castor as a trap crop on the border of the plot
2) Intercropping of cauliflower with mustard (10:1)
3) Installation of ' T' shaped bird perches @ 100/ha
4) Mechanical collection of eggs and first instar larval masses of *Spodoptera*
5) Alternate application of SNPV @ 250 LE /ha or HaNPV @ 350 LE/ha against *Spodoptera* and *Helicoverpa armigera*, respectively
6) Application of Nikunchhi 1 % (Aloevera 4 kg + Neem oil 500 ml + Tobacco snuff 500 g),
7) Need based application of profenophos 40 % + cypermethrin 4 % 44 EC @ 10 ml / 10 litre

The pre-harvest interval of 3 days is recommended for profenophos 40 % + cypermethrin 4 % .

ભલામણ

ઉત્તર ગુજરાત ખેત હવામાન વિસ્તારના કોલીફલાવરનું વાવેતર કરતા ખેડૂતોને કોલીફલાવરમાં જીવાતોના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે નીચે મુજબ પગલાં લેવાં:

(૧) ખેતરની ફરતે પિંજર પાક તરીકે દિવેલા વાવવા

(૨) આંતરપાક તરીકે કોલીફલાવર : રાઈ (૧૦ : ૧) નું વાવેતર કરવું

(૩) ''ટી'' આકારના પ્રતિ હેકટર દીઠ ૧૦૦ બેલીખડા રોપવા

(૪) લશ્કરી ઈયળના ઈંડાંના અને પ્રથમ અવસ્થાની ઈયળોના સમુહ વીણી લેવા

(૫) લશ્કરી ઈયળ માટે એસએન પીવી ૨૫૦ એલ ઈ અથવા લીલી ઈયળ માટે એચએએનપીવી ૩૫_ એલ ઈ /હે ના દર મુજબ વારાફરતી છંટકાવ કરવો

(૬) જરૂર જણાય તો નિકુંછી ૧ % (કુવારપાઠુ ૪ કિ. ગ્રા. + લીમડાનું તેલ ૫૦૦ મિલિ + છીંકણી ૫૦૦ ગ્રામ), ૧૦ મિલિ/૧૦ લિટર પાણી પ્રમાણે છંટકાવ કરવો

(૭) પ્રોફેનોફોસ ૪૦ % + સાઈપરમેથ્રીન ૪ % – ૪૪ ઈસી ૧૦ મિલિ/૧૦ લિટર પાણીમાં મેળવી છંટકાવ કરવો પ્રોફેનોફોસ ૪૦ % + સાઈપરમેથ્રીન ૪ % ના છંટકાવ અને કાપણી વચ્ચેના ગાળો ૩ દિવસનો જાળવવો.

[Action: **Asstt. Res. Sci. (Ento.), ARS, SDAU, Ladol**]

(B) For scientific community (1)

9.3.4.4 For the effective and economical management of tomato fruit borer, *Helicoverpa armigera* in tomato (cv. Abhinav) grown as telephone method under North Gujarat conditions are advised to adopt the IPM module by growing African marigold after every 8 rows of tomato as well as on the periphery of the plot and two sprays of HaNPV @ 350 LE/ha on appearance of first instar larvae followed by two sprays of Deltamethrin 32 EC + **Endosulfan*** 0.8 EC @ 15 ml/10 litres as and when required.

- **Banned w.e.f.13th May 2011**

[Action: **Asstt. Res. Sci. (Ento.), ARS, SDAU, Ladol**]

Pathology (1 + 0 =1)

(A) **Farming community (1)**

9.3.4.5 The farmers of North Gujarat Agro-climatic region are advised to treat the cumin seeds with *Pseudomonas flourescens* (IISR-6) 1 X 10^8 cfu/g @ 10 g/kg as slurry treatment and spray of *P. flourescens* (IISR-6) 1X10^8 cfu/g @ 2.5 kg/ha at 60 days after sowing OR to treat the seeds with *P. flourescens* (IISR-6) 1X10^8 cfu/g @ 10 g/kg and soil application of *Trichoderma harzianum* 1X10^8 cfu/g @ 10 kg/ha and *P. flourescens* (IISR-6) 1X10^8 cfu/g as spray @ 2.5 kg/ha (60 DAS) for effective and economical management of wilt and blight diseases of cumin.

ભલામણ :

ઉત્તર ગુજરાત ખેત હવામાન વિભાગના જીરૂની જૈવિક ખેતી અપનાવતા ખેડૂતોને જીરૂના પાકમાં સુકારા અને ચરમી (કાળીયા) રોગના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે સુડોમોનાસફલોરોસન્સ (આઈ. આઈ. એસ. આર.–૬)૧ × ૧૦૮ સી. એફ. યુ./ગ્રામ % ૧૦ ગ્રામ/કિ.ગ્રા. બીજ મુજબ ૨ગડો બનાવી બીજ માવજત આપવાની તથા૬૦ દિવસે સુડોમોનાસ ફલોરોસન્સ (આઈ. આઈ. એસ. આર.–૬) ૧ × ૧૦૮ સી. એફ. યુ./ગ્રામ % ૨.૫ કિ.ગ્રા./હે. મુજબ છાંટવાની ભલામણ કરવામાં આવે છે. અથવા સુડોમોનાસ ફલોરોસન્સ (આઈ. આઈ.એસ. આર. –૬) ૧ × ૧૦૮ સી. એફ. યુ./ગ્રામ % ૧૦ ગ્રામ/કિ.ગ્રા. બીજ મુજબ બીજ માવજત આપવાની તથા જમીનમાં ૧૦ કિ.ગ્રા./હે. પ્રમાણે ટ્રાઈકોડર્મા હરજીએનમ આપવાની તથા ૬૦ દિવસે સુડોમોનાસ ફલોરોસન્સ(આઈ.આઈ.એસ.આર.–૬) ૧ × ૧૦૮ સી. એફ. યુ./ગ્રામ % ૨.૫ કિ. ગ્રા./હે. મુજબ છાંટવાની ભલામણ

કરવામાં આવે છે.

[Action: **Res. Sci. (Pl.Patho.), CRSS, SDAU, Jagudan**]

9.4 HORTICULTURE AND AGRO FORESTRY

The meeting was held at seminar hall of ASPEE college of Home Science, SDAU, Sardarkrushinagar, during 06 – 07 May, 2013. The session was chaired by Dr. A. V. Barad, Dean, College of Agriculture, JAU, Junagadh and co-chaired by Dr. L. R. Varma, Dean, College of Horticulture, SDAU, Sardarkrushinagar and Dr. D. V. Delvadiya, Professor, Horticulture Wing, JAU, Junagadh. Rapporteurs for the session were Prof. J. R. Vadodaria, Assoc. Res. Scientist (Arid Fruits), SDAU, Sardarkrushinagar and Dr. S. L. Chawla, Assoc. Professor (Floriculture), NAU, Navsari. Respective convenor/scientists from all SAUs present the recommendations. Total seventeen recommendations were discussed in the house out of which 15 were for farming community while 2 were for scientific community and outcomes from the deliberation come out as under

SUMMARY:

Sr. No.	University	No. of recommendations proposed	No. of recommendations accepted		Deferred
			For Farming community	For scientific community	
1.	AAU, Anand	03	03	--	--
2.	**JAU, Junagadh**	**05**	**05**	**--**	**--**
3.	NAU, Navsari	07	05	02	--
4.	SDAU, Sardarkrushinagar	02	02	--	--
	Total	**17**	**15**	**02**	--

- The house suggested that in recommendation 1 of JAU instead of giving recipe it should be variety suitable for processing. In recommendation of 3 of JAU for farming community house suggested that committee should be formed by DOR for verification of data.

9.4.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Recommendation for farming community

9.4.1.1 Response of plant density and integrated nutrient management in cowpea cv. AVCP-1

Farmers of middle Gujarat Agro climatic zone-III growing vegetable cowpea (AVCP – 1) in kharif season are advised to apply 5 tonnes FYM per hectare along with basal fertilizer 10:20:0 NPK kg/ha with the seed treatment of Rhizobium

(cowpea AAU isolate) and PSB culture (PBA-16) (each at 5 ml per kg seed) and sow the seed at 45 X 45 cm spacing to obtain higher green pod yield and maximum net return.

ખેડૂતોપયોગી ભલામણ :

મધ્ય ગુજરાત કૃષિ આબોહવાકીય વિભાગ–૩ વિસ્તારના ચોમાસામાં શાકભાજી ચોળીની (આણંદ શાકભાજી ચોળી–૧) ખેતી કરવા ઈચ્છતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે પાયામાં હેકટર દીઠ ૫ ટન છાંણીયુ ખાતર અને ૧૦ : ૨૦ : ૦૦ કિ.ગ્રા. ના.ફો.પો. તત્વો નાખી તથા બીજને રાઈઝોબિયમ (ચોળી એએયુ આઈસોલેટ) અને પીએસબી (પીબીએ–૧૬) કલ્ચરની (બન્ને ૫ મીલી પ્રતિ કિ.ગ્રા. બીજ) માવજત આપી બીજનું ૪૫ × ૪૫ સે.મી.ના અંતરે વાવેતર કરવાથી લીલી ચોળીનું વધુ ઉત્પાદન તથા મહત્તમ નફો મેળવી શકાય છે.

Accepted with following suggestions :

Recast the language of recommendation and mention the common dose of FYM and strain of *Rhizobioum* and PSB.

[Action: Prof. & Head, Deptt. of Horti, COH, AAU, Anand**]**

9.4.1.2 Response of plant growth retardants and pinching on growth, flowering and flower yield of African marigold *(Tagetes erecta Linn)*

The farmers of middle Gujarat Agro-climatic zone III growing of African marigold are advised to spray the foliar application of cycocel 750 mg/l in two intervals (first spray at 30 days after transplanting and second at 45 days after transplanting) for getting higher flower yield per hectare, enhancing vase life of flowers and higher net realization.

ખેડૂતોપયોગી ભલામણ

મધ્ય ગુજરાત કૃષિ આબોહવાકીય વિભાગ–૩ માં આફ્રિકન ગલગોટા ફૂલ પાક ઉગાડતા ખેડૂતોને ગલગોટાના છોડ ઉપર સાયકોસેલ ૭૫૦ મી.ગ્રામ/લિટર ના બે છંટકાવ (પ્રથમ છંટકાવ છોડની ફેર રોપણી પછી ૩૦ દિવસે અને બીજો છંટકાવ છોડની ફેરરોપણી પછી ૪૫ દિવસે) કરવાથી ફૂલોનું વધુ ઉત્પાદન, ફૂલોની લાંબા સમય સુધી ટકાઉશકિત અને વધુ મહત્તમ ચોખ્ખો નફો મળે છે.

Accepted

[Action: Prof. & Head, Deptt. of Horti, COH, AAU, Anand**]**

9.4.1.3 Nutrients and water management through fertigation in potato cv. Kufri Badshah

The farmers of middle Gujarat Agro-climatic zone III growing potato are advised to irrigate the crop through drip for 21 minutes during November to January and 32 minutes during February to March at an alternate day for getting higher potato tuber yield and net income with saving of 28% water.

For drip irrigation potato crop should be planted in pair row (60 x 30) x 10 cm. The system should be laid out with lateral distance of 90 cm (in pair row) and dripper (4 LPH) spacing of 30 cm. The system should be operated at a pressure of 1.2 kg/cm^2.

ખેડૂતોપયોગી ભલામણ

મધ્ય ગુજરાત કૃષિ આબોહવાકીય વિભાગ–૩ વિસ્તારમાં ટપક સિંચાઈ પધ્ધતિ હેઠળ બટાટા ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે નવેમ્બર થી જાન્યુઆરી દરમ્યાન ૨૧ મિનીટ અને ફેબ્રુઆરી થી માર્ચ દરમ્યાન ૩૨ મિનીટ એકાંતરે દિવસે ટપક પધ્ધતિ ચલાવવાથી બટાટાનું વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે તથા પાણીની ૨૮% બચત થાય છે.

ટપક સિંચાઈ પધ્ધતિમાં બે પાઈપ વચ્ચે ૯૦ સે.મી. અંતર રાખી જોડીયા હારથી (૬૦ × ૩૦) × ૧૦ સે.મી. ના અંતરે બટાટા રોપવાથી અને બે જોડીયા હાર વચ્ચે લેટરલ ગોઠવી ૪ લિટર/કલાકની ક્ષમતાવાળા ટપકણાં ગોઠવવા અને ટપક પધ્ધતિ ૧.૨ કિગ્રા. /સેમી^{2} દબાણે ચલાવવી.

Accepted

[Action: Prof. & Head, Deptt. of Horti, COH, AAU, Anand**]**

9.4.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Recommendation for farming community

9.4.2.1 Evaluation of guava fruit varieties for processing into nectar beverage

Fruit Processors are advised to use 20 % pulp of cv. Allahabad Safeda with 0.3 % of acidity and 17 % TSS to prepare a good quality of guava nectar (RTS) stored up to 150 days.

ખેડૂત ઉપયોગી ભલામણ:

ફળોની બનાવટોના ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, નેકટર (પીણું) બનાવવા માટે જામફળની અલ્હાબાદ સફેદા જાતના ફળનો ૦.૩% એસીડીટી અને ૧૭ % ટી.એસ.એસ. ધરાવતા ૨૦% માવાનો ઉપયોગ કરવાથી સારી ગુણવત્તાવાળુ ૧૫૦ દિવસ સુધી સંગ્રહ કરી શકાય તેવું નેકટર (પીણું) બનાવી શકાય છે.

[Action: Professor & Head, Department of Horticulture, JAU, Junagadh]

9.4.2.2 Integrated nutrient management in guava cv. 'Lucknow-49' under Saurashtra region

The farmers of South Saurashtra Agro-climatic Zone who are growing guava cultivar Lucknow-49 are advised to apply either vermicompost @ 10 kg along with 75% recommended dose of fertilizers (450 g nitrogen, 225 g phosphorus and 225 g potash) per tree or FYM 75 kg + 25% RDF (150 g nitrogen, 75 g phosphorus and 75 g potash) + PSB (20 g per tree) + *Azospirilium* (20 g per tree), in which half dose of nitrogen, full dose of phosphorus, potash and vermicompost should apply at the onset of monsoon and remaining half dose of nitrogen in first week of October to get higher yield and net return.

ખેડૂત ઉપયોગી ભલામણઃ

આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારના જામફળની લખનૌ–૪૯ જાતનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, અળસીયાનું ખાતર ૧૦ કીલો અને ભલામણ મુજબના ૭૫ ટકા રાસાયણિક ખાતરો (૪૫૦ ગ્રામ નાઈટ્રોજન, ૨૨૫ ગ્રામ ફોસ્ફરસ અને ૨૨૫ ગ્રામ પોટાશ) અથવા સેન્દ્રીય ખાતર ૭૫ કીલો + ભલામણ મુજબના ૨૫ ટકા રાસાયણિક ખાતરો (૧૫૦ ગ્રામ નાઈટ્રોજન, ૭૫ ગ્રામ ફોસ્ફરસ અને ૭૫ ગ્રામ પોટાશ) + પીએસબી (૨૦ ગ્રામ પ્રતિ છોડ) + એઝોસ્પિરિલિયમ (૨૦ ગ્રામ પ્રતિ છોડ) પૈકી નાઈટ્રોજનનો અડધો જથ્થો તેમજ ફોસ્ફરસ, પોટાશ અને અળસીયાના ખાતરનો આખો જથ્થો ઝાડ દીઠ ચોમાસાની શરૂઆતમાં આપવો. જયારે બાકી રહેતો નાઈટ્રોજનનો અડધો જથ્થો ઓકટોબર માસના પ્રથમ અઠવાડીયે આપવાથી વધારે ઉત્પાદન અને ચોખ્ખી આવક મેળવી શકાય છે.

[Action: Professor & Head, Department of Horticulture, JAU, Junagadh]

9.4.2.3 Preparation and preservation of lasora in different brine preservatives

Fruit processors are advised that the freshly harvested fruits of lasora should be dipped either in Brine 30% + $CaCl_2$ 2% (LR grade) or sea water @ 35 ppt (part per thousand, collected from 1 km inside the sea shore) for enhancing storage life up to 180 days with good quality fruit.

ખેડૂત ઉપયોગી ભલામણઃ

ફળોની બનાવટોના ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે ગુંદાના તાજા ઉતારેલા ફળોને ૩૦ % મીઠું + ૨ % કેલ્શીયમ કલોરાઈડ અથવા ૩૫ પી.પી.ટી. (પાર્ટ પર થાઉઝન્ડ, દરીયા કિનારેથી ૧ કિ.મી. અંદરના ભાગનુ) ધરાવતા દરીયાના પાણીમા બોળી રાખવાથી સારી ગુણવત્તા સાથે ૧૮૦ દિવસ સુધી સંગ્રહ કરી શકાય છે.

[Action: Professor & Head, Department of Horticulture, JAU, Junagadh]

9.4.2.4 Testing of seasonal forage/fodder crops as a inter cropping in

coconut orchard cv. T x D

Coconut growers of South Saurashtra Agro-climatic Zone are advised to grow sorghum cv. *Gundari* for green and dry fodder or maize cv. African Tall for dry fodder purpose as an intercrop in adult plantation of coconut hybrid T x D to get additional net return without decreasing coconut yield.

ખેડૂત ઉપયોગી ભલામણઃ

આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં નાળીયેરીની ટી. × ડી. જાતના પુખ્ત વયના ઝાડનો બગીચો ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે લીલા અને સુકા ચારા માટે જુવાર (ગુંદરી) અથવા સુકા ચારા માટે મકાઈ (આફ્રિકન ટોલ) આંતર પાક તરીકે વાવવાથી નાળીયેરના ઉત્પાદનમાં ઘટાડા સીવાય વધારાનો ચોખ્ખો નફો મળે છે.

[Action: Research Scientist, Agricultural Research Station (FC), JAU, Mahuva]

9.4.2.5 Testing of forage/fodder crops as a inter cropping for coconut orchard cv. T x D

Coconut growers of South Saurashtra Agro-climatic Zone are advised to grow either multi cut sorghum cv. SSG-59-3 or multi cut Napier grass cv. APBN-1 (hybrid Napier) for green fodder purpose as an intercrop in adult plantation of coconut hybrid T x D to get additional net return without decrease in coconut yield.

ખેડૂત ઉપયોગી ભલામણઃ

આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં નાળીયેરીની ટી. × ડી. જાતના પુખ્ત વયના ઝાડનો બગીચો ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે લીલા ચારા માટે વધારે વાઢ કરી શકાય તેવી જુવારની એસ.એસ.જી. ૫૯–૩ જાત અથવા નેપીયર ઘાસ એપીબીએન–૧ જાત (સંકર નેપીયર) આંતર પાક તરીકે વાવવાથી નાળીયેરના ઉત્પાદનમાં ઘટાડા સીવાય વધારાનો ચોખ્ખો નફો મળે છે.

[Action: Research Scientist, Agricultural Research Station (FC), JAU, Mahuva]

9.4.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Recommendation for farming community

9.4.3.1 Effect of different proportion of organic manures on yield and quality of organically grown papaya.

The farmers of south Gujarat heavy rainfallagro-climaticzone who have adopted organic cultivation of papaya are advised toapply bio compost, vermicompost and castor cake in equal proportion to supply N @ 200 g/plant and

banana pseudostemsap @ 8 l/plant for achieving higher and better quality of papaya fruit. The schedule of applying organics is as under.

- Apply 222 g/plant biocompost + 256 g/plant vermicompost + 76 g/plant castor cake + 1.6 g/plant each of *Azatobactor* and PSB at the time of planting.
- Apply 111 g/plant biocompost + 128 g/plant vermicompost + 38 g/plant castor cake at 2 months of planting and repeat this doseat four months after planting.
- Banana pseudostemsap is to be applied @ 8 l/plant in 8 equal splits at an interval of one month, starting from two months after planting.

Note:

- Grow maize as trap crop *i.e.* 2 rows of maize after every 4 rows of papaya.
- Drench 0.5% solution each of *Trichoderma* and *Pseudomonas* @ 500 ml/plant
- Spray solution containing 1.5% cow urine + 1.5% butter milk + 0.5% jaggery at 3, 6 and 9 months after planting.

ખેડૂત ઉપયોગી ભલામણ

દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા આબોહવાકીય વિસ્તારના ખેડૂતો જે સેન્દ્રિય ખેતીથી પપૈયા ઉગાડે છે તેઓને વધુ ઉત્પાદન અને સારી ગુણવત્તાવાળા પપૈયા લેવા છોડ દીઠ ૮ લીટર કેળના થડનો રસ અને ભલામણ મુજબનો નાઈટ્રોજન (૨૦૦ ગ્રામ/છોડ) બાયોકમ્પોસ્ટ, અળસિયાનું ખાતર અને દિવેલી ખોળમાંથી સરખા પ્રમાણમાં આપવાની ભલામણ છે. સેન્દ્રિય ખાતર નીચે જણાવેલ સમય પત્રક મુજબ આપવું.

- રોપણી સમયે છોડ દીઠ ૨૨૨ ગ્રામ બાયોકમ્પોસ્ટ + ૨૫૬ ગ્રામ અળસિયાનું ખાતર + ૭૬ ગ્રામ દિવેલી ખોળ + ૦.૬ ગ્રામ એઝોટોબેકટર + ૦.૬ ગ્રામ પીએસબી આપવું.
- રોપણી બાદ બે મહિને છોડ દીઠ ૧૧૧ ગ્રામ બાયોકમ્પોસ્ટ +૧૨૮ ગ્રામ અળસિયાનું ખાતર+૩૮ ગ્રામ દિવેલીખોળ આપવો. આજ પ્રમાણેનો સેન્દ્રિય ખાતરનો જથ્થો રોપણી બાદ ચાર મહિને આપવો.
- રોપણીના બે મહિના બાદ કેળના થડનો રસ ૧ લીટર પ્રતિ છોડ લેખે દર મહિને ૮ મહિના સુધી આપવો.

નોંધ :–

- પપૈયાની દરેક ચાર હાર બાદ બે હાર મકાઈની પિંજર પાક તરીકે ઉગાડવી.
- રોપણીના બે મહિના બાદ ટ્રાયકોડર્મા અને સ્યુડોમોનાસ દરેકનું ૦.૫ ટકાનું દ્રાવણ છોડ દીઠ ૫૦૦ મીલી રેડવું.
- રોપણીના ત્રણ, છ અને નવ મહિના બાદ ૧.૫ ટકા ગૌમુત્ર +૧.૫ ટકા છાશ +૦.૫ ટકા ગોળના દ્રાવણનો છંટકાવ કરવો.

Accepted

[Action: Prof. & Head, Deptt. Of Soil Science & Agril Chem., ACHF, NAU, Navsari]

9.4.3.2 Standardization of stage wise requirement of nutrients in banana

The farmers of South Gujarat heavy rainfall zone growing banana cv. Grand Naine in clay loam soils and similar climatic conditions are recommended to apply 80 per cent recommended dose of 240 g N and 160 g K_2O /plant, i.e. (1) 96 g N and 40 g K_2O at 3rd month (vegetative stage), (2) 72 g N and 56 g K_2O at 5th month (flower bud initiation stage), (3) 72 g N and 40 g K_2O at 7th month (flowering stage) and (4) 0 g N and 24 g K_2O at 9th month (bunch development) after planting. FYM 10 kg/plant and total dose of P_2O_5 @ 90g/plant should be applied at planting. It gives higher yield with 20 per cent fertilizer saving.

ખેડૂતોપયોગી ભલામણ

દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારની માટિયાળ ગોરાડુ જમીન અને સમાન આબોહવાકીય પરિસ્થિતિમાં કેળની ગ્રાન્ડ નૈન જાતની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ભલામણ કરેલ રાસાયાણિક ખાતર નાઈટ્રોજન અને પોટાશના ૮૦ ટકા એટલે કે ૨૪૦ ગ્રા. નાઈટ્રોજન અને ૧૬૦ ગ્રા. પોટાશ/છોડ જે પૈકી પ્રથમ હપ્તે ૯૬ ગ્રા. નાઈટ્રોજન અને ૪૦ ગ્રા. પોટાશ ત્રીજા માસે (વાનસ્પતિક અવસ્થા), બીજા હપ્તે ૭૨ ગ્રા. નાઈટ્રોજન અને ૫૬ ગ્રા. પોટાશ પાંચમા માસે (પુષ્પકલી ભેદીકરણ અવસ્થા), ત્રીજા હપ્તે ૭૨ ગ્રા. નાઈટ્રોજન– ૪૦ ગ્રા. પોટાશ સાતમા માસે (ફુલ અવસ્થા) અને ચોથા હપ્તે ૦ ગ્રા. નાઈટ્રોજન – ૨૪ ગ્રા. પોટાશ નવમા માસે (લુમનો વિકાસ) આપવો. છાણિયુ ખાતર ૧૦ કિલોગ્રામ અને ફોસ્ફરસનો સંપૂર્ણ જથ્થો ૯૦ ગ્રામ પ્રતિ છોડ મુજબ રોપણી સમયે આપવો. આમ કરવાથી ૨૦ % ખાતરની બચત સાથે વધુ ઉત્પાદન મળે છે.

Accepted with the following suggestion:

1. Mention saving percentage instead of BCR.
2. Write stage of application of fertilizer in vernacular language.

[Action: Assoc. Res. Scientist, FRS, NAU, Gandevi]

9.4.3.3 Standardization of stage wise requirement of nutrients in sapota.

The farmers of South Gujarat heavy rainfall zone having sapota cv. Kalipatti orchard in clay loam soils are recommended to apply 100 percent recommended dose of fertilizers (1000-500-500 g NPK/tree/year) to adult trees in three ratio of NPK i.e. 25:100:25 (250-500-125 g NPK), 50:00:50 (500-00-250 g NPK) and 25:00:25 (250-00-125 g NPK) percent during June, August and October respectively instead of two equal split i.e. June and October.

ખેડૂતોપયોગી ભલામણ

દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારની માટિયાળ ગોરાડુ જમીનમાં ચીકુની કાલીપત્તી જાતની વાડી ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ચીકુના પુખ્ત વયના ઝાડો માટે ભલામણ કરેલ રાસાયાણિક ખાતર (૧૦૦૦–૫૦૦–૫૦૦ ગ્રા.નાફોપો/ઝાડ/વર્ષ) હાલની ભલામણ મુજબ બે સરખા હપ્તામાં જુન અને ઓકટોબરમાં આપવાને બદલે નાઈટ્રોજન, ફોસ્ફરસ અને પોટાશ ના ત્રણ ગુણોત્તર ૨૫:૧૦૦:૨૫ (૨૫૦–૫૦૦–૧૨૫ ગ્રા. નાફોપો), ૫૦:૦૦:૫૦ (૫૦૦–૦૦–૨૫૦ ગ્રા. નાફોપો) અને ૨૫:૦૦:૨૫ (૨૫૦–૦૦–૧૨૫ ગ્રા. નાફોપો) ટકવારી ગુણોત્તર પ્રમાણે અનુક્રમે જુન, ઓગસ્ટ અને ઓકટોબરમાં આપવાથી વધુ ઉત્પાદન મળે છે.

Accepted

[Action: Assoc. Res. Scientist, FRS, NAU, Gandevi]

Recommendation for scientific community

9.4.3.4 Varietal trial in banana

Banana cultivar Gandevi Selection has proved higher productivity (97.20 t/ha) than Grand Naine (73.70 t/ha) under South Gujarat agro-climatic condition, however both the varieties are at par with each other on the basis of per day production i.e. 192.60 kg (Gandevi selection) and 189.87 kg (Grand Naine), which proves that inspite of longer crop period, Gandevi selection provides almost the same per day production and higher benefit in comparison to cultivar Grand Naine. Gandevi Selection is equally economically remunerative as Grand Naine on the basis of productivity per hectare per day.

Accepted

[Action: Assoc. Res. Scientist, FRS, NAU, Gandevi]

9.4.3.5 Pruning trial in sapota cv. Kalipatti

The pruning treatments imposed on 20 years old sapota cv. Kalipatti planted at 10X5 m spacing under South Gujarat heavy rainfall zone could not show significant improvement in yield in comparison to conventional spacing (10X10 m). But pruning treatment heading back of scaffold branches 60 cm away from the point of interlocking resulted in significantly higher fruit diameter and pulp skin ratio in terms of physico- chemical properties. Significantly higher TSS recorded in treatment topping the tree height above 4^{th} tier. The increase in fruit weight also recorded in treatment combination heading back of scaffold branches and topping. Thus pruning treatment improved physico-chemical properties of fruit.

Accepted

[Action: Assoc. Res. Scientist, FRS, NAU, Gandevi]

Recommendation for farming community

9.4.3.6 Effect of different organic manures on growth, yield and quality of organically grown turmeric (*Curcuma longa*).

The farmers of south Gujarat who adopted turmeric cultivation under organic farming are recommended to apply biocompost and neem cake in equal proportion to supply 60 kg N/ha for achieving higher yield and better quality turmeric. Organics i.e. biocompost @ 830 kg/ha + neem cake @ 290 kg/ha should be appliedtwice, first at the time of planting and second dose at 3 months after planting.

Note:

- Apply Azotobacterand PSB each @ 2 kg/ha at the time of planting.
- Apply spray of mixture of cow urine (1.5%) + butter milk (1.5%) + jaggery (0.5%) at 2 month after planting.
- Drench 0.5% solution each of *Trichoderma* and *Pseudomonas* at 2 months after planting.

ખેડૂત ઉપયોગી ભલામણ

દક્ષિણ ગુજરાતના ખેડૂતો જે સેન્દ્રિય ખેતી પધ્ધતિથી હળદર ઉગાડે છે. તેઓને વધુ ઉત્પાદન અને ગુણવત્તા યુકત હળદર મેળવવા ભલામણ મુજબનો નાઈટ્રોજન (૬૦ કિ.ગ્રા./હે) બાયોકમ્પોસ્ટ અને લીંબોળી ખોળમાંથી સરખા પ્રમાણમાં આપવાની ભલામણ છે. સેન્દ્રિય ખાતર એટલેકે, પ્રતિ હેકટર ૮૩૦ કિ.ગ્રા. બાયોકમ્પોસ્ટ + ૨૯૦ કિ.ગ્રા. લીંબોળી ખોળ રોપણી સમયે અને રોપણી બાદ ૩ મહિને આપવો.

નોંધ :–

- એઝોટોબેકટર અને પીએસબી દરેક ૨ કિ.ગ્રા. / હે પ્રમાણે રોપણી સમયે આપવું.
- ૧.૫ ટકા ગૌમુત્ર + ૧.૫ ટકા છાસ + ૦.૫ ટકા ગોળના મિશ્રણ નો છંટકાવ રોપણી બાદ ૨ મહિને કરવો.
- ટ્રાઈકોડર્મા અને સ્યુડોમોનાસ, દરેક ૦.૫ ટકાનું દ્રાવણ રોપણી બાદ ૨ મહિને જમીનમાં રેડવું.

Accepted with the following suggestion:

1. Combine the fertilizer schedule in one line.

[Action: Prof. & Head, Deptt. of Soil Science & Agril Chem., ACHF, NAU, Navsari]

Recommendation for farming community

9.4.3.7 Varietal assessment of chrysanthemum under South Gujarat agro-climatic conditions.

The farmers of South Gujarat Heavy Rainfall Zone cultivating flower crops are advised to grow chrysanthemum variety Ratlam Selection (white) which has higher market demand due to white colour and good quality. Moreover, there is market demand for red and yellow colour which can be met by growing Red Gold (red) and CS-16 (yellow) varieties which produce better quality flowers.

ખેડૂત ઉપયોગી ભલામણ

દક્ષિણ ગુજરાતના ભારે વરસાદીય ઝોન–૧ માં ફુલોની ખેતી કરતા ખેડૂતોને સેવંતીની રતલામ સિલેકશન (સફેદ) જાત વાવવાની ભલામણ કરવામાં આવે છે. જે તેના સફેદ રંગ અને સારી ગુણવત્તાને લીધે બજારમાં વધુ માંગ ધરાવે છે. આ ઉપરાંત, બજારમાં સેવંતીના પીળા અને લાલ રંગના ફૂલોની માંગ પણ હોય છે. જેના માટે રેડ ગોલ્ડ (લાલ) અને સીએસ–૧૬ (પીળી) જેવી જાતોનું વાવેતર કરીને સારી ગુણવત્તાવાળા ફૂલોનું ઉત્પાદન લઈ શકાય છે.

Accepted

[Action: Prof. & Head, Deptt. Of Floriculture, ACHF, NAU, Navsari]

9.4.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Recommendation for farming community

9.4.4.1 Effect of different levels of phosphorus and potassium on growth, yield and quality of hybrid brinjal

The farmers of North Gujarat agro-climatic Zone growing hybrid brinjal in *rabi* are advised to apply 50 kg Phosphorus and 50 kg potash/ha with 80 kg Nitrogen as basal and remaining 120 kg Nitrogen in three equal splits at 30, 45 and 60 DAT for better quality, higher yield and net return.

