PROCEEDING OF THE 21st MEETING OF COMBINED AGRESCO OF SAUs OF GUJARAT

ORGANIZED BY

S. D. AGRICULTURAL UNIVERSITY
SARDARKRUSHINAGAR

(MAY, 05 - 27, 2025)

DIRECTORATE OF RESEARCH
S. D. AGRICULTURAL UNIVERSITY
SARDARKRUSHINAGAR 385506

CONTENT

21.1 CROP IMPROVEMENT

Date & Venue: May 5-7, 2025 at AAU, Anand

Chairman	Dr. K. B. Kathiria	Hon'ble Vice Chancellor, AAU, Anand
Co-Chairman	Dr. A.G. Pansuriya	Director of Research, JAU, Junagadh
	Dr. S. D. Solanki	Principal and Dean (Agri), CPCA, SDAU, Sardarkrushinagar
Rapporteurs	Dr. P. B. Patel	Research Scientist, MRRC, NAU, Navsari
	Dr. M. G. Valu	Research Scientist (Cotton), CRS, JAU, Junagadh
	Dr. D. A. Patel	Research Scientist, Dept. of Agril. Biotech., AAU, Anand
	Dr. R. A. Gami	Associate Research Scientist, CRM, SDAU, Deesa
Statistician	Dr. D. J. Parmar, Professor, Dept. of Ag. Statistics, BACA, AAU, Anand	

At the outset, Dr. M. K. Jhala, Director of Research & Dean, P.G. Studies, AAU, Anand welcomed Chairman and Hon'ble Vice Chancellor of AAU, Co-Chairman, Conveners of CISC from different SAUs, Rapporteurs and all the members of the Combined AGRESCO of SAUs of Gujarat.

Dr. K. B. Kathiria, Hon'ble Vice-Chancellor, AAU, Anand and Chairman, congratulated and appreciated the efforts of all the scientists for developing new varieties in agriculture and horticulture. He appealed all crop breeders to develop farmer-oriented varieties and make efforts to popularize the released varieties among farmers and bring into seed chain.

Presentation of Release Proposals, Recommendations and New Technical Programmes by conveners of SAUs

Sr. No.	Name	Designation and University
1	Dr. B. N. Patel	Research Scientist, PRS, AAU, Vadodara
2	Dr. M. G. Valu	Research Scientist (Cotton), CRS, JAU, Junagadh
3	Dr. R. K. Patel	Professor and Head, Dept. of GPB, NMCA, Navsari
4	Dr. P. J. Patel	Research Scientist, SSRS, SDAU, Jagudan

Summary of the Release Proposals, Recommendations and New Technical Programmes

Name of University	Proposed				Approved			
	Crop Varieties	Farmer Reco.	Scientific Reco.	NTPs	Crop Varieties	Farmer Reco.	Scientific Reco.	NTPs
AAU	10	-	-	02	10	-	-	02
JAU	06	-	01	01	06	-	01	01
NAU	12	-	-	-	12	-	-	-
SDAU	04	-	-	03	04	-	-	02
Total	**32**	**-**	**01**	**06**	**32**	**-**	**01**	**05**

21.1.1 RELEASE PROPOSALS OF VARIETIES/HYBRIDS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.1.1.1	**Cherry Tomato: Gujarat Cherry Tomato 301 (GCT 301: Anand Lalima)**
	The farmers of cherry tomato growing areas of Gujarat are recommended to grow biofortified (High lycopene, iron, zinc, calcium, magnesium and potassium content) cherry tomato variety, Gujarat Cherry Tomato 301 (GCT 301: Anand Lalima) during *Kharif-rabi* season. The proposed variety gave 154 q/ha average fruit yield in Gujarat which was 31.78 *per cent* higher than the check GACT 1. Fruits are red in colour, circular shape in longitudinal section and flat shape at blossom end. The fruits of this variety contain high total soluble solid, crude fiber, total soluble sugars, lycopene, crude protein, iron, zinc, calcium, magnesium, potassium and phosphorus as compared to the check GACT1. This variety has lower level of tomato leaf curl virus disease, number of whiteflies per leaf and fruit damage by fruit borer infestation than the check GACT 1.
	ચેરી ટામેટા: ગુજરાત ચેરી ટામેટા ૩૦૧ (જીસીટી ૩૦૧: આણંદ લાલીમા)
	ગુજરાતમાં ખરીફ-રવી ઋતુ દરમ્યાન ચેરી ટામેટા ની ખેતી કરતાં ખેડૂતોને બાયોફોર્ટીફાઈડ (વધુ લાયકોપીન, લોહ, ઝીંક, કેલ્શીયમ, મેગ્નેશીયમ અને પોટેશીયમ ધરાવતી) ગુજરાત ચેરી ટામેટા ૩૦૧ (જીસીટી ૩૦૧: આણંદ લાલીમા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૧૫૪ કિવ./હે. જોવા મળેલ છે જે અંકુશ જાત જીએસીટી ૧ કરતા ૩૧.૭૮ ટકા વધારે માલુમ પડેલ છે. આ જાતના ટામેટાં લાલ રંગના, ગોળાકાર અને નીચેના ભાગથી સપાટ માલૂમ પડેલ છે. આ જાતના ફળોમાં પોષણયુક્ત તત્વો જેવા કે, કુલ દ્રાવ્ય ઘન પદાર્થો, રેસાઓનું પ્રમાણ, કુલ દ્રાવ્ય શર્કરા, લાયકોપીન, ક્રૂડ પ્રોટીન, લોહ, ઝીંક, કેલ્શીયમ, મેગ્નેશીયમ, પોટેશીયમ, અને ફોસ્ફરસનું પ્રમાણ અંકુશ જાત જીએસીટી ૧ કરતાં ઘણું વધારે માલુમ પડેલ છે. આ જાતમાં પાનનાં કોકડવાનો રોગ, ફળ કોરીખાનાર ઈયળ તથા સફેદમાખીથી થતું નુકસાન અંકુશ જાત જીએસીટી ૧ કરતાં ઓછા પ્રમાણમાં જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Point 9(a): Verify plant height data with table 4 2. Point 9(h)- Write correct table number 3. Check average yield data in proposal 4. Correct the year of cross made 5. Add organoleptic data 6. Consider as biofortified variety
	***[Action:** Research Scientist (Veg), MVRS, AAU, Anand]*
21.1.1.2	**Cherry Tomato: Gujarat Cherry Tomato 302 (GCT 302: Anand Kundan)**
	The farmers of cherry tomato growing areas of Gujarat are recommended to grow biofortified (High iron, zinc, calcium, magnesium and potassium content) cherry tomato variety, Gujarat Cherry Tomato 302 (GCT 302: Anand Kundan) during *Kharif-rabi* season. The proposed variety gave 144 q/ha average fruit yield in Gujarat which was 23.34 *per cent* higher than the check GACT 1. Fruits are yellow in colour, circular shape in longitudinal section, flat shape at blossom end and yellow colour of flesh at maturity. The fruits of this variety contain high total soluble solid, crude fiber, total soluble sugars, β carotene, crude protein, iron, zinc, calcium, magnesium, potassium and phosphorus as compared to the check GACT 1. This variety has lower level of

	tomato leaf curl virus disease, number of whiteflies per leaf and fruit damage by fruit borer infestation than the check GACT 1.
	ચેરી ટામેટા: ગુજરાત ચેરી ટામેટા ૩૦૨ (જીસીટી ૩૦૨: આણંદ કુંદન)
	ગુજરાતમાં ખરીફ-રવી ઋતુ દરમ્યાન ચેરી ટામેટાની ખેતી કરતાં ખેડૂતોને બાયોફોર્ટીફાઈડ (વધુ લોહ, ઝીંક, કેલ્શીયમ, મેગ્નેશીયમ અને પોટેશીયમ ધરાવતી) ગુજરાત ચેરી ટામેટા ૩૦૨ (જીસીટી ૩૦૨: આણંદ કુંદન) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૧૪૪ કિવ./હે. જોવા મળેલ છે જે અંકુશ જાત જીએસીટી ૧ કરતા ૨૩.૩૪ ટકા વધારે માલુમ પડેલ છે. આ જાતના ટામેટાં પીળા રંગના, ગોળાકાર અને નીચેના ભાગથી સપાટ માલૂમ પડેલ છે. આ જાતના ફળોમાં પોષણયુક્ત તત્વો જેવાકે, કુલ દ્રાવ્ય ઘન પદાર્થો, રેસાઓનું પ્રમાણ, કુલ દ્રાવ્ય શર્કરા, બીટા કેરોટીન, ફ્રૂડ પ્રોટીન, લોહ, ઝીંક, કેલ્શીયમ, મેગ્નેશીયમ, પોટેશીયમ અને ફોસ્ફરસ નું પ્રમાણ અંકુશ જાત જીએસીટી ૧ કરતાં ઘણું વધારે માલુમ પડેલ છે. આ જાતમાં પાનનાં કોકડવાનો રોગ, ફળ કોરીખાનાર ઈયળ તથા સફેદમાખીથી થતું નુકસાન અંકુશ જાત જીએસીટી ૧ કરતાં ઓછા પ્રમાણમાં જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Point No. 9(h)- Write correct table number 2. Check average yield data in proposal 3. Correct the year of cross made 4. Mention the detail of pedigree separately in annexure 5. Add organoleptic data 6. Consider as biofortified variety
	***[Action:** Research Scientist (Veg), MVRS, AAU, Anand]*
21.1.1.3	**Bitter Gourd: Gujarat Bitter Gourd 1 (GBT 1: Anand Karnika)**
	The farmers of Gujarat are recommended to grow bitter gourd variety Gujarat Bitter Gourd 1 (GBT 1: Anand Karnika) during *kharif* and summer seasons. This proposed variety recorded average fruit yield 130 and 110 q/ha which was 25.76 and 23.48% higher over the check CO 1 during *kharif* and summer seasons, respectively in Gujarat. The variety has medium size spindle shaped fruits having dark green skin with conspicuous tubercles. This variety has less prevalence of bitter gourd mosaic virus and powdery mildew disease reaction as well as fruit fly infestation as compared to the check CO 1. The variety contains higher true protein (0.54%), ascorbic acid (92.17 mg/100gm), flavonoids (0.028%) and crude fiber (1.41%) as compared to check CO 1.
	કારેલા :ગુજરાત કારેલા ૧ (જીબીટી ૧: આણંદ કર્ણિકા)
	ગુજરાતમાં ચોમાસું અને ઉનાળું ઋતુમાં કારેલાની ખેતી કરતા ખેડૂતોને ગુજરાત કારેલા ૧ (જીબીટી ૧: આણંદ કર્ણિકા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ગુજરાતમાં ચોમાસું ઋતુમાં આ જાતનું સરેરાશ ઉત્પાદન ૧૩૦ કિવ./ હે અને ઉનાળું ઋતુમાં ૧૧૦ કિવ./ હે જોવા મળેલ છે, જે અંકુશજાત સીઓ ૧ કરતા અનુક્રમે ૨૫.૭૬ અને ૨૩.૪૮ ટકા વધારે છે. આ જાતના ફળ મધ્યમ લાંબા, ઘાટા લીલા રંગના અને ત્રાકાકાર આકાર તેમજ સપાટી ઉપર ખાંચા ધરાવે છે. આ જાતમાં અંકુશ જાત સીઓ ૧ ની સરખામણીમાં પંચરંગીયો અને ભૂકીછારોનો રોગ તેમજ ફળમાખીનું નુકસાન ઓછુ જોવા મળેલ છે. આ જાતમાં ૦.૫૪% પ્રોટીન, ૯૨.૧૭ મિલી/૧૦૦ ગ્રામ એસ્કોર્બીક

	એસીડ, ૦.૦૨૮% ફ્લેવેનોઈડ અને ૧.૪૧% રેસાઓનું પ્રમાણ જોવા મળેલ જે અંકુશ જાત સીઓ ૧ કરતા વધારે છે.
	The proposal was approved by the house
	***[Action:** Research Scientist (Veg), MVRS, AAU, Anand]*
21.1.1.4	**Chilli : Gujarat Vegetable Chilli 122 (GVC 122: Anand Agni)**
	The farmers of green chilli growing areas of Gujarat are recommended to grow chilli variety, Gujarat Vegetable Chilli 122 (GVC 122: Anand Agni) during *Kharif-rabi* season. The proposed variety gave 144 q/ha average green fruit yield in Gujarat which was 27.66% higher than the check GVC 121. Fruits of this variety have dark intensity of green colour, blunt shape of apex and highly pungent at unripe stage with smooth texture and medium glossiness**.** The variety contains higher flavonoid (0.045%), total antioxidant activity (0.276%), ascorbic acid (13.23 mg/100g), acidity (0.275%), total chlorophyll (0.482 mg/g) and capsaicin (0.234%) as compared than check GVC 121. This variety has lower chilli leaf curl disease, fruit damage by fruit borer and number of thrips/leaf as compared to the check GVC 121.
	મરચા: ગુજરાત શાકભાજી મરચા ૧૨૨ (જીવીસી ૧૨૨: આણંદ અગ્નિ)
	ગુજરાતમાં ખરીફ-રવી ઋતુ દરમ્યાન લીલા મરચાની ખેતી કરતાં ખેડૂતોને ગુજરાત શાકભાજી મરચા ૧૨૨ (જીવીસી ૧૨૨: આણંદ અગ્નિ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૧૪૪ કિવ./હે. જોવા મળેલ છે જે અંકુશ જાત જીવીસી ૧૨૧ કરતા ૨૭. ૬૬ ટકા વધારે માલુમ પડેલ છે. આ જાતના મરચાં ઘાટ્ટા લીલા રંગના, અણી વગરના તેમજ સ્વાદે વધારે તીખા, લીસી સપાટીવાળા તથા મધ્યમ ચળકાટ ધરાવતા માલૂમ પડેલ છે. આ જાતમાં ફ્લેવેનોઈડ (૦.૦૪૫%), કુલ એન્ટીઓક્સિડન્ટ એક્ટીવીટી (૦.૨૭૬%), એસ્કોરબીક ઍસિડ (૧૩.૨૩ મીલીગ્રામ/૧૦૦ ગ્રામ), એસીડીટી (૦.૨૭૫%), ટોટલ ક્લોરોફીલ (૦.૪૮૨ મીલીગ્રામ/૧૦૦ ગ્રામ) અને કેપ્સીસીન (૦.૨૩૪%) નું પ્રમાણ અંકુશ જાત જીવીસી ૧૨૧ કરતાં વધારે હોવાનું માલુમ પડેલ છે. આ જાતમાં પાનનાં કોકડવાનો રોગ, ફળ કોરી ખાનાર ઈયળ તથા થ્રીપ્સનો ઉપદ્રવ અંકુશ જાત જીવીસી ૧૨૧ કરતાં ઓછા પ્રમાણમાં જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Correct the name of location 'Sihori' instead of 'Sirohi' 2. Add missing DUS characters as per the guidelines 3. Correct the non-significant group as per the check 4. Add ancillary observations: Days to first picking and total number of pickings
	***[Action:** Research Scientist (Veg), MVRS, AAU, Anand]*
21.1.1.5	**Brinjal: Gujarat Small Round Brinjal 101 (GSRB 101: Anand Samuh)**
	The farmers of Gujarat are recommended to grow brinjal variety Gujarat Small Round Brinjal 101 (GSRB 101: Anand Samuh) during *kharif-rabi* season. The proposed variety recorded 410 q/ha average fruit yield in Gujarat condition. It depicted 12.47, 20.44 and 20.96 *per cent* higher fruit yield than the checks GRB 7, ABSR 2 and Swarna Mani Black, respectively. It has erect plant growth habit, sinuate leaf margin

	and absence of stem anthocyanin colouration. It has prominent clustering pattern with more number of fruits. The variety has pear shaped fruit with dark intensity of purple colour of fruit skin and strong stem pubescence. It has less or comparable prevalence of little leaf disease reaction, jassid, whitefly as well as shoot and fruit borer damage as compared to the checks. The proposed variety contains higher total antioxidant activity (0.373 mg/100g) and carotenoid (4.93 mg/100g) as compared to the check varieties.
	રીંગણ: ગુજરાત નાના ગોળ રીંગણ ૧૦૧ (જીએસઆરબી ૧૦૧ : આણંદ સમુહ)
	ગુજરાતમાં ખરીફ-રવી ઋતુ દરમિયાન રીંગણની ખેતી કરતા ખેડૂતોને ગુજરાત નાના ગોળ રીંગણ ૧૦૧ (જીએસઆરબી ૧૦૧: આણંદ સમુહ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. રાજ્ય સ્તરે આ જાતનું સરેરાશ ઉત્પાદન ૪૧૦ કિવ./ હે. જોવા મળેલ છે જે અંકુશ જાતો જીઆરબી ૭, એબીએસઆર ૨ અને સ્વર્ણમણી બ્લેક કરતા અનુક્રમે ૧૨.૪૭, ૨૦.૪૪ અને ૨૦.૯૬ ટકા વધારે માલુમ પડેલ છે. આ જાતનાં છોડની વૃદ્ધિ સીધી, પાંદડાની ધાર સાંકડી અને થડ પર કોઈ પણ પ્રકારનો રંગ જોવા મળતો નથી. આ જાતના રીંગણ વધારે ઝૂમખામાં લાગે છે તથા ફળ શંકુ આકારના, ચળકતા, આકર્ષક અને ફળની છાલ ઘેરા જાંબલી રંગની હોય છે. આ જાતમાં અંકુશ જાતોની સરખામણીમાં ઘટ્ટીયા પાનનો રોગ, તડતડીયા, સફેદમાખી તથા ડૂંખ અને ફળ કોરી ખાનાર ઈયળનું નુકસાન ઓછુ અથવા તેના જેટલુ જોવા મળેલ છે. આ જાતમાં એન્ટીઓક્ષીડન્ટ એક્ટીવીટી (૦.૩૭૩ મીલીગ્રામ/૧૦૦ગ્રામ) અને કેરોટીન (૪.૯૩%) બધી અંકુશ જાતો કરતાં વધારે માલુમ પડેલ છે.
	Approved by the house with the following suggestions 1. In recommendation paragraph use word 'Absence' instead of 'Absent' 2. Point No. 11 (a) : Mention the over all yield data
	[Action:** Research Scientist (Veg), MVRS, AAU, Anand**]
21.1.1.6	**Fodder Bajra: Gujarat Fodder Bajra 5 (GFB 5: Anand Virat)**
	The farmers of Gujarat are recommended to grow fodder bajra variety Gujarat Fodder Bajra 5 (GFB 5: Anand Virat) during *kharif* as a single cut and summer season as a multi-cut (3 cuts). In *kharif* season, under single cut, this variety gave average green fodder yield of 522 q/ha, which is 22.72 and 18.09 *per cent* higher than the checks GAFB 4 (LC) and Giant Bajra (NC), respectively. It also produced average dry matter yield of 194 q/ha, which is 30.86 and 28.95 *per cent* higher than the checks GAFB 4 and Giant Bajra, respectively. In summer season under multi-cut (3 cuts, 1st at 55-60 DAS, 2nd at 30-35 days after 1st cut and 3rd at 30-35 days after 2nd cut) in Gujarat, the variety produced average green fodder yield of 1216 q/ha, which is 17.70 and 19.35 *per cent* higher than the checks GAFB 4 and Giant Bajra, respectively. It also yielded average dry matter of 245 q/ha, which is 20.07 and 25.41 *per cent* higher than the checks GAFB 4 and Giant Bajra, respectively. The proposed variety has medium dark green foliage, medium thick stem and medium early flowering in single cut. It has higher plant height, more tillers per plant and more leaves per plant. The proposed

	variety contains 18.92% dry matter, 9.72% crude protein, 74.78% neutral detergent fiber, 41.84% acid detergent fiber, 52.44% *in vitro* dry matter digestibility and 1.61% oxalate. It showed moderately resistant reaction against *blast* disease and lower stem borer infestation as compared to the checks GAFB 4 and Giant Bajra.
	ઘાસચારા બાજરી: ગુજરાત ઘાસચારા બાજરી ૫ (જીએફબી ૫ : આણંદ વિરાટ)
	ગુજરાતમાં ઘાસચારા બાજરી ની ખેતી કરતા ખેડૂતોને ચોમાસુ ઋતુમા એક કાપણી અને ઉનાળુ ઋતુમા બહુ કાપણી (ત્રણ વાઢ) માટે ગુજરાત ઘાસચારા બાજરી ૫ (જીએફબી ૫ : આણંદ વિરાટ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. ચોમાસુ ઋતુમા, એક કાપણીમાં આ જાતનાં લીલાચારાનું સરેરાશ ઉત્પાદન ૫૨૨ કિવ./ હે. મળેલ, જે અંકુશ જાતો જીએએફબી ૪ અને જાયન્ટ બાજરા કરતાં અનુક્રમે ૨૨.૭૨ અને ૧૮.૦૯ ટકા વધારે જોવા મળેલ છે. જયારે સુકાચારાનું સરેરાશ ઉત્પાદન ૧૯૪ કિવ./ હે. મળેલ, જે અંકુશ જાતો જીએએફબી ૪ અને જાયન્ટ બાજરા કરતાં અનુક્રમે ૩૦.૮૬ અને ૨૮.૯૫ ટકા વધારે છે. ઉનાળુ ઋતુમા, બહુ કાપણી (ત્રણ વાઢ, પ્રથમ વાઢ વાવણીના ૫૫ થી ૬૦ દિવસ પછી, બીજી વાઢ પ્રથમ વાઢના ૩૦ થી ૩૫ દિવસ પછી અને ત્રીજી વાઢ બીજી વાઢના ૩૦ થી ૩૫ દિવસ પછી) માં આ જાતનાં લીલાચારાનું સરેરાશ ઉત્પાદન ૧૨૧૬ કિવ./હે. મળેલ, જે અંકુશ જાતો જીએએફબી ૪ અને જાયન્ટ બાજરા કરતાં અનુક્રમે ૧૭.૭૦ અને ૧૯.૩૫ ટકા વધારે છે. જયારે તેમાંથી મળતા સુકાચારાનું સરેરાશ ઉત્પાદન ૨૪૫ કિવ./હે. મળેલ, જે અંકુશ જાતો જીએએફબી ૪ અને જાયન્ટ બાજરા કરતાં અનુક્રમે ૨૦.૦૭ અને ૨૫.૪૧ ટકા વધારે જોવા મળેલ છે. આ જાતના પાન મધ્યમ ઘાટા લીલા, થડ મધ્યમ જાડું અને એક કાપણીમાં ડુંડાની શરૂઆત થવામાં મધ્યમ વહેલી છે. આ જાતના છોડની ઉંચાઈ, છોડ દીઠ ફૂટની સંખ્યા અને પાનની સંખ્યા વધુ છે. આ જાતમાં ૧૮.૯૨% શુષ્ક પદાર્થ, ૯.૭૨% ક્રુડ પ્રોટીન, ૭૪.૭૮% ન્યૂટ્રલ ડિટર્જેંટ ફાઇબર, ૪૧.૮૪% એસીડ ડિટર્જેંટ ફાઇબર, ૫૨.૪૪% ઈનવિટ્રો શુષ્ક પદાર્થની પાચ્યતા અને ૧.૬૧% ઓક્ઝેલેટ છે. અંકુશ જાતોની સરખામણીએ, આ જાત પાનના ખડખડીયા (કરમોડી)ના રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે અને ગાભમારાની ઈયળનો ઉપદ્રવ ઓછો જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Add the data of digestibility (IVDMD %) 2. Add missing DUS characters as per the guidelines 3. Recast the salient features: Precise and short 4. Delete the data of check variety GFB 1 from proposal
	[Action: *Research Scientist (Forage), MFRS, AAU, Anand*]
21.1.1.7	**Lucerne: Gujarat Lucerne 5 (GL 5: Anand Charu)**
	The farmers of Gujarat are recommended to grow lucerne variety Gujarat Lucerne 5 (GL 5: Anand Charu) during *Rabi* season as an annual crop. This variety gave average

	green fodder yield of 655 q/ha in five cuts during the *Rabi* season, which is 17.12, 12.63 and 20.39 *per cent* higher than the checks Anand 2, AL 3 and RL 88, respectively. It also produced dry matter yield of 157 q/ha, which is 21.35, 14.69 and 21.82 *per cent* higher than the checks Anand 2, AL 3 and RL 88, respectively. The proposed variety has higher plant height and more number of tillers per square meter as well as number of leaves per plant. On quality point of view, the proposed variety contains 22.30% dry matter, 20.91% crude protein and 0.72% saponin. This variety has lower infestation of insect-pests (aphids, thrips and heliothis) as compared to the checks.
	રજકો: ગુજરાત રજકો ૫ (જીએલ ૫ : આણંદ ચારુ)
	ગુજરાતમાં વર્ષાયુ રજકાની ખેતી કરતા ખેડૂતોને શિયાળુ ઋતુમાં ગુજરાત રજકો ૫ (જીએલ ૫ :આણંદ ચારુ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતમાં શિયાળુ ઋતુ દરમ્યાનની પાંચ કાપણીમાં લીલાચારાનું સરેરાશ ઉત્પાદન ૬૫૫ કિવ./ હે. મળેલ, જે અંકુશ જાતો આણંદ ૨, એએલ ૩ અને આરએલ ૮૮ કરતાં અનુક્રમે ૧૭.૧૨, ૧૨.૬૩ અને ૨૦.૩૯ ટકા વધારે જોવા મળેલ છે. જયારે સુકાચારાનું સરેરાશ ઉત્પાદન ૧૫૭ કિવ./ હે. મળેલ, જે અંકુશ જાતો આણંદ ૨, એએલ ૩ અને આરએલ ૮૮ કરતાં અનુક્રમે ૨૧.૩૫, ૧૪.૬૯ અને ૨૧.૮૨ ટકા વધારે છે. આ જાતના છોડની ઉંચાઈ અને મીટર દીઠ ફૂટની સંખ્યા તેમજ છોડ દીઠ પાનની સંખ્યા વધુ છે. ગુણવત્તાની દ્રષ્ટિએ, આ જાતમાં ૨૨.૩૦% શુષ્ક પદાર્થ, ૨૦.૯૧% ક્રુડ પ્રોટીન અને ૦.૭૨% સેપોનીન છે. અંકુશ જાતોની સરખામણીએ, આ જાતમાં જીવાતો (મોલો, થ્રીપ્સ અને લીલી ઈયળ)નો ઉપદ્રવ ઓછો જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Recast the salient features: Precise and short 2. Add missing DUS characters as per the guidelines 3. In breeding method: Point 5 (c) and Annexure-I mention the words 'selective bulking'
	[Action: *Research Scientist (Forage), MFRS, AAU, Anand*]
21.1.1.8	**Maize: Gujarat Maize Hybrid 7 (GMH 7: Anand Samrat)**
	The farmers of maize growing areas of Gujarat are recommended to grow Gujarat Maize Hybrid 7 (GMH 7 : Anand Samrat) during *Kharif* season. This hybrid gave average 7662 kg/ha kernel yield and recorded 49.2, 7.2 and 11.6 % higher yield than checks GAYMH-1, GMH 5 and Bio-605, respectively. It is medium maturing and having yellow semi-dent kernels with high test weight (398 g). This hybrid is moderately resistant against Maydis Leaf Blight, *Turcicum* Leaf Blight and *Fusarium* stalk rot disease. This hybrid also shows moderate resistance to Fall Army Worm. It contains 70.67 % starch, 12.91% protein, 4.59% oil, 0.54% tryptophan in protein and 3.26 % lysine in protein. This hybrid exhibits climate resilience to drought and heat stress conditions.
	મકાઇ: ગુજરાત મકાઇ હાઇબ્રીડ ૭ (જીએમએચ ૭ : આણંદ સમ્રાટ)
	ગુજરાતમાં મકાઇ પાકનુ વાવેતર કરતાં ખેડુતોને ખરીફ ઋતુમાં ગુજરાત મકાઇ

	હાઇબ્રીડ ૭ (જીએમએચ ૭ :આણંદ સમ્રાટ) નું વાવતેર કરવા માટે ભલામણ કરવામાં આવે છે. આ સંકર જાત સરેરાશ ૭૬૬૨ કિગ્રા/હેકટર દાણાનુ ઉત્પાદન આપે છે, જે અંકુશ જાતો ગુજરાત આણંદ પીળી મકાઇ હાઇબ્રીડ-૧ (જીએવાયએમએચ-૧), જીએમએચ ૫, અને બાયો-૬૦૫ કરતાં અનુક્રમે ૪૯.૨, ૭.૨ અને ૧૧.૬% જેટલુ વધારે માલુમ પડેલ છે. આ સંકર જાત મધ્યમ પાકતી, પીળા રંગના દાણા ધરાવતી અને દાણાનુ વધારે વજન (૧૦૦૦ દાણા - ૩૯૮ ગ્રામ) ધરાવે છે. આ સંકર જાત પાનના સુકારા અને થડના કોહવારા સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે. આ સંકર જાત પૂંછડે ચાર ટપકાવાળી ઇયળ સામે પણ મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે. આ જાતના દાણામાં ૭૦.૬૭% સ્ટાર્ચ, ૧૨.૯૧% પ્રોટીન, ૪.૫૯% તેલ, ૦.૫૪% ટ્રીપ્ટોફેન અને ૩.૨૬% લાયસીન જોવા મળેલ છે. આ સંકર જાત ઉંચા તાપમાન અને જમીનમાં ભેજના ખેચ સામે આબોહવાકીય પ્રતિરોધકતા ધરાવે છે.
	Approved by the house with the following suggestions 1. Correct the mean as per number of locations 2. Point No. 9 (i): Delete water logging condition.
	[Action: *Research Scientist, MMRS, AAU, Godhra***]**
21.1.1.9	**Guar: Gujarat Guar 4 (GG 4: Anand Pancham)**
	The farmers of Gujarat are recommended to grow guar variety, Gujarat Guar 4 (GG 4: Pancham) during *kharif* and summer seasons. The proposed guar variety exhibited 1376 kg/ha average seed yield in *kharif* and *summer* seasons, which was 24.86 and 14.38 % higher than the checks GG 1 and GG 2, respectively. In the *kharif* season, it gave 1467 kg/ha seed yield, which was 8.26 and 13.89 % higher over checks GG 1 and GG 2, respectively whereas, in summer season, it produced 1255 kg/ha seed yield which was 65.35 and 15.35% higher over checks GG 1 and GG 2, respectively. The proposed variety has medium maturity, erect in nature and generally mono stem growth habit. Seeds of this genotype have 27.94 % gum content and 8.88% TSS, which is comparable with the checks. It has comparable prevalence of powdery mildew and bacterial leaf blight disease and lower infestation of white fly and jassids as compared to checks GG 1 and GG 2.
	ગુવાર: ગુજરાત ગુવાર ૪ (જીજી ૪: આણંદ પંચમ)
	ગુજરાતમાં ગુવારની ખેતી કરતા ખેડુતોને ગુજરાત ગુવાર ૪ (જીજી ૪: આણંદ પંચમ) જાતનુ ચોમાસું અને ઉનાળુ ઋતુમા વાવેતર કરવા ભલામણ કરવામાં આવે છે. ગુવારની આ જાત ગુજરાતમાં સરેરાશ બીજ ઉત્પાદન ૧૩૭૬ કિગ્રા./હે. આપે છે, જે અંકુશ જાતો જીજી ૧ અને જીજી ૨ કરતા અનુક્રમે ૨૪.૮૬ અને ૧૪.૩૮% વધારે છે. ગુજરાતમાં આ જાત ચોમાસું ઋતુમાં ૧૪૬૭ કિગ્રા./હે. બીજ ઉત્પાદન આપે છે, જે અંકુશ જાતો જીજી ૧ અને જીજી ૨ કરતા અનુક્રમે ૮.૨૬ અને ૧૩.૮૯% વધારે છે. જ્યારે ઉનાળુ ઋતુમાં ૧૨૫૫ કિગ્રા./હે. બીજ ઉત્પાદન આપે છે જે અંકુશ જાતો જીજી ૧ અને જીજી ૨ કરતા અનુક્રમે ૬૫.૩૫ અને ૧૫.૩૫% વધારે છે. આ મધ્યમ પાકતી અને ઉભડી પ્રકારની જાત છે તથા છોડના થડ ઉપર સામાન્ય