ખેડુત ઉપયોગી ભલામણઃ

ઉત્તર ગુજરાત ખેત હવામાન વિસ્તારના શિયાળામાં રીંગણની હાઈબ્રીડ જાતોની ખેતી કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે રીંગણની હાઈબ્રીડ જાતનું વધુ ઉત્પાદન, સારી ગુણવત્તા અને વધુ ચોખ્ખો નફો મેળવવા માટે પાકને ૫૦ કિ.ગ્રા. ફોસ્ફોરસ,૫૦ કિ.ગ્રા. પોટાશ અને ૮૦ કિ.ગ્રા.નાઈટ્રોજન પાયાના ખાતર તરીકે તથા બાકીનો ૧૨૦ કિ.ગ્રા.નાઈટ્રોજનનો જથ્થો ત્રણ સરખા ભાગમાં ફેર રોપણી બાદ ૩૦,૪૫ અને ૬૦ દિવસના અંતરે આપવો.

Accepted

[Action: Associate Research Scientist, A R S,SDAU, Ladol]

9.4.4.2 Integrated nutrient management (INM) in okra Cv. GO 2

The farmers of North Gujarat Agro climatic Zone growing okra cv. GO-2 in summer are advised to apply 75 per cent recommended dose of NPK (100: 50: 50 kg/ha) through chemical fertilizer (Phosphorus and potash and 50 per cent Nitrogen as basal while remaining 50 per cent Nitrogen in two equal splits at 30 and 45 DAS) alongwith basal dose of 2 t/ha better quality vermicompost for obtaining higher yield and net return.

ખેડૂત ઉપયોગી ભલામણ:

આથી ઉત્તર ગુજરાત ખેત હવામાન વિસ્તારના ઉનાળુ ભીંડાની ખેતી કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે ઉનાળુ ભીંડાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પાયાના ખાતર તરીકે ૨(બે) ટન/હે. સારી ગુણવત્તાવાળુ વર્મીકમ્પોસ્ટ સાથે ભલામણ કરેલ નાઈટ્રોજન, ફોસ્ફરસ અને પોટાશ (૧૦૦:૫૦:૫૦) ના ૭૫% રાસાયણીક ખાતરના રૂપમાં જેમાં ફોસ્ફરસ, પોટાશ અને ૫૦ ટકા નાઈટ્રોજન પાયાના ખાતર તરીકે તથા ૫૦ ટકા નાઈટ્રોજન બે સરખા ભાગમાં વાવણી કર્યા બાદ ૩૦ અને ૪૫ દિવસે આપવું.

Accepted

[Action: Associate Research Scientist, ARS, SDAU, Ladol]

9.5 ENGINEERING FOOD PROCESSING TECHNOLOGY

Chairman	:	Dr. N. C. Patel, Hon. Vice Chancellor JAU, Junagadh
Co-Chairman	:	Dr. D. C. Joshi, Dean, FPT & BE, AAU, Anand.
Rapporteurs	:	Dr. R. Subbaiah, Prof. & Head, SWE, CAET, JAU, Junagadh. Dr. R. Swarnkar, Prof. & Head, FMP, CAET, AAU, Godhra.

Dr. S.H. Suthar Convener, Agricultural Engineering Sub-Committee, SDAU, SKNagar welcomed all the members of Agricultural Engineering, Food Processing Technology, Dairy Science, Food and Technology and Agricultural Information Technology group. Before initiation of the meeting, Dr. N. C. Patel, Hon. Vice Chancellor JAU, Junagadh stressed the need for demand oriented research and low cost innovative technologies and dissemination of the knowledge among the domain of farmers, entrepreneurs, industrialists and policy makers. He also suggested that the report should be complete with all the experimental details including statistical data analysis. The conveners of the respective disciplines presented the recommendations as well as the new technical programme. The house thoroughly discussed and improved the recommendations as well as the new technical programme. The Chairman suggested to present the experiments on post

harvest technology and processing of Centre of Excellence on Post Harvest Technology, NAU, Navsari only in the agricultural engineering sub-committee.

Universities	Recommendation				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	9	9	-	-	39	39
JAU	**6**	**6**	**2**	**2**	**15**	**14**
NAU	2	2	-	-	8	8
SDAU	4	2	2	2	9	9
Total	**21**	**19**	**4**	**4**	**71**	**70**

- In recommendation 8 for farmers of JAU the size of rotavator should be incorporated as suggested by house. In recommendation 9 house also suggested to indicate moisture content up crop at the time of harvesting.

9.5.1 Anand Agricultural University, Anand

Dr. R. V. Prasad, Convener, AAU, Anand presented nine recommendations.

9.5.1.1 Shelf life study of *Thabdi* employing different packages

The house approved the recommendation. The recommendation is Shelf life of *Thabdi* can beextended by 15-20% by filling the product in a PVC tray, inserting in Met-Polyester/PE pouch (106 ìm) or Polyester/PE pouch(74ìm) followed by heat sealing the pouches. Under the ambient storage (30±2^{0}C), the Thabdi packaged as above gives shelf life of 10 days, while under refrigeration temperature (7±2^{0}C), the product can be safely stored for almost 49 days.

થાબડીને પી.વી.સી. ટ્રેમાં ભરી મેટ–પોલીસ્ટર પાઉચ (106µm) અથવા પોલીસ્ટર / પોલીઈથીલીન પાઉચ (74µm) માં સીલ બંધ કરવાથી તેની સંગ્રહ શકિતમાં ૧૫ થી ૨૦% નો વધારો કરી શકાય છે. આ પ્રમાણે પેકીંગ કરેલ થાબડી સામાન્ય તાપમાને (30 ± 2^{0}C) ૧૦ દિવસ સુધી અને રેફ્રીજરેશન તાપમાને (7 ± 2^{0}C) ૪૯ દિવસ સુધી સારી સ્થિતિમાં રાખી શકાય છે.

(Action: Professor and Head, Dept of Dairy Technology, College of DSC, AAU, Anand)

9.5.1.2 Shelf life study of Halvasan employing different packages

The house approved the recommendation. The recommendation is Shelf life of *Halvasan* can beextended by 15-20% by filling the product in a PVC tray, inserting in Met-Polyester/PE pouch (106 ì) or Polyester/PE pouch (74ì) followed

by heat sealing the pouches. Under the ambient storage (30± 2^0C), the *Halvasan* packaged as above gives shelf life of 10 days, while under refrigeration temperature (7± 2^0C), the product can be safely stored for almost 42 days.

હલવાસનને પી.વી.સી. ટ્રેમાં ભરી મેટ–પોલીસ્ટર પાઉચ 106)µ (અથવા પોલીસ્ટર / પોલીઈથીલીન પાઉચ 74)µ (માં સીલબંધ કરવાથી તેની સંગ્રહશકિતમાં ૧૫ થી ૨૦% નો વધારો કરી શકાય છે. આ પ્રમાણે પેકીંગ કરેલ હલવાસન સામાન્ય તાપમાને)30 ± 2^0C(૧૦ દિવસ સુધી અને રેફ્રીજરેશન તાપમાને)7 ± 2^0C (૪૨ દિવસ સુધી સારી સ્થિતિમાં રાખી શકાય છે.

(Action: Professor and Head, Dept of Dairy Technology, College of DSC,AAU, Anand)

9.5.1.3 Enhancement of Shelf life of paneer

The house approved the recommendation with the following suggestions

- Include the concentration of lactic acid in the recommendation.
- Rehydration and dehydration temperature should be reflected in the recommendation.

The revised recommendation is

It is recommended to dip paneer in vinegar or lactic acid for 30 minutes, followed by partial removal of moisture under vacuum (36-38^{o}C) as per AAU protocol and packaging in LDPE bags of 90 µm thickness, could enhance the shelf life of paneer up to 90 daysunder refrigerated (7±2^{o}C) storage. Upon rehydration in warm water (55-60^{o}C), the paneer obtained had similar rheological properties compared to that observed in fresh paneer. This paneer is suitable for use in various Indian cuisines.

પનીરને વિનેગાર (સરકો) અથવા લેકટીક એસિડનાં દ્રાવણમાં આશરે ૩૦ મિનિટ માટે ડુબાડી, પનીરનો આંશિક ભેજ વાતાવરણના ઘટાડેલ દબાણે (તાપમાન, 36-88^{0}C) ઉડાડી તેને પ્લાસ્ટીકની થેલીમાં (90 µm thick) પેક કરી રેફ્રીજરેટરના તાપમાને (7 ± 2^oC) સાચવણી કરવાની ભલામણ છે. આ રીતે સાચવણી કરેલ પનીર, ૯૦ દિવસ સુધી સારૂ રહે છે. સાચવણી કરેલ પનીરને હુંફાળા પાનીમાં (55-60^{o}C) ડુબાડયા બાદ, મળેલ પનીરના ગુણધર્મો તાજા પનીરને મળતા આવે છે અને તેનો ઉપયોગ વિવિધ ભારતીય વાનગીઓમાં કરી શકાય છે.

(Action: Professor and Head, Dept of Dairy Proc.Operations, College of DSC, AAU, Anand)

9.5.1.4 Standardization of technology for manufacture of "Low Fat" and "Sugar Free" shrikhand

The house approved the recommendation. The recommendation is a process is standardized to manufacture Low fat, sugar free Shrikhand as per AAU protocol with Sucralose as intense sweetener and using either Isomalt or Fructo-oligosaccharide (FOS) as bulking agent. The Shrikhand thus obtained has better sensory attributes.

લો ફેટ અને ખાંડ રહિત શ્રીખંડ બનાવવા માટે એ.એ.યુ. પ્રોટોકોલ મુજબની પ્રક્રીયામાં સુક્રાલોઝ, ઈંટેંસ સ્વીટનર અને ફ્રુકટો ઓલીગો સેકેરાઈડ અથવા આઈસો માલ્ટ ખાંડના પૂરક પદાર્થ તરીકે વાપરવા ભલામણ છે. આ રીતે સારી ગુણવત્તા વાળો શ્રીખંડ બનાવી શકાય છે.

(Action: Professor and Head, Dept of Dairy Proc.Operations, College of DSC, AAU, Anand)

9.5.1.5 Production Technology of freeze dried *aonla* slices

The house approved the recommendation. The recommendation is "The entrepreneurs and food processors interested in production of dried aonla slices are advised to use freeze drying protocol developed by Anand Agricultural University. The technology enables production of ascorbic acid rich (above 90% retention) dried aonla slices.

સુકા આમળાના સ્લાઈસીસના ઉત્પાદનમાં રસધરાવતા ઉદ્યોગ સાહસિકો અને ફુડ પ્રોસેસરોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ફ્રીઝડ્રાઈંગ પધ્ધતિનો ઉપયોગ કરવાની સલાહ આપવામાં આવે છે. જેના ઉપયોગ ધ્વારા એસ્કોરબિક એસિડથી ભરપુર સુકાઆમળાની સ્લાઈસીસનું (૯૦% જાળવણી સાથે) ઉત્પાદન કરી શકાય છે."

(Action: Professor and Head, Dept of Post Harvest Engg.College of FPTBE, AAU, Anand)

9.5.1.6 Production Technology of Vacuum Dried ginger flakes

The house approved the recommendation. The recommendation is "The entrepreneurs and food processors interested in production of dried ginger slices are advised to follow the vacuum drying protocol developed by Anand Agricultural University. The technology enables production of gingirol rich dried ginger flakes".

સુકા આદુનાં સ્લાઈસીસના ઉત્પાદનમાં રસધરાવતા ઉદ્યોગ સાહસિકો અને ફુડ પ્રોસેસરોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ વેકુમ ડ્રાઈંગ પધ્ધતિનો ઉપયોગ કરવાની સલાહ આપવામાં આવે છે. આ ટેકનોલોજી ધ્વારા જીંજેરોલથી ભરપુર સુકાઆદુના સ્લાઈસોનું ઉત્પાદન કરી શકાય છે.

(Action: Professor and Head, Dept of Post Harvest Engg.College of FPTBE, AAU, Anand)

9.5.1.7 Supercritical Fluid Extraction of Volatile Oil from Basil Leave

The house approved the recommendation. The recommendation is for production of superior quality volatile oil rich in eugenol and higher yield from Basil leaves, the super critical fluid extraction technology developed by Anand Agricultural University is recommended.

તુલસીના પાનમાંથી શ્રેષ્ઠ ગુણવત્તાયુકત યુજેનોલથી ભરપુર એસેંન્સીયલ ઓઈલનાં ઉત્પાદન માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ સુપર ક્રિટીકલ પ્રવાહી નિષ્કર્ષણ ટેકનોલોજીની ભલામણ છે.

(Action: Professor and Head, Dept of FQA, ,AAU, Anand)

9.5.1.8 To study feasibility of most suitable mechanical power sources for farm Operations in Panchmahal district

The house approved the recommendation with the following suggestions

- Status report on agricultural mechanization for tribal talukas' of panchmahal district to be prepared.

The revised recommendation is small and medium farmers of Panchmahal district are recommended to use mini tractor (15 hp) for seed bed preparation using rotavator to save 35 per cent fuel per ha as compared to medium size tractor (30-40 hp). Size of rotavator should be incorporated.

પંચમહાલ જીલ્લાના નાના અને મધ્યમ ખેડુતોને વાવણીમાટે રોટાવેટરથી જમીન તૈયાર કરવા માટે મીની ટ્રેકટર (૧૫ હો.પા.) નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે, જેથી મધ્યમ સાઈઝના ટ્રેકટર (૩૦–૪૦ હો.પા.) કરતા પ્રતિ હેકટરે ૩૫% ઈંધણની બચત કરી શકાય છે.

(Action: Professor and Head, Dept of FMP. CAET, Godhra, AAU, Anand)

9.5.1.9 Adaptive research oriented comparative evaluation of mechanical crop harvesting through on-farm investigation in Panchmahal district of middle Gujarat region

The house approved the recommendation with recasting the language.

The revised recommendation is

The farmers of Panchmahal and adjoining region are recommended to use Mini Tractor front operated Reaper as first choice or self propelled reaper as second choice for timely harvesting of paddy and fodder sorghum as compared to manual harvesting to save cost and man-hours.

Suggestion : Add the soil-moisture content in the recommendation.

પંચમહાલ જીલ્લા તેમજ નજીક વિસ્તારના નાના અને મધ્યમ ખેડુતોને ડાંગર અને ચારા માટેની જુવારની કાપણી કરવા માટે મીની ટ્રેકટર આગળ જોડેલ (ફ્રંટ માઉન્ટેડ) રીપર પ્રથમ પસંદગી તરીકે અથવા સ્વસંચાલીત રીપર દ્વિત્તિય પસંદગી તરીકે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે, જેથી મજુરી ખર્ચ અને માનવ–કલાકમાં બચત કરી શકાય છે.

(Action: Professor and Head, Dept of FMP. CAET, Godhra, AAU, Anand)

9.5.2 Junagadh Agricultural University, JUNAGADH

Dr. P. M. Chauhan, Convener, JAU, Junagadh presented following six recommendations.

9.5.2.1 Determination of groundwater potential of the South West Saurashtra region

The house approved the recommendation. The recommendation is

Groundwater utilization and management policy guidelines are recommended for the South West Saurashtra region to Farmers as well as concerned Planners, NGOs and line departments.

- In normal years, the groundwater potential of South West Saurashtra region is estimated at 4060.66 MCM which is just sufficient to meet requirement of exiting cropping pattern. The water table in the North East area (Talukas: Bhesan, Dhari, Part of Visavadar, part of Junagadh) usually goes down up to 20m during pre monsoon. Therefore, water harvesting activities and low water requirements, crops should be encouraged to improve the groundwater conditions.
- Around Veraval and Talala, the transmissibility of aquifer is observed around 32 sq.m /hr. Veraval is near sea cost having low altitude, where as Talala

having higher altitude. Talala, Mendarada and Visavadar and Malia talukas should be encouraged for surface water harvesting and well recharging (aquifer recharging) as this part has higher transmissibility and upland which creates groundwater flow seaward after recharge which helps to improve ground water quality at coastal belt as well enhance groundwater potential.

- Conjunctive use planning is recommended in good quality groundwater area also to reduce groundwater draft and save power costs.
- Around 2130 sq.km (23%) area of region is under degraded groundwater class during pre monsoon mostly found along coastal line. The area must be improved by bandharas construction along costal areas, water harvesting structures and conjunctive water use planning. Also salt tolerance and low water requirement crops should be introduced.
- The absolute head continuously falling from North-East upland to sea cost. Just near coastal line 20 m of head remains in pre monsoon. Under such head condition, water harvesting and conjunctive water use planning should be encouraged. The streams must be checked before 2 km from sea coast by Bandhara system which will reduce sea water intrusion as well as not affects the river livelihood up to the end of river.
- In the area of good class of groundwater, high value crops which can grow under local climatic conditions may be encouraged beside existing cropping pattern as good groundwater quality supply is possible to meet.
- **દક્ષિણ, પશ્ચિમ સૌરાષ્ટ્ર માટે ભુગર્ભજળ ઉપયોગ અને વ્યવસ્થાપન માટેની માર્ગદર્શક નીતિઓની ભલામણ ખેડુતો, આયોજકો, સ્વૈચ્છિક સંસ્થાઓ અને ગુજરાત સરકારનાં ભુગર્ભજળ સંબધિત ખાતાઓ માટે.**
- **સામાન્ય વર્ષમાં, દક્ષિણ, પશ્ચિમ સૌરાષ્ટ્રની ભુગર્ભજળ ક્ષમતા ૪૦૬૦.૬૬ મિલિયન ઘનમીટરની અંદાજેલ છે.હાલની આ ભુગર્ભજળ ક્ષમતા ચાલુ પાક પધ્ધતિની જરૂરીયાત પુરતીજ છે, આ વિસ્તારનાં ઉતર–પુર્વ ભાગ, (તાલુકાઓ : ભેંસાણ, ધારી, વિસાવદર અને જૂનાગઢનાં ભાગો) ની ભુગર્ભજળ સ્થિતિ સુધારવા માટે જળ સંગ્રહ પ્રવૃતિઓ અને ઓછી પાણીની જરૂરીયાત વાળા પાકો દાખલ કરવાની ખાસ પ્રોત્સાહન આપવુ કારણકે આ વિસ્તારમાં ચોમાસા પહેલા પાણીનું સ્તર ૨૦ મી. સુધી ઉંડુ ઉતરી જાય છે.**

- વેરાવળ અને તલાલાની આજુબાજુ ભુગર્ભજળનાં સ્તરોઓ પાણી વહનાંક ૩૨ ચોમી/કલાક મળેલ છે, વેરાવળ દરીયાની નજીક છે અને દરીયાની સપાટીથી ઓછી ઉંચાઈ છે જયારે તલાલા દરીયાની સપાટીથી વધુ ઉંચાઈ છે, તેથી તલાલા, મેંદરડા, વિસાવદર અને માલીયા તાલુકાઓમાં સપાટી પર જળસંગ્રહ અને કુવા રીચાર્જને ખાસ પ્રોત્સાહન આપવુ, આ વિસ્તારમાં ભુગર્ભજળ સ્તરોનો ઉંચો વહનાંક, દરીયાની સપાટીથી વધુ ઉંચાઈ જે જળ સંચય પછી ભુગર્ભજળ પ્રવાહ દરીયા તરફ ઉભો કરી શકે જે ભુગર્ભજળ ગુણવત્તા સુધારવામાં અને ભુગર્ભજળ ક્ષમતા વધારવામાં મદદગાર થાય.
- સારી ગુણવત્તાવાળા ભુગર્ભજળ વિસ્તારોમાં પણ ભુગર્ભજળ સાથે સપાટીનાં જળ જોડીને પિયતનું આયોજન કરવાની ભલામણ કરવામાં આવે છે જેથી ભુગર્ભજળ વપરાશ ઉપરનાં ભારણમાં ઘટાડો થશે અને પાવરની બચત થશે.
- ચોમાસા પહેલાની સ્થિતિમાં લગભગ ૨૧૩૦ ચો.કી. વિસ્તાર (૨૩%) હલકા ભુગર્ભજળ વર્ગ નીચે છે, આ વિસ્તાર દરીયાકાંઠાની સંલગ્ન આવેલો છે. બંધારા, પાણી સંગ્રહમાળખાઓ બાંધી અને ભુગર્ભજળ સાથે સપાટીનાં જળ જોડીને પિયતનું આયોજન કરી આ વિસ્તારનો સુધારો કરવો જોઈએ. ઓછા પાણીથી પાકતા અને ક્ષાર સામે ટકી શકે તેવા પાકો પણ આ વિસ્તારમાં દાખલ કરવાં.
- ઉત્તર–પુર્વની ઉંચી જમીન તરફથી પાણીનું સ્તર દરીયા તરફ જતાં સતત ઘટતું જાય છે, દરીયાની નજીક ૨૦ મી પાણીનું સ્તર રહે તે પાણીનાં સ્તરની સ્થિતી વિસ્તામાં જળસંગ્રહ, ભુગર્ભજળ સાથે સપાટીનાં જળ જોડીને પિયતનું આયોજનને પ્રોત્સાહન આપવું. આવિસ્તારની મોટાભાગની નદીઓ દરીયાને મળે છે તેથી આ બધી નદીઓને દરીયાથી ૨ કિમી પહેલા બન્ધારા પધ્ધતીથી રોકી દેવી, જેથી દરીયાઈ પાણીની ભુગર્ભમાં ઘુસણખોરી ઘટશે તેમજ નદીનું જીવંતપણુ તેના અંત સુકી જઈવાઈ રહે છે.
- સારા ભુગર્ભજળ નીચેના વિસ્તારમાં ચાલુ પાક પધ્ધતિ ઉપરાંત ઉંચું વળતર આપતા પાકો કે જેઓને આ વિસ્તારની આબોહવા અનુકુળ હોય તેને પ્રોત્સાહન આપવુ, તેની સારી ગુણવતા વાળા ભુગર્ભજળની જરૂરીયાત પુરી પાડવી શકય છે.

(Action: HoD, SWE, CAET, JAU, Junagadh)

9.5.2.2 Conjunctive use of surface water with groundwater for irrigating wheat crop

The house approved the recommendation. The recommendation is

It is recommended to farmers, Planners and NGOs that conjunctive use of surface water from nearby water harvesting structures with groundwater for irrigating wheat crop in Junagadh region is benefited. Also highly recommended to Irrigation Department of Government of Gujarat to allow to use check dam water

to nearby farmers freely instead of keeping it for recharge only after monsoon. As under conjunctive use 533.94 cum (7.72%) of groundwater draft per ha. can be reduced and 123.8 units power per ha. (4.9%) can be saved per irrigation given from check dam. It is economical when at least two irrigations given from surface sources and from second irrigation B/C can rise by 0.038 per irrigation given from check dam as compare to without Conjunctive water use. The conjunctive use can control up to 101 mm of evaporation loss from surface water sources. Good scopes are lying to avoid deep pumping, reduce groundwater draft and achieve higher economy by utilizing spill over water before it escapes from water harvesting structures.

જુનાગઢ વિસ્તારના ખેડૂતો, આયોજકો અને સ્વૈચ્છિક સંસ્થાઓને ભલામણ કરવામાં આવે છેકે નજીકનાં ચેકડેમમાં સંગ્રહિતજળ અને ભુગર્ભજળને જોડીને ઘઉંના પાકને પિયત આપવા ફાયદાકારક છે. ગુજરાત સરકારનાં સિંચાઈ વિભાગને ખાસ ભલામણ કરવામાં આવે છે કે ચોમાસા પછી ચેકડેમમાં સંગ્રહિતજળને ફકત જળસંચય માટે રાખવાની બદલે નજીકનાં ખેડૂતોને મુકતપણે વાપરવાની છુટ આપવી. ચેકડેમમાં સંગ્રહિત જળ અને ભુગર્ભજળને જોડીને પિયત આપતાં 533.94 ઘ.મી. (7.72%) ભુગર્ભજળ ઉપરનું દબાણ પ્રતિ હેકટરે પ્રતિ પિયત ચેકડેમમાંથી આપતા ઘટી શકે છે તેમજ 123.8 યુનિટ પાવર પ્રતિ હેકટરે(4.9%) પ્રતિ પિયત ચેકડેમમાંથી આપતાં બચી શકે છે. આ પધ્ધતિમાં ઓછામાં ઓછા બે પિયત ચેકડેમમાંથી આપતા આથિક ફાયદા કારક છે. ફકત ભુગર્ભ જળથી જ પિયત આપવાની સરખામણીએ જોડીને પિયત આપતાં પિયત પછી ફાયદા ખર્ચ રેશિયામાં 0.038 નો વધારો પ્રતિ પિયતે ચેકડેમમાંથી આપતાં થઈ શકે છે. સંગ્રતિજળ અને ભુગર્ભજળને જોડીને પિયત આપતા સપાટી પરનાં જળ સ્ત્રોતોમાંથી ૧૦૧ મીમી બાષ્પીભવનનો વ્યય અટકાવી શકાય છે. ઉંડું પમ્પીંગ અટકવુ, વહીજતાં પહેલા વાપરવામાં રહેલા છે.

(Action: HoD, SWE, CAET, JAU, Junagadh)

9.5.2.3 Summer sesame response to irrigation under drip and mulching technology

The house approved the recommendation. The recommendation is

The farmers of the South Saurashtra region sowing summer sesame (Guj. Til - 3) crop are advised to adopt any one of the following two irrigation scheduling options through high discharge drip irrigation system (20lph drippers 1

m dripper spacing and 2m lateral spacing) with mulch application (5 tone/ha wheat straw) for getting the maximum return.

Option - I: When water availability is not limiting factor

The irrigation should be scheduled at IW/ET_c of 1.0. For that, the above said high discharge drip system should be run for 4 hr & 25 min(40 mm irrigation) immediately after sowing and 3 hr & 15 min (29.5 mm irrigation) at 8, 18, 28, 36, 43, 49, 54, 59, 64, 69 and 74 days after sowing.

Option - II: When Water availability is limiting factor

The deficit irrigation should be scheduled at IW/ET_c of 0.6. The saved water should be used to bring additional area under sesame crop cultivation at same deficit irrigation scheduling level. For that the above said high discharge drip system should be run for 4 hr & 25 min (40 mm irrigation) immediately after sowing , 3 hr & 15 min (29.5 mm irrigation) at 10 days after sowing and 3 hr & 40 min (33.3 mm irrigation) at 23, 36, 47, 58 and 70 days after sowing.

દક્ષિણ સૌરાષ્ટ્ર વિસ્તારમાં ઉનાળુ તલ (ગુજરાત તલ–૩) વાવતા ખેડુતોને વધુમાં વધુ વળતર મેળવવા માટે ઉચ્ચ પ્રવાહ ટપક પધ્ધતી (૨૦ લિટર પ્રતિ કલાકના ડ્રીપર્સ, ડ્રીપર્સ વચ્ચેનું અંતર ૧ મી. અને લેટરલ વચ્ચેનું અંતર ૨ મી.) તેમજ ૫ ટન /હેકટર ઘંવાર નો આવરણ (મલ્ચ) તરીકે ઉપયોગ કરીને નીચે મુજબના બે વિકલ્પો પૈકી લાગુ પડતા કોઈપણ એક મુજબનો પિયત કાર્યક્રમ અપનાવવાની ભલામણ કરવામાં આવે છે.

વિકલ્પ – ૧ : પાણી પૂરતું હોય

પિયત ઉંડાઈઅને પાકની પાણીની જરૂરીયાતનો ગુણોત્તર ૧.૦ જળવાઈ રહે તે રીતે પિયત કાર્યક્રમ અપનાવો જોઈએ. આ માટે તલ વાવ્યા પછી તરત જ ૪ કલાક અને ૨૫ મિનિટ (૪૦ મી.મી. પિયત) અને વાવ્યા પછી ૮, ૧૮, ૨૮, ૩૬, ૪૩, ૪૯, ૫૪, ૫૯, ૬૪, ૬૯ અને ૭૪ માં દિવસે ૩ કલાક અને ૧૫ મિનિટ (૨૯.૫ મી.મી. પિયત) ઉપર મુજબની ઉચ્ચ પ્રવાહ ટપક પધ્ધતિને ચલાવવી જોઈએ.

વિકલ્પ – ૨ : પાણી અપૂરતું હોય

પિયત ઉંડાઈઅને પાકની પાણીની જરૂરીયાતનો ગુણોતર ૦.૬ જળવાઈ રહે તે રીતે આંશિક પિયતનો કાર્યક્રમ અપનાવવો જોઈએ. આંશિક પિયતને કારણે થયેલ બચત પાણીનો ઉપયોગ ઉનાળુ તલ હેઠળ વધુ વિસ્તાર આવરી આંશિક પિયત આપવુ. આ માટે તલ વાવ્યા પછી તરત જ ૪ કલાક અને ૨૫ મિનિટ (૪૦ મી.મી પિયત), ૧૦ માં દિવસે ૩ કલાક અને ૧૫ મિનિટ (૨૯.૫ મી.મી.) અને ૨૩, ૩૬, ૪૭, ૫૮ અને ૭૦ માં દિવસે ૩ કલાક અને ૪૦ મિનિટ (૩૩.૩ મી.મી. પિયત) ઉપર મુજબની ઉચ્ચ પ્રવાહ ટપક પધ્ધતિને ચલાવવી જોઈએ.

(Action: HoD, SWE, CAET, JAU, Junagadh)

9.5.2.4 Drought investigation using Standardized Precipitation Index (SPI) for Junagadh

The house approved the recommendation. The recommendation is

The farmers of South Saurashtra Agro climatic zone are advised to use the excess rainfall prevailing during 27-32nd standard weeks (2nd July to 12th August) judiciously and frugally towards supplemental irrigation to sustain crop productivity under rainfed agriculture.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં વરસાદ આધારીત ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ૨૭–૩૨ અઠવાડીયા(૨ જૂલાઈ થી ૧૨ ઓગષ્ટ) દરમ્યાન થતા વધારાના વરસાદનો સંગ્રહ કરી, જયારે જરૂરીઆત હોય ત્યારે પૂરક પિયત માંટે ઉપયોગ કરી પાક ઉત્પાદકતા જાળવી શકાય તેમ છે.

(Action: RS, RTTC, JAU, Junagadh)

9.5.2.5 Effect of land configuration on groundnut yield

The house approved the recommendation. The recommendation is

Farmers of South Saurashtra Agro Climatic Zone growing bunch type Groundnut are advised to prefer Broad Bed Furrow (55cm width and 15cm depth of furrow and 100cm bed width between two furrows) land configuration for getting more moisture retention and higher return under rain fed agriculture.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં વરસાદ આધારીત ઉભડી મગફળીની જાતને ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ગાદી કયારા(૫૫ સે.મી. પહોળાઈ તથા ૧૫ સે.મી. ઉડાઈના બે કયારા વચ્ચે ૧૦૦ સે.મી. પહોળાઈની ગાદી) જમીન તૈયાર કરવાની પધ્ધતિ અપનાવવાથી વધુ ભેજ સંગ્રહ કરી શકાય છે તેમજ વધુ આવક મેળવી શકાય છે.

(Action: RS, RTTC, JAU, Junagadh)

9.5.2.6 Performance of screen house for cultivation of capsicum

The house approved the recommendation. The recommendation is

The farmers of South Saurashtra Agroclimatic Zone who are interested to cultivate the capsicum in protected structures are advised to use JAU developed screen house (poly-cum-shadenet house) covered with 50% green shadenet on periphery for natural ventilation and roof covered with 200 UVS PE sheet to get

sufficient light. Under such type of structure, drip irrigation system with IW: CPE=0.8 should be used.

દક્ષિણ સૌરાષ્ટ્ર કૃષિ આબોહવાકીય વિસ્તારના જે ખેડુતો પ્રોટેકટેડ સ્ટ્રકચરમાં શિમલા મરચા (કેપ્સીકમ) નું ઉત્પાદન લેવામાં રસ ધરાવતા હોય તેઓને જુ.કૃ.યુ. દ્વારા વિકસાવેલ સ્ક્રીનહાઉસ (પોલીકમ શેડનેટ હાઉસ), જે કુદરતી વેન્ટીલશન માટે ચારે બાજુએ ૫૦% ગ્રીન શેડ અને પુરતા પ્રકાશ માટે ઉપરની બાજુએ ૨૦૦ માઈક્રોન યુવીએસ પોલી ઈથીલીન શીટથી બનેલ હોયનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પ્રકારના સ્ટ્રકચરમાં આઈ.ડબલ્યુ:સી.પી.ઈ. ૦.૮ લેવલે ટપક પીયત પધ્ધતિનો ઉપયોગ કરી શિમલા મરચા (કેપ્સીકમ) નું ઉત્પાદન લેવુ.

(Action: HoD, RERE, CAET, JAU, Junagadh)

II RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY:

Dr. P. M. Chauhan, Convener, JAU, Junagadh presented following two scientific recommendations.

9.5.2.7 Summer sesame response to irrigation under drip and mulching technology.

The house approved the recommendation. The recommendation is

The models for summer sesame crop response to irrigation scheduling levels and seasonal irrigation depth under drip irrigation with and without mulch are proposed for the scientific community**.**

(a) The yield response to irrigation scheduling level with and without mulch for summer sesame crop can be described by the mathematical model as below.

$Y = -400.0 (IW/ET_c)^2 + 998.3 (IW/ET_c) + 592.2$ for no mulch application.

$Y = -808.6 (IW/ET_c)^2 + 1874 (IW/ET_c) + 355.7$ for mulch application.

Where, Y is the sesame grain yield (kg/ha) and IW/ET_c is the ratio of irrigation water depth (mm) to crop evapo-transpiration depth (mm).

(b) The yield response to seasonal irrigation depth under no mulch and mulch application for summer sesame crop can be described by the mathematical model as below.

$Y = -0.002 (W)^2 + 2.537 (W) + 652.8$ for no mulch application.

$Y = -0.006 (W)^2 + 4.977 (W) + 444.6$ for mulch application.