	રીતે ડાળીઓ જોવા મળતી નથી. આ જાતના બીજમાં ૨૭.૯૪% ગમ (ગુંદર) અને ૮.૮૮% કુલ દ્રાવ્ય શર્કરા છે જે અંકુશ જાતના સપ્રમાણમાં જોવા મળેલ છે. આ જાતમાં ભુકીછારો અને જીવાણુથી થતા પાનના સુકારાના રોગનું પ્રમાણ અંકુશ જાતો જીજી ૧ અને જીજી ૨ જેટલું તેમજ સફેદમાખી અને તડતડીયાનું પ્રમાણ સદર અંકુશ જાતો કરતા ઓછું જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Recast the salient features: Precise and short
	[Action: *Associate Research Scientist, ARS, AAU, Derol***]**
21.1.1.10	**Rice: Gujarat Drilled Rice 202 (GDR 202: Panam Dhan)**
	The farmers of Gujarat are recommended to grow drilled rice variety Gujarat Drilled Rice 202 (GDR 202: Panam Dhan) during *kharif* under rainfed condition. The proposed direct seeded rice variety recorded 3441 kg/ha grain yield which was 32.7, 34.5 and 39.1% higher than the check varieties, AAUDR 1, Purna and GR 16, respectively under rainfed condition in the Gujarat state. The proposed variety is early in maturity and medium tall. The grain of this variety is medium slender and have 80.83 milling percent and 70.58% head rice recovery. It is resistant against sheath rot while, moderately resistant against bacterial leaf blight and grain discoloration. It is also found resistant against leaf folder and moderately resistant against stem borer under drilled condition.
	ડાંગર :ગુજરાત ઓરાણ ડાંગર ૨૦૨ (જીડીઆર ૨૦૨ : પાનમ ધાન)
	ગુજરાતનાં ખેડૂતોને વરસાદ આધારિત ડાંગરની ખેતી માટે ઓરાણ ડાંગરની જાત ગુજરાત ઓરાણ ડાંગર ૨૦૨ (જીડીઆર ૨૦૨ : પાનમ ધાન) ની ભલામણ કરવામાં આવે છે. આ સીધી વાવણી હેઠળની જાત ૩૪૪૧ કી.ગ્રા./હે. ઉત્પાદન આપે છે, જે અંકુશ જાતો એએયુડીઆર ૧, પુર્ણા અને જીઆર ૧૬ કરતાં અનુક્રમે ૩૨.૭, ૩૪.૫ અને ૩૯.૧% વધુ જોવા મળેલ છે. આ જાત વહેલી પાકતી અને મધ્યમ ઉંચાઇવાળી છે અને દાણા મધ્યમ પાતળા છે, જેના મીલીંગના ટકા ૮૦.૮૩ અને આખા ચોખાનું પ્રમાણ ૭૦.૫૮% છે. આ જાત ઓરાણ વાવેતરમાં થડના કોહવારા સામે પ્રતિકારક જયારે જીવાણુંજન્ય સુકારો અને ભૂખરા દાણાના રોગ સામે મધ્યમ પ્રતિકારકતા, જ્યારે પાન વાળનાર ઇયળ સામે પ્રતિકારકતા અને ગાભમારાની ઇયળ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Approved by the house with the following suggestions 1. Mention variety as 'short slender grain' 2. Re-analyzed data of quality parameters 3. Recast the salient features
	[Action: *Research Scientist (Rice), MRRS, AAU, Nawagam***]**

21.1.1.11	**Pigeon Pea: Gujarat Tur 112 (GT 112: Sorath Bhuri)**
	Farmers of Gujarat state growing pigeonpea are recommended to grow dark red colour medium maturing (176 days) variety Gujarat Tur 112 (GT 112: Sorath Bhuri). It recorded 2245 kg/ha average seed yield, which was 8.6, 14.6, 18.9, 17.0, 9.4, 19.4 and 24.4 per cent higher over check varieties GJP 1, AGT 2, BDN 2, GT 104, GT 106, GT 108 and BDN 716, respectively. Seeds of this variety are of very large size (11.10 g/100 seeds). This variety found moderately resistant against wilt and SMD diseases with low pod borer damage.
	તુવેર: ગુજરાત તુવેર ૧૧૨ (જીટી ૧૧૨ : સોરઠ ભૂરી)
	ગુજરાત રાજ્યમાં તુવેરનું વાવેતર કરતા ખેડૂતોને ઘેરા લાલ રંગના દાણાની મધ્યમ પાકતી (૧૭૬ દિવસ) ગુજરાત તુવેર ૧૧૨ (જીટી ૧૧૨ : સોરઠ ભૂરી) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતમાં દાણાનું સરેરાશ ઉત્પાદન ૨૨૪૫ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ જાતો જીજેપી ૧, એજીટી ૨, બીડીએન ૨, જીટી ૧૦૪, જીટી ૧૦૬, જીટી ૧૦૮ અને બીડીએન ૭૧૬ કરતા અનુક્રમે ૮.૬, ૧૪.૬, ૧૮.૯, ૧૭.૦, ૯.૪, ૧૯.૪ અને ૨૪.૪ ટકા વધુ છે. આ જાતના દાણા કદમાં મોટા (૧૧.૧૦ ગ્રામ/૧૦૦ દાણા) છે. આ જાત સુકારા અને વ્યંધત્વના રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે, તેમજ શીંગ કોરી ખાનાર ઇયળથી ઓછુ નુકસાન જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Point 9 (b): Mention important distinguished morphological characters 2. Verify the data in table 7 (c) 3. Give the range of disease and insect-pest instead of mean in table 7 (a) to (d)
	[**Action:** *Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh*]
21.1.1.12	**Brinjal: Gujarat Long Brinjal-11 (GLB-11 : Sorath Priya)**
	The farmers of Gujarat state growing the brinjal crop during late *kharif* / *rabi* season are recommended to grow brinjal variety Gujarat Long Brinjal- 11 (GLB-11: Sorath Priya). The variety has recorded a mean fruit yield of 440 q/ha, which was 12.0, 12.4 and 20.8 per cent higher over check varieties *viz.,* GJLB-4 (393 q/ha), GAB-6 (390 q/ha) and Punjab Sadabahar (363 q/ha), respectively. The fruits of GLB-11 are medium in size with a medium long shape and pinkish in colour with good shining. This variety was found comparable to all check varieties against little leaf disease. Whitefly population was found low as compared to check varieties.
	રીંગણ: ગુજરાત લાંબા રીંગણ-૧૧ (જીએલબી-૧૧: સોરઠ પ્રિયા)
	ગુજરાત રાજયમાં મોડી ખરીફ/ શિયાળુ ઋતુમાં રીંગણનું વાવેતર કરતા ખેડૂતોને ગુજરાત લાંબા રીંગણ-૧૧ (જીએલબી-૧૧: સોરઠ પ્રિયા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ફળોનું સરેરાશ ઉત્પાદન ૪૪૦ ક્વિ./હે. મળેલ છે, જે અંકુશ જાતો જીજેએલબી-૪ (૩૯૩ કિવ./હે.), જીએબી-૬ (૩૯૦ ક્વિ./હે.) અને પંજાબ

	સદાબહાર (૩૬૩ ક્વિ./હે.) કરતા અનુક્રમે ૧૨.૦, ૧૨.૪ અને ૨૦.૮ ટકા વધુ માલુમ પડેલ છે. આ જાતનાં ફળો મધ્યમ કદ સાથે મધ્યમ લાંબા આકારના અને ગુલાબી રંગના તેમજ સારા ચળકાટવાળા છે. આ જાત લધુ પર્ણનાં રોગ સામે અંકુશ જાતો સાથે તુલનાત્મક રીતે સરખી જોવા મળે છે. સફેદમાખીનું પ્રમાણ અંકુશ જાતો કરતા ઓછું જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Verify the pedigree detail in 5 (a) and give detail flow chart in annexure 2. Add data of 50% flowering 3. Delete data of picking in table 4
	[**Action:** *Research Scientist (Garlic-Onion), Vegetable Research Station, JAU, Junagadh*]
21.1.1.13	**Bottle Gourd: Gujarat Bottle Gourd-2 (GBG-2: Sorath Nidhi)**
	The farmers of Gujarat State growing bottle gourd during *kharif* season are recommended to grow bottle gourd variety Gujarat Bottle Gourd-2 (GBG-2: Sorath Nidhi). The variety has recorded the mean fruit yield of 261 q/ha, which was 18.6 and 29.4 per cent higher over check varieties ABG-1 (220 q/ha) and Pusa Naveen (202 q/ha), respectively. The fruits of GBG-2 are medium long and elongated curved with flat shape of apex at peduncle end and attractive light greenish in colour. This variety was found moderately resistant to moderately susceptible against mosaic, resistant to moderately resistant against downy mildew disease and resistant to immune against powdery mildew disease.
	દુધી: ગુજરાત દુધી-૨ (જીબીજી-૨ : સોરઠ નિધી)
	ગુજરાત રાજયમાં ચોમાસું ઋતુમાં દુધીનું વાવેતર કરતા ખેડૂતોને દુધીની ગુજરાત દુધી-૨ (જીબીજી-૨ : સોરઠ નિધી) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનાં ફળોનું સરેરાશ ઉત્પાદન ૨૬૧ ક્વિ./હે. મળેલ છે, જે અંકુશ જાતો એબીજી-૧ (૨૨૦ ક્વિ./હે.) અને પુસા નવિન (૨૦૨ ક્વિ./હે.) કરતા અનુક્રમે ૧૮.૬ અને ૨૯.૪ ટકા વધુ માલુમ પડેલ છે. આ જાતનાં ફળો મધ્યમ લાંબા અને વિસ્તરેલ વળાંકવાળા સાથે ડીટના છેડે ટોચનાં સપાટ આકારનાં અને આકર્ષક આછા લીલાશ પડતા રંગનાં હોય છે. આ જાત પચરંગીયા રોગ સામે મધ્યમ સંવેદનશીલ થી મધ્યમ પ્રતિકારક, તળછારાનાં રોગ સામે પ્રતિકારક થી મધ્યમ પ્રતિકારક અને ભૂકી છારા રોગ સામે પ્રતિકારક શક્તિ ધરાવે છે.
	Approved by the house with the following suggestions 1. Verify the pedigree detail in 5 (a) and give detail flow chart in annexure 2. Delete data of picking in table 4
	[**Action:** *Research Scientist (Garlic-Onion), Vegetable Research Station, JAU, Junagadh*]
21.1.1.14	**Pearl Millet: Gujarat Hybrid Bajra 1305 (GHB 1305: Sorath Maru Shakti)**
	The *kharif* pearl millet growing farmers of Gujarat state are recommended to grow early maturing biofortified (high Fe and Zn content) hybrid GHB 1305 (Sorath Maru Shakti). This hybrid recorded average 2472 kg/ha grain yield which was 14.6% higher than check hybrid GHB-538. It has also recorded average 6203 kg/ha dry

	fodder yield which was 29.3% higher than check hybrid GHB-538. This hybrid found resistant against major pearl millet diseases like downy mildew, blast and rust and tolerant to resistant for pest like shoot fly, stem borer and *helicoverpa* larvae.
	બાજરા: ગુજરાત સંકર બાજરા ૧૩૦૫ (જીએચબી ૧૩૦૫: સોરઠ મરૂ શક્તિ)
	ગુજરાત રાજયમાં ખરીફ ઋતુમાં બાજરાનું વાવેતર કરતાં ખેડુતોને વહેલી પાકતી બાયોફોર્ટીફાઈડ (વધુ લોહ અને ઝસત તત્વ ધરાવતી) સંકર જાત જીએચબી ૧૩૦૫ (સોરઠ મરૂ શક્તિ) નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતના દાણાનું સરેરાશ ઉત્પાદન ૨૪૭૨ કિ.ગ્રા./હે. છે, જે અંકુશ સંકર જાત જીએચબી-૫૩૮ કરતા ૧૪.૬ ટકા વધારે છે. તેમજ સુકાચારાનું સરેરાશ ઉત્પાદન ૬૨૦૩ કિ.ગ્રા./હે. જે અંકુશ સંકર જાત જીએચબી-૫૩૮ કરતા ૨૯.૩ ટકા વધારે છે. આ સંકર જાત બાજરાના મુખ્ય રોગો જેવા કે કુતુલ, પાનના ટપકાં અને ગેરુ સામે પ્રતિકારક, તેમજ જીવાતો જેવી કે સાંઠાની માખી, ગાભમારાની ઇયળ અને ડુંડા કોરી ખાનાર ઈયળ સામે સહનશીલ થી પ્રતિકારક જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Revise the DNA fingerprinting of proposed hybrid with parentage and check hybrids 2. Mention the range in table No. 7 and 8 3. Mention the distinguished morphological characters in point No. 9 (b) 4. Verify the pedigree detail in 5 (a) and give detail flow chart in annexure
	[**Action:** *Research Scientist (Pearl Millet), Pearl Millet Research Station, JAU, Jamnagar*]
21.1.1.15	**Sesame: Gujarat Til 21 (G. Til 21: Sorath Kalapi)**
	The farmers of Gujarat state growing sesame in *summer* season are recommended to grow Gujarat Til 21 (G.Til 21: Sorath Kalapi). This variety recorded seed yield of 1593 kg/ha which was 17.5 and 22.3 per cent higher over the check varieties GT 3 and GJT 5, respectively. Seeds of this variety are white and bold; and it recorded 47.37 % oil content. This variety showed lower incidence of stem and root rot, phyllody disease and thrips.
	તલ: ગુજરાત તલ ૨૧ (ગુ.તલ ૨૧ : સોરઠ કલાપી)
	ગુજરાત રાજયમાં ઉનાળુ ઋતુમાં તલની ખેતી કરતા ખેડૂતોને ગુજરાત તલ ૨૧ (ગુ.તલ ૨૧ : સોરઠ કલાપી) જાતનુ વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનુ સરેરાશ ઉત્પાદન ૧૫૯૩ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ જાત જીટી ૩ અને જીજેટી ૫ કરતા અનુક્રમે ૧૭.૫ અને ૨૨.૩ ટકા વધારે માલુમ પડેલ છે. આ જાતના દાણા સફેદ અને મોટા, તેમજ તેલનુ પ્રમાણ ૪૭.૩૭ ટકા ધરાવે છે. આ જાતમાં થડ અને મૂળનો કોહવારો, ગુચ્છપર્ણ રોગ તથા થ્રીપ્સનો ઉપદ્રવ ઓછો જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Add DNA fingerprinting of proposed variety with checks

	2. Verify the pedigree detail in 5 (a) and give detail flow chart in annexure 3. Recast the table 2 as per Performa 4. Mention *Rabi*-Summer in table 3 5. Add quality data and fatty acid profile in table 6 with checks 6. Verify the data of 1000-seed wt (g)
	[Action: *Research Scientist (Pl.Br.), Agricultural Research Station, JAU, Amreli*]
21.1.1.16	**Soybean: Gujarat Soybean 5 (G. Soy 5: Sorath Leela)**
	The farmers of Gujarat state growing soybean during *Kharif* season are recommended to grow early maturing variety Gujarat Soybean 5 (G.Soy 5: Sorath Leela). This variety matures in 90 days and recorded mean seed yield of 2294 kg/ha, which was 20.5 % higher over the check variety JS 20-34 (1903 kg/ha). This variety recorded 19.9 % high oil yield and 17.1 % high protein yield over the check variety JS 20-34. This variety showed lower incidence of *Rhizoctonia* root rot and *Phytophthora* diseases as well as prodenia and thrips infestation as compared to check varieties.
	સોયાબીન: ગુજરાત સોયાબીન ૫ (જી.સોય ૫ : સોરઠ લીલા)
	ગુજરાત રાજ્યમાં ચોમાસું ઋતુમાં સોયાબીનનું વાવેતર કરતા ખેડૂતોને સોયાબીનની વહેલી પાકતી જાત ગુજરાત સોયાબીન ૫ (જી.સોય ૫ : સોરઠ લીલા) નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાત ૯૦ દિવસમાં પાકે છે અને તેનું સરેરાશ ઉત્પાદન ૨૨૯૪ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ જાત જેએસ ૨૦-૩૪ (૧૯૦૩ કિ.ગ્રા./હે.) કરતા ૨૦.૫ ટકા વધારે માલુમ પડેલ છે. અંકુશ જાત જેએસ ૨૦-૩૪ ની સરખામણીએ આ જાતમાં તેલનું ઉત્પાદન ૧૯.૯ ટકા અને પ્રોટીનનું ઉત્પાદન ૧૭.૧ ટકા વધારે મળેલ છે. આ જાતમાં રાઈઝોકટોનીયાથી થતા મૂળના કોહવારા અને ફાયટોફથોરા રોગો તેમજ લશ્કરી ઈયળ અને થ્રીપ્સનો ઉપદ્રવ અંકુશ જાતો કરતા ઓછો જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Add DNA fingerprinting of proposed variety with checks 2. Verify the pedigree detail in 5 (a) and give detail flow chart in annexure 3. Give common standard nomenclature for check (i.e. 'C') 4. Delete the check NRC 138 in table no. 7 and 8
	[Action: *Research Scientist (Pl.Br.), Agricultural Research Station, JAU, Amreli*]

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21.1.1.17	**Corinder : Gujarat Corinder 5 (GCo5 : Navsari Krupali)**
	The coriander growing farmers of Gujarat are recommended to grow the coriander variety Gujarat Coriander 5 (GCo5: Navsari Krupali) during *rabi* season. This early maturing coriander variety recorded 1608 kg/ha average seed yield, which was 25.88, 33.54 and 7.48 % higher over RCr-728 (NC), Hissar Anand (NC) and

	GCo 3 (LC), respectively. It possesses higher number of umbels per plant, umbellates per umbel, seeds per umbellate and test weight, which makes it more productive. Uniform, round shaped seeds with pleasant aroma due to presence of higher total essential oil content possessed by this variety are the value-added traits. The coriander variety GCo 5 is moderately resistant to fusarium wilt and powdery mildew diseas
	ધાણા: ગુજરાત ધાણા ૫ (જી.કો ૫ : નવસારી કૃપાલી)
	ધાણાની ખેતી કરતા ગુજરાતના ખેડૂતોને શિયાળાની ઋતુ માટે ગુજરાત ધાણા ૫ (જી.કો ૫ : નવસારી કૃપાલી) જાતની ભલામણ કરવામાં આવે છે. વહેલી પાકતી ધાણાની આ જાતનું સરેરાશ બીજ ઉત્પાદન ૧૬૦૮ કિલો/હેક્ટર આવે છે, જે રાષ્ટ્રિય અંકુશ જાતો આરસીઆર-૭૨૮, હિસ્સાર આનંદ અને સ્થાનિક અંકુશ જાત જી.કો-૩ કરતા અનુક્રમે ૨૫.૮૮, ૩૩.૫૪ અને ૭.૪૮% જેટલું વધુ બીજ ઉત્પાદન આપે છે. આ જાત વધુ ચક્કર પ્રતિ છોડ, ઉપચક્કર પ્રતિ ચક્કર, દાણા પ્રતિ ઉપચકકર અને વધારે ૧૦૦૦ દાણાનું વજન ધરાવતી હોવાથી વધુ ઉત્પાદન આપે છે. એકસમાન ગોળાકાર બીજ, વધુ આવશ્યક તેલના પ્રમાણને કારણે આનંદદાયી સુગંધ જેવા વિશિષ્ટ મુલ્યવર્ધક ગુણધર્મો આ જાત ધરાવે છે. ધાણાની જાત જી.કો ૫ સુકારા તેમજ ભૂકીછારાના રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Approved by the house with the following suggestions 1. In table 1 verify the data of non-significant group 2. Calculate per day productivity by including days to maturity data of all centres 3. Recast the table 2 as per Performa 4. Use common standard unit for biochemical parameter in table 6 5. Mention the range of test weight (g) and mean of seed sphericity in table 4
	[Action: *Professor and Head, Dept. of GPB, NMCA, NAU, Navsari*]
21.1.1.18	**Coriander : Gujarat Leafy Coriander-2 (GLC-2 : Navsari Surabhi)**
	The leafy coriander growing farmers of Gujarat are recommended to grow the leafy coriander variety Gujarat Leafy Coriander 2 (GLC 2: Navsari Surabhi) during *rabi* season. This multi-cut responsive variety recorded 16.95 t/ha average green leaf biomass yield in three cuttings (1st at 40 DAS, 2nd at 15-20 days after 1st cut and 3rd at 15-20 days after 2nd cut), which was 24.43 and 28.37 % higher over GDLC 1 (LC) and Arka Isha (NC), respectively. It possesses higher basal leaves per plant, leaf weight, stem weight, leaflets per plant, petiole length, basal leaf length as well as width. Shiny green leaf biomass with pleasant aroma due to presence of higher essential oil content are the value-added traits. This variety also having better keeping quality due to higher dry weight of fresh leaves. The leafy coriander variety GLC 2 is moderately resistant to fusarium wilt and powdery mildew diseases.

	ધાણા: ગુજરાત લીલા ધાણા ૨ (જી.એલ.સી. ૨ : નવસારી સુરભી)
	લીલા ધાણાની ખેતી કરતા ગુજરાતના ખેડૂતોને શિયાળાની ઋતુ માટે લીલા ધાણાની જાત ગુજરાત લીલા ધાણા ૨ (જી.એલ.સી. ૨ : નવસારી સુરભી) ની ભલામણ કરવામાં આવે છે. વધુ કાપણી માટે અનુકુળ જી.એન.એલ.સી. ૨ જાતનું સરેરાશ લીલા ધાણાનું ઉત્પાદન ૧૬.૯૫ ટન/હેક્ટર ત્રણ કાપણી (પ્રથમ કાપણી વાવણીના ૪૦ દિવસ પછી, બીજી કાપણી પ્રથમ કાપણીના ૧૫ થી ૨૦ દિવસ પછી અને ત્રીજી કાપણી બીજી કાપણીના ૧૫ થી ૨૦ દિવસ પછી)માં આવે છે, જે સ્થાનિક અંકુશ જાત જી.ડી.એલ.સી. ૧ અને રાષ્ટ્રિય અંકુશ જાત અરકા ઈશા કરતાં અનુક્રમે ૨૪.૪૩ અને ૨૮.૩૭% જેટલું વધુ લીલા ધાણાનું ઉત્પાદન આપે છે. આ જાત છોડ દીઠ વધુ પાયાના પાંદડા, પાંદડાનું વજન, દાંડીનુ વજન, છોડ દીઠ પત્રિકાઓ, પાંખડીની લંબાઈ, પાયાના પાંદડાની લંબાઈ તેમજ પહોળાઈ ધરાવે છે. ચમકદાર, સુગંધિત લીલા ધાણા, વધુ આવશ્યક ઉડયનશીલ તેલનું પ્રમાણ આ જાતના મુલ્યવર્ધક ગુણો છે. આ જાત વધુ લીલા પાંદડાનું શુષ્ક વજન ધરાવતી હોવાથી લીલા ધાણાને લાંબા સમય સુધી ગુણવત્તાસભર રાખી શકાય છે. લીલા ધાણાની જાત જી.એલ.સી. ૨ સુકારા તેમજ ભુકીછારાના રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Approved by the house with the following suggestions 1. Recast the yield tables as per Performa 2. Delete table no. 8 3. Mention the no of cuttings in yield data tables 4. In point 5 (a): Mention the proper pedigree in annexure 5. In point 7 (c): Correct the area of adoption: Gujarat state 6. Delete data of green biomass yield (t/ha) with root
	[Action : Professor and Head, Dept. of GPB, NMCA, NAU, Navsari**]**
21.1.1.19	**Rice : Gujarat Rice-27 (GR-27 : Navsari Bhim)**
	The farmers of Gujarat state are recommended to grow long bold rice variety GR-27 (Navsari Bhim) in transplanted condition during *kharif* season. The proposed variety recorded average grain yield of 5781 kg/ha in Gujarat, which was 13.5 %, 24.6 % and 23.4 % higher over the check varieties GNR-3, GNR-5 and Jaya, respectively. It has long bold grain, medium maturing and more productive tillers per plant. It has intermediate amount of amylose content (23.51 %) with high head rice recovery (61.70 %). The variety is moderately resistant against diseases like bacterial leaf blight, grain discoloration, sheath rot and leaf blast whereas tolerant reaction against pest like brown plant hopper and moderately resistant reaction against stem borer, leaf folder and sheath mite.
	ડાંગર: ગુજરાત ડાંગર – ૨૭ (જી.આર.-૨૭ : નવસારી ભીમ)
	ગુજરાતમાં ખરીફ ઋતુમાં રોપાણ ડાંગરનો પાક ઉગાડતા ખેડૂતોને જી.આર.-૨૭ (નવસારી ભીમ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ડાંગરની સુચિત જાતનું ગુજરાતમાં સરેરાશ ઉત્પાદન ૫૭૮૧ કિ.ગ્રા./હેકટર મળેલ છે, જે અંકુશ જાતો

	જી.એન.આર.-૩, જી.એન.આર.-૫ અને જયા કરતાં અનુક્રમે ૧૩.૫, ૨૪.૬ અને ૨૩.૪ ટકા વધુ ઉત્પાદન મળેલ છે. આ જાતનો દાણો લાબો અને જાડો તેમજ ફુટની સંખ્યા વધુ છે. આ જાતના દાણામાં મધ્યમ એમાઇલોઝ (૨૩.૫૧%) તેમજ વધુ આખા દાણાનું પ્રમાણ (૬૧.૭૦%) ધરાવે છે. ડાંગરની આ જાત જીવાણુંથી થતો પાનનો સુકારા, ભુખરા દાણાનો રોગ, પર્ણચ્છેદના કહોવારા અને પાનનો કરમોડી રોગ સામે મધ્યમ પ્રતિકારકશકિત ધરાવે છે જયારે બદામી ચુસીયા જીવાત સામે પ્રતિકારક અને ગાભમારાની ઈયળ, પાન વાળનારી ઈયળ અને પર્ણતલ કથીરી સામે મધ્યમ પ્રતિકારક શકિત ધરાવે છે.
	Approved by the house with the following suggestions 1. Point No 5 (a): Give pedigree detail separately in annexure 2. Mention pedigree method in point 5 (c) 3. Mention over all mean and % increase accordingly in table 1 4. Mention range and reaction in table 6 (a)
	[Action: *Research Scientist (Rice), Main Rice Research Centre, NAU, Navsari*]
21.1.1.20	**Rice : Gujarat Rice-28 (GR-28 : Navsari Valmiki)**
	The farmers of Gujarat state are recommended to grow long slender rice variety GR-28: Navsari Valmiki) in transplanted condition during *kharif* season. The proposed genotype recorded average grain yield of 5353 kg/ha, which was 34.6%,34.7% and 15.2% higher over the check varieties GR-7, GAR-3 and GR-24, respectively. Long slender grain rice variety GR-28 contains intermediate amylose (20.3%), medium 1000 grain weight (21.5 g) and high head rice recovery (56.1%). The variety is moderately resistant reaction against leaf blast disease and moderately tolerant against brown plant hopper, leaf folder stem borer and sheath mite.
	ડાંગર: ગુજરાત ડાંગર ૨૮ (જી.આર.- ૨૮: નવસારી વાલ્મીકિ)
	ગુજરાતમાં ખરીફ ઋતુમાં રોપાણ ડાંગરનો પાક ઉગાડતા ખેડૂતોને લાબાં અને પાતળા દાણાવાળી ચોખાની જાત જી.આર.-૨૮ નવસારી વાલ્મીકિ)નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ડાંગરની સુચિત જાતનું ગુજરાતમાં સરેરાશ ઉત્પાદન ૫૩૫૩ કિ.ગ્રા/હેક્ટર છે, જે અંકુશ જાતો જી.આર.-૭, જી.એ.આર.-૩ અને જી.આર.-૨૪ કરતાં અનુક્રમે ૩૪.૬, ૩૪.૭ અને ૧૫.૨ ટકા વધુ છે. ડાંગરની જી.આર.-૨૮ જાત મધ્યમ એમાઇલોસ (૨૦.૩%), મધ્યમ ૧૦૦૦ દાણાનું વજન (૨૧.૫ ગ્રામ) અને વધુ આખા ચોખાનું પ્રમાણ (૫૬.૧%) ધરાવે છે. ડાંગરની સુચિત જાત પર્ણના કરમોડી રોગ સામે મધ્યમ પ્રતિકારકશકિત ધરાવે છે અને બદામી ચુસીયા, પાન વાળનારી ઈયળ, ગાભમારાની ઇયળ તથા પર્ણતલ કથીરી જીવાતો સામે મધ્યમ પ્રતિકારકશકિત ધરાવે છે.
	Approved by the house with the following suggestions 1. Point No 9 (b): Mention important distinguished morphological characters 2. Point No 11 (c): Mention average yield (kg/ha) 3. Mention disease reaction in table 6 (a) 4. Check maturity group 5. Delete check name GR 15 in proposal text
	[Action: *Research Scientist (GPB), Regional Rice Research Station, NAU, Vyara*]
21.1.1.21	**Indian Bean : Gujarat Indian Bean-23 (GIB-23 : Navsari Navsem)**