Where, Y is the sesame grain yield (kg/ha) and W is the seasonal irrigation depth (mm).

Suggestion: It should be statistical model instead of mathematical model.

(Action: HoD, SWE, CAET, JAU, Junagadh)

9.5.2.8 Drought investigation using Standardized Precipitation Index (SPI) index for Junagadh

The house approved the recommendation. The recommendation is

Scientists, Policy makers and Irrigation planners of South Saurashtra Agroclimatic Zone are advised to plan their irrigation water schedules to the crop based on the following guidelines:

1) Moderately dry and severe dry years appear once in seven years 7 years and 10 years from 2002
2) Moderately dry July, August and September months appear once in 10 years, 9 years and 5 years respectively from 2002
3) Severe dry July, August and September months and years appear once in 9 years, 18 years, and13 years respectively from 2002
4) Abnormal weeks appear once in six years from 2002
5) Severe dry spell of 15 days occur once in 15 years during July and August
6) Dry spells of 10 days occur once in 7 years in July (July 1-10) and once in 13 years in August (Aug 10-20).

(Action: RS, RTTC, JAU, Junagadh)

9.5.3 NAVSARI AGRICULTURAL UNVERSITY, NAVSARI

Prof. S. P. Shukla, Convener, NAU, Navsari presented following two recommendations.

9.5.3.1 Effect of pre-cooling treatments and packaging materials for extending the initiation of ripening and shelf-life of mango cv. Kesar.

The house approved the recommendation. The recommendation is

Farmers and merchants are advised to pre-cool the Kesar mango fruit at 10°C in pre-cooling chamber with air movement of 300-350 m^3/min for 8h and pack them in 75micron polypropylene bag and store at 11±1ºC with 90-95% RH. This would delay the initiation of ripening process up to 25days of storage and extend the shelf life up to 35 days.

કેસર કેરીના ફળ ઊતાર્યા બાદ ફળને પ્રિકુલીંગ રૂમમાં ૧૦° સે. તાપમાને અને ૩૦૦–૩૫૦મી^{3}/મી હવાના પ્રવાહમાં ૮ કલાક સુધી પ્રિકુલ કરી ૭૫ માઈક્રોનની પોલીપ્રોપેલીનની બેગમાં બંધ કરી, ૧૧± ૧°સે. તાપમાન અને ૯૦–૯૫% આદ્રતા એ સંગ્રહ કરીવાથી ખેડુતો અને વેપારીઓ ને ભલામણ કરવામા આવે છે ઉકત પધ્ધતિથી તેની પાકવાની પ્રક્રિયા ૨૫ દિન સુધી મોડી કરી શકવાની સાથે સાથે તેની ટકાઉ ક્ષમતા ૩૫ દિવસ સુધી વધારી શકાય છે.

(Action: In-charge, PHT, NAU, Navsari)

9.5.3.2 Standardization of ready-to-eat pickle(*Moriya*) from immature dropped mango(*Marva*).

The house approved the recommendation. The recommendation is

Farmers are recommended to prepare ready-to-eat pickle (*Moriya*) from the immature dropped mango (*Marva*) through the process of washing, cutting and subsequently dipping in hot water (50 ^{0}C) for 5 min, 2% brine solution for 5 min and 5% acetic acid (vinegar) for 5 min, and finally mixing with the groundnut oil (2.5%)-spices-mix and packing of in 75 micron HDPE bag to achieve shelf life of 6 days and 15 days at ambient and refrigerated storage condition, respectively.

ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ખરણના કારણે પડી ગયેલ અપરીપકવ કેરીના ફળ(*મરવા*) માંથી ત્વરીત ખાઈ શકાય તેવો અથાણા(મોરીયા) બનાવવા માટે તેને ધોઈ, કાપી, અનુક્રમે ગરમ (૫૦° સે.) પાંણીમાં ૫ મીનીટ, ૨% મીઠાના દ્રાવણમાં ૫ મીનીટ અને ૫ % એસીટીક એસીડના દ્રાવણ (સરકો) માં ૫ મીનીટ ડુબાડયા બાદ મસાલો અને સીંગ તેલ (૨.૫% પ્રમાણે) ભેળવી ૭૫ માઈક્રોનની એચડીપીઈની કોથળીમાં બંધ કરવાથી તેની સેલ્ફલાઈફ સામાન્ય તાપમાને અને ફ્રીઝમાં અનુક્રમે ૬ અને ૧૫ દીવસ સુધી મેળવી શકાય છે.

(Action: In-charge, PHT, NAU, Navsari)

9.5.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Dr. S. H. Suthar, Convener, Agricultural Engineering Sub Committee,

SDAU, S.K. Nagar presented following four recommendations.

9.5.4.1 On farm testing of existing harvesting devices for castor crop.

The house approved the recommendation. The recommendation is

Castor growing farmers are recommended to use secator in place of local and improved sickle to harvest castor spikes which can save 2-3h harvesting time per ha. Harvesting losses were found minimum in secator (0.69%) as compared to local sickle (2.38%) and improved sickle (1.71%).

આથી દિવેલા વાવતા ખેડૂતોને દિવેલાની પરિપકવ માળોની કાપણી કરવા માટે લોકલ તેમજ સુધારેલ દાંતરડાની જગ્યાએ સીકેટર વાપરવા માટે ભલામણ કરવામાં આવે છે. સીકેટરથી કાપણી કરતાં પ્રતિ હેકટરે ૨ થી ૩ કલાક ઓછો સમય લાગે છે. કાપણી કરતી વખતે માળો પરથી ગાંગડા ગરી જવાનું પ્રમાણ સીકેટરમાં (૦.૬૯ ટકા) ચીલાચાલુ દાંતરડા (૨.૩૮ ટકા) અને સુધારેલા દાંતરડા (૧.૭૧ ટકા) કરતા ઓછુ થાય છે.

(Action: Professor and Head , PHTC &AI, SDAU, SK Nagar)

9.5.4.2 To study low cost poly solar dryer for drying of fennel

The house approved the recommendation. The recommendation is

The farmers and exporters are recommended to use low cost polyhouse type solar dryer for drying fennel umbel at faster rate. The dryer helps to reduce drying time by 42 and 20 hours as compared to shade and sun drying, respectively. The product dried using this dryer fetch higher net profit. The product also protected from insects, bird damage, excreta of rodent and birds, unseasonal rain and wind storm.

ખેડુતો અને નિકાસકારોને વરીયાળીની સુકવણી કરવા માટે ઓછી કિંમતની પોલી હાઉસ સોલર ડ્રાયરનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પ્રકારના ડ્રાયરમાં સુકવણી કરવાથી શેડડ્રાઈગ અને સૌર સુકવણીની સરખામણીને અનુક્રમે ૪૨ અને ૨૦ કલાક પ્રતિ બેચ સુકવણી સમય બચાવી શકાય છે તેમજ જીવ–જંતુંઓ, પક્ષીઓ, પ્રાણીઓ, કમોસમી વરસાદ તેમજ વાવાઝોડાથી સૂકવણી માટે મુકેલ વરિયાળીને રક્ષણ મળે છે.

(Action: Professor and Head , PHTC &AI, SDAU, SK Nagar)

9.5.4.3 Efficient and economic use of harvested rain water for sustainable crop production

The House discussed the matter at length and suggested to conclude this experiment.

(Action: Res. Sci., AICRP on Dry Land Agriculture, SDAU, SK Nagar)

9.5.4.4 Proper tillage practices for increasing in-situ moisture and crop yield in cotton and castor

The house did not approve the recommendation and suggested to conclude this experiment.

(Action: Res. Sci., AICRP on Dry Land Agriculture, SDAU, SK Nagar)

9.5.4.5 Utilization of Goat Milk for Preparation of Value Added Indigenous Milk Products.

Dr. S. K Roy, Convener, Dairy and Food Technology Sub-Committee, SDAU, S.K. Nagar presented following one recommendations

The house approved the recommendation. The recommendation is

Hardness, Springiness, Gumminess, Chewiness are less *where* as adhesiveness is more in goat milk *Rasogolla* as compared to control (cow milk *Rasogolla*). Cohesiveness is nearly same in both i.e. goat milk *Rasogolla* and Control.

(Action: Professor and Head, LPD, SDAU, SK Nagar)

9.5.4.6 Fluoride content of bottled water and soft drinks available in Palanpur city

Ms. Preeti H. Dave, Asst. Prof., Department of Food Science & Nutrition, ACHSN, SDAU, S. K. Nagar presented the results of recommendation.

The house discussed the data at length and approved the following draft as public information.

- Floride content in packed drinking water of Palanpur city was lesser (0.29 ± 0.14 mg/L) than the permissible limit prescribed by WHO (1.0 mg/L, WHO, 1994).
- Packaged fruit juices and ready to serve beverages showed higher fluoride content (2.86 ± 1.488 mg/L) than the prescribed upper permissible limit (1.5 mg/ L, ISI; 1988). Fluoride content should be included in nutrition labeling.
- **Suggestion:** It should be concluded and not be reported in AGRESCO report.

(Action: Professor and Head, F&N, SDAU, SK Nagar)

9.6 SOCIAL SCIENCE:

Name of the Sub-committee: Social Science

Technical session I & II:

Chairman : Dr. K.A. Thakkar, I/c DEE, SDAU, S.K. Nagar

Co-Chairman: Dr. Y.C. Zala, Prof. & Head Agril. Economics, BACA, AAU, Anand

Rapporteurs : Dr. J.J. Makadia, Asso. Professor, Agril. Economics, NMCA, NAU, Navsari

Dr. R.S. Pundir, Asso. Professor, IABMI, AAU, Anand

Technical session III & IV:

Chairman : Dr. N.B. Chauhan, Prof. & Head, Agril. Extension, BACA, AAU, Anand

Co-Chairman: Dr. B.G. Patel, Prof. & Head Food & Nutrition, ASPEE college, SDAU

Rapporteurs : Dr. J.S. Patel, Prof. & Head, Agril. Stat., BACA, AAU, Anand

Dr. A.J. Patel, Asso. Professor, Agril. Economics, CPCA, SK Nagar

Name of University	Recommendations				New Technical Programme	
	Scientific Community		Farming Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	1	1	-	-	40	40
JAU	**3**	**1**	**-**	**-**	**10**	**10**
NAU	1	-	-	-	13	13
SDAU	1*	-	-	-	15	10

*This recommendation was related to Agril. Engin. Food processing and Dairy Science & Technology sub committee and the technical programme of this recommendation was not approved by this group. Therefore, the house suggested presenting this recommendation to the Agril. Engin. Food processing and Dairy Science & Technology sub committee.

9.6.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

9.6.1.1 Recommendation for scientific community:

The following scale to measure attitude towards farmers' training programmes organized by SAUs of Gujarat State is recommended.

Scale to measure attitude towards farmers' training programmes organized by SAUs of Gujarat State						
No.	**Final format of selected Statement**	**SA**	**A**	**UD**	**DA**	**SDA**
1 +	I think that farmer's training programme organized by SAUs helps in increasing confidence among farmers.					
2 +	In my opinion the training programmes provide the needful information regarding improved agricultural practices.					
3 -	I recognize that hand out provide during training programme are difficult to understand the agricultural practices					
4 +	In my belief off campus training programme organized by SAUs is more beneficial to rural women.					
5 -	I think that for progressive farmer attaining of training programme organized by SAUs is wastage of time.					
6 -	In my belief farmer's training programme organized by SAUs in not advisable for experienced farmers					
7 +	I agree that conducting of visit of successful organization during training provide adequate information to the farmers.					

8 +	I think that vocational training programme conducted by SAUs develop skilled entrepreneur.					
9 +	Information given during training programme builds innovative ideas among farmers.					
10 +	SAUs training programme creates interest among farmers regarding modern farming technology.					

ક્રમ	વિધાનો	ઘણાજ સહમત	સહમત	અનિર્ણિત	અસહમત	ઘણાજ અસહમત
૧ (+)	હું માનું છુ કે કૃષિ યુનિવર્સિટી દ્વારા યોજાતા ખેડૂત તાલીમ કાર્યક્રમો ખેડૂતોના આત્મવિશ્વાસ વધારવામાં મદદરૂપ થાય છે.					
૨	મારા મંતવ્ય મુજબ તાલીમ કાર્યક્રમો સુધારેલ ખેતી પધ્ધતિ ની જરૂરીયાત પ્રમાણે માહિતી પુરી પાડે છે.					
૩	હું એવું માનું છું કે તાલીમ કાર્યક્રમો દરમ્યાન અપાતા સાહીત્યો ખેતી પધ્ધતિઓને સમજવામાં મુશ્કેલ રૂપ છે.					
૪	મારા માનવા મુજબ કૃષિ યુનિવર્સિટી ધ્વારા યોજાતા ક્ષેત્રીય કાર્યક્રમો ગ્રામ્ય મહિલાઓ માટે વધુ ફાયદા કારક છે.					
૫	હું માનું છું કે કૃષિ યુનિવર્સિટી ધ્વારા અપાતી તાલીમમા પ્રગતિશીલ ખેડૂતો નુ જોડાવુ સમયની બરબાદી છે.					
૬	હું માનું છું કે કૃષિ યુનિવર્સિટી ધ્વારા યોજાતા તાલીમ કાર્યક્રમો અનુભવી ખેડૂતો માટે સલાહ ભર્યા નથી.					
૭	હું સંમત થાઉ છું કે તાલીમ દરમ્યાન યોજાતી સફળ સંસ્થાઓની મુલાકાતથી ખેડૂતોને પુરતા પ્રમાણમાં માહિતી ઉપલબ્ધ થાય છે.					
૮	હું માનું છું કે કૃષિ યુનિવર્સિટી ધ્વારા યોજાતા વ્યવસાયલક્ષી તાલીમ કાર્યક્રમો કુશળ ઉધોગ સાહસીકો તૈયાર કરે છે.					
૯	તાલીમ દરમ્યાન અપાતી માહિતથી ખેડૂતોમાં નવીનતમ વિચાર ધારા બંધાય છે.					
૧૦	કૃષિ યુનિવર્સિટી ધ્વારા અપાતી તાલીમ આધુનીક ખેતીની તાંત્રિકતા માટે ખેડૂતોમાં રસ કેળવે છે.					

The reliability of above scale was calculated to understand consistency; it was 0.74 in the previous year and 0.76 during last year.

(Action: Director, Institute of Distance Education, AAU, Anand)

9.6.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Recommendation for scientific community:

9.6.2.1 Optimum plot size in field experiment on wheat crop

It is recommended for the scientists to conduct the research on wheat keeping a plot of 10.80 sq.m. (4.0 m length X 2.7 m. width) as optimum plot size having 12 rows of wheat in South Saurashtra Agro climatic zone.

(Action: Professor & Head, Dept. of Agril. Statistics, JAU, Junagadh)

9.7 ANIMAL PRODUCTION & FISHERIES

Chairman : Dr. P. H. Vataliya, Dean and Principal, Vet. College, JAU, Junagadh.

Co-Chairman : Dr. S. Parnekar, Research Scientist, ANRS, AAU, Anand.

Raportear : Dr. B.P.Brahmkshtri, Professor, AGB, Vet. College, NAU, Navsari.

Shri N. G. Akolkar, Research Officer, Fisheries Research Station, JAU, Okha presented recommendations and new technical programs for fisheries research.

Following scientists presented recommendations on Animal Production for respective universities:

Dr. D. N. Rank : Convenor, Animal Production and Professor and Head (AGB), AAU, Anand

Dr. K.S. Murthy : Research Scientist, CBF, JAU, Junagadh

Dr. B.P.Brahmkshtri : Professor, AGB, Vet. College, NAU, Navsari

Dr. K. B. Prajapati : Research Scientist, LRS, SDAU, Sardarkrushinagar

SUMMARY

University	Recommendation				New technical Programs	
	Farmers Community		Scientific Community			
	presented	Approved	presented	Approved	presented	Approved
AAU	7	6	8	8	34	34
JAU	**4**	**4**	**4**	**3**	**16**	**16**
NAU	3	2	5	3	5	5
SDAU	1	-	-	-	6	6

ANIMAL HEALTH :

Chairman : Dr. N. M. Shah,

Co-Chairman : Dr. N. H. Kelawala.

Rapporteur : Dr. J. N. Mistry

The session was chaired by Dr. N. M. Shah, Dean, Veterinary College, Sardarkrushinagar and he welcomed all the members and asked all conveners to present the reports regarding recommendations. Following scientists presented recommendations on Animal Health for respective universities:

Dr. J. N. Mistry, Convenor, Animal Health, Veterinary College, NAU, Navsari

Dr. Ashish Roy, Convenor, Animal Health, Veterinary College, AAU, Anand

University	RecommendationS		
	Presented	Dropped	Approved
AAU	4	1	3
JAU	-	-	-
NAU	2	-	2
SDAU	-	-	-
Total	**6**	**1**	**5**

9.7.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

ANIMAL PRODUCTION & FISHERIES

Centre: ***Reproductive Biology Research Unit***

Recommendation for Farming Communities

9.7.1.1 Title: To study reproductive behavior in goats along with ethology study in goats and hormonal profile.

Approved with modification:

Goats are more comfortable under tree shade during daytime in the summer season as compared to agro net (95% density) or asbestos shed roofed housing system.

ઉનાળાની ઋતુમાં બકરાંને દિવસ દરમ્યાન એગ્રોનેટ (૯૫ %) અથવા એસ્બેસ્ટોસ શીટવાળા છાપરાં નીચે રાખવાની સરખામણીએ ઝાડ નીચે રાખવા આરામ દાયક જણાયા છે.

(Action: Research Scientist, RBRU, AAU, Anand)

9.7.1.2 Title: Effect of feeding bypass fat on milk production from buffaloes of tribal areas of Panchmahal and Vadodara districts.

Approved with modification:

In tribal areas like Kadana taluka of Panchmahals and Chhota udepur taluka of Vadodara district during 90 days of early lactation, inclusion of bypass fat @ 15g/kg milk yield in the ration of buffaloes yielding 6 to 7 kg results in improvement in yield of whole milk, percentage of fat andthe efficiency of feed conversion and increase in income by 21 to 23%.

પંચમહાલ જિલ્લાના કડાણા અને વડોદરા જિલ્લાના છોટાઉદેપુર આદીવાસી તાલુકાઓની સરેરાશ દૈનીક ૬ થી ૭ કિગ્રા દૂધ આપતી ભેંસોને શરૂઆતના ૯૦ દિવસો દરમ્યાન દૈનિક ૧૫ ગ્રામ બાયપાસ ફેટ પ્રતિ કિ.ગ્રા. દૂધ પ્રમાણે આપવાથી તેના દૂધ ઉત્પાદન, ચરબીની ટકાવારી અને ખોરાક રૂપાંતરણ ક્ષમતા વધવાને કારણે તેમની આવકમાં ૨૧ થી ૨૩ % નો વધારો થાય છે.

(Action: RS, ANRS, AAU, Anand)

9.7.1.3 Title: Effect of feeding bypass protein on milk production from buffaloes of tribal areas in Panchmahal and Vadodara districts

Approved with modification:

In tribal areas like Kadana taluka of Panchmahals and Chhota udepur taluka of Vadodara district during 90 days of early lactation, inclusion of concentrate mixture with bypass protein in the ration of buffaloes yielding daily 6 to 7 kg milk, results in improvement in yield of whole milk, percentage of fat and the efficiency of feed conversion and increase in income by 40 to 42%.

પંચમહાલ જિલ્લાના કડાણા અને વડોદરા જિલ્લાના છોટાઉદેપુર આદીવાસી તાલુકાઓની સરેરાશ દૈનીક ૬ થી ૭ કિગ્રા દૂધ આપતી ભેંસોને શરૂઆતના ૯૦ દૂઝણા દિવસો દરમ્યાન બાયપાસ પ્રોટીન ધરાવતુ દાણ મિશ્રણ આપવાથી તેના દૂધ ઉત્પાદન, ચરબીની ટકાવારી અને ખોરાક રૂપાંતરણ ક્ષમતા વધવાને કારણે તેમની આવકમાં ૪૦ થી ૪૨ % નો વધારો થાય છે.

(Action: RS, ANRS, AAU, Anand)

9.7.1.4 Title: Animal Nutrition Survey in Vadodara district

Approved with modification

In Vadodara district the farmers are advised to feed additional daily 1 to 1.25 kg compound concentrate mixture to buffaloes in order to fulfill their nutrient requirement.

વડોદરા જિલ્લાના પશુપાલકોને દૂધાળી ભેંસોની પોષક તત્વોની જરૂરીયાત પુરી કરવા વધારાનું દૈનિક ૧ થી ૧.૨૫ કિગ્રા સમતોલ દાણ આપવા ભલામણ છે.

(Action: RS, ANRS, AAU, Anand)

9.7.1.5 Title: Animal Nutrition Survey in Vadodara district

Merged with Recommendation no. 4 (Tribal and non-tribal areas of vadodara district)

(Action: RS, ANRS, AAU, Anand)

9.7.1.6 Title: Animal Nutrition Survey in Vadodara district

Recommendation: "The farmers of Vadodara district are advised to feed additional daily 500 g compound concentrate mixture or 3.0 kg leguminous fodderto working bullocks during summere and winter in order to fulfilltheir nutrient requirement."

ખેડૂત ઉપયોગી સંશોધન ભલામણ

વડોદરા જિલ્લાના પશુપાલકોને ઉનાળા અને શિયાળા માં કામ કરતા બળદોની પોષક તત્વોની જરૂરીયાત પુરી કરવા વધારાનું દૈનિક , ૫૦૦ ગ્રામ સમતોલ દાણ અથવા ૩.૦ કિગ્રા કઠોળ વર્ગનો લીલો ચારો આપવાની ભલામણ છે .

Approved.

(Action: RS, ANRS, AAU, Anand)

Centre: LPM Department

9.7.1.7 Title: Draftability Assessment of Kachchhi Camel under Middle Gujarat Agro climatic Condition.

Recommendation: "It is advisable to give 1 hour rest to Kachchhi camels after every 2 hours work under 2500 kg pay load."

ઊંટ પાલકો માટે ભલામણ :

કચ્છી ઊંટને ૨૫૦૦ કિગ્રા વજન હેઠળ દર બે કલાકના કામ પછી એક કલાક આરામ આપવો હિતાવહ છે.

Approved.

(Action: Professor and Head, LPM, AAU, Anand)

Recommendation for Scientific Communities

Centre: ***Animal Nutrition Research Station***

9.7.1.8 Title: To study the effect of hormonal and managemental factors on reduction in age at first calving in heifers under field conditions.

Approved with modification:

In anestrous crossbred cow heifers CIDR application results in estrus induction and successful conception.

(Action: Research Scientist, RBRU, AAU, Anand)

9.7.1.9 Title: To detect early pregnancy in goats by using Ultrasonography and to develop package of practices

Approved with modification:

Using Ultra Sonography (USG) with 3.5 MHz rectal, trans abdominal transducer as a tool following ultra sonographic findings can be observed with the progress of gestation period in goats:

Gestational days USG Findings

19-30 days Gestational sac

Sr. No	Mineral element	Requirement (%)	Mineral salt	Quantity (kg)
1.	Calcium	20.000	Calcite powder	14.53
2.	Phosphorus	12.010	Di Calcium Phosphate	66.72
3.	Magnesium	4.890	Magnesium oxide	9.06
4.	Sulphur	1.000	Sodium thiosulphate	2.56
5.	Copper	0.100	Copper sulphate	0.40
6.	Zinc	1.400	Zinc sulphate	4.24
7.	Manganese	0.332	Manganese sulphate	1.07
8.	Iron	0.400	Ferrous sulphate	1.33
9.	Cobalt	0.012	Cobalt sulphate	0.06
10.	Iodine	0.026	Potassium iodide	0.03
			Total	**100.00**

22-25 days Area of heart beets

31 days Fluid filled sac surrounding conceptus

42 days Area of heart, neck, thorax

64 days Fore limb, hind limb buds

84 days Vertebral column and rib cages

(Action: Research Scientist, RBRU, AAU, Anand)

9.7.1.10 **Title:** Development of area-specific mineral mixture formulations for Kheda district

Approved with modification:

Based on the prioritization of limiting minerals in Kheda district, the area specific mineral mixture has been formulated which would makeup the deficiency when fed @ 30g/head/day to adult dairy animals in addition to the current feeding practices.

(Action: RS, ANRS, AAU, Anand.)

9.7.1.11 **Title:** Study on compensatory growth in crossbred calves fed crop residue based total mixed ration (TMR) with strategic approach using bypass fat.

Approved with modification:

Restricted feeding to 8 to12 months old growing crossbred calves at the rate 75% of NRC (1989) standard for 60 days followed by re-alimentation of 60 days at the rate of 125% of requirement, the calves gains higher rate (646.56 g/d) as compared to the calves fed 100% (595.89 g/d) of requirement during re-alimentation.

(Action: RS, ANRS, AAU, Anand)

9.7.1.12 **Title:** To study the effect of Solid State Fermented (SSF) biomass supplementation on growth performance of weaner Surti kids.

Recommendation: "Supplementation of Solid State Fermented (SSF) Biomass @ 4% in Jowar straw: Amul dan (50:50) based Total Mixed Ration improves feed efficiency by 16 % in weaner Surti kids."

Approved

(Action: RS, ANRS, AAU, Anand)

Centre: ***Department of Livestock Production & Management***

9.7.1.13 **Title:** Draftability Assessment of Kachchhi Camel under Middle Gujarat Agro climatic Condition.

Approved with modification:

"Kachchhi camel generates 0.58 and 0.69 horsepower under 2000 and 2500 kg payload as compared to 0.50 at 1500 kg payload during work."

(Action: Professor and Head, LPM, AAU, Anand)

9.7.1.14 **Title:** Draftability Assessment of Kachchhi Camel under Middle Gujarat Agro climatic Condition.

Approved with modification:

The speed (m/sec.) and stride length (m) of Kachchhi camel remains same under 2000 and 2500 kg payloads in work (W)-rest (R) cycle [(1h(W)-15 min (R) -1h (W)-15 min (R)- 1h(W)- 1h(R)- 1hr(W)-15 min (R)- 1h(W)-15 min (R)- 1h(W)]."

(Action: Professor and Head, LPM, AAU, Anand)

9.7.1.15 **Title:** Draftability Assessment of Kachchhi Camel under Middle Gujarat Agro climatic Condition.

Approved with modification:

GPx and TBARS biomarkers levels Kachchhi camel remain high during hot and humid season as compared to summer and winter seasons suggestive of stress the animal.

(Action: Professor and Head, LPM, AAU, Anand)

ANIMAL HEALTH :

Recommendations for Scientist Community

Centre : Research Sub-committee on Animal Health, AAU, Anand

9.7.1.16 **Title:** "Use of recent molecular techniques to reduce economic losses incurred due to bovine mastitis by evolving diagnostic, therapeutic and preventive measures"

Recommendation paragraph :

"For etiological diagnosis of bovine sub-clinical mastitis, quantitative Real-Time PCR is recommended over conventional bacterial culture for rapid and specific detection of mastitis causing pathogens."

Not approved by the House **(Action: Nil)**

9.7.1.17 **Title:** "Use of recent molecular techniques to reduce economic losses incurred due to bovine mastitis by evolving diagnostic, therapeutic and preventive measures"

Recommendation paragraph:

"Intramammary infusion of 10 ml of 1% Prosopis juliflora alkaloids formulation in normal saline once a day for 5 consecutive days is an effective treatment for bovine sub-clinical mastitis."

Approved

(Action: Professor and Head, Dept. of Medicine, Veterinary College, Anand)

9.7.1.18 Title: "Etiopathological studies on mortality in broilers"

Recommendation paragraph :

Adulteration of melamine in broiler feed for 21 days at the level of 0.25% and 0.50% was found nephrotoxic causing 4 % and 16% mortality respectively with deposition of melamine-uric acid crystals in the kidneys. Field Veterinarians should be aware of intentional adulteration of melamine as a source of protein in the poultry feed and feed ingredients.

Suggestions:

1. House suggested to modify as follow;

"Adulteration of melamine in broiler feed for 21 days at the level of 0.25 and 0.50 per cent was found nephro-toxic causing 4 per cent and 16 per cent mortality respectively, with deposition of melamine uric acid crystals in the kidneys. Dead birds had yellow turbid bile with presence of melamine crystals. Field veterinarians should be aware of intentional adulteration of melamine as a protein in the poultry feed and feed ingredients"

Approved

(Action: Professor and Head, Dept. of Pathology,Veterinary College, Anand)

9.7.1.19 Title: Etiopathological studies on mortality in broilers

Recommendation paragraph:

"Ketoprofen administered orally to broiler chicks @ 5, 15 and 25 mg/kg body weight for 21 days was found nephrotoxic causing 8, 20 and 40% mortality respectively by inducing lesions of visceral gout."

Approved

(Action: Professor and Head, Dept. of Pathology, Veterinary College, Anand)

9.7.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Centre / Title / Recommendations

Centre: Cattle Breeding Farm, JAU, Junagadh.

A. Recommendations of Farmers:

9.7.2.1 Effect of restricted suckling on lactation and reproductive performance of Gir cows

Dairy farmers keeping Gir cows are advised to practice restricted suckling of calves to reduce the incidences of short lactations and low lactation milk yields due to short lactations. There is increased overall milk production in suckled cows as compared to non-suckled cows. Even though there is delay in service period by 1 cycle, it is off-set by over-all benefits in production performance of suckled cows.

ડેરી ફાર્મ (ગૌ શાળા) ધારકો/પશુપાલકોએ ગાયોને વાછરૂંને મર્યાદિત ધવડાવીને દોહન કરવા ભલામણ છે. ગીર ગાયોમાં, વાછરૂંને મર્યાદિત ધવડાવીને દોહન કરવાથી ટૂંકા વેતરનું પ્રમાણ ઘટે છે અને તેના લીધે ઓછું દૂધ ઉત્પાદન આપતી ગાયોનું પ્રમાણ પણ ઘટે છે. ધવડાવ્યા વિના દોહનની સરખામણીએ, ધવડાવીને દોહન કરવાથી પશુની ઉત્પાદકતા એકદંરે વધે છે. જો કે તેઓ વિયાણ બાદ એક ઋતુચક્ર મોડી સગર્ભા બને છે પરંતુ ઉત્પાદનમાં એકદંરે સુધારો થતાં તે સરભર થઈ જાય છે.

Accepted.

(Action: Research Scientist (AGB), Cattle Breeding Farm, JAU, Junagadh)

9.7.2.2 Effect of restricted suckling on growth performance of Gir calves

Dairy farmers keeping Gir cows are advised to practice restricted suckling up to 5 months of age (daily 2 to 2.5 lit during birth to 1 month, 3 to 4 lit during 1 to 3 month and 1 to 1.5 lit during 4 to 5 month age) and then stop suckling of the calves. This improves growth performance (412 vs. 312 gm/d) and body weight of calf at 3 months of age (59 vs. 51 kg) with lesser milk consumption (319 vs. 279 lit per calf) over that in weaning.

ડેરી ફાર્મ (ગૌ શાળા) ધારકો / પશુપાલકોને ગીર ગાયોનાં વાછરૂંને ૫ માસની વય સુધી મર્યાદિત પ્રમાણમાં ધવડાવવા (જન્મ થી ૧ માસમાં ૨ થી ૨.૫ લી., ૧ થી ૩ માસમાં ૩ થી ૪ લી. તથા ૪ થી ૫ માસમાં ૧ થી ૧.૫ લી.) અને ત્યાર બાદ વાછરૂંને ધવડાવવાનું બંધ કરવા ભલામણ કરવામાં આવે છે. ધવડાવવાનું છોડાવીને ઉછેર પામતાં વાછરૂંની સરખામણીએ ધાવતાં વાછરૂં ઓછું દૂધ (જન્મથી ૩ માસ દરમ્યાન ૩૧૯ સામે ૨૭૯ લી.) પીને વધુ શારીરીક વૃધ્ધિ દર (દૈનિક ૩૧૨ સામે ૪૧૨ ગ્રામ) સાથે ૩ માસની વયે વધુ શારીરીક વજન (૫૧ સામે ૫૯ કિલો) પ્રાપ્ત કરે છે.

Accepted.

(Action: Research Scientist (AGB), Cattle Breeding Farm, JAU, Junagadh)

9.7.2.3 Effect of age and body weight at calving on lactation performance of primiparous Gir cows

Farmers keeping Gir animals are advised to maintain 300 to 350 kg. body weight at first calving in Gir heifers for obtaining higher lactation milk yield.

ડેરી ફાર્મ (ગૌ શાળા) ધારકો / પશુપાલકોને ગીર વોડકીઓમાં વધુ દૂધ ઉત્પાદન મેળવવા માટે ૩૦૦ થી ૩૫૦ કિલો શારીરીક વજન જાળવવા ભલામણ છે.

(Action: Research Scientist (AGB), Cattle Breeding Farm, JAU, Junagadh)

Centre: College of Fisheries, Veraval.

9.7.2.4 Survey for cultivable brackish water fish seeds along coast of Okha mandal to Harshad creek

The fish farmers of saurashtra are recommended to collect the fry of cultivable mullet species *Mugill cephalus* are available abundantly, during February at Rupen and Harshad creeks; *Mugill seheli* during October-November at Khatumba and *Mugill parsia* during August-September at Rupen and Harshad creeks.