	The farmers of Gujarat cultivating late *kharif* and *rabi* vegetable Indian bean in Gujarat are recommended to grow Gujarat Indian Bean 23 (Navsari Navsem) variety. The average green pod yield of this variety recorded 13088 kg/ha with overall yield advantage of 13.8 % over the check GNIB 22. It is early and takes 55-60 days for flowering. It is bushy in plant structure and suitable for intercropping. The green pods are narrow with slight curve and have 4-5 seeds per pod. This variety possess more protein content (3.50 %) and total sugar (2.27 mg/g) in green seeds as compared to check. This variety is resistant to BYMV
	પાપડી: ગુજરાત પાપડી ૨૩ (જીઆઈબી-૨૩: નવસારી નવસેમ)
	ગુજરાતમાં મોડા ચોમાસા અને શિયાળુ ઋતુમાં લીલી પાપડીનું વાવેતર કરતાં ખેડૂતોને ગુજરાત પાપડી ૨૩ (નવસારી નવસેમ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતનું લીલી પાપડીનું સરેરાશ ઉત્પાદન ૧૩૦૮૮ કિ.ગ્રા./હે. મળેલ છે જે અંકુશ જાત ગુજરાત નવસારી પાપડી ૨૨ કરતાં ૧૩.૮% વધુ છે.આ જાતમાં ૫૫-૬૦ દિવસમાં ફૂલ આવે છે. આ જાત છોડ પ્રકારની હોવાથી આંતરપાક માટે વધુ અનુકૂળ છે. આ જાતની લીલી પાપડી ઓછા વણાંકવાળી, પાતળી અને ૪-૫ દાણા ધરાવે છે. આ જાતમાં લીલા દાણામાં પ્રોટીન (૩.૫૦%) અને સર્કરાનું (૨.૨૭ મિલિગ્રામ/ગ્રામ) પ્રમાણ અંકુશ જાત કરતાં વધારે છે. આ જાત પીળા પચરંગીયા વાઇરસને પ્રતિકારક છે.
	Approved by the house with the following suggestions 1. Point No 5 (a): Give pedigree detail separately in annexure 2. Point No 9 (b): Mention important distinguished morphological characters 3. Mention data in q/ha in table 1 4. Mention range and reaction in table 6 (a) 5. Delete data of pod appearance from table 8 6. Verify the biochemical data in table 7 7. Change the title of table 6.
	[**Action:** *Research Scientist (GPB), Pulses & Castor Research Station, NAU, Navsari*]
21.1.1.22	**Pigeonpea : Gujarat Tur-113 (GT-113 : Navsari Reva)**
	The early maturing pigeon pea variety GT-113: Navsari Reva) is recommended to farmers cultivating *kharif* pigeonpea in Gujarat. The average yield of pigeon pea variety GT-113 (Navsari Reva) recorded 1962 kg/ha. It has exhibited overall yield advantage of 27.29, 18.48, 26.5 and 14.2 % over the checks UPAS-120, BDN-711, GT-105 and GT-101, respectively. It matures within 138-148 days (Early group) with spreading in nature, straight green pod and 4-5 seeds per pod. This variety having 22.26 % protein and creamy white seed colour. It is moderately resistant against wilt & SMD.
	તુવેર: ગુજરાત તુવેર- ૧૧૩ (જી.ટી.-૧૧૩: નવસારી રેવા)
	ગુજરાતમાં ચોમાસુ ઋતુમાં તુવેરનું વાવેતર કરતાં ખેડૂતોને વહેલી પાકતી જી.ટી.-૧૧૩ (નવસારી રેવા) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. તુવેરની

	જાત જી.ટી.-૧૧૩ (નવસારી રેવા) નું સરેરાશ ઉત્પાદન ૧૯૬૨ કિ.ગ્રા./હે. મળેલ છે. જે અન્ય અંકુશ જાતો ઉપાસ-૧૨૦, બી.ડી.એન.-૭૧૧, જી.ટી.-૧૦૫ અને જી.ટી.-૧૦૧ કરતાં અનુક્રમે ૨૭.૨૯, ૧૮.૪૮, ૨૬.૫ અને ૧૪.૨% વધારે છે. આ જાત ૧૩૮-૧૪૮ દિવસમાં (વહેલી પાકતી) પાકે છે, મધ્યમ ઘેરાવો ધરાવતી, સીધી લીલી શિંગો ધરાવતી અને પ્રતિ શીંગ ૪-૫ દાણા ધરાવે છે. આ જાત ૨૨.૨૬% પ્રોટીન અને સફેદ રંગના દાણા ધરાવે છે. આ જાત સુકારા અને વંધ્યત્વના રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Approved by the house with the following suggestions 1. Delete non-logging words 2. Delete consumers' preference 3. Point No 11 (c): Mention average yield (kg/ha) 4. Check the range in table 7 (c) 5. Delete disease and pest data of AICRP
	[**Action***: Assistant Professor, NARP, COA, NAU, Bharuch*]
21.1.1.23	**Okra: Gujarat Okra-11 (GO-11 :Navsari Purna Samrat)**
	The farmers of Gujarat are recommended to grow okra variety Gujarat Okra 11 (GO 11: Navsari Purna Samrat) during summer and *kharif* season. The proposed variety recorded average 117.00 q/ha fruit yield during *kharif* and summer season in Gujarat which was 12.11, 17.00, 21.12 and 13.22 per cent higher over the checks *viz.,* GAO 5, GO 6, PusaSawani and GAO 8, respectively. This variety recorded average marketable fruit yield 104.00 q/ha and 127.00 q/ha under summer and *kharif* season, respectively in Gujarat state. This variety has medium maturity, having medium size and green fruits. This variety contains less mucilage content (14.22 g/kg) and higher TSS (9.80 ^{0}Brix), total phenol (0.28 %), ascorbic acid (6.20 mg/100 g) and antioxidant activity (0.215 %) as compared to checks while, moisture (90.20 %) and crude protein (0.90 %) were comparable against checks in *kharif* season. Under natural field condition, this variety has less prevalence of YVMV and ELCV diseases reaction as well as fruit and shoot borer, jassids and whitefly infestation as compared to checks.
	ભીંડા: ગુજરાત ભીંડા ૧૧ (જીઓ ૧૧ : નવસારી પુર્ણા સમ્રાટ)
	ગુજરાતમાં ઉનાળુ અને ખરીફ ઋતુમાં ભીંડાની ખેતી કરતાં ખેડૂતોને ગુજરાત ભીંડા ૧૧ (જીઓ૧૧ : નવસારી પુર્ણા સમ્રાટ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના વેચાણલાયક ભીંડાનું સરેરાશ ઉત્પાદન ઉનાળુ અને ખરીફ ઋતુમાં ૧૧૭.૦૦ ક્વિન્ટલ/હે. ગુજરાતમાં જોવા મળેલ છે, જે ૧૨.૧૧, ૧૭.૦૦, ૨૧.૧૨ અને ૧૩.૨૨ ટકા અંકુશ જાતો જેવીકે જીએઓ ૫, જીઓ ૬, પૂસા સવાની અને જીએઓ ૮ કરતા વધુ છે. આ જાતના વેચાણલાયક ભીંડાનું સરેરાશ ઉત્પાદન ૧૦૪.૦૦ ક્વિન્ટલ/હે અને ૧૨૭.૦૦ ક્વિન્ટલ/હે અનુક્રમે ઉનાળુ અને ખરીફ ઋતુમાં ગુજરાતમાં જોવા મળેલ છે. મધ્યમ મોડી પાકતી આ જાતના ભીંડા મધ્યમ લાંબા અને લીલા રંગના છે. આ જાતમાં

	અંકુશ જાતો કરતા ઓછા પ્રમાણમાં ચીકાશ (મ્યુસીલેજ) (૧૪.૨૨ ગ્રામ/કીલો) અને વધારે પ્રમાણમાં ટોટલ સોલ્યુબલસોલીડ (૯.૮૦ ^{0}Brix), ફીનોલ (૦.૨૮%), એસ્કોર્બિકએસિડ (૬.૨૦ મિલી/૧૦૦ગ્રામ), અને એન્ટીઓક્સીડેંટ એકટીવિટી (૦.૨૧૫%) માલુમ પડેલ છે, જયારે ભેજ (૯૦.૨૦%) અને ક્રુડ પ્રોટીન (૦.૯૦ ટકા) ભીંડાની અંકુશ જાતો સાથે ખરીફ ઋતુમાં તુલનાત્મક છે. આ જાતમાં અંકુશ જાતોની સરખામણીમાં પીળી નસનો પચરંગીયો અને ઈનેશન પાનનો કોકડવાના રોગ તેમજ ફળ અને ડુંખ કોરી ખાનાર ઇયળ, તડતડિયા અને સફેદ માખીનું નુકશાન ઓછું જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Recast the salient features: short and precise 2. Point No 5 (a): Give pedigree detail separately in annexure 3. Mention yield data in q/ha 4. Recast the table 1and check significant 5. Delete data of checks GO 9 and GO 10 6. Mention the correct name of location 'S.K.Nagar' instead of Dantiwada
	[**Action**: *Professor and Head, Dept. of Veg. Science, ACH, NAU, Navsari*]
21.1.1.24	**Sweet Potato : Gujarat Sweet Potato-1 (GSP-1 : Navsari Gaurav)**
	The farmers of Gujarat are recommended to grow sweet potato variety Gujarat Sweet Potato 1 (Navsari Gaurav) during *rabi* season. The proposed variety gave 27.00 t/ha marketable tuber yield which is 102.83 and 33.30 per cent higher than check varieties Gouri (NC) and BhuKanti (SC). Spreading type of this variety has medium maturity and tuber of this variety has pinkish skin colour and white flesh. Tuber of this genotype contains higher amount of total sugar (4.28 %), protein (1.54 %), fiber (2.93 %) and antioxidant (18.00 %) as compared to check varieties *viz.,* Gouri (NC) and BhuKanti (SC). It showed moderately resistant reaction against sweet potato weevil under field condition.
	શક્કરિયાં: ગુજરાત શક્કરિયાં-૧ (જીએપી-૧: નવસારી ગૌરવ)
	ગુજરાતમાં શક્કરિયાની ખેતી કરતાં ખેડૂતોને ગુજરાત શક્કરિયા ૧ (નવસારી ગૌરવ) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતના વેચાણલાયક કંદનું સરેરાશ ઉત્પાદન ૨૭.૦૦ ટન/હેક્ટર છે, જે ગૌરી (રાષ્ટ્રીય અંકુશ જાત) કરતાં ૧૦૨.૮૩ અને ભૂકાંતિ (રાજ્ય અંકુશ જાત) કરતાં ૩૩.૩૦ ટકા વધુ છે. ફેલાતી આ જાત મધ્યમ વહેલી પાકતી, તેમજ આ જાતના કંદ આછા ગુલાબી રંગની છાલ અને સફેદ ગર્ભ ધરાવે છે. આ જાતમાં શર્કરા (૪.૨૮%), પ્રોટીન (૧.૫૪%), રેસા (૨.૯૩%) અને એન્ટી-ઓક્સિડન્ટ (૧૮.૦૦%) જોવા મળે છે, જે અંકુશ જાતો ગૌરી અને ભૂકાંતિ કરતાં વધુ છે. આ જાત શક્કરીયાનું ચાંચવું જીવાત સામે મધ્યમ પ્રતિકારકશક્તિ ધરાવે છે.
	Approved by the house with the following suggestions 1. Recast the salient features: short and precise 2. Point No 5 (a): Give pedigree detail separately in annexure 3. Add table 2: Zone wise data 4. Delete word 'station trials' in table 1.

	5. Delete table 6 and 8 6. Verify the biochemical parameters
	[Action: *Professor and Head, Dept. of Veg. Science, ACH, NAU, Navsari*]
21.1.1.25	**Mango : Gujarat Mango-2 (GM-2 : Navsari Navpari)**
	The farmers of Gujarat are recommended to grow mango variety Gujarat Mango 2 (Navsari Navpari). It has recorded 11.00 t/ha fruit yield which is 16.11, 27.78, 37.88, 37.18, 59.44 and 29.62 per cent higher than checks *viz.,* Sonpari, Kesar, Alphonso, Amrapali, Neeleshan and Ranta, respectively. It has comparable number of fruits per plant (322.33), average fruit weight (327.49 g), pulp weight per fruit (224.00 g), pulp to stone ratio (6.86) and pulp to peel ratio (5.62) with checks. The fruits of this genotype contains higher total sugar (21.11 %), non-reducing sugar (13.54 %), TSS (22.78 ^{0}Brix), phenol (0.27 %), total anti-oxidant activity (0.11 %), flavanoid (0.06 %), total carotenoid (9.96 mg/100 g), acidity (0.26 %), crude fibre (0.50 %) and ascorbic acid (24.18 mg/100 g) as well as less crude fibre (0.50 %) as compared to all checks. This genotype has lower diseases incidence *viz.,* anthracnose and powdery mildew and insects infestation *viz.,* fruit fly as well as mango hopper as compared to checks.
	કેરી: ગુજરાત કેરી – ૨ (જીએમ-૨: નવસારી નવપરી)
	ગુજરાતના ખેડૂતોને કેરીની જાત ગુજરાત કેરી ૨ (નવસારી નવપરી) ઉગાડવાની ભલામણ કરવામાં આવે છે. આ જાતના ફળોનું સરેરાશ ઉત્પાદન ૧૧.૦૦ ટન/હેક્ટર છે જે અનુક્રમે સોનપરી, કેસર, આલ્ફાનસો, આમ્રપાલી, નીલેશાન અને રત્ના જેવી અંકુશ જાતો કરતા ૧૬.૧૧, ૨૭.૭૮, ૩૭.૮૮, ૩૭.૧૮, ૫૯.૪૪ અને ૨૯.૬૨ ટકા વધુ છે. આ જાતમાં પ્રતિ છોડ ફળોની સંખ્યા (૩૨૨.૩૩), ફળનું સરેરાશ વજન (૩૨૭.૪૯ગ્રામ), પ્રતિ ફળ પલ્પનું વજન (૨૨૪.૦૦ ગ્રામ), પલ્પ થી સ્ટોન ગુણોત્તર (૬.૮૬) અને પલ્પ થી છાલ ગુણોત્તર (૫.૬૨) છે જે અંકુશ જાતો સાથે તુલનાત્મક છે. આ જાતના ફળોમાં અંકુશ જાતોની સરખામણીમાં કુલ શર્કરા (૨૧.૧૧%), નોન-રિડ્યુસિંગ શર્કરા (૧૩.૫૪%), કુલ ઘન દ્રવ્ય (ટીએસએસ) (૨૨.૭૮ ^{0}બ્રિક્સ), ફિનોલ (૦.૨૭%), કુલ એન્ટી-ઓક્સિડન્ટ પ્રવૃત્તિ (૦.૧૧%), ફ્લેવેનોઇડ (૦.૦૬%), ટોટલ કેરોટીનોઇડ (૯.૯૬ મિલિગ્રામ/૧૦૦ ગ્રામ), અમ્લત્વ (૦.૨૬ %), અને એસ્કોર્બિક એસિડ (૨૪.૧૮ મિલિગ્રામ/૧૦૦ગ્રામ) તેમજ રેસાનું પ્રમાણ (૦.૫૦%) ઓછું છે. આ જાતમાં અંકુશ જાતોની તુલનામાં રોગો જેવાકે કાલવ્રણ (અન્થ્રેકનોઝ) અને ભુકીછારો તેમજ જીવાતો જેવીકે ફળમાખી અને કેરીના મધિયાનું નુકસાન ઓછું જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Recast the salient features: short and precise 2. Check statistical significance in table 1 3. Add yield data of year 2025 4. Point No 5 (c): Mention breeding method "Half Sib Selection" 5. Give pedigree detail separately in annexure 6. Put the data of shelf-life and re-analyse
	[Action: *Research Scientist, AES, NAU, Paria*]

21.1.1.26	**Sapota : Gujarat Sapota-1 (GS-1 : Gandevi Murabba)**
	The farmers of Gujarat are recommended to grow sapota variety Gujarat Sapota 1 (Gandevi Murabba). The proposed genotype recorded 13.00 t/ha average fruit yield in Gujarat which was 10.17 per cent higher over check variety. This variety has upright spreading plant type with higher number of fruits (1783) and fruit weight (75.34 g). Fruits are round, medium to large, with brown skin colour and creamy sweet pulp. The fruits of this genotype have higher shelf life (6.50 days), TSS (22.20 ^{0}Brix), total sugar (19.10 %), non-reducing sugar (11.98 %), crude protein (0.49 %), total carbohydrates (22.50 %) and calcium (30.75 mg/100 g) as compared to check. While, crude fibre (3.57 %), acidity (0.168 %) and total phenol (0.81 %) which is comparable with check variety. This genotype has lesser bud borer, chiku moth and seed borer damage (%) as compared to check variety.
	ચીકુ: ગુજરાત ચીકુ ૧ (જીએસ-૧: ગણદેવી મુરબ્બા)
	ગુજરાતના ચીકુની ખેતી કરતા ખેડૂતોને ગુજરાત ચીકુ ૧ (ગણદેવી મુરબ્બા) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. ગુજરાતમાં આ જાતનું સરેરાશ ફળ ઉત્પાદન ૧૩.૦૦ ટન/હે જોવા મળેલ છે જે અંકુશ જાત કરતાં ૧૦.૧૭ ટકા વધુ છે. ચીકુની ફેલાતી આ જાતમાં ફળોની સંખ્યા (૧૭૮૩) અને ફળનું વજન (૭૫.૩૪ ગ્રામ) વધારે જોવા મળેલ છે. ફળો ગોળ, મધ્યમ થી વધુ કદના, કથ્થઈ રંગના અને ક્રીમ કલરનો સુવાળો માવો ધરાવે છે. આ જાતના ફળોમાં અંકુશ જાત કરતા વધુ સંગ્રહશક્તિ (૬.૫૦ દિવસ), કુલ ઘનદ્રવ્ય (૨૨.૨૦^{0}Brix), કુલ શર્કરા (૧૯.૧૦%), નોન રિડ્યુસિંગ શર્કરા (૧૨.૯૮%), ક્રૂડ પ્રોટીન (૦.૪૯%), કુલ કાર્બોહાયડ્રેટ (૨૨.૫૦%) અને કેલ્સીયમ (૩૦.૭૫ મિલી/૧૦૦ ગ્રામ) છે. જયારે રેસા (૩.૫૭%), અમ્લતા (૦.૧૬૮%) અને ફિનોલ (૦.૮૧%) અંકુશ જાત સાથે તુલનાત્મક છે. આ જાતમાં અંકુશ જાતની સરખામણીમાં ચીકુની કળી ખાનારી ઈયળ, ચીકુ મોથ અને બીજ કોરી ખાનારી ઈયળનું નુકસાન ઓછું જોવા મળેલ છે.
	Approved by the house with the following suggestions 1. Recast the salient features: short and precise
	[Action: *Associate Res. Scientist, Fruit Research Station, NAU, Gandevi*]
21.1.1.27	**Snake Plant : Gujarat Snake Plant-1 (GSP-1 : Navsari Vaasuki)**
	Nurserymen of Gujarat and plant lovers are recommended to grow Gujarat Snake Plant 1 (Navsari Vaasuki) variety of snake plant for higher commercial value as well as for indoor pot plant. GSP 1 (Navsari Vaasuki) is a phyto remedial medium stature snake plant variety having dark green broad and stout leaves with whitish greyish variegated margin, produces 14.13 and 20.65% more suckers than local checks (Tall Yellow and Dwarf) and is efficient in indoor air quality purification by faster removal of TVOCs and HCHO.

	સ્નેક પ્લાન્ટ: ગુજરાત સ્નેક પ્લાન્ટ ૧ (જીએસપી ૧: નવસારી વાસુકી)
	ગુજરાતના નર્સરીધારકોને સ્નેક પ્લાન્ટની ગુજરાત સ્નેક પ્લાન્ટ ૧ (નવસારી વાસુકી) જાતને કુંડામાં ઉગાડી આકર્ષક વળતર મેળવવામાટે ભલામણ કરવામાં આવે છે, તેમજ છોડના શોખ ધરાવતા લોકો ઇન્ડોર પ્લાન્ટ તરીકે રાખી શકે છે. GSP-1 (નવસારી વાસુકી) ફાયટો રેમેડીયલ મધ્યમ કદની,પહોળા, ધાટા લીલા અને રાખોડી કિનાર વાળા પાન ધરાવતી, અંકુશ જાતો (ટોલ યલો અને ડવાર્ફ) કરતા ૧૪.૧૩% અને ૨૦.૬૫% વધારે પીલાનો ઉત્પાદન આપતી અને ઇન્ડોર હવાની ગુણવતા સુધારતી (TVOCs અને HCHO નું પ્રમાણ ઝડપ થી ઓંછુ કરતી) નવીનતમ જાત છે.
	Approved by the house with the following suggestions 1. Table 1, 2 and 3: Mention statistically significant and non-significant and remove negative figure and put '-' 2. Mention scientific name in full 3. Point 5(c): Mention breeding method 'clonal selection'
	[Action: *Professor and Head, Dept. of FLA, ACH, NAU, Navsari*]
21.1.1.28	**Casuarina : *Casuarina* clone (IFGTB-CH-5) (Endorsement)**
	The farmers of Gujarat State are recommended to grow *Casuarina* variety 'IFGTB-CH-5'. The proposed variety IFGTB-CH-5 recorded average 64.34 kg/tree biomass yield at 4 year age (278 Metric tonnes per hectare) with yield advantage of 269.99 and 186.98 % over check varieties IFGTB-CES and IFGTB-CJS-RT, respectively. The proposed variety showed no incidence of collar rot and wilt disease. Moreover, there was no incidence of pests like grasshoppers, mealy bugs and bark-eating caterpillar on IFGTB-CH-**5** variety**.**
	શરૂ: આઈએફજીટીબી-સીએચ-૫
	ગુજરાતમાં શરૂના પાક ઉગાડતા ખેડૂતોને આઈએફજીટીબી-સીએચ-૫ જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતમાં લાકડાનું ૪ વર્ષની ઉંમરે સરેરાશ ઉત્પાદન ૬૪.૩૪ કિલોગ્રામ પ્રતિ વૃક્ષ (૨૭૮ મેટ્રિક ટન પ્રતિ હેક્ટર) મળેલ છે, જે અંકુશ જાતો આઈએફજીટીબી-સીઇએસ અને આઈએફજીટીબી-સીજેએસ-આરટી કરતા ૨૬૯.૯૯ અને ૧૮૬.૯૮ ટકા વધારે ઉત્પાદન આપેલ છે. આ સૂચિત જાતમાં થળનો કહોવારો અને સુકારાના રોગનો ઉપદ્રવ જોવા મળેલ નથી. વધુમાં, આ જાતમાં જીવાતો જેવી કે તડતડીયા, મીલીબગ અને છાલ ખાનારી ઇયળોનો ઉપદ્રવ જોવા મળેલ નથી.
	The proposal was approved by the house
	[Action*:* *Associate Professor (Tree Improvement), College of Forestry, NAU, Navsari*]

21.1.1.29	**Castor: Gujarat Castor 4 (GC 4: SDAU Abhed)**
	The farmers of Gujarat growing castor under irrigated and rainfed conditions during *Kharif* season are recommended to grow castor variety Gujarat Castor 4 (GC 4 : SDAU Abhed). This variety gave higher average seed yield under irrigated condition, which was 16.41 and 22.99 per cent higher than the check varieties GC 3 and GAC 11, respectively. This variety also gave higher average seed yield under rainfed condition, which was 28.18 and 17.98 per cent higher than the check varieties GC 3 and GAC 11, respectively. It gave 49.59 % oil content which was higher than check varieties GC 3 and GAC 11. It is highly resistant to wilt and root rot.
	દિવેલા: ગુજરાત દિવેલા ૪ (જીસી ૪: એસડીએયુ અભેદ)
	ગુજરાત રાજ્યના બિનપિયત અને પિયત દિવેલાની વાવણી કરતા ખેડૂતોને ગુજરાત દિવેલા-૪ (જીસી૪: એસડીએયુ અભેદ) જાતનું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતના દાણાનું પિયત પરિસ્થિતિમાં ઉત્પાદન સંદર્ભ જાતો ગુજરાત દિવેલા –૩ અને ગુજરાત આણંદ દિવેલા – ૧૧ કરતા અનુક્રમે ૧૬.૪૧ અને ૨૨.૯૯ ટકા વધુ મળે છે. આ જાતના દાણાનું બિનપિયત વિસ્તારમાં ઉત્પાદન સંદર્ભ જાતો ગુજરાત દિવેલા –૩ અને ગુજરાત આણંદ દિવેલા – ૧૧ કરતા અનુક્રમે ૨૮.૧૮ અને ૧૭.૯૮ ટકા વધારે છે. આ જાતમાં સરેરાશ તેલના ટકા ૪૯.૫૯ છે, જે સંદર્ભ જાતો ગુજરાત દિવેલા -૩ અને ગુજરાત આણંદ દિવેલા –૧૧ કરતા વધુ છે. આ જાત સુકારા અને મૂળના કોહવારા રોગો સામે રોગ પ્રતિકારક છે.
	Approved by the house with the following suggestions 1. Add the data of susceptible and resistant check in table 7 2. Delete the data of 2016-17 in table 1 3. Correct the title of table 1(c)
	[**Action:** *Research Scientist, COR, SDAU, Sardarkrushinagar*]
21.1.1.30	**Field Pea: Gujarat Field Pea 2 (GFP 2: SDAU Yash)**
	The farmers of Gujarat state growing field pea are recommended to grow early maturing, high yielding and powdery mildew disease resistant variety Gujarat Field Pea 2 (GFP 2: SDAU Yash). This variety gave seed yield to a tune of 21.37 per cent higher over the check variety Gujarat Dantiwada Field Pea 1.
	વટાણા: ગુજરાત વટાણા ૨ (જીએફપી ૨: એસડીએયુ યશ)
	ગુજરાત રાજયમાં વટાણાની વાવણી કરતા ખેડૂતોને વહેલી પાકતી વધુ ઉત્પાદન આપતી અને ભૂકી છારા રોગ સામે પ્રતિકારકતા ધરાવતી જાત ગુજરાત વટાણા ૨ (જીએફપી ૨ : એસડીએયુ યશ)નું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતના દાણાનું

	સરેરાશ ઉત્પાદન અંકુશ જાત ગુજરાત દાંતીવાડા વટાણા ૧ કરતાં ૨૧.૩૭ ટકા જેટલું વધારે છે.
	Approved by the house with the following suggestions 1. Table 1 and 2: Check the statistically significant data and indicate accordingly 2. Give range and reaction in Table 7 and 8 3. Point 5 (a): Mention the proper pedigree in annexure
	[Action: *Research Scientist, Pulses Research Station, SDAU, Sardarkrushinagar*]
21.1.1.31	**Guar: Gujarat Guar 5 (GG 5: SDAU Vardan)**
	The farmers of Gujarat state growing *kharif* guar are recommended to grow high yielding gum variety Gujarat Guar 5 (GG 5 : SDAU Vardan). This variety gave seed yield to the tune of 15.16, 23.70 and 10.71 per cent higher over the checks Gujarat Guar 1, Gujarat Guar 2 and Gujarat Guar 3, respectively. Proposed variety has high protein content, medium size grey colour seeds and it is moderately resistant to Bacterial blight disease under field conditions.
	ગુવાર: ગુજરાત ગુવાર ૫ (જીજી ૫ : એસડીએયુ વરદાન)
	ગુજરાત રાજ્યમાં ખરીફ ઋતુમાં ગુવારની વાવણી કરતા ખેડૂતોને વધારે ઉત્પાદન તેમજ ગમ ધરાવતી ગુજરાત ગુવાર ૫ (જીજી ૫ : એસડીએયુ વરદાન) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાત અંકુશ જાતો ગુજરાત ગુવાર ૧, ગુજરાત ગુવાર ૨ અને ગુજરાત ગુવાર ૩ કરતા અનુક્રમે ૧૫.૧૬, ૨૩.૭૦ અને ૧૦.૭૧ ટકા વધારે ઉત્પાદન આપે છે. આ જાત વધારે પ્રોટીન ધરાવતી, મધ્યમ કદના રાખોડી રંગના દાણાવાળી અને જીવાણુંથી થતો પાનના સુકારાનો રોગ સામે મધ્યમ પ્રતિકારતા ધરાવે છે.
	Approved by the house with the following suggestions 1. Table 1 and 2: Check the statistically significant data and indicate accordingly 2. Verify and correct the data in table 4 3. Replace the word 'yield' with 'seed yield' in proposal 4. Add the important biochemical parameter
	[Action: *Research Scientist, Pulses Research Station, SDAU, Sardarkrushinagar*]
21.1.1.32	**Okra: Gujarat Okra Hybrid 206 (GOH 206: SDAU Harit Bhindi)**
	The farmers of Gujarat are recommended to grow Gujarat Okra Hybrid 206 (GOH 206: SDAU Harit Bhindi) during *kharif* season. It gave average fruit yield with tune of 9.59, 10.24, 8.98, 31.87 and 16.95 per *cent* higher than local checks GJOH 4, GAO 5, GAO 8, AOL 23-01 and national check Pusa Sawani, respectively. Fruits of this hybrid are medium long, dark green in colour, tender and smooth surface with narrow acute shape of apex. It shows resistance against of yellow vein mosaic and enation leaf curl diseases.