ઉછેર કરવા યોગ્ય મલેટ માછલીની જાતો જેવી કે મ્યુઝીલ સીફાલસના બચ્ચાં વિપુલ પ્રમાણમાં ફેબ્રુઆરી માસમાં રૂપેણ અને હર્ષદની ખાડીમાં, મ્યુઝીલ સહેલીના બચ્ચાં ઓકટોમ્બર અને નવેમ્બર માસમાં ખથુંબાની ખાડીમાં અને મ્યુઝીલ પાર્સીયાના બચ્ચાં ઓગષ્ટ–સપ્ટેમ્બર માસમાં હર્ષદ અને રૂપેણની ખાડીમાં ઉપલબ્ધ હોવાથી સૌરાષ્ટ્રના મત્સ્યખેડૂતોને એકત્ર કરવાની ભલામણ કરવામાં આવે છે.

(Action: Research Officer, Fisheries Research Station, JAU, Okha)

Recommendations for scientific community:

9.7.2.5 Management of sub-estrus condition in post partum buffaloes through hormonal therapy

The field veterinarians are informed that synthetic analogue of Prostaglandin ($PGF_2\alpha$) when injected @ 2 ml i/m in post partum subestrus Jaffarabadi buffaloes helps in the regression of corpus luteum within an average period of 2 to 3 days.

(Action: Research Scientist (AGB), Cattle Breeding Farm, JAU, Junagadh)

9.7.2.6 Studies on the breeding attributes and semen characteristics of Gir and Jaffrabadi bulls

Not accepted due to inadequate no of observation.

(Action: Research Scientist (AGB), Cattle Breeding Farm, JAU, Junagadh)

Centre: College of Fisheries, JAU, Veraval

9.7.2.7 Determination of suitable protein level for growth enhancement in *Labeo rohita*

Approved with modification.

In South Saurashtra agro-climatic zone better bio-mass can be obtained by providing fish feed containing 30 % protein to fish *Labeo rohita.*

(Action: Principal, College of Fisheries, JAU, Veraval)

9.7.2.8 The effect of air and water transport on stress and survival of Rock oyster (*Saccostrea cucullata*)

The rock oyster (*Saccostrea cucullata*) can be transported by road for nine hours in wet gunny bag or water filled plastic bag (30 cm (W) x 38 cm (L)) at the density of 30 oyster per bag without any mortality.

Approved

(Action: Principal, College of Fisheries, JAU, Veraval)

Centre: College of Fisheries, JAU, Veraval

9.7.2.7 Title: Determination of suitable protein level for growth enhancement in *Labeo rohita*

Approved with modification.

In South Saurashtra agro-climatic zone better bio-mass can be obtained by providing fish feed containing 30% protein to fish *Labeo rohita.*

(Action: Principal, College of Fisheries, JAU, Veraval)

9.7.2.8 Title: The effect of air and water transport on stress and survival of Rock oyster (*Saccostrea cucullata*)

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(L)) at the density of 30 oyster per bag without any mortality.

Approved

(Action: Principal, College of Fisheries, JAU, Veraval)

9.7.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Centre/Title/Recommendation.

Recommendation for farmers.

Centre: LRS, NAU, Navsari.

9.7.3.1 **Title**: Study on correlation of non-genetic factors with occurrence of sub-clinical mastitis in Surti buffaloes.

Not accepted due to inadequate no of observations.

[Action :RS, LRS, NAU, Navsari.]

Centre: Dept. of Animal Nutrition.

9.7.3.2 **Title:** Studies on supplementation of herbal feed additives on growth performance and gut microbial health of broilers

Approved with modification.

Supplementation of garlic powder @0.5% in ration of broilers increases final body weight (8.5%) at 6 weeks of age resulting in more return per bird.

બ્રોઈલર્સના ખોરાકમાં ૦.૫% લસણનો પાવડર ઉમેરવાથી ૬ અઠવાડિયાની ઉંમરે તેમના વજનમાં (૮.૫%) નોંધપાત્ર વધારો થવાથ વધુ વળતર મળે છે.

[Action :Professor & Head,AN, NAU, Navsari]

9.7.3.3 **Title:** Effect of dietary supplementation of bypass protein on growth and reproductive performance in Surti buffalo heifers

The farmers of South Gujarat are recommended to supplement 50% regular concentrate mixture with 50% bypass protein (formaldehyde treated) containing concentrate mixture in the ration of growing Surti buffalo heifers (15-17 months old) for a period of 6 months for achieving better growth by 17 % and 13% decrease in cost per kg body weight gain than fed cotton seed cake alone as a concentrate.

દક્ષીણ ગુજરાતના પશુપાલકોને ભલામણ કરવામાં આવે છે કે ફકત કપાસિયા ખોળને બદલે ૫૦% સાદુ સમતોલ દાણ અને ૫૦% બાયપાસ પ્રોટીન (ફોર્માલ્ડીહાઈડ ઉપચારીત) વાળુ સમતોલ દાણ (૧૫ થી ૧૭ મહિનાની) ઉછરતી સુરતી પાડીયોને ૬ માસ સુધી આપવાથી સરેરાશ રોજીંદા વજનમાં ૧૭% જેટલો વધારો થાય છે અને ૧૩% જેટલો ખર્ચ પ્રતિ કિ.ગ્રા. શારિરીક વજન વધારા દીઠ ઘટે છે.

Approved

[Action : Professor & Head,AN, NAU, Navsari**]**

Recommendations for Scientific community

Centre: LRS, NAU, Navsari.

9.7.3.4 **Title:** Study on correlation of non-genetic factors with occurrence of sub-clinical mastitis in Surti buffaloes

Not accepted due to inadequate technical observations.

[Action :RS, LRS, NAU, Navsari]

Centre: Dept. of Animal Nutrition.

9.7.3.5 **Title :** Study on effects of non-genetic factors on milk composition in Surti buffaloes

Approved with modification.

The milk composition of surti buffalo varies with stage of lactation, parity and time of sampling. Higher fat % in milk is observed in multiparous animal, evening milk and advanced stage of lactation.

[Action :Professor & Head,AN, NAU, Navsari]

9.7.3.6 **Title :** Studies on supplementation of herbal feed additives on growth performance and gut microbial health of broilers

Approved with modification.

Supplementation of garlic powder @0.5% alone or in combination with fenugreek seed powder @0.5% in ration of broilers for 6 weeks results in 8.5 and 7.5% more body weight, 9.5 and 7.5% less feed conversion ratio (FCR), 41.50 and 31.0% more nitrogen retention, respectively.

[Action :Professor & Head,AN, NAU, Navsari]

9.7.3.7 **Title:** Effect of dietary supplementation of bypass protein on growth and reproductive performance in Surti buffalo heifers

Approved with modification

Replacement of 50% regular concentrate mixture with concentrate mixture containing formaldehyde treated protein (bypass protein) in the ration of growing Surti buffalo heifers (15-17 months old) for 6 months results in 13% more average daily gain, 15% better Feed Conversion Ratio andanimal shows

first estrus earlier as compared to animals kept on 100% regular concentrate mixture.

[Action :Professor & Head,AN, NAU, Navsari]

Centre: Dept of Physiology and Biochemistry.

9.7.3.8 Title: Oxidative stress profiling in relation to repeat breeding in Surti buffaloes.

Not accepted due to inadequate observations / information.

ANIMAL HEALTH :

9.7.3.9 Recommendation for Scientific Community:

Centre: Department of Teaching Veterinary Clinical Complex (TVCC)

Title: "Standardization of rhino-pharyngeal endoscopic procedures in non-sedated farm animals."

Recommendation paragraph:

Naso-pharyngeal endoscopy with 1.0 cm diameter flexible endoscope under surface analgesia @ 5 ml of 2 % lignocaine HCl solution in each nostril is recommended for diagnosis of gross pathological conditions in standing cattle and buffaloes."

Approved

(Action: Professor and Head, TVCC, Veterinary College, Navsari)

9.7.3.10 Recommendation for Scientific Community:

Centre: Department of Teaching Veterinary Clinical Complex (TVCC)

Title: "To study the incidence of intestinal obstruction and its surgical management in bovines."

Recommendation paragraph:

"Entero-anastomosis through Schimeden's technique using vicryl # 3/0 is recommended to achieve maximum lumen diameter of intestinal loops in bovine."

Approved

(Action: Professor and Head, TVCC, Veterinary College, Navsari)

9.7.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Centre / title / Recommendation

Recommendation for farmer community

Centre:- Animal Science Dept. CPCA. SDAU, Sardarkrushinagar

9.7.4.1 Title: Maintenance of Banni buffalo in banni area of Kutch.

Not accepted due to no new technical input / suggestions to the farmers.

Recommendation for scientific community

Centre: LPT, Dept., Veterinary College, SDAU, Sardarkrushinagar.

To be presented in the AGRESO of Dairy Science and Technology.

9.8 BASIC SCIENCE

Chairman	:	Dr Subhash N. (Res. Sci., Plant Tissue Culture Lab., AAU, Anand)
Co-Chairman	:	Dr A.S. Joshi (Prof. & Head, DSST, JAU, Junagadh)
Rapporteurs	:	Dr Pushpendra Kumar (Prof., Biotech. GABI, NAU, Surat)
	:	Dr Sarvesh Shah (Asst. Res. Sci., Soil Sci.,C & M, SDAU, Sardarkrushinagar)
Speakers	:	Respective convenors, AAU, JAU, NAU and SDAU

Number of recommendations and new technical programmes presented, discussed and approved

Name of SAUs	No. of Recommendations				No. of New Technical Programmes	
	For Farming Community		For Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	1	1	3	3	20	20
JAU	**1**	**1**	**7**	**7**	**12**	**12**
NAU	-	-	1	1	3	3
SDAU	-	-	-	-	7	6*
Total	**2**	**2**	**11**	**11**	**42**	**41**

***1 experiment was suggested as filler trial and 1 was not accepted.**

9.8.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

9.8.1.1 Effect of growth regulators on fodder quality and yield in Lucerne (*Medicago sativa L.*) var. A-2s

Recommendation :-

The farmers of Middle Gujarat Agro-climatic Zone III are advised to spray gibberellic acid (GA_3) @ 40 milligram/litre to the lucerne (var. Anand-2) crop at 30 days after sowing for achieving higher forage yield, better quality and more net realization.

ખેડૂતો માટે ભલામણ

મધ્ય ગુજરાત ખેત આબોહવાકીય વિભાગ–૩ ના ખેડૂતોને ભલામણ કરવામાં આવે છે કે રજકા (જાત આણંદ–૨) ના પાકને વાવણીના ૩૦ દિવસ બાદ જીબરેલીક એસીડ (જીએ$_3$) ૪૦ મીલીગ્રામ/લીટર પ્રમાણે છંટકાવ કરતાં લીલાચારાનું વધુ ઉત્પાદન, સારી ગુણવત્તા અને વધુ નફો મેળવી શકાય છે.

(**Action :- Res. Scientist, Main Forage Res. Station, AAU, Anand**)

RECOMMENDATION FOR SCIENTIFIC COMMUNITY

Centre :- Bidi Tobacco Research Station, AAU, Anand

9.8.1.2 Effect of different nitrogen levels on green leaf yield, protein and phyto-chemicals of different tobacco varieties and their residual effects on wheat (Joint Study With Agronomy Department)

Recommendation :-

Bidi tobacco variety MRGTH 1 fertilized with 220 kg N/ha and harvested at 90 DAT produced high protein yield from green leaf of tobacco as well as found suitable to cultivate wheat crop in *rabi* season with recommended dose of fertilizers.

(**Action:- Res. Sci., BTRS, AAU, Anand)**

Centre :- Department of Biochemistry, BACA, AAU, Anand

9.8.1.3 Evaluation of different genotypes of brinjal for its biochemical traits

Recommendation :-

Brinjal cv. Doli-5 has higher amount of vitamin-C and anthocynin and lower amount of phenol and glycoalkaloids and AB-09-1 has higher total carbohydrates as well as total soluble sugars. Both the varieties are more suitable for consumers use as compared to other brinjal genotypes.

(Action:- Res. Sci. & Head, Dept. of Biochemistry, BACA, AAU, Anand)

Centre :- Department of Agricultural Biotechnology, AAU, Anand

9.8.1.4 Tetraploid derived SSR markers, that can be exploited for marker

assisted breeding for enhancing fibre quality

Recommendation :-

Tetraploid (*G. hirsutum*) derived SSR markers show transferability in diploid cotton (*G. herbaceum and G. arboreum*) and thus can be successfully utilized for marker assisted breeding in diploid cottons for fibre quality enhancement

(Action:- Professor & Head, Biotechnology, AAU, Anand)

9.8.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Centre :- Department of Genetics & Plant Breeding, JAU, Junagadh

9.8.2.1 The effect of harvesting dates on fresh seed dormancy in pearlmillet hybrids

Recommendation :-

Farmers of South Saurashtra Agro-climatic Zone taking hybrid seed production of pearl millet are recommended to harvest the crop between 25 to 35 days after flowering. They are also recommended to dry and store the seed for 20 to 30 days after harvesting them, in order to get maximum germination and enhanced seedling vigour.

ખેડૂતો માટે ભલામણ :

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના સંકશ બાજરીનું બીજ ઉત્પાદન કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ફુલ આવવા પછીના ૨૫ થી ૩૫ દિવસે કાપણી કરવી જોઈએ. કાપણી પછી બીજની ૨૦ થી ૩૦ દિવસ સુધી સૂકવી અને સંગ્રહ કરવાની પણ ભલામણ આપવામાં આવે છે. આમ કરવાથી મહત્તમ બીજા કુરણ તથા જુસ્સાદાર બીજા કુરણ (કભભમધ્ધિ- અઅ:૭૨) મળે છે.

(Action :- Prof. & Head, Department of Genetics & Plant Breeding, J.A.U, Junagadh)

RECOMMENDATION FOR SCIENTIFIC COMMUNITY

Centre :- Department of Genetics & Plant Breeding, J.A.U, Junagadh

9.8.2.2 Effect of pre-soaking treatments of growth regulators on germination and seedling vigour of cumin (*Cuminum cyminum* L.)

Recommendation :-

Pre-soaking treatment of 50 ppm Gibberellic acid (GA_3) for 12 hrs to cumin seed at room temperature increases seed germination percentage with enhanced seedling vigour.

(Action:- Professor & Head, Dept. Genetics & Plant Breeding, J.A.U, Junagadh)

Centre :- Department of Genetics & Plant Breeding, J.A.U, Junagadh

9.8.2.3 Allelopathic effects of different weed extracts on seed germination and vigour in groundnut, cowpea and greengram

Recommendation :-

Root extracts (5%) of *Parthenium*has maximum detrimental effect on seed germination and vigour as compared to other weeds tested *viz*., *Cyprus rotundas*, *Echinochloa crus-galli*, *Cynodon dactylon* and *Digera arvensis* in groundnut, greengram and cowpea crops.

***(Action:- Professor & Head, Dept. Genetics & Plant Breeding, J.A.U, Junagadh*)**

Centre :- Department of Genetics & Plant Breeding, J.A.U, Junagadh

9.8.2.4 Seed vigour as influenced by different seed priming in Okra [*Abelmoschus esculentus* (L.) Moench]

Recommendation :-

Seed soaked in brassinolide solution (0.2 mg/l brassinolide) for 6 hrs at room temperature followed by air drying at room temperature in okra gives improved and fast germination as well

as enhanced seedling vigour.

(Action:-Assistant Professor, Dept. Genetics & Plant Breeding, J.A.U, Junagadh)

Centre :- Department of Genetics & Plant Breeding, J.A.U, Junagadh

9.8.2.5 Amelioration of simulated water stress by brassinolide application during germination and early seedling growth of groundnut

Recommendation :-

Application of brassinolideas seed soaking treatment for 2 hrs @ 0.50 mgl^{-1} in groundnut gives improved and faster germination, enhanced seedling vigour and activated metabolism in artificially simulated water stress conditions up to -2 bar level of PEG. However, the same concentration of brassinolide sustained germination upto the level of -6 bar induced water stress.

(Action:-Assistant Professor, Dept. Genetics & Plant Breeding, J.A.U, Junagadh)

Centre :- Dry Farming Research Station, JAU, Targhadia

9.8.2.6 Physiological evaluation of some released varieties of bunch type of groundnut

Recommendation:-

Revised as “Among six varieties of bunch groundnut tested for physiological attributes, varieties GG 5 and GG 7 performed better in respect to yield, yield attributes (shelling percentage, 100 kernel weight, 100 pod weight,) and physiological growth parameters (pod growth rate, crop growth rate, partitioning percentage, stem growth rate) under dry farming situation”.

(Action:- Research Scientist, Dry Farming Research Station, JAU, Targhadia)

Centre :- Department of Biochemistry and Biotechnology, JAU, Junagadh

9.8.2.7 Quality differences in kesar mango of different location of Saurashtra

Recommendation:-

The ripened mango fruit of Talala region found to be the best with respect to nutritional quality as it contained higher amount of carotenoids (22.18 µg.g^{-1}), total soluble sugar (13.57 %) and dry matter (20.54 %); and lower amount of percent acidity (2.16 %) and total phenol (7.64 mg %) as compared to the Junagadh, Vanthali and Dhari-Visavadar regions.

(Action :- Professor & Head, Dept. of Biochemistry and Biotechnology, JAU, Junagadh)

Centre:- Department of Biochemistry and Biotechnology, JAU, Junagadh

9.8.2.8 Molecular characterization of indigenous mango cultivars through DNA finger printing

Recommendation:-

Out of 50, fifteen ISSR primers produced 29 cultivar specific DNA finger prints. These were 22 unique fragments for identification of 12 indigenous cultivars and 7 fragments for the identification of 5 national cultivars. The three ISSR primers - UBC- 840, UBC-835, UBC-836 are most informative in identifying mango cultivars as they possess the higher primer index values.In clustering pattern, Kaju and Khodi was found to be most diverse indigenous cultivars and shared only 31% similarity with other 18 mango cultivars. The first three most informative PC components explained 56.61% of the total variation. Five cultivars (Jamrukhiyo, Chappaniyo, Sopari, Jamadar and Kesar) appeared to be distinct from other cultivars in the Principal Coordinate Analysis.

(Action:- Professor& Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)

9.8.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

RECOMMENDATION FOR SCIENTIFIC COMMUNITY

Centre :- NARP, NAU, Navsari

9.8.3.1 Physiological parameters and productivity of rice varieties under saline water irrigation

Recommendation:-

Revised as "Among the rice varieties (Dandi, NAUR 1, GNR 2 and IR 28) tested, NAUR 1 showed higher tolerance to salinity than rest of varieties and recorded higher seedling vigour, photosynthetic rate and yield upto 9 dS/m EC under saline water irrigated pot culture.''

(Action:- Professor, NARP, SWMRU, NAU, Navsari)

NEW TECHNICAL PROGRAMME			
Sr. No.	**Title**	**Suggestion**	**Action to be taken by**
9.1	**CROP IMPROVEMENT**		
9.1.1	**ANAND AGRICULTURAL UNIVERSITY**		
9.1.1.1	Effect of seed priming treatment in chickpea (*Cicer arietinum* L.)	Instead of chickpea the crop should be cumin	Professor & Head, Dept. of Botany, BACA
9.1.1.2	Identification of genes related to germination in artificial aged maize seeds	**Approved**	Professor & Head, Dept. of Botany, BACA
9.1.1.3	Screening sesame genotypes for biotic stress resistance	**To be dropped**	Professor & Head, Dept. of Botany, BACA
9.1.1.4	Induced variability in Vinca by mutation techniques (EMS mutagen)	**Approved**	Professor & Head, Dept. of Botany, BACA
9.1.1.5	Study of host pathogen interaction in cumin during Alteneria Blight infection	Restructure the experiment taking in to the consideration of information generated by earlier scientist for tissue culture protocols	Professor & Head, Dept. of Agril.Biotech
9.1.1.6	Population structuring in okra and its wild relatives using SSR markers.	**Approved**	Professor & Head, Dept. of Agril.Biotech
9.1.1.7	DNA fingerprinting of crop varieties and other Bio-inputs developed by AAU, Anand using SSR and ISSR markers	**Approved**	Professor & Head, Dept. of Agril.Biotech
9.1.1.8	Isolation and validation of CCD2 and LcyB1genes of saffron	**Approved**	Professor & Head, Dept. of Agril.Biotech
9.1.1.9	Development of EST-SSR markers for fiber quality in diploid cotton	**Approved**	Professor & Head, Dept. of Agril.Biotech

9.1.1.10	Validation of newly developed SSR marker of *Plantago ovato*	**Approved**	Professor & Head, Dept. of Agril.Biotech
9.1.1.11	Screening of wild germplasm of Okra for YVMV resistance	Approved with suggestion that Embryo rescue method should be employ	Professor & Head, Dept. of Agril.Biotech
9.1.1.12	Interspecific hybridization in okra	Approved with suggestion that Embryo rescue method should be employ	Professor & Head, Dept. of Agril.Biotech
9.1.1.13	Interspecific hybridization in tomato	Approved with suggestion that Embryo rescue method should be employ	Professor & Head, Dept. of Agril.Biotech
9.1.1.14	Interspecific hybridization in cotton	Approved with suggestion that Embryo rescue method should be employ	Professor & Head, Dept. of Agril.Biotech
9.1.1.15	Development of colchiploid in desi cotton	**Approved**	Professor & Head, Dept. of Agril.Biotech
9.1.1.16	Refinement of date palm micro-propogation protocol for early callus induction and for other stages	**Approved**	Professor & Head, Plant Tissue Culture Dept. of Agril.Biotech
9.1.1.17	Effect of nano-zinc application on morphological parameters of Rice Variety GR-11	Approved with a suggestion that GR-11 / Jaya variety may be considered if required	Professor & Head, Dept. of Nanotechnology
9.1.2	**JUNAGADH AGRICULTURAL UNIVERSITY**		
9.1.2.1	Initial Varietal Trial 12 early plant crop	**Approved**	Res. Sci., Sugarcane Research Station, JAU, Kodinar
9.1.2.2	Initial Varietal Trial 12 Mid late plant crop	**Approved**	Res. Sci., Sugarcane Research Station, JAU, Kodinar
9.1.2.3	Development of cultivar specific markers for the hybrid released by JAU in Pearl millet	Approved with suggestion that all the varieties released by Agricultural university be considered	Professor & Head, Dept. of Biochemistry & Biotech., JAU, Junagadh

9.1.2.4	Development of cultivar specific markers for the hybrid released by JAU in Groundnut	Approved with suggestion that all the varieties released by Agricultural university be considered	Professor & Head, Dept. of Biochemistry & Biotech., JAU, Junagadh

9.1.3	**NAVSARI AGRICULTURAL UNIVERSITY**		
9.1.3.1	Development of jassid resistant/tolerant interspecific crosses with good boll opening and good fibre quality.	**Approved**	NAU, Navsari
9.1.3.2	To improve the locule retentivity and quality characters in *G. arboreum* cottons.	**Approved**	NAU, Navsari
9.1.3.3	Morphological and Molecular evaluation of cotton germplasms (*Gossypium hirsutum L.*)	**Approved**	NAU, Navsari
9.1.3.4	To Develop genotypes in sorghum with high yield and better seed quality as desired by consumers.	**Approved**	NAU, Navsari
9.1.4	**SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY**		
9.1.4.1	Effect of plant growth regulators for enhancing growth, yield and seed quality in cumin.	**Approved**	Res. Sci., Jagudan, SDAU, S.K.Nagar
9.1.4.2	Study of growth regulators to overcome sugary in rabi Fennel (Var.,GF-11)	**Approved**	Res. Sci., Jagudan, SDAU, S.K.Nagar
9.1.4.3	Replacement of existing wilt susceptible pistil late line VP 1 and incorporate resistant pistil late line VP 1 in released castor hybrids, GAUCH 1, GCH 2 and GCH 4	Approved with a suggestion that the material should be tested at S.K. Nagar, Anand and Junagadh	Res. Sci., Castor & Mustard Res. Station, SDAU, S.K.Nagar
9.1.4.4	Screening of mustard genotypes for salinity tolerance at seedling stage	One year laboratory testing and on the basis of the results next year to be screened under	Res. Sci., SDAU, S.K.Nagar

		field condition	
9.2	**CROP PRODUCTION / NRM**		
9.2.1	**ANAND AGRICULTURAL UNIVERSITY**		
9.2.1.1	Effect of topping and nitrogen levels on growth, yield attributes and yield of Bt cotton under drip irrigation.	**Accepted with following suggestion/s** 1. Delete observation no. 5	Res. Sci. NARP, AAU, Khandha
9.2.1.2	Effect of Nitrogen and phosphorus on the grain yield of maize variety GM-6 under rainfed condition.	**Approved**	Research Sci. MMRS, AAU, Godhra
9.2.1.3	Response of different levels of Nitrogen (N), Phosphorus (P) and Biofertilizers on Rice (*Oryza sativa* L.) under middle Gujarat conditions.	**Accepted with following suggestion/s** 1. *Azospirillum* instead of *azotobacter*	Res. Sci. MRRS, AAU, Navagam
9.2.1.4	"Seed priming and foliar spray of stress mitigating chemicals for ameliorating moisture stress in conserved moisture condition in Chickpea"	**Accepted with following suggestion/s** 1. Observation on relative water content in leaf at 30 and 45 DAS be taken.	Assit. Res. Sci., ARS, AAU, Dhandhuka
9.2.1.5	Nitrogen management through inorganic and organic fertilizer in hybrid chilli cv. GAVCH-1	**Accepted with following suggestion/s** 1. Revised title of the experiment as "Integrated nitrogen management in chilli" 2. Picking wise green chilli yield 3. Pest and disease observations be recorded 4. Replace ammonium sulphate as a source of N by urea from treatments.	Research Sci., Main Vegetable Research Station, AAU, Anand

9.2.1.6	Nitrogen management through organic and inorganic fertilizer in tomato cv. AT-3	**Accepted with following suggestion/s** 1. Revised title of the experiment as "Integrated nitrogen management in tomato" 2. Picking wise tomato yield 3. Pest and disease observations be recorded 4. Replace ammonium sulphate as a source of N by urea from treatments.	Res. Sci., Main Vegetable Research Station, AAU, Anand

9.2.1.7	Effect of irrigation schedule (IW/CPE ratio) on dry biomass yield of dodi *(Leptadenia reticulata).*	**Accepted with following suggestion/s** 1. Keep gross and net plot size equal (4.8 m X 2.4 m) 2. Keep buffer strip of 1.5 m between two plots	Res. Sci., Main Vegetable Research Station, AAU, Anand
9.2.1.8	Effect of different spacing and date of planting on dry biomass yield and quality of Artemisia.	**Accepted with following suggestion/s** 1. Observation 3 No. of branches / plant	Res. Sci., Medicine and Aromatic Plant Research, AAU, Anand
9.2.1.9	Assessment of cropping sequences for bidi tobacco growing area of Middle Gujarat Agro-Climatic Zone	**Accepted with following suggestion/s** 1. Tobacco equivalent yield be taken	Res. Sci. BTRS, AAU, Anand
9.2.1.10	To revalidate the fertilizer recommendation of widely cultivated bidi tobacco varieties. (Joint Study By Agronomy, Chemistry and plant physiology sections)	**Accepted with following suggestion/s** 1. Change experimental design as FRBD Approved	Res. Sci., BTRS, AAU, Anand

9.2.1.11	Relay cropping of castor in legume crops	**Approved**	Res. Sci. RRS, AAU, Anand
9.2.1.12	Influence of weed management practices on growth and seed yield of oat *(Avena sativa L.)*	**Accepted with following suggestion/s** 1.Use 2,4-D Sodium salt 2.Add pendimethaline 0.9 kg/ha PE as treatment number 11 3.Add pendimethaline 0.9 kg/ha PE *fb* HW at 40 DAS as treatment number 12	
9.2.1.13	Performance of dual purpose forage crops under different cutting management system	**Accepted with following suggestion/s** 1. Increase no. of replication from 3 to 4	Res. Sci., MFRS, AAU, Anand
9.2.1.14	Mapping and atlas preparation of agriculturally beneficial bacteria in Gujarat state	**Accepted with following suggestion/s** 1. Soil sample should be taken randomly	Prof & Head, Dept. of Micro, Anand
9.2.1.15	Effect of pearl millet-soybean row ratios on their productivity	**Accepted with following suggestion/s** 1. Fertilizer should be applied on area basis 2. Observation on LER be taken	Prof & Head, Dept. of Agronomy, BACA, AAU, Anand
9.2.1.16	Effect of nitrogen and phosphorous on castor (*Ricinus communis* L.) under middle Gujarat conditions.	**Accepted with following suggestion/s** 1. Recast treatments as under N levels :- 75, 100 & 125 kg/ha P_2O_5 levels :- 0, 25 & 50 kg/ha K_2O levels :- 0 & 40 kg/ha	Prof & Head, Dept. of Agronomy, BACA, AAU, Anand
9.2.1.17	Effect of nitrogen, phosphorus and potash on wheat (*Triticum aestivum* L.) under middle Gujarat conditions.	**Accepted with following suggestion/s** 1. Recast treatments as under N levels :- 100, 120 & 140 kg/ha	Prof & Head, Dept. of Agronomy, BACA, AAU, Anand

		P_2O_5 levels :- 0, 30 & 60 kg/ha K_2O levels :- 0 & 40 kg/ha	
9.2.1.18	Response of N, P and bio-fertilizers on summer pearlmillet (*Pennisetum glaucum* L under middle Gujarat conditions.	**Approved**	Prof & Head, Dept. of Agronomy, BACA, AAU, Anand
9.2.1.19	Response of Bt cotton to sulphur and water soluble fertilizer	**Accepted with following suggestion/s** 1. Change the design as FRBD	Professor, IFFCO Chair, BACA, AAU, Anand
9.2.1.20	Development of Rainfall Prediction models for different regions of Gujarat State.	**Approved**	Prof & Head, Dept. of Meteorology, BACA, AAU, Anand
9.2.1.21	Nakshatrawise rainfall analysis of different stations of Gujarat.	**Approved**	Prof & Head, Dept. of Meteorology, BACA, AAU, Anand
9.2.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
9.2.2.1	Effect of sowing time and spacing on summer gum guar	**Accepted with following suggestions** 1. Delete gum in title 2. Add observation on gum content	Professor & Head, Department of Agronomy, JAU, Junagadh
9.2.2.2	Response of cumin to drip irrigation and organic manures	**Accepted with following suggestions** Revised title as response of cumin to drip irrigation and integrated nutrient management 1. Revised fertilizer treatments as:	Professor & Head, Department of Agronomy, JAU, Junagadh

		M1: RDF M2: 75% RDF + FYM @ 5 t/ha M3: 75% RDF + Vermicompost @ 2 t/ha	
9.2.2.3	Drip irrigation and fertilizer in drilled rabi fennel	**Accepted with following suggestions** 1. N to be applied through drip irrigation in four splits (25 % as basal and 75 % in three split at 20 days interval) and P as soil application 2. Add observation on volatile oil content	Professor & Head, Department of Agronomy, JAU, Junagadh
9.2.2.4	Integrated weed management in organically grown groundnut	**Accepted with following suggestions** 1. Take wheat straw mulch @ 7.5 t/ha in treatment A_1	Professor & Head, Department of Agronomy, JAU, Junagadh

9.2.2.5	Studies on the effect of water soluble foliar grade fertilizers on the growth and yield of summer groundnut (AICRP)	**Approved**	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
9.2.2.6	Nutrient management in prevalent groundnut based cropping system	**Approved**	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
9.2.2.7	Bio-efficacy of different herbicides for broad spectrum weed management in chickpea	**Approved**	Research Scientist, Pulses Research Station, JAU, Junagadh

9.2.2.8	Efficacy of multi-micronutrient formulations in improving crop production of drip irrigated Bt. cotton with and without plastic (polyethylene) mulch	**Accepted with following suggestions** 1. Take $FeSO_4$ @ 50 kg/ha in treatment M_2 2. Take $ZnSO_4$ @ 25 kg/ha in treatment M_3 3. Take micro mixture @ 40 kg/ha in M_4 4. Take 25 micron plastic mulch in treatment P_3 and mulching on ridges only	Research Scientist, Cotton Research Station, JAU, Junagadh
9.2.2.9	Study the effect of foliar application of macro and micro nutrient on yield of cotton	**Accepted with following suggestions** 1. Revised treatments as under T_1 = Control (RDF) T_2 = 19-19-19 (NPK) 1% T_3 = 2 % urea T_4 = Micromix 1 % (Grade-IV) T_5 = Spray of 0.5% urea + 0.5% $FeSO_4$ + 0.5% $ZnSO_4$ + 0.5% $MgSO_4$ at 30, 60 and 90 DAS (As par AAU recommendation) T_6 = FYM 10 t/ha + one spray of 2% urea at flowering stage and one spray of 1% urea + 1% $MgSO_4$ during boll development stage (As par NAU recommendation) **Note :** In treatment T_2 to T_4, three foliar sprays application at flowering, boll formation and boll development 2. Take replications four	Research Scientist, Cotton Research Station, JAU, Junagadh