	ભીંડા: ગુજરાત સંકર ભીડા ૨૦૬ (જીઓએચ ૨૦૬: એસડીએયુ હરીત ભીંડી)
	ગુજરાત રાજ્યમાં ચોમાસુ ઋતુમાં ભીંડાની ખેતી કરતા ખેડૂતોને ભીંડાની સંકર જાત ગુજરાત સંકર ભીડા ૨૦૬ (જીઓએચ ૨૦૬: એસડીએયુ હરીત ભીંડી)નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન સ્થાનિક અંકુશ જાતો જીજેઓએચ ૪, જીએઓ ૫, જીએઓ ૮, એઓએલ ૨૩-૧ અને રાષ્ટ્રીય અંકુશ જાત પુસા સાવની કરતા અનુક્રમે ૯.૫૯, ૧૦.૨૪, ૮.૯૮, ૩૧.૮૭ અને ૧૬.૯૫ ટકા વધારે છે. આ જાતના ભીંડા મધ્યમ લંબાઈના, ઘાટા લીલા રંગના, કુણા અને લીસી સપાટી સાથે પાતળી ટોચ ધરાવે છે. આ જાત પીળી નસનો પચરંગીયો અને એનેસન પાનનો કોકડવા સામે રોગ પ્રતિકારકશક્તિ ધરાવે છે.
	The proposal was approved by the house
	[Action: *Professor & Head, Dept. of GPB, CPCA, SDAU, Sardarkrushinagar*]

21.1.2 RECOMMENDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

NIL

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.1.2.1	**Synchronization of flowering in parental lines of released hybrids of pearl millet *viz.*, GHB 1129 and GHB 1225**
	The scientists involved in hybrid seed production of pearl millet are informed that to avoid staggered planting of parental lines of hybrid GHB 1129, apply foliar spray of 2 % urea to female line (ICMA 99222) at boot leaf stage along with recommended dose of fertilizers for getting higher hybrid seed yield. In case of hybrid GHB 1225, to avoid staggered planting apply foliar spray of 2 % DAP to female line (ICMA 98222) at boot leaf stage along with recommended dose of fertilizers for getting higher hybrid seed yield.
	Approved by the house with the following suggestion 1. Re-analyses the data statistically
	[Action: *Professor & Head, Dept. of Genetics & Plant Breeding, JAU, Junagadh*]

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

NIL

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

NIL

21.1.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.1.3.1	**Title:** Influence of leaf thinning and harvesting time on seed yield and quality of cluster bean var. Anand Bahar
	Approved by the house with the following suggestions 1. In the treatment correct D_1 : No leaf clipping 2. Correct the spacing 45 × 20 cm instead of 60 × 30 cm
	[Action: *Research Scientist (Veg), MVRS, AAU, Anand*]
21.1.3.2	**Title:** Deployment of embryo rescue technique for introgression of root knot nematode (RKN) resistance in tomato
	Approved by the house
	[Action: *Research Scientist, Dept. of Agril. Biotechnology, AAU, Anand*]

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.1.3.3	**Title:** Enhancing onion seed germination and storage potential using organic bio-priming agents
	Approved by the house
	[Action: *Professor & Head, Dept. of Genetics & Plant Breeding, JAU, Junagadh*]

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

NIL

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

21.1.3.4	**Title:** Evaluation of papaya genotypes under natural farming condition in North Gujarat
	Approved by the house
	[Action: *Principal, College of Horticulture, SDAU, Jagudan*]
21.1.3.5	**Title:** Evaluation of different pearl millet genotypes for heat tolerant under natural farming
	Not approved
	[Action: *Associate Research Scientist, Centre for Research on Millets, SDAU, Deesa*]
21.1.3.6	**Title:** Evaluation of sorghum varieties and genotypes under natural farming
	Approved by the house
	[Action: *Associate Research Scientist, Centre for Research on Millets, SDAU, Deesa*]

21. 1.4: INFORMATION FOR SCINTISTS OF SAUs OF GUJARAT

The house suggested that the varieties released through the AICRP system and notified by CVRC should be included in proceedings for information for scientists of SAUs of Gujarat.

List of the Central varieties notified during the year 2024-25

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Crop	Variety/ Hybrid	Recommendation Regions	Remarks
1.	Okra	Gujarat Anand Okra 7 (GAO 7)	Andhra Pradesh, Telangana, Chhattisgarh, Jharkhand and Odisha	S. O. 4917 (E) dt. 13/11/2024

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Crop	Variety/ Hybrid	Recommendation Regions	Remarks
1.	Cotton	G. Cot. 10 Bt	Madhya Pradesh, Maharashtra and Gujarat	S.O. 1560 (E) Date: 26/3/2024

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Crop	Variety/ Hybrid	Recommendation Regions	Remarks
1.	Grain Amaranth	Gujarat Amaranth 7 (GA 7)	Karnataka	S. O. 4388 (E) dt. 08/10/2024
2.	Grain Amaranth	Gujarat Amaranth 8 (GA 8)	Gujarat, Rajasthan. Maharashtra, U. P., Chhattisgarh, Jharkhand and Odisha	S. O. 4388 dt. 13/11/2024 (E) dt. 08/10/2024
3.	Grain Amaranth	Gujarat Amaranth 9 (GA 9)	Gujarat, Maharashtra, U. P., Chhattisgarh, Jharkhand and Odisha	S. O. 4388 (E) dt. 08/10/2024
4.	Kalingada	Gujarat Kalingada 3 (SKNK 1407)	Gujarat and Rajasthan	S. O. 4388 (E) dt. 08/10/2024
5.	Wheat	Gujarat Wheat 543 (GW 543)	M.P., Gujarat, Rajasthan (Kota and Udaipur Division) and Chhattisgarh, Jhanshi Division U.P.	S. O. 2128 (E) dt. 13/05/2025

21.2 CROP PRODUCTION

Date & Venue: May 5-7, 2025 at Junagadh Agricultural University, Junagadh

Chairman	:	**Dr. V. P. Chovatia, Vice Chancellor, JAU, Junagadh**
Co-Chairman	:	Dr. H. M. Virdia, Registrar, NAU, Navsari
		Dr. P. D. Kumawat, Principal & Dean, College of Agriculture, JAU, Junagadh
Conveners	:	Dr. H. L. Sakarvadia, Professor & Head (Soil Science & Ag. Chemistry), JAU, Junagadh
		Dr. C. K. Patel, Associate Director of Research, SDAU, Sardarkrushinagar
		Dr. Dr. L. K. Arvadiya, Professor, Dept. of Agronomy, NMCA, NAU, Navsari
		Dr. Manoj Lunagaria, Professor & Head, Dept. of Agril. Meteorology, BACA, AAU, AnandAAU, Anand
Rapporteurs	:	Dr. D. M. Patel, Professor & Head (Agronomy), SDAU, Sardarkrushinagar
		Dr. V. J. Patel, Professor & Head (Agronomy), AAU, Anand
		Dr. Ajay Patel, I/C, Principal, CoA, NAU, Waghai
		Dr. P. J. Gohil, Professor (Agronomy), CoA, JAU, Junagadh

At the outset, Dr. H. L. Sakarvadia, Convener, CPSC & Professor & Head (Soil Science) whole heartedly welcomed all the dignitaries on the dias, all Conveners of Crop Production Sub-committee, Rapporteurs as well as all the members of august gathering of 21st Combined AGRESCO of Crop Production Sub-committee.

Introductory remarks were given by Dr. P. D. Kumawat to the scientific gathering. He emphasized on conservation of the natural resources like land, water, environment etc.and pointed out that it is a need of the present time as they are continuously degrading very rapidly. The success of agriculture is dependent on the quality of these three major natural resources. He also briefed to the members that it is a high time to paradigm shift from conventional farming to conservation agriculture, natural farming and regenerative agricultural practices. He specially emphasized to formulate new research programmes on latest aspects like biodynamic agriculture, carbon farming, nano fertilizers, nano herbicides, vertical farming, farm automation, climate smart agriculture etc. He also reiterated to think for starting the new start-ups particularly considering the crop production aspects so that scholars become the job providers rather than job seekers. He also advocated to develop modern agronomic practices which are helpful to reduce the cost of cultivation of different field crops to generate more profit. It is a high time to carry out research

work on age cutting technologies viz; AI (Artificial Intelligence), IoTs (Internet of things), drone technology, use of renewable energy in crop production.

Dr. H. M. Virdia, Registar, NAU, Navsari, in his special remarks, suggested that crop production group scientists have responsibilities to formulate new technical programme considering the new concepts of modern agronomy as well as the feedback received from the farmers so that we can generate new technologies in the form of recommendations which will be adopted by the farmers which ultimately helpful the farming communities to uplift their standard of living.

Dr. V. P. Chovatia, Hon., Vice Chancellor, JAU, Junagadh in his Chirman's remarks highlighted that it is a challenge for the scientist of Crop Production group to reduce use of chemical fertilizers and other agro-chemicals in crop production by developing new technologies /practices of natural farming. He also advocated that weeds are challenge in crop production as they reduce the yield of different crops to the tune of 30% in our country and advised the members to develop practices of weed management by non-chemical methods. He also counselled the members of this group to give constructive and valuable suggestions for improving the recommendations and to formulate the new technical programmes.

Inagural session is concluded by offering the vote of thanks by Dr. P. J. Gohil, Professor (Agronomy), JAU, Junagadh.

Summary

Name of University	No. of Recommendations				New Technical Programs	
	Farmers		Scientific			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	14	11 + 3@	12	12	20	19+1#
JAU	15	15	6	6	19	19
NAU	22	19+1@@+1**	6	6+1***	25	24+1#
SDAU	24	15 + 3* + 5**	14	14 + 8*** = 22	28	20

@ Extended for one more year

@@ Hold for one year

* Approved for both farmer's recommendation and scientific information

** Shifted to scientific informationm

*** Shifted to scientific information from farmer's recommendation

\# Experiment taken as a filler trial

21.2.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.2.1.1	**Title: Role of FYM in maintenance of micronutrient status under continuous cropping in loamy sand soils of Anand** **Recommendation for farming community** The farmers of the middle Gujarat agro-climatic zone following pearl millet - mustard–fodder cowpea cropping sequence are recommended to apply recommended dose of fertilizer (Pearl millet: 80-40-00 NPK kg/ha, Mustard: 50-50-00 NPK kg/ha and Cowpea Fodder: 20-40-00 NPK kg/ha) along with 10 t FYM/ha to pearl millet for maintaining micronutrient *viz.,* Zn, Fe, Mn and Cu status in soil. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં બાજરી-રાઈ-ચોળા (ઘાસચારા) પાક પધ્ધતિ અપનાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ભલામણ કરેલ ખાતર (બાજરી: ૮૦-૪૦-૦ ના.ફો.પો./હેક્ટર, રાઈ: ૫૦-૫૦-૦ ના.ફો.પો./હેક્ટર અને ચોળા (ઘાસચારા): ૨૦-૪૦-૦ ના.ફો.પો./હેક્ટર) ના જથ્થા સાથે ૧૦ ટન છાણિયુ ખાતર બાજરીના પાકમાં આપવાથી

	જમીનમાં સુક્ષ્મતત્વો જેવા કે ઝીંક, લોહ તત્વ, મેંગેનીઝ અને કોપરનું પ્રમાણ જાળવી શકાય છે. **Suggestion/s: Approved with following suggestion** 1. Delete " *Kharif*, *Rabi* and Summer" in recommendation para **(Action:** *Research Scientist & Head, Micronutrient Research Centre, Anand***)**
21.2.1.2	**Title: Effect of crop geometry, intercropping and nutrient management in *Bt* cotton and their residual effect on succeeding groundnut** **Recommendation for farming community** The farmers of the middle Gujarat agro-climatic zone growing *Bt.* cotton-groundnut cropping system are recommended to sow 2 (two) rows of soybean as an inter-crop in the conventional transplanting of *Bt.* cotton (120 cm x 45 cm) **OR** 4 (four) rows of soybean as an inter-crop in paired-row transplanting of *Bt.* cotton (60-180-60 cm x 45 cm) with transplanting of 20 days old seedlings along with application of 100% recommended dose of fertilizer to both the crops (Cotton 240-0-0 in four equal split at basal and at 30, 60 and 90 DATP and Soybean 30-60-0 as basal NPK kg/ha) and without fertilization to succeeding groundnut in summer season besides, 10 t FYM/ha in cotton for getting higher cotton equivalent yield and net returns. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં બીટી કપાસ-મગફળી પાક પદ્ધતિથી ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે બીટી કપાસના ૨૦ દિવસના રોપાઓનો ઉપયોગ કરીને કપાસની સામાન્ય ફેરરોપણીમાં (૧૨૦ x ૪૫ સે.મી.) આંતર-પાક તરીકે સોયાબીનની ૨ (બે) હાર અથવા જોડીયા હાર પદ્ધતિથી કપાસની ફેરરોપણીમાં (૬૦-૧૮૦-૬૦ સે.મી.) સોયાબીનની ૪(ચાર) હાર અપનાવવાની અને બંને પાકને ભલામણ કરેલ ખાતરનો ૧૦૦% (કપાસ ૨૪૦-૦-૦ ચાર સરખા હપ્તા પાયામાં, ફેરરોપણીના ૩૦, ૬૦ અને ૯૦ દિવસ બાદ તથા સોયાબીન ૩૦-૬૦-૦ પાયામાં ના:ફો:પો. કિ.ગ્રા./હે.) જથ્થો ઉપરાંત ૧૦ ટન/હે છાણીયું ખાતર કપાસના પાકને આપવાની ભલામણ કરવામાં આવે છે તથા ત્યાર બાદ ઉનાળુ ઋતુમાં મગફળીનાં પાકને ખાતર આપવાની જરૂરીયાત રહેતી નથી. **Suggestion/s: Approved with following suggestion** 1. Add ' 10 t/ha FYM' in text of recommendation para 2. Delete Stalk yield and stalk income from table -40 **(Action:** *Professor & Head, Department of Agronomy, BACA, Anand***)**

21.2.1.3	**Title: Nutrient management in kodo millet (*Paspalum scrobiculatum* L.)** **Recommendation for farming community** The farmers of middle Gujarat agro climatic zone growing kodo millet in *kharif* season are recommended to apply 50:20:00 NPK kg/ha, out of which, 25% N and 100% P_2O_5 should be applied as basal while, remaining 50% nitrogen apply at 30 DAS and 25% nitrogen at 45 DAS for getting higher yield and net returns. Moreover, apply 5 t/ha FYM at the time of land preparation. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં કોદરાની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન મેળવવા માટે ૫૦ કિ.ગ્રા નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફોરસ/હેક્ટરે આપવો, જે પૈકી ૨૫% નાઇટ્રોજન અને ૧૦૦% ફોસ્ફોરસ પાયામાં આપવો, બાકીનો ૫૦% અને ૨૫% નાઇટ્રોજન વાવણી બાદ ૩૦ અને ૪૫ દિવસે આપવાની ભલામણ કરવામાં આવે છે. વધુમાં વાવણી સમયે ૫ ટન છાણિયું ખાતર પ્રતિ હેક્ટરે જમીન તૈયાર કરતી વખતે આપવું. **Suggestion/s: Approved with following suggestion** 1. 'Anand + Dahod' is to be deleted in N, P and K content 2. Check uptake data of NPK 3. Table-1 please check SEm value in grain yield 4. Variable cost replaced by fixed cost in economic table **(Action:** *Associate Research Scientist, Agricultural Research Station, AAU, Dahod*)
21.2.1.4	**Title: Effect of multi-micronutrient mixture grades application on growth, yield and quality of soybean** **Recommendation for farming community** The farmers of middle Gujarat agro-climatic zone growing soybean are recommended to apply recommended dose of fertilizer (45:60:00 NPK kg/ha as basal) along with foliar spray of 1 % multi-micronutrient mixture grade-III or IV at 30 and 60 DAS for getting higher yield and net returns. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત-આબોહવાકીય વિસ્તારના સોયાબીનની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલા ખાતરના જથ્થા (૪૫:૬૦:૦૦ ના.ફો.પો.