		3. Take observation on chlorophyll content	
9.2.2.10	Spacing and fertilizer trial on pre release Cotton variety GJHV-460 (GJ-Cot-101)	**Accepted with following suggestions** 1.Change title as "Fertilizer trial on pre release Cotton variety GJHV-460 (GJ-Cot-101)" 2. Delete main plot treatments 3. Revise K levels as 0, 60 and 120 kg K_2O/ha 4. Take design FRBD	Research Scientist, Cotton Research Station, JAU, Junagadh
9.2.2.11	Effect of nutrients management modules for minimizing drought impact and groundnut yield maximization in rainfed regions	**Accepted with following suggestions** 1. Result of experiment needs to be presented in next AGRESCO	Res. Sci., Dry Farming Res. Station, JAU, Targhadia
9.2.2.12	Nutrient management in Bt cotton under rainfed condition	**Accepted with following suggestions** 1. Revise N levels as 60, 80 and 100 kg N/ha	Res. Sci., Dry Farming Res. Station, JAU, Targhadia
9.2.2.13	Groundnut based cropping systems under rainfed condition	**Accepted with following suggestions** 1. Remove the word gum in T_5 and T_9 2. Add observation on groundnut EY 3. Delete observation on biological yield	Res. Sci., Dry Farming Res. Station, JAU, Targhadia
9.2.2.14	Weed management in Bt cotton	**Accepted with following suggestions** 1. Add observation on monocoat, dicoat and sedges species of weeds at 20, 40 DAS and at harvest	Res. Sci., Dry Farming Res. Station, JAU, Targhadia
9.2.2.15	Characterization of recyclable resource and potentiality for enhancing the availability of	**Accepted with following suggestions** 1. Quantify the waste	Res. Sci., Dry Farming Research Station, JAU,

	natural resources to augment the plant nutrient under dryland condition of the Zone		Targhadia
9.2.2.16	Effect of C/N ratio and microorganism consortium on cotton stalk composting	**Accepted with following suggestions** 1.Use various available cellulytic culture 2.With two sets of treatment with & without urea	Res. Sci., Dry Farming Research Station, JAU, Targhadia
9.2.2.17	Soil organic carbon pools under different land use systems in medium black soils	**Accepted with following suggestions** 1. Add observation on TOC	Res.. Sci., Dry Farming Research Station, JAU, Targhadia
9.2.2.18	Nutrient management through organic and inorganic sources for major and trace elements in rainfed pearlmillet (AICPMIP)	**Approved**	Res. Sci., Main Pearl Millet Research Station JAU, Jamnagar
9.2.2.19	Management of sugarcane under water-deficit condition during summer season	**Accepted with following suggestions** 1. Change title as "Moisture stress management in sugarcane" 2. Revise treatments as under A = Mulch 1. Without mulch 2. Stress mulch @ 5 t/ha B. Chemical spraying 1. Control 2. KCL 2.5 % 3. Urea 2.5 % 4. Urea + KCL each 2.5 % **Note :** Chemical spraying at 60, 80 and 100 DAP	Res. Sci., Main Sugarcane Research Station, JAU, Kodinar

		3. Take replication four 4. Design FRBD	
9.2.2.20	Effect of time of nitrogen application on seed yield of sorghum (GFS-5)	**Accepted with following suggestions** 1. Revise treatments as under A. Variety V1 = GFS 5 V2 = GSV 21 V3 = Local (Gundari) B. Level of nitrogen : 60, 80 and 100 kg N /ha 2. Design FRBD 3. Common dose of P_2O_5 @ 40 kg/ha	Assoc. Res. Sci., Grassland Research Station, JAU, Dhari
9.2.2.21	Evaluation of Bt cotton based intercropping systems	**Accepted with following suggestions** 1. Cotton equivalent yield to be added in observations 2. Change greengram variety as Meha	Associate Research Scientist (Cotton), JAU, Kukada
9.2.2.22	Relative salt tolerance of different cluster bean (*Cyamopsis tetragonaloba* Taub) genotypes	**Accepted with following suggestions** 1. Revise salinity levels as 2, 4,6,8 and 10 mmhos/cm 2. Add observation on plant population (initial and final), 3. Take harvest index instead of yield index	Professor & Head, Department of Agril. Chem. & Soil Sci., JAU, Junagadh
9.2.2.23	Effect of multi-micronutrient formulations on	**Accepted with following suggestions**	Professor & Head,

	tomato	1. Delete treatment T_9	Department of Agril. Chem. & Soil Sci., JAU, Junagadh
9.2.2.24	Effect of potassium and sulphur on growth, yield and quality of wheat crop	**Accepted with following suggestions** 1. Revise source of sulphur as phosphogypsum	Professor & Head, Department of Agril. Chem. & Soil Sci., JAU, Junagadh
9.2.2.25	Effect of multi-micronutrient formulations on okra	**Accepted with following suggestions** 1. Delete treatment T_9	Professor & Head, Department of Agril. Chem. & Soil Sci., JAU, Junagadh
9.2.2.26	Micronutrients and sulphur status in soils of Saurashtra region	**Approved**	Professor & Head, Department of Agril. Chem. & Soil Sci., JAU, Junagadh
9.2.2.27	Soil test based fertilizer recommendation for targeted yields of pigeonpea crop	**Approved**	Professor & Head, Department of Agril. Chem. & Soil Sci., JAU, Junagadh
9.2.3	**NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI**		
E.	**New technical programme**		
9.2.3.1	Effect of irrigation and sulphur levels on yield of cluster bean (s) under south Gujarat condition	**Accepted with following suggestions:** 1)Add observation on no. of pods /plant	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.2	Study on combined effect of irrigation, fertigation and mulching levels on fruit yield	**Approved**	Res. Sci., Soil & Water, SWMRU, Navsari

	and quality of water melon		
9.2.3.3	Comparative study of different sleeving materials in banana	**Accepted with following suggestion/s:** 1) Take up expt. with RBD instead of FRBD	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.4	Evaluating effect of banana pseudostem enriched sap (foliar spray) on cotton	**Accepted with following suggestion/s:** 1) RDN should be 120 kg/ha	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.5	Effect of rate and frequency of micronutrient application on production of banana under drip irrigation	**Approved**	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.6	Natural resources characterization in relation to banana growing areas of south Gujarat	**Approved**	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.7	Study on response of irrigation and fertilizer levels by two varieties of fodder sugar beet	**Accepted with following suggestion/s:** 1) Delete the words “by two” from expt. title.	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.8	Response of cotton (*Bt*) hybrids to integrated nutrient management under coastal salt affected soil condition	**Approved**	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.9	Salt built up and distribution in adjoining areas of aquaculture pond (Feeler trial)	**Approved**	Res. Sci., Soil & Water, SWMRU, Navsari
9.2.3.10	Evaluation of rice based crop sequence under aerobic and transplanted method of cultivation in south Gujarat condition	**Accepted with following suggestion/s:** 1) Take up expt. with SPD by allocating combinations of variety and method of planting in main plot	Res. Sci., Soil & Water, SWMRU, Navsari

9.2.3.11	Effect of land leveling by laser leveler on yield of wheat crop	**Approved**	Res. Sci., Soil Science, Navsari
9.2.3.12	Irrigation and fertilizer requirement of promising Indian bean genotype NPS-1	**Approved**	Asstt. Res. Sci., Agron., Pulses Res. Sta., Navsari
9.2.3.13	Spacing and nutrient management for pigeonpea Cv. GT-102 during *rabi* season	**Accepted with following suggestion/s:** 1) In treatment O_2 mention FYM rate i.e. 5 t/ha	Asstt. Res. Sci., Agron., Pulses Res. Sta., Navsari
9.2.3.14	Response of different varieties of finger millet (Nagli) to integrated nutrient management under rainfed condition	**Accepted with following suggestion/s:** 1) Revise N levels as under N_1: RDF N_2: 75 % RDF + VC 2t/ha N_3: 75 % RDF + VC 1 t/ha + Biofertilizer N_4: VC 2t/ha + Biofertilizer	Asstt. Res. Sci., Agron., Hill Millet, Waghai
9.2.3.15	Response of little millet (*Vari*) to nitrogen and phosphorus levels under rainfed condition	**Approved**	Asstt. Res. Sci., Agron., Hill Millet, Waghai
9.2.3.16	Studies on different package of practices in finger millet (Ragi) under rainfed conditions (Dangs)	**Accepted with following suggestion/s:** 1) Revise T_2 30 kg N, 20 kg P_2O_5 and Biocompost 2t/ha	Asstt. Res. Sci., Agron., Hill Millet, Waghai
9.2.3.17	Agronomic requirements of cotton varieties in high density planting systems under irrigated conditions	**Accepted with following suggestion/s:** 1) Take G. Cot. Hy 8 (BG II) out side the experiment with recommended practices.	Res. Sci., Agron., Main Cotton Res. Sta., Surat
9.2.3.18	Influence of different plant population on seed cotton yield of *G. hirsutum* cotton varieties	**Accepted with following suggestion/s:** 1) Conduct experiment in FRBD	Asstt. Res. Sci., Agron., Cotton Res. Sta., Bharuch
9.2.3.19	Study on spacing and nutrient management	**Approved**	Assoc. Res. Sci., Agron.,

	with and without VAM in pigeon pea under rainfed condition of south Gujarat		NARP, Bharuch
9.2.3.20	Effect of pre-and post-emergence herbicides on weed infestation and productivity of pigeonpea under rainfed condition of south Gujarat	**Accepted with following suggestion/s:** 1) Delete the treatments T_2, T_3, T_8 and T_9	Assoc. Professor, CoA, Bharuch
9.2.3.21	Study of critical period of crop-weed competition in cotton under rainfed condition of south Gujarat	**Accepted with following suggestion/s:** 1) Take G Cot Hy. 8 (BG II) variety	Assoc. Professor, CoA, Bharuch
9.2.3.22	Fertilizer management in *rabi* black moong under conserved soil moisture condition	**Approved**	Asstt. Res. Sci., ARS, Tanchha
9.2.3.23	Effect of spacing and fertilizer management practices on *rabi* pigeonpea under conserved soil moisture condition	**Accepted with following suggestion/s:** 1) In treatment T_2 and T_3 use Vermicompost @ 1 t/ha instead of 2 t/ha	Asstt. Res. Sci., ARS, Tanchha
9.2.3.24	Response of *rabi* sorghum varieties to nutrient management in rice fallows	**Approved**	Asstt. Res. Sci., ARS, Mangrol
9.2.3.25	To study the intercropping suitability of pigeon pea and sorghum genotypes	**Accepted with following suggestion/s:** 1) Change the row ratio as 1 :1 instead of 2 :1 in treatments T_1, T_2 and T_3. 2) Take variety AGT 2 instead of GNT 2	Asstt. Res. Sci., ARS, Mangrol **Approved**
9.2.3.26	Identification and/or diversification of present crop sequence	**Approved**	Prof. & Head, Agronomy, NMCA, Navsari
9.2.3.27	Integrated weed management in *rabi* sorghum and their residual effect on succeeding crop under south Gujarat condition	**Approved**	Prof. & Head, Agronomy, NMCA, Navsari

9.2.3.28	Response of soybean to weed management and different plant population levels during *kharif* season	**Accepted with following suggestion/s:** 1) Use word spacing instead of plant population	Prof. & Head, Agronomy, NMCA, Navsari
9.2.3.29	Efficacy of herbicides and nitrogen use efficiency in aerobic rice	**Accepted with following suggestion/s:** 1) Recast title as "Weed and nitrogen management in aerobic rice" 2) Delete NUE from the observation and add grain yield per kg applied nitrogen	Prof. & Head, Agronomy, NMCA, Navsari
9.2.3.30	Effect of transplanting dates and nitrogen levels on growth, yield and quality of summer pearl millet under South Gujarat condition	**Accepted with following suggestion/s:** 1) Mention 1st fortnight of Feb. instead of recommended sowing time in treatments M_1, M_2 and M_3	Prof. & Head, Agronomy, NMCA, Navsari
9.2.3.31	Evaluation of DRIS approach for assessing nutritional status of banana in south Gujarat	**Accepted with following suggestion/s:** 1) Take as validation study if work is done elsewhere	Prof. & Head, SSAC, NMCA, Navsari
9.2.3.32	Comparison of different digestion methods for analysis of different elements (P, K, Fe, Mn, Zn, Cu) from plant	**Accepted with following suggestion/s:** 1)Add wet digestion in different instruments to be used for digestion	Prof. & Head, SSAC, NMCA, Navsari
9.2.3.33	Comparison between the Kjeldahl, Auto Digestion-Distillation and N Analyzers methods for the determination of N from plant/manures/fertilizers	**Approved**	Prof. & Head, SSAC, NMCA, Navsari
9.2.3.34	Preparation of enriched biochar compost from farm waste	**Approved**	Prof. & Head, SSAC, NMCA, Navsari
9.2.3.35	Effect of N, P and K levels on yield and quality of	**Accepted with following suggestion/s:**	Prof. & Head, SSAC,

	Broccoli	1) Revise P_2O_5 levels as 0, 40 and 60 kg/ha	NMCA, Navsari
9.2.3.36	Survey of nitrate (NO_3^-) levels and heavy metals in different vegetables available in Navsari market	Approved as survey	Prof. & Head, SSAC, NMCA, Navsari

9.2.3.37	Effect of different salinity levels of irrigation water on young teak plants	**Accepted with following suggestion/s:** 1) Write 'normal water' instead of 'best available water' in treatment S_1	Professor, NRM, ACHF, Navsari
9.2.3.38	Effect of different salinity levels of irrigation water on different clones of *Casurina equisetifolia*	**Accepted with following suggestion/s:** 1) Write 'normal water' instead of 'best available water' in treatment T_1	Professor, NRM, ACHF, Navsari
9.2.3.39	Study the temporal and spatial changes in water quality of the NAU campus	**Accepted with following suggestion/s:** 1) Take GPS points	Professor, NRM, ACHF, Navsari
9.2.3.40	Evaluation of *in situ* crop residue management on quality and productivity of banana cultivated under organic farming	**Accepted with following suggestion/s:** 1)Revise title as "Effect of farm waste management on quality and productivity of banana cultivated under organic farming"	Professor, SSAC, ACHF, Navsari
9.2.3.41	Response of sorghum varieties to different tillage practices under conserved moisture after *kharif* paddy (Drilled)	**Accepted with following suggestion/s:** 1) Conduct the experiment using large plot technique	SMS, Agronomy, KVK, Dediapada
9.2.3.42	Non-destructive analysis of protein, fibre and oil in rice, pigeon pea and soybean by NIR analyzer	Accepted as equipment calibration study	Assoc. Professor, FQTL, Navsari
9.2.3.43	Evaluation of different extractants and methods for the determination of P and K from soil	Accepted as equipment calibration study	Assoc. Professor, FQTL, Navsari
9.2.4	**Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar**		
9.2.4.1	Integrated Nitrogen Management in Castor	**Approved**	Res. Sci. (Agronomy),

	under rain fed condition		AICRP on Dry land Agriculture, SDAU, S.K. Nagar
9.2.4.2	Effect of irrigation and spacing levels on summer greengram under drip	**Not approved**	Associ. Reseach Sci. (Agronomy),Plasticulture Development Centre, CWM, PR&RE, S.K. Nagar
9.2.4.3	Evaluation of selected tree species under agri - silvicuture system under rainfed conditions	**Approved**	Res. Sci., DFRS, Centre for Agroforestry, FC&GB, S.K. Nagar
9.2.4.4	Nitrogen management in forage oat (*Avena sativa* L.) under north Gujarat Agro-climatic conditions	**Accepted with following suggestions** 1. N levels 80, 100, 120 and 140 kg/ha 2. First cut at 45 DAS 3. Determine NO_3 content	Research Sci., DFRS, Centre for Agroforestry, FC&GB, S.K. Nagar
9.2.4.5	Temporal adjustment for higher Mustard productivity in changing climate scenario	**Accepted with following suggestions** 1. Sowing date to be 25th Sept., 5th Oct., 15 Oct, 25th Oct and 5th Nov.	Asstt. Res. Sci. (Agronomy), Main Castor – Mustard Res. Station, S.K. Nagar
9.2.4.6	Herbicide based weed control study in Mustard (*Brassica juncea* (L.) Czern and Ex.Coss.)	**Accepted with following suggestions** 1. T_1 Pendimethalin @ 0.5 kg a.i./ha(PE) 2. T_3 – Pendimethalin extra 38.7 (CS) at 0.5 kg a.i./ha (PE) 3. T_7-Quizalofop 5EC@ 0.04 ai/ha (25-30 DAS) 4. Delete Treatments T_2, T_5, T_9 and T_{10}.	Asstt. Res. Sci. (Agronomy), Main Castor – Mustard Res. Station, S.K. Nagar
9.2.4.7	Fertilizer management for GCH 7	**Accepted with following suggestions**	Assoc. Res. Sci.

		1.Title as fertilizer mgt in castor (GCH-7) 2. Delete T_5 (25% RDF spot application) 3. Take six replications instead of five	(Agronomy), Main Castor – Mustard Res. Station, S.K. Nagar
9.2.4.8	Study on cotton – castor inter/relay cropping under North Gujarat condition	**Approved**	Assoc. Res. Sci. (Agronomy), Main Castor – Mustard Res. Station, S.K. Nagar

9.2.4.9	Integrated weed management in pigeonpea	**Approved**	Assoc. Res. Sci. (Agro), Centre of Excellence for Res. on Pulses, SDAU, S.K. Nagar
9.2.4.10	Performance of promising medium duration pigeonpea genotypes in intercropping	**Approved**	Assoc. Res. Sci. (Agronomy), Centre of Excellence for Research on Pulses, SDAU, S.K. Nagar
9.2.4.11	Effect of different weed management practices on isabgol and their residual effect on succeeding crop	**Approved**	Assoc. Res. Sci. (Agronomy), Center for Research on Seed Spices, SDAU, Jagudan
9.2.4.12	Wheat varietal response to sowing time under climate change	**Accepted with following suggestions** 1. Third date of sowing 20 Dec. instead of 25 Dec.	Assoc. Res. Sci., Centre of Excellence for Research on Wheat, SDAU, Vijapur

9.2.4.13	Efficiency of nutrients with different amendments under salt affected soils for Dill seed	**Accepted with following suggestions** 1. In place of 2.5 t gypsum per ha keep 50 % of gypsum requirement as per test	Assist. Res. Sci., (Agro), ARS, Adiya
9.2.4.14	Study on nutrient deficiency symptoms of Castor	**Accepted with following suggestions** 1. Add sorghum as indicator crop in addition to castor crop	Assoc. Res. Sci. (Soil Sci.), Main Castor-Mustard Research Station, SDAU,SKNgar
9.2.4.15	Effect of ferrous and zinc enriched FYM on yield and quality of fennel	**Accepted with following suggestions** 1. In treatment T_6 and T_7 and T_8 take 200 kg FYM in place of 100 kg FYM 2. Analyze FYM before and after enrichment.	Assoc. Res. Sci. (Soil Sci.), Center for Research on Seed Spices, SDAU, Jagudan

9.3	**PLANT PROTECTION**		
9.3.1	**ANAND AGRIL. UNIVERSITY, ANAND**		
I.	**AGRIL ENTOMOLOGY**		
9.3.1.1	Study On foraging activities of honey bees in middle Gujarat on various crops.	**Approved**	Prof. & Head, Dept. of Entomology,BACA,AAU, Anand
9.3.1.2	Bio-efficacy of different insecticides against Anar butterfly, *Virachola isocrates*	Observations to be recorded at 10, 20 and 30 days after spray.	Prof. & Head, Dept. of Entomology, BACA, AAU,

	(Fabricius) infesting pomegranate.		Anand
9.3.1.3	Bio-efficacy of some insecticides against red hairy caterpillar, *Amsacta albistriga* Walker on cowpea, *Vigna unguiculata* (Linnaeus) Walpers.	**Approved**	Prof. & Head, Dept. of Entomology, BACA, AAU, Anand
9.3.1.4	Evaluation of root dip and foliar spray of insecticides against aphid infesting gaillardia (var. lorenziana).	Two sprays of respective insecticides instead of 2-3 sprays are suggested.	Prof. & Head, Dept. of Entomology, BACA, AAU, Anand
9.3.1.5	Evaluation of effectiveness of auditory bird repeller (Gas Cannon: Zon® Mark 4) to scare birds.	**Approved**	Res. Sci., AINP on Ornithology,AAU, Anand
9.3.1.6	Evaluation of effectiveness of acoustic device (BirdXPeller® PRO) (acousting device) as bird repeller from feeding site.	**Approved**	Res. Sci., AINP on Ornithology,AAU,Anand
9.3.1.7	Assessment of bird damage in mango orchard	Nocturnal birds and mammals (Bat) damage to be recorded.	Res. Sci., AINP on Ornithology,AAU,Anand
9.3.1.8	Monitoring of wild boar population in agricultural landscape.	➢ Observations to be recorded by two observers at a time from two directions. ➢ The vehicle speed should be kept less than 20 kmph.	Res. Sci., AINP on Ornithology,AAU, Anand
9.3.1.9	Residue/persistence of triazophos/ profenophos / acephate in okra.	**Approved**	Residue analyst, AINP on Pesticide residues, AAU, Anand
9.3.1.10	Pesticide residues from surface and groundwater under SSP phase-II area.	**Approved**	Residue analyst, AINP on Pesticide residues AAU,

			Anand
9.3.1.11	Bio-efficacy of newer insecticides against brinjal shoot and fruit borer, *Leucinodes orbonalis* (Guenee).	Recommended check to be mentioned	Res. Sci., Main Vegetable Research Station, AAU, Anand
9.3.1.12	Bioefficacy of newer insecticides against tomato leaf miner, *Liriomyza trifolii* (Burgess)	Recommended check to be mentioned.	Research Sci., Main Vegetable Res. Station, AAU, Anand
9.3.1.13	Bioefficacy of different insecticides against sucking pests of capsicum in open field condition.	➢ Recommended check to be mentioned. ➢ The standard method for recording the mite population (No. of mites/cm^2 area) should be adopted.	Research Sci., Main Vegetable Res. Station, AAU, Anand
9.3.1.14	Evaluation of different acaricides against paddy mites.	➢ Sheath mite observations to be recorded if any ➢ Populations to be recorded at 3, 7 and 10 days	Asso. Res. Sci.(Ento.), Main Rice Research Station, AAU, Nawagam
9.3.1.15	Evaluation of new molecules of insecticides against insect pests of paddy.	**Approved**	Asso. Res. Sci.(Ento.), Main Rice Research Station, AAU, Nawagam
9.3.1.16	Bio-efficacy of newer insecticides against stem borer (*Chilo partellus*) infesting maize.	Two applications of insecticides starting from 30 DAG at 10 days interval should be carried out.	Asstt. Res. Sci. (Pl. Path.), Main Maize Research Station, AAU, Godhra

9.3.1.17	Effectiveness of biocides against stem borer (*Chilo partellus*) and aphid (*Rhopalosiphum maidis*) infesting maize.	**Approved**	Asstt. Res. Sci. (Pl. Path.), Main Maize Research Station, AAU, Godhra
9.3.1.18	Bio-efficacy of different insecticides against mealy bug infesting custard apple.	Number of nymphs and adults female to be recorded on twigs and fruits also.	Assoc. Prof. (Ento.), Horticulture Wing, AAU, Anand
9.3.1.19	Study on biodiversity of insect fauna through light traps.	➢ Intensity of lights in different traps should be mentioned. ➢ Remove the source name of light traps.	Assoc. Prof. (Ento.), Agriculture Wing, AAU, Vaso
9.3.1.20	Population dynamics of major lepidopterous insect pests through sex pheromone traps.	Remove the source name of pheromone traps.	Assoc. Prof. (Ento.), Agriculture Wing, AAU, Vaso
II.	**PLANT PATHOLOGY AND NEMATOLOGY**		
9.3.1.21	Management of wilt and collar rot of chickpea through seed biopriming and soil application of bioagents.	Yield to be recorded.	Prof. & Head, Dept. of Pl. Pathology, BACA, AAU, Anand
9.3.1.22	Management of Yellow Mosaic Virus in mungbean vis-à-vis its vector (Whitefly) through insecticides during summer season.	**Approved**	Prof. & Head, Dept. of Pl. Pathology, BACA, AAU, Anand
9.3.1.23	Epidemiology of *Bean Common Mosaic Virus* disease in mungbean.	**Approved**	Prof. & Head, Dept. of Pl. Pathology, BACA, AAU, Anand
9.3.1.24	Integrated management of disease complex (*Phytophthora citrophthora*) and root-knot	➢ Initial population of nematode and major soil borne pathogens are to	Prof. & Head, Dept. of Nematology, BACA, AAU,

	nematode (*Meloidogyne indica*) infecting citrus plants under pot trial conditions.	be recorded from infested field soil. ➢ Use common name instead of trade name in the treatment.	Anand
9.3.1.25	Impact of agro-shade net on damping-off disease in bidi tobacco nursery.	Soil temperature to be recorded.	Res. Sci. (Pl. Path), BTRS, AAU, Anand
9.3.1.26	Bio-efficacy of newer fungicides against *Maydis* leaf blight (MLB), *Curvularia* leaf spot (CLS) and *Turcicum* leaf blight (TLB) diseases in maize.	**Approved**	Asstt. Res. Sci (Pl. Path), Main Maize Res. Station, AAU, Godhra
9.3.1.27	Evaluation of bio-fungicides for integrated management of *Maydis* leaf blight (MLB), *Turcicum* leaf blight (TLB) and *Curvularia* leaf spot (CLS) diseases in maize.	➢ Conduct as feeler trial. ➢ *In vitro* study to be conducted for the efficacy of bio-fungicides against foliar pathogens.	Asstt. Res. Sci (Pl. Path), Main Maize Res. Station, AAU, Godhra
9.3.1.28	Bio-efficacy of newer fungicides against powdery mildew of clusterbean.	Two sprays of potassium silicate at 15 days interval to be made instead of four sprays.	Asstt. Res. Sci (Pl. Path), Agri. Res. Station, AAU, Derol
9.3.1.29	Screening of blackgram genotypes against yellow mosaic virus (YMV).	➢ Whitefly populations to be recorded. ➢ Resistant and susceptible checks to be included.	Asstt. Res. Sci (Pl. Path), Agri. Res. Station, AAU, Derol
9.3.1.30	Screening of greengram genotypes against *Bean Common Mosaic Virus* (BCMV).	➢ Aphid populations to be recorded. ➢ Resistant and susceptible checks to be included.	Asstt. Res. Sci (Pl. Path), Agri. Res. Station, AAU, Derol

9.3.1.31	Development of root rot sick plot at AAU, Sanand.	➢ Mention the name of pathogen of root rot. ➢ Population of fungus to be counted every year.	Asstt. Res. Sci (Pl. Path), Regional Cotton Res. Station, AAU, Viramgam
9.3.2	**JUNAGADH AGRIL. UNIVERSITY, JUNAGADH**		
I.	**AGRIL ENTOMOLOGY**		
9.3.2.1	Management of sucking pests through seed treatment in coriander.	Fipronil 5 SC to be taken instead of Fipronil 80 WG .	Professor & Head, Department of Ento., COA,JAU, Junagadh
9.3.2.2	Chemical control of sucking pests through seed treatment in green gram.	➢ Viral disease observations to be recorded. ➢ *Rhizobium* nodule to be counted after one month of germination. ➢ Fipronil 5 SC to be taken instead of Fipronil 80WG **.**	Professor & Head, Department of Ento., COA,JAU, Junagadh
9.3.2.3	Bio-efficacy of different insecticides against castor shoot and capsule borer.	Residue analysis to be carried out.	Professor & Head, Department of Ento., COA,JAU, Junagadh
9.3.2.4	Chemical control of sucking pests through seed treatment in okra.	➢ Fipronil 5 SC to be taken instead of Fipronil 80 WG . ➢ Yellow Vein Mosaic intensity to be recorded.	Professor & Head, Department of Ento., COA,JAU, Junagadh
9.3.2.5	Field efficacy of newer insecticides against inflorescence pests of mango.	**Approved**	Professor & Head, Department of Ento., COA, JAU, Junagadh
9.3.2.6	Testing the efficacy of newer insecticides	**Approved**	Res. Scientist (Millet),

	against shoot fly and stem borer in pearl millet.		Pearl Millet Research Station, JAU, Jamnagar
9.3.2.7	Population dynamics of key pests of cotton in relation to climatic condition.	➢ Observations on population of the pests to be recorded corresponding to standard meteorological week. ➢ Keep unprotected plot of 300 sq. mt. size. ➢ In title, write sucking pests instead of key pests. ➢ Also take observations of natural enemies like spiders, coccinelids and *Chrysoperla* adults.	Research Scientist, Cotton Research Station, JAU, Junagadh
9.3.2.8	Incidence of eriophyid mite in coconut.	➢ Use factorial CRD with two factors *viz*. variety and season. ➢ Title should be modified as *Response of coconut varieties in relation to different seasons for the eriophyid mite damage*.	Res. Sci., Agricultural Research Station (Fruit Corps), JAU, Mahuva
9.3.2.9	Formulation of new module for management of the pod borer incorporation botanicals, bio-pesticides and insecticides.	➢ Title should be modified as *Evaluation of botanicals, biopesticides and insecticides against gram pod borer*. ➢ Objective should be modified as per new title. ➢ Add local check.	Research Scientist, Pulse Research Station, JAU,Junagadh

		➢ POB/ml should be mentioned. ➢ Observations to be recorded at 3, 7 and 10 days.	

II.	**PLANT PATHOLOGY AND NEMATOLOGY**		
9.3.2.10	Efficacy of different bio-control agents against chilli wilt cause by *Fusarium oxysporium* f.sp. *capsici*	➢ Blanket seed treatment of *Pseudomonas fluorescens* to be incorporated. ➢ Stem rot observations to be recorded. ➢ Microbial count of bio-agents before and after experimentation to be recorded.	Prof. & Head, Department of Plant Patho., COA, JAU, Junagadh
9.3.2.11	Testing the nutritional efficacy of Azotobactor isolates on cotton *in vitro*.	Most effective cultures from *in vitro* studies to be find out and make graded doses of them for conducting field trial. For detail, they may take help of Department of Plant Pathology, NMCA, NAU, Navsari.	Prof. & Head, Department of Plant Patho., COA, JAU, Junagadh
9.3.2.12	Testing the nutritional efficacy of Phosphate solubilizing microorganism isolates on cotton *in vitro*.	Most effective cultures from *in vitro* studies to be find out and make graded doses of them for conducting field trial.	Prof. & Head, Department of Plant Patho., COA, JAU, Junagadh

9.3.2.13	Testing nutritional efficacy of *Rhizobium* isolates on Groudnnut *in vitro*.	Most effective cultures from *in vitro* studies to be find out and make graded doses of them for conducting field trial.	Prof. & Head, Department of Plant Patho., COA, JAU, Junagadh
9.3.2.14	Testing nutritional efficacy of *Rhizobium* isolates on mungbean *in vitro*.	Most effective cultures from *in vitro* studies to be find out and make graded doses of them for conducting field trial.	Prof. & Head, Department of Plant Patho., COA, JAU, Junagadh
9.3.2.15	Testing the nutritional efficacy of Phosphate solubilizing microorganism isolates on groundnut *in vitro* (Pot culture).	Most effective cultures from *in vitro* studies to be find out and make graded doses of them for conducting field trial.	Prof. & Head, Department of Plant Patho., COA, JAU, Junagadh
9.3.2.16	Management of *Meloidogyne arenaria* on groundnut by using non-host/antagonistic crops.	➢ Yield of sesamum and marigold flowers to be recorded. ➢ Root knot index from marigold should also be recorded.	Res. Sci. (G.nut), Main Oilseed Rezsearch Station, JAU, Junagadh
9.3.2.17	Screening of promising genotypes of sesame against foliar and soil borne diseases under summer condition.	Replace *Screening* word with *Testing* in title.	Research Scientist, Agricultural Research Station, JAU, Amreli
9.3.2.18	Efficacy of seed dressing chemical against seed and soil borne diseases of cotton.	Recommended check to be included.	Research Scientist, Cotton Research Station, JAU, Junagadh
9.3.3	**NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI**		

I.	**AGRIL. ENTOMOLOGY**		
9.3.3.1	Influence of different fertilizers on the incidence of red spider mite, *Tetranychus urticae* Koch. infesting brinjal	**Approved**	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari
9.3.3.2	Estimation of loss in brinjal due to red spider mite, *Tetranychus urticae* Koch.	Final population of red spider mite to be recorded.	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari
9.3.3.3	Bioefficacy of some pesticides against red spider mite, *Tetranychus urticae* (Koch) infesting brinjal.	New acaricide to be added instead of Neem oil treatment.	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari
9.3.3.4	Laboratory rearing of papaya mealy bug *Paracoccus marginatus* Williams and Granara de Willink (Hemiptera: Pseudococcidae) to study its biology under South Gujarat condition.	**Approved**	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari

9.3.3.5	Evaluation of some newer chemicals against papaya mealy bug *Paracoccus marginatus* Williams and Granara de Willink under laboratory condition.	➢ Remove "under laboratory condition" from title. ➢ Use CRD and 5 plants per treatment. ➢ Yield per plant to be recorded. ➢ Dissipation study of newer	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari

		chemicals to be carried out.	
9.3.3.6	Study of natural enemies attacking papaya mealy bug *Paracoccus marginatus* Williams and Granara de Willink (Hemiptera: Pseudococcidae) under South Gujarat condition.	Sampling method to be fixed with consultation of statistics department.	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari
9.3.3.7	Evaluation of antibiotics in eri silkworm *Philosimia cynthia ricini* Hutt. Rearing.	Add combination of antibiotics as per CIB guidelines.	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari
9.3.3.8	To test the feasibility of mass rearing of *Chrysoperla zastrowi sillemi* under laboratory condition.	**Approved**	Prof. & Head, Deptt. of Ag. Entomology, NMCA, Navsari
9.3.3.9	Management of shoot fly with fish meal traps.	Mention the quantity of fish meal, concentration of insecticides/trap and jeggery/trap.	Assoc. Res. Sci. (Ento.), Sorghum Res. Station, NAU, Surat
9.3.3.10	Evaluation of insecticides against pod sucking bug *Clavigralla gibbosa* Spinola in pigeon pea cv.Vaishali.	**Approved**	Principal, College of Agri., NAU, Bharuch
9.3.3.11	Evaluation of different insecticides for	**NOT APPROVED**	Asstt. Res. Sci. (Ento.), Regional Cotton Research

	management of sucking pests in cotton.		Station, NAU, Bharuch
9.3.3.12	Survey of natural occurrence of native/ indigenous egg parasitoid, *Trichogramma*spp. in different crops.	Delete "Survey of natural" from title	SMS (Pl. Prot.), KVK, NAU, Vyara
9.3.3.13	Survey and surveillance of major insect pests of pigeonpea at College Farm and Bharuch as well as Narmada districts.	Sampling method to be fixed with consultation of statistics department.	Principal, College of Agri., NAU, Bharuch
9.3.3.14	Survey of Insect pests of Major crops of Narmada district.	Sampling method to be fixed with consultation of statistics department.	SMS (Pl. Prot.), KVK, NAU, Dediapada
9.3.3.15	Population dynamics of *Leucinodes orbonalis* through pheromone traps in brinjal.	**Approved**	Assoc. Professor (Ag. Ento.), ACHF, NAU, Navsari
9.3.3.16	Boiefficacy of new insecticides for the control of sugarcane early shoot borer.	**Approved**	Assoc. Res. Sci. (Ento.), Main Sugarcane Research Station, NAU, Navsari
9.3.3.17	Non - Pesticidal management of pod borer *Heliothis ormigera* in pigeon pea.	➢ Conduct trial in CRD. ➢ Components of T1 module to be finalized in consultation with Professor and Head (Ag. Ento.), NMCA, Navsari.	SMS (Pl. Prot.), KVK, NAU, Dediapada

9.3.3.18	Survey and surveillance of insect pests and diseases in banana in Kamrej Taluka of Surat district.	**Approved**	*SMS (Pl. Prot.), KVK, NAU, Surat*
9.3.3.19	Integrated pest and disease management (IPDM) of major pests and disease of mango.	➢ Large Plot technique design should be used. ➢ Alternate spray of bio-agent and fungicide to be made in module-III.	Assoc. Res. Sci. (Ento.), Agri. Expt. Station, NAU, Paria

9.3.3.20	Survey of insect pests and diseases of fruit crops.	Sampling method to be fixed with consultation of statistics department.	Assoc. Res. Sci. (Ento.), Agri. Expt. Station, NAU, Paria
9.3.3.21	Incidence of insect pests and diseases on rose in green house.	➢ Record the temperature and humidity in green house as well as open field. ➢ Use "t" test for analysis.	Assoc. Professor (Ag. Ento.), ACHF, NAU, Navsari
9.3.3.22	Survey of rice insect pests, diseases and natural enemies in Tapi district.	Sampling method to be fixed in consultation of statistics department.	SMS (Pl. Prot.), KVK, NAU, Vyara
9.3.3.23	Survey and surveillance of major insect pests and diseases of urdbean, mungbean and soybean at College Farm and surrounding area of Bharuch and Narmada district.	Sampling method to be fixed in consultation of statistics department.	Principal, College of Agri., NAU, Bharuch
II.	**PLANT PATHOLOGY AND NEMATOLOGY**		
9.3.3.24	Taluka-wise isolation and production of native strains of efficient microorganisms being used as biofertilizers from South Gujarat.	➢ Delete "Taluka-wise" from title. ➢ Sampling method to be fixed with consultation of statistics department.	Prof. & Head, Deptt. of Pl. Patho., NMCA, NAU, Navsari

9.3.3.25	*In vitro* efficacy of isolated probiotic organisms.	**Approved**	Prof. & Head, Deptt. of Pl. Patho., NMCA, NAU, Navsari
9.3.3.26	Management of pigeonpea wilt disease.	➢ Title should be "Evaluation of different bio-agents against wilt of pigeonpea" ➢ Bioagents population to be recorded before and after experimentation. ➢ Trade names from the treatments to be deleted.	Asstt. Prof., NARP, NAU, Bharuch
9.3.3.27	Management of sterility mosaic disease of Pigeonpea.	Delete Treatment 1 and 2 and add Abamectin 1.9 EC @ 0.003 % and Difenthiuron 50 WP @ 0.07 %.	Assoc. Prof., NARP, NAU, Bharuch
9.3.3.28	Management of sorghum anthracnose.	**Approved**	Asstt. Res. Sci. (Pl. Path.), Sorghum Res. Station, NAU, Surat
9.3.3.29	Field evaluation of various fungicides, bio-agents and phytoextracts for control of blast disease of finger millet.	➢ Four replications instead of three are to be taken. ➢ Remove "Field" from the title.	Prof. & Head, Deptt. of Pl. Patho., NMCA, NAU, Navsari
9.3.3.30	Seed treatment for the control of blast disease of finger millet.	Take *Pseudomonas fluorescens* instead of *P. aeruginosa*.	*Prof. & Head, Deptt. of Pl. Patho., NMCA, NAU, Navsari*
9.3.3.31	Integrated disease management of foot rot of finger millet.	**Approved**	*Prof. & Head, Deptt. of Pl. Patho., NMCA, NAU,*

			Navsari
9.3.3.32	Residue and dissipation pattern of fenazaquin in/on chilli under South Gujarat conditions.	Recast in consultation with residue chemist, AAU, Anand.	*Professor, FQTL, NAU, Navsari*
9.3.3.33	Residue and dissipation pattern of bifenthrin, fipronil, chlorpyrifos and imidacloprid in clayey and sandy loam soils and their downward movement and leaching potential.	**Approved**	Professor, FQTL, NAU, Navsari
9.3.4	**SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S.K.NAGAR**		
I.	**AGRIL ENTOMOLOGY**		
9.3.4.1	Efficacy of different sprayers along with insecticides against cumin aphid.	Efficiency word to be used instead of efficacy.	Assoc. Res. Scientist (Ag. Ento.), CRSS, SDAU, Jagudan
II.	**PLANT PATHOLOGY**		
9.3.4.2	Management of blight and powdery mildew of cumin by spacing and potash application	**Approved**	Research Scientist (Pl.Path.), CRSS, SDAU, Jagudan
9.4	**HORTICULTURE AND AGRO FORESTRY**		
9.4.1	**ANAND AGRICULTURAL UNIVERSITY**		
9.4.1.1	Evaluation of different varieties of banana in tribal area of Chhotaudaipur Region of Middle Gujarat.	**Accepted with following suggestions** (1) Include observation of Pulp:Skin ratio and PLW. (2) Plant girth should take at 1" height instead of 1 m	Prof. & Head, Deptt. of Horti, BACA, AAU, Anand
9.4.1.2	To study the nitrogen management through fertigation at different sowing distance in off season cultivation of okra under natural	**Accepted with following suggestions** (1) Fertigation level should take 60%, 80% and 100 % N instead of 50%,	Prof. & Head, Deptt. of Horti, BACA, AAU, Anand]

	ventilated green house condition.	75% and 100%. (2) Include observation of number of pickings.	
9.4.1.3	Influence of different spacing and plant growth regulators on growth and flower yield of spider lily under Middle Gujarat Agro climatic conditions.	**Accepted with following suggestions** (1) Keep replication four instead of three (2) Design – SPD instead of FRBD (3) Include observation on number of stalk per clump (4) Observation of number of flower buds / Stalk instead of per Spike	Prof. & Head, Deptt. of Horti, BACA, AAU, Anand]

9.4.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
Centre: Department of Horticulture, JAU, Junagadh			
9.4.2.1	The effect of growing degree days (GDD) on phenology, flowering and yield of different mango varieties under South Saurashtra Agro-climatic condition	**Accepted with following suggestions** 1. Minimum 3 tree should be kept per treatment 2. Also take at Navsari, Paria and Sardarkrushinagar location	Professor & Head, Dept. of Horticulture, JAU, Junagadh, Res. Sci. Paria, Res. Sci. Navsari and Prof.& Head, C. P. College of Agri. SDAU, S.K. Nagar)
9.4.2.2	Effect of foliar spray of chemicals to induce flowering and fruiting on rejuvenated mango trees cv. Kesar	**Accepted with following suggestions** 1. Delete observation of shoot length, shoot girth, date of 50 % flowering and Pea stage % 2. Add observation on fruit size and fruit retention (%) at maturity 3. Delete treatment T_4 (NAA-20 ppm)	(Action: Professor & Head, Dept. of Horticulture, JAU, Junagadh)
9.4.2.3	Effect of fertilizers and paclobutrazol on bearing behavior of rejuvenated mango trees	**Accepted with following suggestions** 1. Delete observation on date of 50 %	(Action: Professor & Head, Dept. of

	(*Mangifera indica* L.) cv. Kesar	flowering and fruit set at pea stage (%) 2. Add observation on fruit size	Horticulture, JAU, Junagadh)
Centre: Agril. Research Station (Fruit Crops), JAU, Mahuva			
9.4.2.4	Effect of chemical fertilizer in splits in coconut cv. T x D (Mahuva)	**Accepted with following suggestions** 1. Correct title i.e. Effect of chemical fertilizer application in splits on coconut cv. T x D (Mahuva) 2. Objective 1st :To find out optimum dose and split of chemical fertilizer for coconut yieldcv. TXD (Mahuva) 3. Soil Analysis should be done treatment wise before and after experiment.	*(Action: Research Scientist, Agril. Research Station (FC), JAU, Mahuva)*
9.4.2.5	Integrated nutrient management in oil palm	**Accepted with following suggestions** 1. Observation on male / female ratio should removed and add male and female inflorescences/year/palm. 2. Soil Analysis should be done treatment wise before and after experiment	*(Action: Research Scientist, Agril. Research Station (FC), JAU, Mahuva)*
9.4.2.6	High density planting in mango cv. Kesar	**Accepted with following suggestions** 1. Remove treatment T4 and add treatment plant spacing 6 x 3 m. 2. Remove observation pulp stone ratio. 3. Remove initial soil analysis. 4. Apply paclobutrazol @0.75 a.i. per plant in August to all treatments from 3rd year.	*(Action: Research Scientist, Agril. Research Station (FC), JAU, Mahuva)*

9.4.2.7	High density planting of sapota under saline soil	**Accepted with following suggestions** 1. Remove treatment T1 and T3 and add treatment plant spacing 7 x 7 m. 2. Remove observation days of first flowering.	*(Action: Research Scientist, Agril. Research Station (FC), JAU, Mahuva)*
9.4.2.8	Performance of green purpose coriander under different shed net in summer season	**Accepted with following suggestions** 1. Add observation on number of cuttings.	*(Action: Research Scientist, Agril. Research Station (FC), JAU, Mahuva)*
9.4.2.9	Performance of green purpose fenugreek under different shed net in summer season	**Accepted with following suggestions** 1. Use recommended variety.	*(Action: Research Scientist, Agril. Research Station (FC), JAU, Mahuva)*

9.4.3	**NAVSARI AGRICULTURAL UNIVERSITY**		
FRUIT SCIENCE			
Centre: RHRS, NAU, Navsari			
9.4.3.1	Effect of pruning on sapota cv. Kalipatti planted at normal distance	**Accepted with following suggestions** (1) Keep time of pruning in October instead of April-May. (2) Keep design FRBD instead of RBD.	[Action : Res. Sci. ACHF, NAU,Navsari]
Centre: FRS, Gandevi			
9.4.3.2	Macro propagation technique for banana	**Accepted with following suggestions** (1) Treatment should corrected as per the suggestion made in Joint Agresco	[Action : Asso. Res. Sci. FRS, Gandevi]

		Meeting NAU. (BAP- 4ppm + NAA 4 ppm) (2) Add observation survival percent at 90 days.	
Centre: AES, Paria			
9.4.3.3	Effect of nitrogen fixing bio fertilizers on yield and quality of mango	**Accepted with following suggestions** (1) Add FYM 100 kg/tree as a common. (2) Add observation of microbial count before and after experiment treatment wise.	[Action : Res. Sci. AES, Paria]
9.4.3.4	Effect of Paclobutrazol application before monsoon for early season flowering and fruiting in mango	**Accepted with following suggestions** (1) Remove bud breaker treatment KNO3 0.25% and add treatment of 13-0-45.	[Action : Res. Sci. AES, Paria]
9.4.3.5	Studies on fruit bud differentiation, flowering and fruiting behavior of mango cultivars in relation to weather parameters	**Approved**	[Action : Res. Sci. AES, Paria]

9.4.3.6	Management of Vandha (*Dendrophthoe falcate*) in mango and sapota	**Accepted with following suggestions** (1) Take this experiment as filler trial.	[Action : Res. Sci. AES, Paria]
9.4.3.7	Response of different mango cultivars and rootstocks to stone grafting technique	**Approved**	[Action : Principal, College of Agri. Bharuch]
9.4.3.8	Rooting response of pomegranate (*Punica granatum*L.) cv. Bhagwa to different rooting	Not accepted with following suggestions (1) Not accepted due to incorporated	[Action : Principal, College of Agri. Bharuch]

	media and plant growth regulators	with the suggestions made by Joint Agresco Sub-committee of NAU.	
9.4.3.9	Effect of plant growth regulators on growth, yield, quality and fruit drop ber (*Zizyphusmauritiana*Lamk.) cv. Gola	**Approved**	[Action : Principal, College of Agri. Bharuch]
9.4.3.10	Evaluation of *in-situ* crop residue management on quality and productivity of banana cultivated under organic farm	**Accepted with following suggestions** (1) Title: Effect of farm waste management on quality and productivity of banana cultivation under organic farming. (1) Add observation on growth- 1.Plant height 2. Plant girth (2) Add observation on yield- 1.Bunch weight (Kg) 2. Number of hand /bunch 3. Number of fingers /plant 4. Length of finger 5. Finger girth (cm)	[Action : Res. Sci. Agri. Chem. ACHF, Navsari]
Vegetable Science			
9.4.3.11	Breeding for development of high yielding varieties in tomato	**Accepted with following suggestions** (1) Incorporate the suggestions made in 9th Joint Agresco Hort and Fort. Sub-committee NAU, Navasari	[Action : Prof. Veg. Sci. ACHF, Navsari]

9.4.3.12	Small scale varietal trial in tomato	**Accepted with following suggestions** (1) Add objective "To evaluate the high yielding genotypes of tomato.	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.13	Evaluation of 200 genotypes in capsicum under south Gujarat	**Accepted with following suggestions** (1)Title should be "Evaluation of	[Action : Prof. Veg. Sci. ACHF, Navsari]

		different genotypes of capsicum spp."	
9.4.3.14	Comparative performance of yellow capsicum hybrids in different training levels under NV green house	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.15	Comparative performance of green capsicum hybrids in different training levels under NV green house	**Accepted with following suggestions** (1) Title should be "Standardization of fertigation and methods of training in capsicum under NVPH. (2) Take replication three. (3) Add observation on pest and disease.	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.16	Performance of cucumber in various levels of pruning under naturally ventilated greenhouse	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.17	Tomato Determinate-IET	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.18	Tomato Determinate-AVT-I	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari
9.4.3.19	Tomato Indeterminate-IET	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari
9.4.3.20	Tomato Indeterminate AVT – I	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.21	Chillies IET	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.22	Chillies AVT – I	**Approved**	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.23	Chillies AVT – II	**Approved**	[Action : Prof. Veg. Sci.

			ACHF, Navsari]
9.4.3.24	Ash Gourd IET	**Accepted with following suggestions** (1) Add observation on days to initiation of first female flower and sex ratio.	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.25	Ash Gourd IET	**Accepted with following suggestions** (1) Add observation on days to initiation of first female flower and sex ratio.	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.26	Pumpkin AVT – I	**Accepted with following suggestions** (1) Add observation on days to initiation of first female flower and sex ratio.	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.27	Response of seed sowing on germination, growth, flowering and yield of spine gourd	**Accepted with following suggestions** (1)Remove the line "After the identification.... will be maintained" from cultural practices.	[Action : Prof. Veg. Sci. ACHF, Navsari]
9.4.3.28	Integrated nutrient management in Cauliflower (*Brassica oleracea* L. Botrytis)	**Accepted with following suggestions** (1) Use the word Cauliflower instead of cabbage in objectives. (2) Observation on soil analysis before and after experiment should be incorporated as per treatment. (3) Economics should be calculated. (4)Remove the observation on plant height (cm).	[Action : Prof. Veg. Sci. ACHF, Navsari]

9.4.3.29	Effect of rhizome size on growth and yield	**Accepted with following suggestions**	[Action : ADR, NAU,

	planting in turmeric	(1) In title include the cv.NAUT-1 (2) Add objectives.	Navsari]
9.4.3.30	IET on Amorphophallus	**Accepted with following suggestions** (1) Add observation of pest and diseases. (2) Add observations average wt. of tuber and organolaptic test. (3) Follow the suggestions made in the 9th Joint Agresco Horti and Fort Sub-committee NAU, Navasari.	[Action : Asst. Horticulturist AICRP (TC) RHRS, NAU, Navsari]
9.4.3.31	Phenology of cassava in relation to climate change	**Approved**	[Action : Asst. Horticulturist AICRP (TC) RHRS, NAU, Navsari
9.4.3.32	Phenology of elephant foot yam in relation to climate change	**Approved**	[Action : Asst. Horticulturist AICRP (TC) RHRS, NAU, Navsari]
9.4.3.33	Site specific nutrient management studies in elephant foot yam	**Accepted with following suggestions** (1) Observation on soil analysis before and after experiment should be incorporated as per treatment.	[Action : Asst. Horticulturist AICRP (TC) RHRS, NAU, Navsari]
9.4.3.34	Evaluation of different spacing in Okra in dang	**Approved**	[Action : PC, KVK, Waghi]
9.4.3.35	Evaluation of different spacing in watermelon in dang	**Approved**	[Action : PC, KVK, Waghi]

FLORICULTURE			
9.4.3.36	Effect of Plant growth regulators on growth, quality and yield of *Dendrobium orchid* var. Sonia	**Accepted with following suggestions** (1) Effect of Plant growth regulators on growth, quality and yield of *Dendrobium orchid* var. Sonia-17 in naturally ventilated polyhouse.	[Action : Prof. Flori. ACHF, NAU, Navsari]
9.4.3.37	Effect of de-leafing and foliar nutrient application for offseason flowering in spider lily (*Hymenocallislitteralis*)	**Approved**	[Action : Prof. Flori. ACHF, NAU, Navsari]
9.4.3.38	Effect of leaf cutting and plant growth retardants on growth and flowering in spider lily (*Hymenocallislitterollis*)	**Approved**	[Action : Prof. Flori. ACHF, NAU, Navsari]
9.4.3.39	Study of heterosis, combining ability and stability in African Marigold (*Tagetes erecta* L.)	**Accepted with following suggestions** (1)Add observation number of rays florets and number of disc florets. (2) Remove commercial hybrid as check. (3)The house suggested that experiment should be presented in Crop Improvement Sub-committee.	[Action : Prof. Flori. ACHF, NAU, Navsari]
9.4.3.40	Induction of mutation through gamma radiation in gladiolus cv. American Beauty and Psittacinus hybrid.	**Approved**	[Action : Prof. Flori. ACHF, NAU, Navsari]
9.4.3.41	Influence of various soil less media on growth and flowering parameter in gerbera under poly house condition.	**Not Accepted with following suggestions** (1) Not accepted due to incorporated with	[Action : Prof. Flori. ACHF, NAU, Navsari]

		the suggestions made by Joint Agresco Sub-committee of NAU.	
9.4.3.42	Effect of foliar spray of polyamines in banana enriched sap on Rose (*Rosa hybrid* L.)cv. Samurai under polyhouse condition.	Accepted with following suggestions (1)Start this experiment on new plantation with new variety having uniform plant material. (2)Take growth parameter at 15 days after each foliar spray.	[Action : Prof. Flori. ACHF, NAU, Navsari]
9.4.3.43	Various assessment of anthurium in natural ventilated greenhouse under South Gujarat condition.	Accepted with following suggestions (1) Accepted.	[Action : Prof. Flori. ACHF, NAU, Navsari]
POST HARVEST TECHNOLOGY			
9.4.3.44	Development of technology for utilization of banana peel for preparation of sevian	**Approved**	[Action : Prof. PHT, ACHF, NAU, Navsari
9.4.3.45	Development of technology for processing and value addition of noni	**Approved**	[Action : Prof. PHT, ACHF, NAU, Navsari]
9.4.3.46	Development of technology for processing and value addition of *Aloe vera*	**Approved**	[Action : Prof. PHT, ACHF, NAU, Navsari]
9.4.3.47	Development of UV light assisted method for preservation of processed products	**Approved**	[Action : Prof. PHT, ACHF, NAU, Navsari]
9.4.3.48	Optimization of level of TSS and anti caking agent in spray solution for preparation powder from ripe banana pilot scale	**Accepted with following suggestions** (1)Use word nutritional instead of nutraceutical in objective no. 3.	[Action : Prof. PHT, ACHF, NAU, Navsari]
9.4.3.49	Optimization of level of temperature and KMS in processing of banana puree from ripe banana at pilot scale	**Accepted with following suggestions** (1)Use word nutritional instead of nutraceutical in objective no. 3.	[Action : Prof. PHT, ACHF, NAU, Navsari]

9.4.3.50	Standardization of technology for processing of banana central core jam.	**Accepted with following suggestions** (1)Use word nutritional instead of nutraceutical in objective no. 3.	[Action : Prof. PHT, ACHF, NAU, Navsari]
9.4.3.51	Effect of low cost wrapping material and cushioning material on physico-chemical properties of guava.	**Not accepted**	[Action : Principal, College of Agri. Bharuch]
9.4.3.52	Preservation of *kair* in brine and sea brine preservation.	**Accepted with following suggestions** (1) Take as a filler trial. (2) Treatment of common salt (brine) will be taken as 10%, 15 % and 20%.	[Action : Principal, College of Agri. Bharuch]
AGRO FORESTRY			
9.4.3.53	Influence of climate on the wood production and anatomical variations in trees.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.54	Evaluation of eucalyptus clones for growth and biomass.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.55	Characterization and selection of superior eucalyptus clones for growth and water stress tolerance under different irrigation regimes.	**Not accepted with following suggestions** (1) Not accepted due to incorporated with the suggestions made by Joint Agresco Sub-committee of NAU.	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.56	Strategies to Mitigate the Impact of Climate Change, Navsari. 1. Assessment of Land use / Land cover Changes in South Gujarat Using Remote	**Accepted with following suggestions** (1) In T1 write rain water instead of best available water.	[Action : Principal, Aspee College of Forestry, NAU, Navsari

	Sensing and Geographical Information System. 2. Study the impact of weather changes on the major crops of the region. 3. Effect of different water salinity levels on young teak plants. 4. Effect of water salinity levels on different clones of *Casuarin aequisetifolia*.		
9.4.3.57	Evaluation of *Melia composita* progenies for seed and germination traits and growth at nursery stage.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.58	In vitro regeneration of *Melia composite.*	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.59	Development of In vitro regeneration protocol for *Santalum album* for large scale propagation.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.60	In vitro regeneration of *Nothapodytesfoetida* –an endangered medicinal plant.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.61	Agroforestry and progeny trials of *Meliacomposita*Willd.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.62	Reducing harvest age of *Terminalia chebula* and *T. bellerica* (chebulic and bellericmyrobalans) for early return.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]

9.4.3.63	Screening of some fast growing tree species for phytoremediation of cadmium polluted sites.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.64	Selection and multiplication of Candidate Plus Trees (CPTs) from Multi-Purpose Trees plantation of University campus.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.65	Evaluation of coppicing ability in different diameter class and yield calculation of *Acacia mangium* in existing plantation of university campus.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.66	Rapid multiplication of *Bambusa vulgaris* through in vitro regeneration techniques from juvenile explant.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.67	Rapid multiplication of *Dendrocalamusstrictus* Nees. through in vitro regeneration techniques from juvenile explants.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.68	Intercropping ginger (*Zingiberofficinale*L.) and Turmeric (*Curcuma longa* L.) under Sapota-Jatropha based agroforestry systems in South Gujarat.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.69	Molecular diversity assessment in geographical collection of Eucalyptus germplasm using DNA based marker system.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.70	Provenance variation for early growth and biomass in *Nothapodytesnimmoniana* in Southern Gujarat.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]

9.4.3.71	Evaluation and germplasm conservation of Acacia hybrids in Southern Gujarat.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.72	Sustainable bark harvesting techniques in *Terminaliaarjuna.*	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]

9.4.3.73	Development of mass propagation protocol for safedmusli.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.3.74	Mass propagation of *Acacia mangium* through axillary bud.	**Approved**	[Action : Principal, Aspee College of Forestry, NAU, Navsari]
9.4.4	**SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY**		
Centre : Dept. of Horticulture, C. P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar			
9.4.4.1	Performance of different varieties and time of planting in Marigold (*Tagetes erecta* Linn.) for growth, yield and quality parameters	**Accepted with following suggestions** (1)Include the following varieties in list of probable varieties 1. Giant Double African Orange 2. Giant Double African Lemon 3. Cracker Jeck 4. Climax (2)Growth parameters height of plant, stem thickness and number of primary branches should be taken at first flower initiation and at peak	[Action : Prof. & Head, Deptt. of Horti, CPCA, SDAU, Sardarkrushinagar]

		stage. (3)Add observation on days taken for first flowering and number of pickings. (4)Remove the observation of days taken for last harvest. (5)Take observation on shelf life instead of vase life. (6)Economics should be calculated on the basis of market value of flowers.	

Centre: College of Horticulture, S. D. Agricultural University, Sardarkrushinagar			
9.4.4.2	Standardization of root stock of pomegranate for propagation through budding/grafting	**Accepted with following suggestions** (1)Add observation on growth parameters 1. Number of shoot 2. Shoot length at monthly interval upto six months.	Principal, College of Horticulture, S.K.Nagar]
Centre: Date palm Research Station, S. D. Agricultural University, Mundra			
9.4.4.3	Evaluation of different spacing for tissue Culture (T.C.) and offshoots of date palm var. Barhee	**Accepted with following suggestions** (1) Add observation time of flowering after planting.	[Action : Assoc. Research Scientist (Hort.), Date Palm Research Station, Mundra]
Centre: Centre for Research in Seed Spices, S. D. Agricultural University, Jagudan			
9.4.4.4	Effect of plant growth regulators for enhancing growth yield and seed quality in cumin.	**Accepted with following suggestions** (1) Spray growth regulators at 30 and 45 DAS. (2) Add observation incidence of pest and disease.	[Action : Res. Scientist, Centre for Research on Seed Spices, SDAU, Jagudan]

Centre: Centre for Research in Seed Spices, S. D. Agricultural University, Jagudan			
9.4.4.5	Effect of growth regulators to overcome sugary in Fennel in rabi fennel (Var.,GF-11)	**Accepted with following suggestions** (1) The data of first year experiment should be presented in next Agresco. (2) Analyse the healthy and infected plants on GLC.	[Action : Res. Scientist, Centre for Research on Seed Spices, SDAU, Jagudan]
9.5	**ENGINEERING, FOOD PROCESSING**		
9.5.1	**ANAND AGRICULTURAL UNIVERSITY**		
Dr. R. V. Prasad, Convener, AAU, Anand, presented thirty eight new technical programmes.			
9.5.1.1	Process standardization for manufacture of *Cham-cham*	**Approved with following suggestions:** Statistician should be consulted	(Action : Prof. & HOD Dairy Technology)
9.5.1.2	Standardization of technological parameters for paneer burfi	**Approved with following suggestions:** Statistician should be consulted	(Action : Prof. & HOD Dairy Technology)
9.5.1.3	Assessing the Suitability of Sweet Cream Buttermilk in preparation of *Burfi*	**Approved with following suggestions:** Statistician should be consulted	(Action : Prof. & HOD Dairy Technology)
9.5.1.4	Exploring finger millet as a valued ingredient in ice cream	**Approved with following suggestions:** Statistician should be consulted	(Action : Prof. & HOD Dairy Technology)
9.5.1.5	Standardization of method for preparation of reduced-fat paneer using whey protein concentrate and selected emulsifiers	**Approved with following suggestions:** Levels of parameters should be decided before actual starting of experiment.	(Action : Prof. & HOD Dairy Technology)
9.5.1.6	Evaluating the effect of partial homogenization on the quality of mozzarella cheese.	**Approved with following suggestions:** FCRD Statistical design should be adopted	(Action : Prof. & HOD Dairy Technology)
9.5.1.7	Choco-cheese – a novel flavoring in ice cream	**Approved**	(Action : Prof. & HOD Dairy Technology)
9.5.1.8	Value addition to mozzarella cheese analogue through incorporation of whey protein and	**Approved with following suggestions:** Statistician should be consulted and year	(Action : Prof. & HOD Dairy Technology)

	vitamin A	of completion be mentioned	
9.5.1.9	Development of Ragi (*Eleusine Coracana*) fortified probiotic ice cream	**Approved with following suggestions:** Level of Ragi addition should be reviewed well before actual start of the experiment.	(Action : Prof. & HOD Dairy Microbiology)
9.5.1.10	Eco-friendly mobile vending cum storage system for fruits and vegetables	**Approved with following suggestions:** Green, leafy vegetables and fruits should be included in this study	(Action : Prof. & HOD Department of PHE)
9.5.1.11	Post-harvest handling of fresh selected vegetables in Central Gujarat	**Approved with following suggestions:** Greenhouse products should also be included in this study	(Action : Prof. & HOD Department of PHE)
9.5.1.12	Modeling and simulation of Ohmic heating process.	**Approved with following suggestions:** Club experiment no FE 01 and FE 04	(Action : Prof. & HOD Department of FE)
9.5.1.13	Energy conservation in onion dehydration plant.	**Approved with following suggestions:** Title was modified as "Study on energy assessment in onion dehydration plant", Thermal , Mannual and electrical energy to be included.	(Action : Prof. & HOD Department of FE)
9.5.1.14	Computer vision system for sorting & grading of fruits	**Approved**	(Action : Prof. & HOD Department of FE)
9.5.1.15	Development of Ohmic heating system for thermal processing of selected fruit pulps	**Approved with following suggestions:** Clubbed with FE 01	(Action : Prof. & HOD Department of FE)
9.5.1.16	Super critical fluid extraction of volatile oils / oleoresins from herbs & spices.	Subtitle: Super critical fluid extraction of volatile oils / oleoresins from Ginger and Turmeric **Approved with following suggestions:** Work done on turmeric at NMCA , NAU	(Action : Prof. & HOD Department of FQA)

		Navsari also reviewed	
9.5.1.17	Screening of novel thermo-tolerant yeast with improved process economics for bioethanol production	**Approved**	(Action : Prof. & HOD Department of FQA)
9.5.1.18	Screening, identification and characterization of Lactic Acid Bacteria with probiotic potential and phytic activity	**Approved with following suggestions:** FCRD should be incorporated	(Action : Prof. & HOD Department of FQA)
9.5.1.19	Kajukatli with artificial sweeteners	**Approved**	(Action : Prof. & HOD Department of FQA)
9.5.1.20	Formulation, nutritional evaluation and shelf life study of low cost supplementary food	**Approved with following suggestions:** Statistician should be consulted Clarify RDA	(Action : Prof. & HOD, Department of PFSHE)

9.5.1.21	Impact Assessment of Future Climate Change on Water Availability in the Semi-arid Middle Region of Gujarat, India	**Approved**	(Action : Prof. & HOD Department of SWE, Godha)
9.5.1.22	Development and evaluation of mini tractor operated strip till multi crop planter cum fertilizer applicator	**Approved**	(Action : Prof. & HOD Department of FMP, Godha)
9.5.1.23	Feasibility assessment of mini tractor (15 hp) for various farm operations in Panchmahal region	**Approved**	(Action : Prof. & HOD Department of FMP, Godha)
9.5.1.24	Development and evaluation of a multipurpose tool bar for mini tractor suitable for maize and wheat crop in the middle Gujarat region	**Approved**	(Action : Prof. & HOD Department of FMP, Godha)
9.5.1.25	Process Development of juice preparation and byproduct utilization using underutilized	**Approved with following suggestions:** • Title was modified as "Process	(Action : Prof. & HOD Department of APE,

	vegetable: Ivy Gourd (*Coccinia grandis*)	Development of juice preparation from Ivy Gourd (*Coccinia grandis*)" • Remove sixth objective • Take temperature 70, 75 and 80 with durations 1,3 and 5 minutes. for blanching • Heating of juice for 5, 10 and 15 minutes.	Godha)
9.5.1.26	Production Technology for Preparation of Wood Apple (*Limonia acidissima*) Jam	**Approved with following suggestions:** • Remove mix fruit jam from the objective • Pulp to sugar ratio in treatments and citric acid should be taken • Degree of spreadibility using Rheometer should be measured	(Action : Prof. & HOD Department of APE, Goghra
9.5.1.27	A software implementation of effective Space Vector PWM scheme for a Multi-Level Inverter for Stand-alone/Off-Grid PV applications	**Approved**	(Action : Prof. & HOD Department of RE, Godha)
9.5.1.28	Modifications in hand operated disc type Maize Sheller.	**Approved**	(Action : Principal, PAE, Dahod
9.5.1.29	Modifications in hand operated disc type Maize Sheller.	**Approved**	Action : Principal, PAE, Dahod
9.5.1.30	Critical Evaluation of Gujarat State Agricultural Universities Web sites.	**Approved**	(Action : Principal, AIT, Anand)
9.5.1.31	Calculation of leaf area index through image processing (LAM Software).	**Approved**	(Action : Principal, AIT, Anand)
9.5.1.32	Web Based Experiment Data Management Tool for Plant Breeders.	**Approved**	(Action : Principal, AIT,

			Anand)
9.5.1.33	Electronic Plant Height Detector and Recorder.	**Approved**	(Action : Principal, AIT, Anand)
9.5.1.34	Continuous Online Proximal Sensing and Monitoring of Soil Moisture and Temperature in Precision Agriculture.	**Approved**	(Action : Principal, AIT, Anand)
9.5.1.35	A Web Based Soil Health Card Application: Decision Support System for Agriculture Development.	**Approved**	(Action : Director, DIT, Anand)
9.5.1.36	Web User Interface Assisted Live Stock Research Station Management Information System.	**Approved**	(Action : Director, DIT, Anand)
9.5.1.37	A Critical Analysis of Internet usages by the faculty members of Anand Agricultural University.	**Approved**	(Action : Director, DIT, Anand)
9.5.1.38	Web based inward out Management System.	**Approved**	(Action : Director, DIT, Anand)
9.5.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
Dr. P. M. Chauhan, Convener, JAU, Junagadh, presented fifteen new technical programmes. Fourteen projects were approved, one was dropped.			
9.5.2.1	Studies on microclimate and plant growth of capsicum under different type of shade net	**Approved**	(Action: Prof & HOD, Dept. of RE & RE)
9.5.2.2	Effect of different structures on protection of cumin crop against adverse climate	**Approved**	(Action: Prof & HOD, Dept. of RE & RE)
9.5.2.3	Effect of mulch and irrigation level on water use efficiency and yield of water melon	**Approved with following suggestions:** Modify title by including drip in the title	(Action: Prof & HOD, Dept. of RE & RE)
9.5.2.4	Conjunctive effect of emitter configuration and irrigation regimes on productivity of	**Approved**	*(Action: Prof & RS (Ag. Engg), RTTC,*

	cumin.		*Junagadh)*
9.5.2.5	Aquifer mapping of uben river basin	**Approved**	(Action: Prof & HOD Dept. of SWE, Junagadh)
9.5.2.6	An assessment of suitability of groundwater for drip irrigation in Saurashtra region.	**Approved with following suggestions:** Pre and post monsoon water quality to be analyzed	(Action: Prof & HOD Dept. of SWE, Junagadh)
9.5.2.7	Ambient temperature trend Analysis for the South Saurashtra Region in view of climate change.	**Approved**	*(Action: Prof & HOD Dept. of SWE, JAU, Junagadh)*
9.5.2.8	Vibration study and its attenuation through coating on mini tractor seat.	**Approved with following suggestions:** • Replace the word coating by "cushioning" in the title • Physical specification/ properties of rubber material should be given (Density and thickness) • Observation on vibration with time to be included in the observations	(Action: Prof & HOD Dept. of FMP, JAU, Junagadh)
9.5.2.9	Design and Development of a Tractor Drawn Rural Transporter	**Approved**	*(Action :Prof & HOD Dept. FMP, Junagadh)*
9.5.2.10	Development of Circular Soil Bin	**Not Approved (Dropped)**	*(Action :Prof & HOD Dept. FMP, Junagadh)*
9.5.2.11	Survey to identify the practices for ripening of fruits	**Approved with following suggestions:** Take Navsari and Gandevi taluka in place of Chikhli and Bardoli	(Action :Prof & HOD Dept. APE, Junagadh)
9.5.2.12	Assessment of Harvest and Post-Harvest Losses of Major Crops and Commodities in Gujarat	**Approved**	*(Action : Prof & HOD Dept. of APE, Junagadh)*

9.5.2.13	Development and Performance Evaluation of Tractor Drawn Cultivator Cum Spiked Roller	**Approved with following suggestions:** Draft measurement to be included in the observations	*(Action : Prof & HOD Dept. of Farm Engg., Junagadh)*
9.5.2.14	Ambient temperature Trend analysis for the North Saurashtra region in view of climate change	**Approved**	*(Action :RS (Ag. Engg.), MDFRS, JAU, Targhadia)*
9.5.2.15	Students' Attitude towards Agricultural Engineering Education in Junagadh Agricultural University	**Approved**	*(Action : Prof & HOD, Dept. of AEEE, CAET, Junagadh)*
9.5.3	**NAVSARI AGRICULTURAL UNIVERSITY**		
Prof. S. P. Shukla, Convener, NAU, Navasari, presented nine new technical programmes. Eight projects were approved			
9.5.3.1	Design, development and evaluation of biomass based cook stove	**Approved with following suggestions:** Compare performance with the available chulha.	(Action: Polytechnique AG, Dediapada)
9.5.3.2	Development and evaluation low cost of solar still plant	**Approved**	(Action: I/c. PHTC)

9.5.3.3	Standardization of technology for preparation of unripe banana (*Musa paradisiaca* L.) powder for commercial adoption	**Approved with following suggestions:** • Hot water blanching with combination of 60, 70 and 80 ^{o}c and 1, 2 and 3 min. time • Incorporate vacuum dryer at three levels of vacuum and compare it with tray dryer	(Action: I/c. PHTC)
9.5.3.4	Evaluation and modification of banana (*Musa paradisiaca* L.) comb cutter	**Approved**	(Action: I/c. PHTC)

9.5.3.5	Development of low cost *'Boondi'* making machine	**Approved with following suggestions:** Measure the uniformity in the size Boondi	(Action: I/c. PHTC)
9.5.3.6	Design of Low cost *'Jalebi'* making machine	The house suggested to take the experiment as filler trial.	(Action: I/c. PHTC
9.5.3.7	Drying Kinetics of Fresh and Osmotically Pre-treated Star Fruit (Averrhoa carambola L.) slices.	**Approved with following suggestions:** Recast the treatments as per the standard osmotic dehydration process with concentration, temperature and time as variables.	(Action: I/c. PHTC)
9.5.3.8	Assessment of Land use / Land cover Changes in South Gujarat Using Remote Sensing and Geographical Information System	**Approved**	
9.5.3.9	Study the impact of weather changes on the major crops of the region	**Approved**	

9.5.4	**SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY**		
Dr. S. H. Suthar, Convener, SDAU, SK Nagar, presented two new technical programmes. Among these one was approved and other programme will be considered after filler trial experiment.			
9.5.4.1	Study on different solar drying methods for chilly	**Approved**	
9.5.4.2	Characterization & Performance Evaluation and Removal of H_2S and CO_2 from Biogas Produced from 3M3 Biogas Plant Installed at Livestock	The house suggested to take filler trials and modify title as " Development of scrubber for removal of H_2S and CO_2	(Action : Dean, College of RE & EE)

	Research Station	from biogas"	
Dr. S. K. Roy, Convener, Dairy Science & Food Technology, SDAU, SK Nagar, presented seven new technical programmes. All programmes were approved with quoted suggestions			
9.5.4.3	Preparation and Evaluation of Fruit Flavoured Peanut Milk Lassi	**Approved with following suggestions:** • Select groundnut variety GG 2 • Add pineapple instead of sapota • Ambient temperature range 37±2°C • Refrigerated temperature for storage 7±1 °c • Incorporate packaging and dilution in the study	(Action : Prof. & HOD, Dept. of FT)
9.5.4.4	Preparation of Flavoured Milk Using Stevia (Rebaudioside A) - A Natural Sweetene	**Approved with following suggestions:** Bulking agent be included in the treatment	Prof. & HOD, LPT, CVS & AH)
9.5.4.5	Manufacture of Sandesh from Buffalo Milk	**Approved**	Prof. & HOD, DS & FTC
9.5.4.6	Development of Synbiotic Millet Based Yogurt Using Probiotic *L. acidophilus*	**Approved**	Prof. & HOD, DS & FTC)
9.5.4.7	Standardization of a method for preparation of low calorie *whey based ice-candy*	**Approved with following suggestions:** Remove aspartame from the observations	Prof. & HOD, DS & FTC
9.5.4.8	Prospects of smallholder dairy farming in Gujarat: Some anecdotal evidences from organized dairy industry	**Approved with following suggestions:** • Incorporate time series analysis	Prof. & HOD, DS & FTC
9.5.4.9	Development of Fermented Whey Beverage	**Approved**	Prof. & HOD, DS & FTC
9.6	**SOCIAL SCIENCE**		
9.6.1	**ANAND AGRICULTURAL UNIVERSITY**		
9.6.1.1	Diversification of cropping pattern during last	**Approved with following suggestions:**	(Action :Prof.& Head,

	decade in Gujarat State	1. Third objective should be modified as 'To estimate the region-wise and over all diversification indices for Gujarat State.	Dept. of Ag. Econ., BACA,Anand)
9.6.1.2	Comparative study on Behavior of Input Cost & Output Prices of Selected Crops of Gujarat" (Maize, Castor, Groundnut, Gram &Tobacco)	**Approved**	(Action :Prof.& Head, Dept. of Ag. Econ., BACA, Anand)
9.6.1.3	Manpower analysis in the Dairy sector	**Approved with following suggestions:** 1. The data on retirement of dairy professionals should also be recorded.	(Action: Assoc. Prof,. Dept. of DBM, DSC, Anand)
9.6.1.4	Financial Analysis of the Dairy Sector	**Approved**	(Action : Assoc. Prof,. Dept. of DBM, DSC, Anand)
9.6.1.5	A study on perception of Amul Preferred Outlets (APO) owners in Anand and Vidyanagar cities about the profitability of APOs	**Approved**	(Action : Assoc. Prof,. Dept. of DBM, DSC, Anand)

9.6.1.6	An enquiry into the problems and prospects of contract farming in Potato : A case study of two districts in Gujarat	**Approved**	(Action : Principal, IABM, Anand)
9.6.1.7	Comparative study of perception on organisational climate for scientists of the state agricultural universities of Gujarat	**Approved**	(Action : Principal, IABM, Anand)
9.6.1.8	A study on status of farm record keeping practices among the farmers in Anand taluk	**Approved**	(Action : Principal, IABM, Anand)

9.6.1.9	A study on social and private costs of management education with respect to post-graduate agribusiness management faculty of the state agricultural universities of Gujarat	**Approved**	(Action : Principal, IABM, Anand)
9.6.1.10	Export oriented food processing industries in Central Gujarat: current status of technology, constraints and opportunities	**Approved**	(Action : Prof.& Head, Dept. of FBM, College of FPT & BE)
9.6.1.11	Consumer awareness about health foods and impact of promotional activities on creating awareness	**Approved**	(Action : Prof.& Head, Dept. of FBM, College of FPT & BE)
9.6.1.12	A study of FPT&BE students' knowledge, anxiety and attitude towards computers	**Approved**	(Action : Prof.& Head, Dept. of FBM, College of FPT & BE)
9.6.1.13	Comparison of selection indices using different weights for biometrical characters	**Approved**	(Action : Prof.& Head, Dept. of Ag.Stat. BACA, Anand)
9.6.1.14	Plot technique through mathematical approach	**Approved**	(Action: Principal, College of AIT, AAU, Anand)
9.6.1.15	Correlation and path coefficient analysis of rice cultivars data	House approved with the suggestion to modify the title as 'Study on association of biometrical characters on rice yield.'	(Action : Res. Sci (Rice), MRRS, AAU, Nawagam)
9.6.1.16	Study on correlation between yield and weather variables	House approved with the suggestion to modify the title as 'Study on functional relationship between yield and weather variables in rice crop.'	(Action : Res. Sci (Rice), MRRS, AAU, Nawagam)
9.6.1.17	To develop and standardize the attitude scale	House approved with the suggestion to	(Action : Prof & Head,

	of farmers towards Kankrej cow	modify the title as 'Development and standardization of attitude scale of farmers towards Kankrej cow.'	Dept. of Ext.Edu., BACA, AAU, Anand)
9.6.1.18	To develop and standardize the attitude scale of extension functionaries towards Agricultural Technology Management Agency (ATMA)	House approved with the suggestion to modify the title as 'Development and standardization of attitude scale of extension functionaries toward Agricultural Technology Management Agency (ATMA).'	(Action : Prof & Head, Dept. of Ext.Edu., BACA, AAU, Anand)
9.6.1.19	Study on present status of adoption of package of practices in dairy animals possessed by the farmers of Anand District	**Approved**	(Action :Dept. Head, Dept. of Ext.Edu., GVC, AAU, Anand)
9.6.1.20	Follow-up study on training programme organized by EEI Anand on "New approaches and methods in agricultural extension"	**Approved**	(Action : Director, EEI, AAU, Anand)
9.6.1.21	Follow up study of the participants trained in the workshop on "Human resource development" organized by EEI Anand	**Approved**	(Action : Director, EEI, AAU, Anand)

9.6.1.22	Follow up study of workshop on application of PRA tools in agricultural extension" organized by EEI Anand	**Approved**	(Action : Director, EEI, AAU, Anand)
9.6.1.23	Adoption of latest/improved maize technology/recommendations made by MMRS, Godhara for farmers of middle	House approved with the suggestion to modify the title as 'Adoption of scientific cultivation of Maize in middle Gujarat	(Action : Res. Sci. (Maize) MMRS, Godhara)

	Gujarat Zone - III	Zone-III.'	
9.6.1.24	A study on scientific knowledge and adoption level of trained and untrained paddy growers of Kheda District.	**Approved**	(Action : OSD, Agri. Wing, Vaso)
9.6.1.25	A study on extent of knowledge and adoption of no cost and low cost technology in animal husbandry of the farm women of Nadiad taluka of Kheda district	**Approved**	(Action : OSD, Agri. Wing, Vaso)
9.6.1.26	To study the knowledge and adoption regarding use of mineral mixture in livestock feeding	House approved with the suggestion to modify the title as 'Knowledge and adoption regarding use of mineral mixture in livestock feeding.'	(Action : Programme Co-ordinator,KVK, Devataj)
9.6.1.27	A study on knowledge and adoption of improved technology by cumin growers in Ahmadabad district	**Approved**	(Action : Programme Co-ordinator, KVK, Arnej)
9.6.1.28	A study on exiting practices in cultivation of soyabean in Dahod district	**Approved**	(Action : Programme Co-ordinator,KVK, Dahod)
9.6.1.29	A study on knowledge and adoption of chilli (Vegetable) production technology by chilli growers in Vadodara district	**Approved**	(Action : Programme Co-ordinator,KVK, Mangalbharati)
9.6.1.30	A study on knowledge and adoption of bitter gourd production technology by bitter gourd growers in Kheda district	**Approved**	(Action : Programme Co-ordinator,KVK, Dethali)
9.6.1.31	Present status of dairy farmers and their	**Approved**	(Action : Programme Co-

	training need assessment as perceived by dairy farmers		ordinator, DVK, AAU, Vejalpur)
9.6.1.32	Socio economic status and training need assessment of livestock keepers in operation area of PVK	**Approved**	(Action : Programme Co-ordinator,PVK, AAU, Devgadh Baria)
9.6.1.33	Utility value of diploma course as perceived by agricultural input dealers and their expectation regarding improvement of existing pattern of diploma course	House approved with the suggestion to modify the title as 'Feedback about diploma course as perceived by the trained agricultural input dealers.'	(Action : Director, Institute of Distance Education, AAU, Anand)
9.6.1.34	Expected areas of training as perceived by the farmers	**Approved**	(Action : SSK, DOEE, AAU, Anand)
9.6.1.35	Constraints faced by the farmers to seek the information regarding improved agricultural practices from Anand Agricultural University	**Approved**	(Action : TTC, DOEE, AAU, Anand)
9.6.1.36	Knowledge and adoption of recommended practices of paddy crop	**Approved**	(Action : TTC, DOEE, AAU, Anand)
9.6.1.37	Growth and nutritional status of pre-school children (4-6 year)	**Approved**	(Action : Programme Co-ordinator, TRTC, AAU, Devgadhbaria)
9.6.1.38	Present socio-economic status and training need assessment of farmers in operational area of training centre of seven talukas of Kheda district	House approved with the suggestion to modify the title as 'Present socio-economic status and training need assessment of farmers in operational area of Sansoli training centre.'	(Action :Assoc. Res. Sci., AAU, Sansoli,)
9.6.1.39	Socio-economic status and training needs of farmers of Pavi-Jetpur and Sankheda talukas	**Approved**	(Action : I/c, Training Centre, AAU, Jabugam,)

9.6.1.40	An explorative study on status, managemental practices, constraints and prospects of Emu farming in Gujarat	**Approved**	(Action : Prof & Head, Dept. of Ani. Hus., BACA, AAU, Anand)
9.6.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
9.6.2.1	Title : Economic analysis of processed onion products in Saurashtra	**Approved**	(Action: Prof. & Head, Agril. Economics, College of Agriculture, JAU, Junagadh)
9.6.2.2	Title: Development of Prediction model for yield of pearl millet crop using original weather variables in Junagadh districts.	House approved with the suggestion to modify the title as 'Development of Prediction model for yield of pearl millet crop using weather variables in Junagadh districts.'	(Action: Prof. & Head Agril. Statistics, College of Agriculture, JAU, Junagadh)
9.6.2.3	Title: Marketing problems of mango growers in Junagadh district of Gujarat.	**Approved**	(Action : Principal, PGIABM, JAU, Junagadh)
9.6.2.4	Title: Assessment of women empowerment through Self Help Groups Junagadh district.	House approved with the suggestion to modify the title as 'Impact of Self Help Groups on women empowerment in Junagadh District.'	(Action: Principal, PGIABM, JAU, Junagadh)
9.6.2.5	Title: Economic assessment of mini oil expeller as agribusiness unit in Junagadh district.	House approved with the modification in the first objective as 'To study the profile of mini oil expeller and it's owners.'	(Action: Principal, PGIABM, JAU, Junagadh)
9.6.2.6	Title : Influence of Krushi Mahotsav on farmers of Saurashtra region.	**House approved with the following suggestions:** 1. Title should be modified as 'Opini on of the farmers regarding Krushi Mahotsav in Saurashtra region.'	(Action: Prof. & Head, Agril. Extension, College of Agriculture, JAU, Junagadh)

		2. Second objective should be modified as ‘ To know the motivation factors in adoption technologies provided in Krushi Mahotsav.’ 3. Third objective should be modified as ‘To ascertain the usefulness of agricultural and animal husbandary technologies persued by farmers participated in Krushi Mahotsav.’	
9.6.2.7	Title : Girl students’ attitude towards agricultural engineering education in Junagadh Agricultural University.	House approved with the modification in objective first as ‘To study the profile of the girls students of College of Agril. Engineering and Technology.’	(Action: Prof. & Head, Agricultural Engineering Extension, CAET, JAU, Junagadh)
9.6.2.8	Title : Adoption of JAU scientific recommendations in livestock farming of Saurashtra region.	House approved with the suggestion to modify the title as ‘Adoption of JAU recommendations on livestock farming by the farmers of Saurashtra region.’	(Action: Asso. Professor & Head, Dept. of Vety. & A.H. Extension, JAU, Junagadh)

9.6.2.9	Title : A study on impact of educational efforts on adoption of selected scientific dairy management practices by farmers in adopted and non adopted villages of College of	**House approved with the following suggestions** 1. Title should be modified as ‘A study on impact of extension efforts on	(Action: Asso. Professor & Head, Deptt. of Vety. & A.H. Extension, JAU, Junagadh)

	Veterinary Science and A.H., Junagadh	adoption of selected scientific dairy management practices by farmers in adopted and non adopted villages of College of Veterinary Science and A.H., Junagadh.' 2. Objective first should be modified as' To study impact of extension efforts on adoption of scientific dairy management practices by livestock farmers in adopted and non adopted villages.	
9.6.2.10	Title : 'Training needs assessment of livestock farmers, Paravets and veterinarians towards transfer of technology towards transfer of technology.'	House approved with the suggestion to modify the title as 'Training needs assessment of livestock farmers, Paravets and veterinarians in animal husbandry practices.'	(Action: Asso. Professor & Head, Deptt. of Vety. & A.H. Extension, JAU, Junagadh)
9.6.3	**NAVSARI AGRICULTURAL UNIVERSITY**		
9.6.3.1	Title: Economics of leased out village pond of fish in Navsari district of South Gujarat.	**Approved**	(Action: Prof. & Head, Agril. Economics. NMCA, NAU, Navsari)
9.6.3.2	Title: A study on the cluster development for market access to vegetable farmers in South Gujarat.	**Approved**	(Action: Dean, ASPEE Agribusiness Management Institute, NAU, Navsari)
9.6.3.3	Title: Diversification in land use and cropping pattern of South Gujarat.	**Approved**	(Action: Dean, ASPEE Agribusiness Management Institute, NAU, Navsari)

9.6.3.4	Title: Structural changes over time in cost of cultivation of major crops of South Gujarat	**Approved**	(Action: Dean, ASPEE Agribusiness Management Institute, NAU, Navsari)
9.6.3.5	Title: Linking farmers to Nagli markets: value addition through processing with reference Nagli products.	House approved with modification in title as "Marketing and value addition through processing in Nagli"	(Action: Dean, ASPEE Agrbusiness Management Institute, NAU, Navsari)
9.6.3.6	Title: Consumer behaviour towards loose and packaged milk in Surat and Navsari districts.	House approved with modification in title as 'Consumer preference towards loose and packaged milk in Surat and Navsari districts.	(Action: Dean, ASPEE Agrbusiness Management Institute, NAU, Navsari)
9.6.3.7	Title: Assessing consumers awareness and attitude towards organic food products in South Gujarat.	**House approved with following suggestions** 1. Modification in title as 'Assessing consumers awareness and opinion towards organic food products in South Gujarat.' 2. Second objective should be as ' To examine the food shopping habits of potential consumers.' 3. Third objective should be as 'to study the opinion of potential consumers about organic food products.'	(Action: Dean, ASPEE Agribusiness Management Institute, NAU, Navsari)
9.6.3.8	Title: A study on trend in area, production and price movement and marketing strategies of major vegetables of South Gujarat.	**Approved**	(Action: Dean, ASPEE Agribusiness Management Institute, NAU, Navsari)
9.6.3.9	Title: Perceived quality of work life of employees	**Approved**	(Action: Dean, ASPEE

	of Navsari Agricultural University		Agribusiness Management Institute, NAU, Navsari)
9.6.3.10	Title: Data mining approach for improvement in co-operative operations: A case of Amalsad co-operative with special reference to sapota value chain.	**Approved**	(Action: Dean, ASPEE Agribusiness Management Institute, NAU, Navsari)
9.6.3.11	Title: Plot technique study in banana.	**Approved**	(Action: Asso. Professor & Head, Agril. Statistics, ACHF, NAU, Navsari)
9.6.3.12	Title: A study on the use of teaching methods by the teachers of N.A.U., at undergraduate level.	**Approved**	(Action: Prof. & Head, Agril. Extension, NMCA, NAU, Navsari)
9.6.3.13	Title: Expectation and motivational sources of newly enrolled students of B. Sc. (Horticulture)	**Approved**	(Action: Asso. Professor,. Agril. Extension, ACHF, NAU, Navsari)
9.6.4	**SARDARKRUSHINAGAR AGRICULTURAL UNIVERSITY**		
9.6.4.1	Problems faced by the farmers of Mehsana district in adoption of (MIS) Micro irrigation system.	**Approved**	(Action : Professor & Head (Extn.) CPCA, SDAU, S. K. Nagar)
9.6.4.2	Awarness regarding organic farming among the farmers of Sabarkantha and Banaskantha district	**Approved**	(Action: Prof. & Head, Dept. of Ext. Edu., CPCA, SDAU, S. K. Nagar)
9.6.4.3	Prepared two success stories (1) Promotion of pomegranate cultivation and (2) papaya cultivation.	**NOT APPROVED**	(Action: Principal, Agril. .Polyt. Deesa. SDAU, S.K.Nagar)

9.6.4.4	Training need assessment of groundnut growers about groundnut production technology by visitors farmers of ATIC.	**Approved**	(Action: Director of Ext. Edu. SDAU, S.K.Nagar.)
9.6.4.5	Assessment of nutritional status, food consumption pattern and physical activity pattern of diabetics	**Approved**	(Action: Professor & Head, (F&N) ASPEE College of Home Science, SDAU, S.K.Nagar.)
9.6.4.6	Role of nutrition education in improving the nutritional awareness among rural women	**House approved with the following suggestions:** 1. House modified Title as "Impact of training on nutritional awareness of rural women" 2. Three objectives are modified as under • To study the profile of rural women • To find out level of nutritional awareness among rural women • To assess impact of nutritional training on rural women	(Action: Professor & Head (Extn), ASPEE College of Home Science, SDAU, S.K. Nagar.)
9.6.4.7	Preparation and evaluation of fruit flavoured peanut milk lassi	House suggested to present this programme in Food processing / Dairy science sub committee,	(Action: Professor & Head (F&D) ASPEE College of Home Science, SDAU, S.K.Nagar.)
9.6.4.8	Marketing of papaya in Banaskantha district of North Gujarat	**House approved with the following suggestions:** • House modified title as "Economic analysis of marketing of papaya in Banaskantha district"	(Action: Professor & Head (ABM), SDAU, S.K.Nagar.)

		• Fourth objective should be deleted	
9.6.4.9	Resource use efficiency and profitability of cabbage farming in North Gujarat	**House approved with the following suggestions:** The first objective is modified as "To work out the profitability of cabbage farming"	(Action: Principal & Dean (ABM), SDAU, S.K.Nagar.)
9.6.4.10	An analysis of contract farming in potato in Gujarat	**House approved with the following suggestion:** The title should be modified as "Study on contract farming of potato in Banaskantha district".	(Action: Professor & Head (ABM), SDAU, S.K.Nagar.)
9.6.4.11	Selection index study in Indian mustard.	**House approved with the following suggestions:** • The title should be modified as "Construction of selection indices of different variables of mustard crop". • Two modified objectives are as under 1. To construct selection indices of different variables of mustard crop 2. To work out relative efficiency of different selection indices	(Action: Professor & Head, Dept. of Stat., CPCA, SDAU, S.K.Nagar.)

9.6.4.12	Pre-harvest forecasting of cumin (Cuminum cyminum) seed yield in Banaskantha district of North Gujarat	**House approved with the following suggestions:** Title is modified as "Pre-harvest forecasting of cumin (Cuminum cyminum) yield in Banaskantha district of North Gujarat" • Modified objectives are as under 1. To identify the effect of weather variables on cumin yield. 2. To work out time trend for cumin yield. 3. To develop model for pre harvest forecasting of cumin yield based on weather variables.	(Action: Professor & Head, Dept. of Stat., CPCA, SDAU, S.K.Nagar.)
9.6.4.13	A statistical investigation on association between weather parameters and yield of Guar crop in Banaskantha districts of North Gujarat .	House did not accept this study because details about objectives and methodology was not given	(Action: Professor & Head (F&D) ASPEE College of Home Science, SKNagar.)

9.7	**ANIMAL PRODUCTION & FISHERIES AND ANIMAL HEALTH**
9.7.1	**ANAND AGRICULTURAL UNIVERSITY**
ANIMAL PRODUCTION & FISHERIES	
Centre: Kapila Gosansodhan Kendra, Minawada & Pashupalan Sansodhan Kendra, Ramna Muvada, A.A.U., Anand	

9.7.1.1	To study the kidding performance of Surti goats.	**Accepted with following suggestion/s** 1. This being research farm, the recording of the production and reproduction parameters be continued over the years and analysis be presented in the defined format	(Action: Res. Scientist, Kapila Gosansodhan Kendra, Minawada & Pashupalan sansodhan Kendra, Ramna Muvada)
Centre: Reproductive Biology Research Unit, A.A.U., Anand			
9.7.1.2	Validation of continuous temperature measurement in Surti buffaloes for detection of estrus.	**Approved**	(Action: Res. Scientist, RBRU)
Centre: Animal Nutrition Research Station, A.A.U., Anand			
9.7.1.3	Effect of Solid State Fermentation (SSF) biomass on digestibility and nutrient utilization in goats	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.4	To evolve area specific mineral mixture for dairy animals in Ahmedabad district.	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.5	Studies on the effect of feeding bypass fat and yeast (*Saccharomyces cerevisiae*) supplemented total mixed ration to growing Surti kids under heat stress	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.6	Studies on the effect of total mixed ration supplemented with bypass protein and yeast (*Saccharomyces cerevisiae*) to lambs under heat stress	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.7	Screening of potential phytochemical feed additives for their effect on substrate	**Approved**	(Action: Res. Scientist, ANRS)

	degradation and methanogenesis *in vitro.*		
9.7.1.8	Evaluation of graded levels of selected phytochemical feed additives for their influence on *in vitro* substrate degradability and methanogenesis.	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.9	Evaluation of combination of phytochemical feed additives for their effects on *in vitro* substrate degradability and methanogenesis.	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.10	Study of nutritional status of dairy animals of Anand district.	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.11	Nutritional evaluation of wheat straw Based Total Mixed Ration in sheep	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.12	Effect of feeding bypass fat during prepartum and early lactation periods in buffaloes.	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.13	Supplementation of appropriate mineral mixture to anestrous and repeat breeder buffaloes in tribal areas of Vadodara and Panchamahals districts.	**Approved**	(Action: Res. Scientist, ANRS)
9.7.1.14	To estimate *in vitro* methane production from feeds and fodder at $T_{1/2}$ in crossbred cattle.	**Approved**	(Action: Res. Scientist, ANRS)
Centre: Poultry Complex			
9.7.1.15	Improvement in IWN & IWP strains (S_{11} generation) so as to achieve annual egg production of 305 eggs in crosses with an average egg weight >52 g (under AICRP).	**Approved**	(Action: Res. Scientist and Head, Poultry Complex)
9.7.1.16	Performance testing of IWN x IWP cross at	**Approved**	(Action: Res. Scientist

	Random Sample Poultry Performance Test (under AICRP).		and Head, Poultry Complex)
9.7.1.17	Front line demonstration of IWN x IWP strain cross developed at the centre (under AICRP).	**Approved**	(Action: Res. Scientist and Head, Poultry Complex)
9.7.1.18	Selection studies in Bantamised White Leghorn.	**Approved**	(Action: Res. Scientist and Head, Poultry Complex)
9.7.1.19	Establishment of native germplasm of fowl of Gujarat.	Accepted with following suggestion: To maintain the appropriate ratio of males and females	(Action: Res. Scientist and Head, Poultry Complex)
9.7.1.20	Selection studies in synthetic White Leghorn developed at the centre.	**Approved**	(Action: Res. Scientist and Head, Poultry Complex)
Centre: Livestock Research Station			
9.7.1.21	Economics of calf rearing using milk replacer formulated from locally available resources.	Accepted with following suggestion/s 1. To specify the breed of the calf 2. To define the locally available feed resources 3. To follow NRC standard for feed formulation	(Action: Res. Scientist and Head, LRS)
9.7.1.22	Diet dependent changes in rumen micro flora in Gir animals (in collaboration with Dept. of Animal Biotechnology).	**Approved**	(Action: Res. Scientist and Head, LRS)
9.7.1.23	To study the pattern of labour utilization at Livestock Research Station.	**Approved**	(Action: Res. Scientist and Head, LRS)

9.7.1.24	Introduction of CCTV camera to study the animals' behaviour as a managemental tool for Livestock Research Station.	**Approved**	(Action: Res. Scientist and Head, LRS)
Centre: Department of Animal Genetics & Breeding			
9.7.1.25	To prepare GTG banded karyotype of buffalo.	**Approved**	(Action: Professor and Head, Dept. of AGB)
9.7.1.26	Survey and phenotypic characterization of Dumba (Dooma) sheep.	**Approved**	(Action: Professor and Head, Dept. of AGB)
9.7.1.27	Screening and genotyping of SNPs in Lactoferrin and Lactoperoxidase genes in Kachchhi camel using PCR-RFLP.	**Approved**	(Action: Professor and Head, Dept. of AGB)
9.7.1.28	Sequencing of mitochondrial gene segments, i.e., D-loop and cytochrome b in horse.	**Approved**	(Action: Professor and Head, Dept. of AGB)
9.7.1.29	Sequencing of mitochondrial gene segments, i.e., D-loop and cytochrome b in camel.	**Approved**	(Action: Professor and Head, Dept. of AGB)
9.7.1.30	Captive bird sexing by molecular method.	**Approved**	(Action: Professor and Head, Dept. of AGB)
Centre: Department of Livestock Production & Management			
9.7.1.31	Effect of water restriction and rehydration on indigenous hoggets under middle Gujarat agro-climatic conditions.	**Approved**	(Action: Professor and Head, Dept. of LPM)
9.7.1.32	Effect of water restriction and rehydration on indigenous sheep and goats under middle Gujarat agro-climatic conditions.	**Approved**	(Action: Professor and Head, Dept. of LPM)
Centre: Department of Animal Physiology & Biochemistry			
9.7.1.33	Estimation of trace minerals and vitamin A levels at various ages in Gir cattle and Jaffarabadi	**Approved**	(Action: Professor and Head, Dept. of Animal

	buffaloes.		Physiology & Biochemistry)
Centre: Department of Animal Science			
9.7.1.34	Studies on morphometric characteristics of udder and teats, milking practices followed by farmers and incidences of sub-clinical mastitis in crossbred cows maintained on commercial dairy farms in Anand district.	**Approved**	(Action: Professor and Head, Dept. of Animal Science)
ANIMAL HEALTH			
9.7.4.1.35	*In-vitro* antibacterial activity of aqueous and alcoholic extracts of *Mimosa pudica* (Lajamani/chuimui) and *Bryophyllum calycinum* (Panfuti)	**Approved**	(Action: Professor, Dept. Of Pharmacology and Toxicology)
9.7.4.1.36	Abattoir studies on amphistomosis of buffaloes	**Approved**	(Action: Professor, Dept. Of Vety. Parasitology)
9.7.4.1.37	Abattoir studies on fasciolosis of buffaloes		(Action: Professor, Dept. Of Vety. Parasitology)
9.7.4.1.38	Studies on common diseases of goats in central Gujarat	Accepted with following suggestion/s. 1.Remove the "Recommendable survey" from observation to be taken.	(Action: Professor, Dept. Of Vety. Medicine)
9.7.4.1.39	Clinical studies on epidemiology and haematobiochemistry of common diseases of camel.	Accepted with modification in title 1. Clinical studies on epidemiology and haematobiochemistry of common diseases of camel in and around Anand	(Action: Professor, Dept. Of Vety. Medicine)
9.7.4.1.40	Evaluation of immunomodulatory activity of	**Approved**	(Action: Professor, Dept.

	Prosopis juliflora alkaloids in the treatment of bovine sub-clinical mastitis		Of Vety. Medicine)

9.7.4.1.41	Molecular identification of bacterial isolates recovered from field cases of sub-clinical mastitis	**Approved**	(Action: Professor, Dept. Of Vety. Medicine)
9.7.4.1.42	Immune response in dogs with generalized demodicosis	**Approved**	(Action: Professor, Dept. Of Vety. Medicine)
9.7.4.1.43	Toxicopathological studies of aceclofenac in broiler chicks	**Approved**	(Action: Professor, Dept. Of Vety. Pathology)
9.7.4.1.44	Toxicopathological studies of flunixin meglumine in broiler chicks	**Approved**	(Action: Professor, Dept. Of Vety. Pathology)
9.7.4.1.45	Isolation and molecular characterization of avian *Pasteurella multocida*	**Approved**	(Action: Professor, Dept. Of Vety. Microbiology)
9.7.4.1.46	Isolation and pathotyping of Newcastle disease virus	**Approved**	(Action: Professor, Dept. Of Vety. Microbiology)
9.7.4.1.47	Standardization and application of Loop-mediated isothermal Amplification (LAMP) technique for diagnosis of *P. multocida*	**Approved**	(Action: Professor, Dept. Of Vety. Microbiology)
9.7.4.1.48	Standardization and application of Indirect hemagglutination (IHA) test for detection of antibody titre against *P. multocida*	**Approved**	(Action: Professor, Dept. Of Vety. Microbiology)
9.7.4.1.49	Augmenting fertility in infertile dairy cows and buffaloes using controlled breeding techniques under Amul milk-shed area	**Approved**	(Action: Professor, Dept. Of Vety. Gynecology)
9.7.4.1.50	Studies on ultrasonography and plasma	Accepted with following suggestion/s.	(Action: Professor, Dept.

	endocrine profile during early pregnancy in mares	1. Replace Early pregnancy stages with Pregnancy stages in methodology	Of Vety. Gynecology)
9.7.4.1.51	Augmenting reproductive efficiency of infertile dairy animals using controlled breeding techniques in tribal areas	**Approved**	(Action: Professor, Dept. Of Vety. Gynecology)
9.7.4.1.52	Isolation and characterization of *Campylobacter* spp. from animal and human sources	**Approved**	(Action: Professor, Dept. Of Vety. Public Health)
9.7.4.1.53	Protein profiling of *Campylobacter* isolates of different origin	**Approved**	(Action: Professor, Dept. Of Vety. Public Health)
9.7.4.1.54	Quinolone resistance in *Campylobacter* isolates	**Approved**	(Action: Professor, Dept. Of Vety. Public Health)
9.7.4.1.55	Isolation and identification of *E. coli* from milk and milk products	**Approved**	(Action: Professor, Dept. Of Vety. Public Health)
9.7.4.1.56	Isolation and identification of *E. coli* and *Salmonella* spp. from Eggs and poultry house environment	**Approved**	(Action: Professor, Dept. Of Vety. Public Health)
9.7.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGAHD**		
ANIMAL PRODUCTION AND FISHERIES			
Centre: Cattle Breeding Farm, JAU, Junagadh			
9.7.2.1	Hydrocyanic acid concentration during different stages of growth in Gundri Jowar (Sorghum vulgare) and Baru (Sorghum helepensis)	**Approved**	(Action: Res. Scientist (AGB), Cattle Breeding Farm, JAU. Junagadh)
9.7.2.2	Roughage based feeding regimens for growing Gir heifers	**Approved**	(Action: Res. Scientist (AGB), Cattle Breeding

			Farm, JAU. Junagadh)
9.7.2.3	Mixed farming system combining crop and livestock	**Approved**	(Action: Res. Scientist (AGB), Cattle Breeding Farm, JAU. Junagadh)
Centre: College of Veterinary Science and A. H., JAU, Junagadh			
9.7.2.4	Molecular characterization of Toll-Like Receptor-4 (TLR-4) gene in Jaffarabadi buffalo (Bubalus bubalis)	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.5	Molecular characterization of interleukin-8 (IL-8) gene in Jaffarabadi buffalo (Bubalus bubalis)	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.6	Effect of replacement of graded levels of maize with raw and detoxified mango seed kernel (Mangifera indica) in conventional concentrate mixture on in vitro rumen fermentation pattern	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.7	Effect of various levels of some herbal feed additives in total mixed ration on in vitro nutrient utilization and rumen fermentation	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.8	Adoption of JAU scientific recommendations in livestock farming of Saurashtra region	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.9	Adoption of scientific dairy management practices by farmers in adopted villages of College of Veterinary Science and A.H., Junagadh	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)

9.7.2.10	Training needs assessment of livestock farmers, Paravets and veterinarians towards transfer of technology	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.11	Detection of common adulterants in milk sold (open and branded) at Junagadh	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
These new technical program presented in technical session I by Dr. N. G. Akholkar approved with modification.			
Centre: Fisheries College, JAU, Veraval			
9.7.2.12	Study of density dependant growth and survival of Macrobrachium rosenbergii	**Approved**	(Action: Principal, College of Fisheries, JAU. Veraval)
9.7.2.13	Effect of dressing on quality and shelf life of dried Bombay duck (Harpodon nehereus) during storage	**Approved**	(Action: Principal, College of Fisheries, JAU. Veraval)
Centre: Fisheries Research Station, JAU, Sikka			
9.7.2.14	Study of survival and growth of pearl oyster in captive cage in Gulf of Kutch at Sikka and Okha	**Approved**	(Action: Research Officer, Fisheries Res. Station, JAU. Sikka)
Centre: Fisheries Research Station, JAU, Okha			
9.7.2.15	To explore quantitative resource potential of Paneaus monodon and Paneaus indicus at NaviBandar Estury	**Approved**	(Action: Research Officer, Fisheries Research Station, JAU. Okha)
Centre: Fisheries Research and Training Centre, JAU, Mahuva			
9.7.2.16	Effect of bottom sediments on moulting to Fenneropenaeus merguiensis in circular cement tank	**Approved**	(Action: Res. Sci., Agril. Research Station (FC), JAU. Mahuva

ANIMAL HEALTH			
9.7.2.17	Incidence of Parasitic infections in bovines in and around Junagadh	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.18	Abattoir survey of reproductive abnormalities in Jaffrabadi buffaloes (Bubalus bubalis)	**Approved**	(Action: Principal, College of Veterinary Sci. & A.H.,JAU Junagadh)
9.7.2.19	Comparative study on efficacy of different medicaments for induction of estrus in true anestrous Jaffrabadi heifers (Bubalus bubalis)	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.20	Clinical studies on dental problems in pet animals	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.21	Prevalence of endoparasites and efficacy of deworming agents in Pups	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.22	Histomorphometry & Histochemical observations on the ovaries of Jaffrabadi buffaloes in different seasons of year	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)
9.7.2.23	Survey on ethno-veterinary practices and preliminary evaluation of anti bacterial activity of commonly used plants for animal health in Junagadh district	**Approved**	(Action: Principal, College of Veterinary Science & A.H., JAU. Junagadh)

9.7.3	NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI		
ANIMAL PRODUCTION AND FISHERIES			
Department of Veterinary Physiology and Bio-chemistry, Vanbandhu College of Veterinary Science & A.H., NAU, Navsari			
9.7.3.1	"Comparative study of fetal bovine serum and estrus buffalo serum on *in-vitro* maturation of oocyte in buffaloes"	**Approved**	[Action : Professor and Head, Department of Veterinary Physiology and Bio-chemistry, Veterinary College, NAU]

Department of LPM, Vanbandhu College of Veterinary Science & A.H., NAU, Navsari			
9.7.3.2	"Study on behavioral facets of Surti buffaloes".	**Approved**	[Action : Professor and Head, Department of LPM, Veterinary College, NAU]
9.7.3.3	"Study on goat husbandry practices in Navsari district of South Gujarat"	**Approved**	[Action : Professor and Head, Department of LPM, Veterinary College, NAU]
Soil and Water Management Research Unit, NAU, Navsari			
9.7.3.4	"Study on Banana shrimp (*F.mergueinsis*) growth under different water salinity levels"	**Approved**	[Action : Res. Scientists, Soil and Water Management Research Unit, NAU]
9.7.3.5	"Optimization of stoking density of *Labea rohita* (Rohu) for the production of stunted fingerlings in cage culture condition".	**Approved**	[Action : Res. Scientists, Soil and Water Management Research

			Unit, NAU]
ANIMAL HEALTH			
9.7.3.6	Evaluation and Validation of Antimicrobial and Anti-inflammatory Activity of Medicinal Plants Used by Vanbandhu of South Gujarat.	**Approved**	[Action : Professor, Veterinary Pharmacology and Toxicology]
9.7.3.7	Establishment of Pharmacokinetics and Pharmacodynamic Relationship of Cefpirome in Cow Calves.	Accepted with modification in title as " Studies on Pharmacokinetics and Pharmacodynamic Relationship of Cefpirome in Cow Calves"	[Action : Professor, Veterinary Pharmacology and Toxicology]

9.7.3.8	Studies on Pharmacokinetics and Pharmacodynamic Relationship of Cefpirome in Goat.	**Approved**	[Action : Professor, Veterinary Pharmacology and Toxicology]
9.7.3.9	Comparison of PCR and ELISA for screening of canine Parvo Virus (CPV) in diarrhoeal cases of dogs.	**Accepted with following suggestion:** Suggested modification in title as "Comparison of PCR and ELISA for screening of canine Parvo Virus (CPV) in dogs"	[Action : Professor, Veterinary Microbiology]
9.7.3.10	Evaluation of Gene Specific Primer Sets in the Molecular Detection of Anaplasma organism in Bovine.	Accepted with following suggestions 1. Collaboration may be made with other department.	[Action : Professor, Veterinary Parasitology]
9.7.4	**SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR**		
ANIMAL PRODUCTION AND FISHERIES			

9.7.4.1	Preparation of flavoured milk using Stevia (Rebaudioside) A natural sweetener LPT. Department vet. College, SDAU.	Presented at Agri engineering, Food Processing and Dairy Science Sub committee	-
9.7.4.2	Study on technological parameters for manufacture of sandesh from buffalo milk. LPT. Department vet. College, SDAU.	Presented at Agri engineering, Food Processing and Dairy Science Sub committee	-
9.7.4.3	Study on seasonal effect on sexual behaviour of Kankrej bull. LRS, SDAU, Sardarkrushinagar.	**Approved**	[Action : Res. Scientist LRS, SDAU]
9.7.4.4	Effect of feeding of cotton seed cake on body weight gain in kankrej female calvesz (3-6 months), LRS.	**Approved**	[Action : Res. Scientist LRS, SDAU]
9.7.4.5	Effect of feeding of cotton seed cake on body weight gain in Mehsana buffalo female calves (3-6 months), LRS.	**Approved**	[Action : Res. Scientist LRS, SDAU]
9.7.4.6	Assessment of nutritive values of some top feed leaves of Banaskantha region by using in vitro gas production technique. Animal Nutrition Dept., Vet. College.	**Approved**	[Action : Professor and Head, Dept. of Animal Nutrition, Veterinary College, SDAU]
ANIMAL HEALTH			
9.7.4.7	Pharmacokinetics and Safety Profile of Marbofloxacin and its Combination with Ornidazole in Sheep	**Approved**	[Action : Professor, Veterinary Pharmacology and Toxicology]
9.7.4.8	Pharmacokinetics of orbifloxacin in layer chickens with oral intramuscular and intravenous administration	**Approved**	[Action : Professor, Veterinary Pharmacology and

			Toxicology]
9.7.4.9	Pharmacokinetics of orbifloxacin in broiler chickens with oral, intramuscular and intravenous administration	**Approved**	[Action : Professor, Veterinary Pharmacology and Toxicology]
9.7.4.10	Pharmacokinetics of pradofloxacin in goats by iv and im administration	**Approved**	[Action : Professor, Veterinary Pharmacology and Toxicology]
9.8	**BASIC SCIENCE**		
9.8.1	**ANAND AGRICULTURAL UNIVERSITY**		
Sr. No.	**Title/ Centre**	**Suggestions**	**Remarks**
Centre:- Bidi Tobacco Research Station, AAU, Anand			
9.8.1.1	Comparative study of bidi tobacco varieties for their oil and quality parameters	**Approved**	**Action:-** Asso. Res. Sci., BTRS, AAU, Anand
Centre:- Department of Biochemistry, BACA, AAU, Anand			
9.8.1.2	Differential gene expression against drought stress in wheat genotypes	**Approved**	**Action:-** Prof. & Head, Dept.of Biochemistry, BACA, AAU, Anand
Centre:- Department of Agricultural Biotechnology, AAU, Anand			
9.8.1.3	Study of host pathogen interaction with special reference to *Alternaria* blight infection in cumin	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.4	Population structuring in okra and it's wild relatives using SSR markers for YVMV resistance	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand

9.8.1.5	DNA finger printing of crop varieties and other bio-inputs developed by AAU, Anand using RAPD and SSR markers	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.6	Isolation and validation of *CCD-2* and *Lcy B-1* genes from saffron	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.7	Development of EST-SSR markers for fiber quality in diploid cotton	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.8	Validation of newly developed SSR markers of *Plantago ovata* (Isabgol)	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.9	Screening of wild germplasm of okra for YVMV resistance	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand

9.8.1.10	Inter specific hybridization in okra	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.11	Interspecific hybridization in Tomato (*Solanum lycopersicum* L.	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.12	Inter specific hybridization in cotton (*G. herbaceum* and *G. arboreum*)	**Approved**	**Action:-** Prof. & Head., Dept. of Agri. Biotech., AAU, Anand
9.8.1.13	Development of colchiploid in desi cotton	**Approved**	**Action:-** Prof. & Head.,

			Dept. of Agri. Biotech., AAU, Anand
Centre:- Plant Tissue Culture Laboratory, AAU, Anand			
9.8.1.14	Refinement of date palm micro-propagation protocol for early callus induction and for other stages	**Approved**	**Action:-** Prof. & Head, Plant Tissue Lab., AAU, Anand
Centre:- Department of Nanotechnology, AAU, Anand			
9.8.1.15	Effect of nano-zinc application on morphological parameters of Rice variety GR-11	Accepted with following modifications in title and variety. Title: Effect of nano-zinc application on morphological parameters of Rice variety Jaya	**Action:-** Prof. & Head, Nanotechnology, AAU, Anand
Centre:- Department of Agricultural Botany, BACA, AAU, Anand			
9.8.1.16	Physiological investigation on productivity in maize (*Zea mays* L.)	**Approved**	**Action:-** Prof. & Head, Dept. of Botany, BACA, AAU, Anand
Centre:- Bidi Tobacco Research Station, AAU, Anand			
9.8.1.17	Estimation of leaf area in Rustica tobacco varieties GC 1 and GCT	**Approved**	**Action:-** Res. Sci. (Pl. Phy.),BTRS, AAU, Anand
Centre:- Main Vegetable Research Station, AAU, Anand			
9.8.1.18	Influence of plant growth regulators (PGRs) on growth, sex expression and fruit yield of cucumber (*Cucumis sativus* L.) Gujarat cucumber -1	**Approved**	**Action:-** Res. Sci. (Pl. Phy.), MVRS, AAU, Anand
Centre:- Medicinal & Aromatic Plant Research, Anand			
9.8.1.19	Influence of chemicals and PGRs on growth and dry biomass yield of Dodi (*Leptadenia*	**Approved**	**Action:-** Res. Sci. (M & AP), AAU, Anand

	reticulata)		
Centre:- Agricultural Research Station, Dhandhuka			
9.8.1.20	Seed priming and foliar spray of stress mitigating chemicals for ameliorating	**Approved**	**Action:-** Assoc. Res. Sci., ARS, Dhandhuka, Ahmedabad
9.8.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
Centre:- Department of Genetics & Plant Breeding, JAU, Junagadh			
9.8.2.1	Effect of brassinolide on physiological and yield related traits of chickpea and their relationship with yield.	**Approved**	**Action:** Professor & Head, Department of Genetics & Plant Breeding, JAU, Junagadh
Centre:- Department of Genetics & Plant Breeding, JAU, Junagadh			
9.8.2.2	Micropropagation in spine gourd *(Momordica dioica* Roxb.*)*	**Accepted with following suggestions** (1) To incorporate additional lower levels of BA (0.25 mg/l) and 0.05 mg/l kinetin. (2) To add observation of the intensity of callusing in the experiments.	**Action:** Professor & Head, Department of Genetics & Plant Breeding, JAU, Junagadh

Centre: Department of Genetics & Plant Breeding, JAU, Junagadh			
9.8.2.3	Thermal stress tolerance in wheat	**Approved**	**Action:** Professor & Head, Department of Genetics & Plant Breeding, JAU,Junagadh
9.8.2.4	Study of Fresh Seed Dormancy in Sesame	**Approved**	**Action:** Professor & Head, Department of Genetics & Plant

			Breeding, JAU, Junagadh
Centre:- Department of Biochemistry and Biotecnology, JAU, Junagadh			
9.8.2.5	Development of cultivar specific markers for the hybrids released by JAU in pearl millet	**Approved**	**Action:** Professor and Head, Department of Biochemistry and Biotecnology, JAU, Junagadh
Centre:- Department of Biochemistry and Biotecnology, JAU, Junagadh			
9.8.2.6	Development of cultivar specific markers for the all varieties released by GAU/JAU in groundnut	Accepted with modification as suggested by crop improvement subcommittee to include all varieties released by GAU/JAU in groundnut	**Action:** Professor and Head, Department of Biochemistry and Biotecnology, JAU, Junagadh
Centre:- Oil seeds Research Station, JAU, Junagadh			
9.8.2.7	Effect of foliar spray of micro-nutrients on growth and yield parameters of *summer* groundnut	**Approved**	**Action:** Research Scientist, Oil seeds Research Station, JAU, Junagadh
Centre:- Regional Cotton Research Station, JAU, Junagadh			
9.8.2.8	Effect of 2,3,5-Triiodobenzoic Acid (TIBA) on seed cotton (*Gossypium hirsutum* L.) yield	**Approved**	**Action:** Research Scientist, Regional Cotton Research Station, JAU, Junagadh
Centre:- Department of Seed Science and Technology, JAU, Junagadh			
9.8.2.9	The effect of storage conditions, packing materials and seed treatments on viability and	**Accepted with the following suggestions**	**Action:** Professor and Head, Department of

	seedling vigour of onion (*Allium cepa* L.) seeds	1. Temperature of storage conditions should be recorded 2. Use technical names instead of brand names	Seed Science and Technology, JAU, Junagadh
Centre:- Department of Seed Science and Technology, JAU, Junagadh			
9.8.2.10	Seed viability in soybean (*Glycine max* (L.) Merr.) under different storage conditions and treatments	**Accepted with the following suggestions** 1. Temperature of storage conditions should be recorded 2. Use technical names instead of brand names	**Action:** Professor and Head, Department of Seed Science and Technology, JAU, Junagadh
Centre:- Department of Seed Science and Technology, JAU, Junagadh			
9.8.2.11	Qualitative and quantitative evaluation of seed vigour and viability by Tetrazolium test in pearl millet [*Pennisetum glaucum* (L.) R. Br.]	**Approved**	**Action:** Professor and Head, Department of Seed Science and Technology, JAU, Junagadh
Centre:- Department of Seed Science and Technology, JAU, Junagadh			
9.8.2.12	Performance of Neem Products on the Storability of Mungbean [*Vigna radiata* (L.) Wilczek].	**Approved**	**Action:** Professor and Head, Department of Seed Science and Technology, JAU, Junagadh
9.8.3	**NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI**		
Centre: Main Cotton Research Station, NAU, Surat,			
9.8.3.1	Preparing for climate change: Effects of environment on crop phenology development, yield and fibre development	**Accepted with following suggestions** 1. To change in title as **"**Preparing for climate change: Effects of environment on crop phenology, yield and fibre development in	**Action:** Research Scientist, Main Cotton Research Station, NAU, Surat,

		cotton" 2. To mention split plot design 3. Mention the time of observation in crop	
Centre: Main Cotton Research Station, NAU, Surat			
9.8.3.2	Development of mapping population and identification of molecular marker linked to jassid resistance in cotton	**Approved**	**Action:** Research Scientist, Main Cotton Research Station, NAU, Surat
Centre: Gujarat Agricultural Biotechnology Institute, Athwa Farm, Surat			
9.8.3.3	Studies of rhizospheric micro-flora of Bt and Non-Bt cotton grown at MRCS Farm, NAU Surat	**Accepted**	**Action:** OSD, GABI, NAU, Surat,
9.8.4	**S.D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR**		
Centre: Main Castor and Mustard Research Station, SDAU, Sardarkrushinagar			
9.8.4.1	Screening of castor germplasm against salinity	**Accepted with following suggestions:** 1. The design should be changed to CRD (Factorial) 2. Observations on yield attributes should be recorded during micro plot study	**Action**: Research Scientist, Main Castor and Mustard Research Station, SDAU, Sardarkrushinagar
Centre: Central Instrumentation Laboratory, SDAU, Sardarkrushinagar			
9.8.4.2	Development of Plant culture protocol for elite olive (*Olea europaea*) genotypes	**Accepted with following suggestions:** 1. The title should be modified as "Development of Plant tissue culture protocol for elite olive (*Olea europaea*) genotypes"	**Action:-**Asstt. Research Scientist (Bio Tech Division), Central Instrumentation Laboratory, SDAU,

		2. Omission of objective No.2	Sardarkrushinagar
Centre: Central Instrumentation Laboratory, SDAU, Sardarkrushinagar			
9.8.4.3	Diversity Screening for high iron and zinc content in hexaploid and tetraploid Wheat genotypes using molecular markers	**Accepted with following suggestions to modify the objectives as** 1) Biochemical screening of wheat genotypes for profiling iron and zinc concentration using Atomic Absorption Spectrophotometer. 2) To assess genetic variability in the available genotypes of wheat using RAPD markers.	**Action:-**Asstt. Research Scientist (Bio Tech Division) , Central Instrumentation Laboratory, SDAU, Sardarkrushinagar
Centre: Department of Biotechnology, College of Basic Science and Humanities, SDAU, Sardarkrushinagar			
9.8.4.4	Identification of Resistance Gene Analogues in castor varieties	Accepted with a suggestion to conduct this experiment as filler trial	**Action:-** Asst. Professor (Biotechnology), College of Basic Science and Humanities, SDAU, Sardarkrushinagar
Centre: Department of Biotechnology, College of Basic Science and Humanities, SDAU, Sardarkrushinagar			
9.8.4.5	Biochemical & Nutritional Evaluation of different varieties of Fenugreek (*Trigonella foenum-graecum* L.)	**Not accepted**	**Action:-** Asst. Professor (Biotechnology), Department of Biochemistry, College of Basic Science and Humanities, SDAU, Sardarkrushinagar
Centre: Department of Food & Nutrition, ASPEE College of Home Science & Nutrition, SDAU, Sardarkrushinagar			
9.8.4.6	Preparation of nutritious biscuits from Ragi, Rajgira, Sesame and Wheat	Accepted with suggestion to replace the word rajgira with grain amaranth	**Action:-** Associate Professor (Biochem), ASPEE College of Home Science & Nutrition,

			SDAU, Sardarkrushinagar
Centre: Department of Food & Nutrition, ASPEE College of Home Science & Nutrition, SDAU, Sardarkrushinagar			
9.8.4.7	Preparation of nutritious laddu from Ragi, Rajgira, Sesame and Wheat	Accepted with suggestion to replace the word rajgira with grain amaranth	**Action:-** Associate Professor (Biochem), ASPEE College of Home Science & Nutrition, SDAU,Sardarkrushinagar

PLENARY SESSION

Chairman : Dr.A.R.Pathak, Hon'ble Vice Chancellor, NAU,Navsari

Dr.K.Sreedharan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar

Repporteurs : Dr.Y.Ravindrababu, RS (pulse), SDAU

Dr. K.B.Prajapati, RS, LRS, SDAU, S.K.Nagar

The plenary session was held at Sardar smruti kendra, SDAU, Sardarkrushinagar on 8th May, 2013. The session was chaired by Dr. A.R. Pathak Hon'ble Vice Chancellor, NAU, Navsari and Co-chaired by Dr. K.Sreedharan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar. Dr. K.B. Kathiria, Dr. C.J. Dangaria, Dr. A.N. Sabalpara and Dr. R.M. Chauhan, Directors of Research of AAU, JAU, NAU and SDAU, respectively were present in the session.

Dr. K. Shreedadharan shared his views and complemented efforts of scientists and advise to take research on areas like biotechnology and nano technology. He also pleade that P. G. Research may be allowed to present in AGRESCO so that useful research may recommended for the benefit of the farming community.

Dr. A.R. Pathak in his introductory speech complemented the efforts of scientists for very good recommendation and informed the house that about 300 recommendations and about 500 new technical programs has come out after three days of brain storming exercise and hard work of all scientists who come from respective university and joint contributed in the AGRESCO.

The proceeding and general suggestions that come up during presentation of various sub groups by respective conveners/ local conveners and detaile reports on various disciplines are as under.

Reporting by various conveners were as under:

9.1 Crop Improvement: Dr. M.H. Patel, Research scientist ARS Talod, SDAU Sardarkrushinagar

9.2 Crop Production: Dr. J.D. Thanki, Reseerch scientist NAU, Navsari

9.3 Crop Protection: Dr. R.N. Pandey, Reseerch scientist AAU, Anand

9.4 Horticulture & Agroforestry : Dr. B.N. Patel, ADR NAU, Navsari

9.5 Agril. Ennginiering food processing and Dairy technology: Dr. S.H. Suthar. Dean College of renewable energy and environmental engineering SDAU Sardarkrushinagar

9.6 Social science: Dr. A.J. Patel, Project Co-coordinator KVK Deesa, SDAU, S.K. Nagar

9.7 Basic Science: Dr. Subhash. N. Research Scientist, Plant tissue culture lab. AAU, Anand

9.8 Animal production and Animal health : Dr.D.V.Joshi Prof.and head veterinary Patho. Veterinary College, SDAU

9.1 Crop Improvement sub committee:

Universities	Varietal Recommendation				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	5	5	-	-	17	16
JAU	**2**	**2**	**2**	**2**	**4**	**4**
NAU	5	5	-	-	4	4
SDAU	4	3	-	-	4	4
Total	**16**	**15**	**2**	**2**	**29**	**28**

9.2 Crop Production/NRM sub committee:

Universities	Recommendations						New Technical Programme	
	Farming community		Scientific community		Confirmation of earlier recommendations		Proposed	Approved
	Proposed	Approved	Proposed	Approved	Proposed	Approved		
AAU	11	11	1	1	-	-	21	21
JAU	**19**	**19**	**2**	**0**	**-**	**-**	**27**	**27**
NAU	23	22	2	2	2	2	43	43
SDAU	19	19	2	2	-	-	15	14
Total	**72**	**71**	**7**	**5**	**2**	**2**	**106**	**105**

- In Recommendation No. 9.1.3 of NAU house suggested to change the name of product instead of cheese and in recommendation No. 9.1.11 of AAU the variety (BDN-2) should not be mentioned.

9.3 Crop/Plant protection sub committee:

Discipline	AAU		JAU		NAU		SDAU		TOTAL	
	Farming	Scientific	Farming	Scientific	Farming	Scientific	Farming	Scientific	Farming	Scientific
Ento.	11	18	**08**	**01**	03	03	03	01	25	23
Pl.Path	02	01	**02**	**--**	02	04	01	--	07	05
TOTAL	**13**	**19**	**10**	**01**	**05**	**07**	**04**	**01**	**32**	**28**

9.4 Horticulture & Agro-forestry sub committee:

Sr. No.	Universities	No. of recommendations proposed	No. of recommendations accepted		Deferred
			For Farming community	For scientific community	
1	AAU, Anand	03	03	--	--
2	**JAU, Junagadh**	**05**	**05**	**--**	**--**
3	NAU, Navsari	07	05	02	--
4	SDAU, Sardarkrushinagar	02	02	--	--
	Total	**17**	**15**	**02**	**--**

- The house suggested that in recommendation No. 1 of JAU the variety suitable for processing should be recommended in place of recipe. In recommendation for farming community No.9.4.3 of JAU, house suggested to form a committee at DOR level for verification of data.

New technical programme:

Sr. No.	Universities	No. of technical programme Proposed	No. of technical programme Approved
1	AAU, Anand	03	03
2	**JAU, Junagadh**	**09**	**09**
3	NAU, Navsari	74	70
4	SDAU, Sardarkrushinagar	05	05
	Total	91	87

9.5 Agriculture Engineering Food Processing and Dairy Technology sub committee:

Universities	Farming Community		Scientific Community		New Technical Programme	
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	9	9	-	-	39	39
JAU	**6**	**6**	**2**	**2**	**15**	**14**
NAU	2	2	-	-	8	8
SDAU	4	2	2	2	9	9
Total	**21**	**19**	**4**	**4**	**71**	**70**

- In recommendation No.9.5.8 for farmers of JAU the size of rotavator should be incorporated as suggested by house. In recommendation No9.5.9 house also suggested to indicate moisture content of crop at the time of harvesting.

9.6 Social Science sub committee:

Universities	Recommendations				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	1	1	-	-	40	40
JAU	**3**	**1**	**-**	**-**	**10**	**10**
NAU	1*	-	-	-	15	10
SDAU	1	-	-	-	13	13
Total	**6**	**2**	**-**	**-**	**78**	**73**

- In recommendation 9.6.1 of AAU for scientific community statistical model instead of mathematical model should be suggested.

9.7 Basic Science sub committees:

Universities	Recommendations				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	1	1	3	3	20	20
JAU	**1**	**1**	**7**	**7**	**12**	**12**
NAU	-	-	1	1	3	3
SDAU	-	-	-	-	7	6*
Total	**2**	**2**	**11**	**11**	**42**	**41**

9.8 (a) Animal production and Fisheries sub committee:

Universities	Recommendations				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	7	6	8	8	34	34
JAU	**4**	**4**	**4**	**3**	**16**	**16**
NAU	3	2	5	3	5	5
SDAU	1	-	-	-	6	6
Total	**15**	**12**	**17**	**14**	**61**	**61**

9.8 (b) Animal Health sub committee:

Universities	Recommendations				New Technical Programme	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	-	-	4	3	22	22
JAU	**-**	**-**	**-**	**-**	**7**	**7**
NAU	-	-	2	2	5	5
SDAU	-	-	-	-	4	4
Total	**-**	**-**	**6**	**5**	**38**	**38**

❖ **General Suggestion:** All the recommendation pertaining to crop improvement should be present in crop improvement group, however.

Dr. C. J. Dangaria DOR JAU pointed out that need based research should be initiated to cater the need of the farmers. Dr. K. B. Katheria DOR AAU informed that AAU, has taken initiative that all the PG research work who wished to be present it in AGRESCO may present it for better input and suggestion. Dr. R.M. Chauhan requested that cross listing of sub groups is reported in related discipline.

Dr. A.R. Pathak as a chairman in his concluded remark expressed his satisfaction and suggested that all the related recommendation should be present in related fields and vice versa. He also exhorted the scientist to take up basic as well as applied research. He also suggested that all recommendation made during this meeting should be published in reputed journals.

Special Suggestions:

Dr. A.R. Pathak Hon'ble Vice-Chancellor NAU suggested that all the experiments of plant physiology, biochemistry, biotechnology and microbiology should be presented in the Basic Science subcommittee only. Further for better discussion of biotechnology experiments one scientist of plant breeding discipline should be nominated as a member in addition to regular statistician. It was further suggested that after detail discussion of the biotechnology programme it should be brought to the crop improvement subcommittee for endorsement. Final decisions for the rejection or approval will be decided by basic science group only.

General Recommendations:

1) All the disciplines should carry out 30% basic and 70% applied research work.
2) All the relevant recommendation i.e., releases of varieties in Horticulture and post harvest technology in Horticulture should be presented in crop improvement and Agriculture and food processing and vice versa.
3) There should be two separate sub committees for Animal production and Animal health.
4) The format of sub groups of AGRESCO must be uniform at all the SAU's.
5) Dr. Paresh Shah, AAU, Anand should circulate the various standards of pesticide residues in various crops.

   The plenary session came to an end with vote of thanks proposed by Dr. R.M. Chauhan.