	કિ.ગ્રા./હેક્ટર પાયામાં) ઉપરાંત મલ્ટિમાઈક્રોન્યૂટ્રીયન્ટ મીક્ષર ગ્રેડ-૩ અથવા ગ્રેડ-૪નો ૧% દ્રાવણના ૩૦ અને ૬૦ દિવસે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Check unit of content (ppm) and uptakes (g/ha) data in tables **(Action:** *Research Scientist, TRTC, AAU, Devgadh Baria***)**
21.2.1.5	**Title: Integrated weed management in *kharif* groundnut (*Arachis hypogaea* L.)** **Recommendation for farming community** The farmers of middle Gujarat agro-climatic zone growing groundnut in *kharif* season are recommended to adopt any one of the following recommendations for obtaining higher groundnut pod yield, effective weed management and higher returns. ➢ Quizalofop ethyl 7.5% + imazethapyr 15% w/w EC (RM) 90 g. a.i./ha (8 mL/10 litre of water) PoE (15-20 DAS) *fb* IC + HW at 40 DAS ➢ Propaquizafop 2.5% + imazethapyr 3.75% w/w ME (RM) 125 g. a.i./ha (40 mL/10 litre of water) PoE (15-20 DAS) *fb* IC + HW at 40 DAS ➢ Sodium acifluorfen 16.5% + clodinafop propargyl 8% EC (RM) 245 g. a.i./ha (20 mL/10 litre of water) PoE (15-20 DAS) *fb* IC + HW at 40 DAS ➢ Fluazifop-p-butyl 11.1% w/w + fomesafen 11.1% w/w SL (RM) 250 g. a.i./ha (20 mL/10 litre of water) PoE (15-20 DAS) *fb* IC + HW at 40 DAS ➢ Diclosulam 84% WDG 25.2 g a.i./ha (0.6 g/10 litre of water) PE (1-2 DAS) *fb* IC + HW at 40 DAS ➢ IC *fb* HW at 20 and 40 DAS There was no adverse effect of herbicide applied in *kharif* groundnut on succeeding (wheat, chickpea and mustard) crops. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં ચોમાસુ ઋતુમાં મગફળીનું વાવેતર કરતા ખેડૂતોને મગફળીનું વધુ ઉત્પાદન, અસરકારક નીંદણ વ્યવસ્થાપન અને વધુ વળતર મેળવવા માટે નીચેના પૈકી કોઈ એક નીંદણ વ્યવસ્થાપન અપનાવવા ભલામણ કરવામાં આવે છે. ➢ મગફળીની વાવણી બાદ ૧૫ થી ૨૦ દિવસે ક્વીઝાલોફોપ ઈથાઈલ ૭.૫% + ઈમાઝેથાપાયર ૧૫% વ/વ ઇસી (તૈયાર મિશ્રણ) ૯૦ ગ્રામ સક્રિય તત્વ/હે (૮ મિ.લિ./૧૦ લીટર પાણી) અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ

	➢ મગફળીની વાવણી બાદ ૧૫ થી ૨૦ દિવસે પ્રોપાક્વીઝાફોપ ૨.૫% + ઈમાઝેથાપાયર ૩.૭૫% વ/વ એમઈ (તૈયાર મિશ્રણ) ૧૨૫ ગ્રામ સક્રિય તત્વ/હે (૪૦ મિ.લિ./૧૦ લીટર પાણી) અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ ➢ મગફળીની વાવણી બાદ ૧૫ થી ૨૦ દિવસે સોડીયમ એસીફ્લુરફેન ૧૬.૫% + ક્લોડીનાફોપ પ્રોપારજીલ ૮% વ/વ ઈસી (તૈયાર મિશ્રણ) ૨૪૫ ગ્રામ સક્રિય તત્વ/હે (૨૦ મિ.લિ./૧૦ લીટર પાણી) અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ ➢ મગફળીની વાવણી બાદ ૧૫ થી ૨૦ દિવસે ફ્લુઆજીફોપ-પી-બ્યુટાઈલ ૧૧.૧% + ફોમેસાફેન ૧૧.૧% વ/વ એસએલ (તૈયાર મિશ્રણ) ૨૫૦ ગ્રામ સક્રિય તત્વ/હે (૨૦ મિ.લિ./૧૦ લીટર પાણી) અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ ➢ મગફળીની વાવણી બાદ ૧ થી ૨ દિવસે ડાયકોસુલામ ૮૪% ડબલ્યુડીજી ૨૫.૨ ગ્રામ સક્રિય તત્વ/હે (૦.૬ ગ્રામ + ૩૩.૩ મિલિ/૧૦ લીટર પાણી) અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ ➢ મગફળીની વાવણી બાદ ૨૦ અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ ચોમાસુમગફળીના પાકમાં છંટકાવ કરેલ નીંદણ નાશકોની કોઈ પણ પ્રકારની આડઅસર તેના પછીના પાકો (ઘઉં, ચણા અને રાઈ) પર જોવા મળેલ નથી. **Suggestion/s: Approved** **(Action:** *Agronomist & PI, AICRP-WM, BACA, Anand***)**
21.2.1.6	**Title: Effect of seedling age on yield of summer rice** **Suggestion/s:** 1. Extend for one more year **(Action:** *Research Scientist, Main Rice Research Station, Nawagam***)**
21.2.1.7	**Title: Optimizing method of sowing and seed rate of bold grain rice under DSR (direct seeded rice) method** **Suggestion/s:** **1.** Extend for one more year **(Action:** *Research Scientist, Main Rice Research Station, Nawagam***)**
21.2.1.8	**Title: Optimizing method of sowing and seed rate of fine grain rice under DSR (direct seeded rice) method** **Suggestion/s:** **1.** Extend for one more year **(Action:** *Research Scientist, Main Rice Research Station, Nawagam***)**

21.2.1.9	**Title: Effect of sowing time and irrigation scheduling on *rabi* pigeon pea** **Recommendation for farming community** The farmers of middle Gujarat agro-climatic zone growing pigeon pea (cv: Vaishali) in *rabi* season are recommended to sow during 1st week of October and provide four irrigations: first at sowing, and the remaining three at 40, 60, and 80 days after sowing (DAS) for getting higher yield and net return. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તાર માં શિયાળુ ઋતુમાં તુવેર (જાત: વૈશાલી) ની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે ઓક્ટોબર માસના પ્રથમ અઠવાડિયા દરમિયાન વાવણી કરવી તથા કુલ ૦૪ પિયત આપવા, જેમાં પહેલું પિયત વાવણી વખતે તથા બાકીના ૦૩ પિયત વાવણીના ના ૪૦, ૬૦ અને ૮૦ દિવસે આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved** **(Action:** *Assistant Research Scientist, COA, AAU, Jabugam***)**
21.2.1.10	**Title: Effect of date of transplanting and spacing on herbage yield and quality of Black tulsi (*Ocimum sanctum* L.)** **Recommendation for farming community** The farmers of middle Gujarat agro climatic zone growing seedlings of Black tulsi (GABT 1) in *kharif* season are recommended to transplant the seedlings of black tulsi during 3rd week of July to 1st week of August and spacing of 60 cm x 45 cm for securing higher dry herbage yield and net returns. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ ઋતુમાં કાળી તુલસી (જીએબીટી ૧)ની ખેતી કરતા ખેડૂતોને સુકા દ્રવ્યનું વધુ ઉત્પાદન અને નફો મેળવવા માટે કાળી તુલસીનાં ધરુની ફેરરોપણી જુલાઇ માસના ત્રીજા અઠવાડીયા થી ઓગસ્ટ માસના પહેલા અઠવાડીયા સુધીમાં ૬૦ x ૪૫ સે.મી.નુ અંતર રાખીને કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Replace word 'with' by 'and' in text of recommendation para 2. Verify the data of CV % for sub plot treatments **(Action:** *Assistant Research Scientist, Medicinal and Aromatic Plants Research Station, AAU, Anand***)**

21.2.1.11	**Title: Feasibility of transplanting in Indian mustard** **Recommendation for farming community** The farmers of middle Gujarat agro-climatic zone interested in growing late mustard after harvesting of *kharif* crops (up to second week of November) are recommended to transplant 20 days old mustard seedlings (15 cm height approximately) in the field after giving irrigation at the spacing of either 45 x 30 cm or 45 x 45 cm for getting higher yield and net returns. **ખેડૂતોપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચોમાસું પાકની કાપણી બાદ (નવેમ્બર માસના બીજા અઠવાડિયા સુધી) રાઈનુ મોડુ વાવેતર કરવા ઈચ્છતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા રાઈના ૨૦ દિવસના ધરૂ (અંદાજીત ૧૫ સે. મી ઊંચાઈ) ને ખેતરમાં પિયત આપ્યા બાદ ૪૫ x ૩૦ સે.મી. અથવા ૪૫ x ૪૫ સે.મી. ના અંતરે ફેરરોપણી કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Mention days of nursery raising as a note 2. Mention late sowing in text of recommendation in English para **(Action:** *Principal, CoA, Anand Agricultural University, Vaso*)
21.2.1.12	**Title: Assessment of crop management modules in Maize + Soybean - Wheat + Chickpea intercropping system** **Recommendation for farming community:** The farmers of the middle Gujarat agro – climatic zone following intercropping system i.e. Maize + Soybean (2:3) in *kharif* and wheat + chickpea (4:2) in *rabi* season are recommended to adopt integrated crop management module [seed treatment with *Trichoderma (20g/kg seeds)*; NPK 50% RDF (120:60:00 NPK kg/ha for maize, 45:60:00 NPK kg/ha for soybean, 120:60:00 NPK kg/ha for wheat and 40:20:00 NPK kg/ha for chickpea) + 25 % N through FYM as soil application at sowing + Bio NPK 1 L/ha each with irrigation at sowing and at 30 DAS) to get higher maize equivalent yield and net returns besides improving soil in terms of soil microbial count.

Details of Nutrient content:

Sr. No.	Crop	Recommended dose of Fertilizer NPK (kg/ha)	50 % of RDF NPK (kg/ha)	25 % RDN through FYM (t/ha) (Approx.)	Rate and time of application NPK (kg/ha)
1	Maize	120-60-00	60-30-00	3.6	• 30 kg N, 30 kg P_2O_5 as basal • 30 kg N at 30 DAS
2	Soybean	45-60-00	22.5-30-00	0.7	• 22.5 kg N, 30 kg P_2O_5 as basal
3	Wheat	120-60-00	60-30-00	7.1	• 30 kg N, 30 kg P_2O_5 as basal • 30 kg N at 30 DAS
4	Chickpea	40-20-00	20-10-00	1.4	• 10 kg N, 10 kg P_2O_5 as basal • 10 kg N at 30 DAS

ખેડૂતોપયોગી ભલામણ:

મધ્ય ગુજરાત ખેત-આબોહવાકીય વિસ્તારના આંતરપાક પદ્ધતિ દ્વારા ખેતી કરતા ખેડૂતોને (મકાઇ + સોયાબીન (૨:૩) ચોમાસામાં અને ઘઉં + ચણા (૪:૨) શિયાળામાં) વધુ ઉત્પાદન અને નફો મેળવવા માટે તેમજ જમીનમા સુક્ષ્મ જીવાણુંઓની સંખ્યામાં વધારો કરવા માટે સંકલીત પાક વ્યવસ્થાપન મોડ્યુલ [ટ્રાયકોડર્માથી બીજ માવજત ૨૦ ગ્રા.મ./કિલો બીજ; ભલામણ કરેલ ખાતરના ૫૦% ના.ફો.પો (૧૨૦-૬૦-૦૦ ના.ફો.પો કિ.ગ્રા./હે મકાઇ માટે, ૪૫-૬૦-૦૦ ના.ફો.પો કિ.ગ્રા./હે સોયાબીન માટે, ૧૨૦-૬૦-૦૦ ના.ફો.પો કિ.ગ્રા./હે ઘઉં માટે, ૪૦-૨૦-૦૦ ના.ફો.પો કિ.ગ્રા./હે ચણા માટે) + ૨૫% નાઈટ્રોજન છાણીયા ખાતર દ્વારા વાવણી સમયે તથા બાયો એન.પી.કે. ૧ લીટર/હે. (વાવણી સમયે પિયત સાથે અને ૧ લીટર/હે. વાવણી પછી ૩૦ દિવસે) અપનાવવા ભલામણ કરવામાં આવે છે.

<u>પોષક તત્વોની વિગત:</u>

અ. નં	પાક	ભલામણ કરેલ ખાતરનું પ્રમાણ ના.ફો.પો (કિલો/હે)	ભલામણ કરેલ ખાતરના પ્રમાણથી ૫૦% ના.ફો.પો (કિલો/હે)	ભલામણ કરેલ ખાતરના પ્રમાણથી ૨૫% નાઇટ્રોજન છાણીયા ખાતર દ્વારા (ટન/હે) અંદાજીત	ખાતર આપવાનો જથ્થો અને સમય ના.ફો.પો (કિલો/હે)

૧	મકાઇ	૧૨૦-૬૦-૦૦	૬૦-૩૦-૦૦	૩.૬	• ૩૦ કિલો નાઇટ્રોજન અને ૩૦ કિલો ફોસ્ફરસ પાયામાં • ૩૦ કિલો નાઇટ્રોજન વાવણીના ૩૦ દિવસ બાદ
૨	સોયાબીન	૪૫-૬૦-૦૦	૨૨.૫-૬૦-૦૦	૦.૭	• ૨૨.૫કિલો નાઇટ્રોજન અને ૩૦ કિલો ફોસ્ફરસ પાયામાં
૩	ઘઉં	૧૨૦-૬૦-૦૦	૬૦-૩૦-૦૦	૭.૧	• ૩૦ કિલો નાઇટ્રોજન અને ૩૦ કિલો ફોસ્ફરસ પાયામાં • ૩૦ કિલો નાઇટ્રોજન વાવણીના ૩૦ દિવસ બાદ
૪	ચણા	૪૦-૨૦-૦૦	૨૦-૧૦-૦૦	૧.૪	• ૧૦ કિલો નાઇટ્રોજન અને ૧૦ કિલો ફોસ્ફરસ પાયામાં • ૧૦ કિલો નાઇટ્રોજન વાવણીના ૩૦ દિવસ બાદ

Suggestion/s: Approved with following suggestion

1. Check the data of organic manure (Nutrient content)
2. Verify the data of gross realization

(Action: *Unit Head, TRTC, AAU, Devgadh Baria and Agril. Res. Station, AAU, Dahod***)**

21.2.1.13

Title: Assessment of nutrient management modules in pearl millet + blackgram – wheat + chickpea intercropping system

Recommendation for farming community

The farmers of middle Gujarat agro-climatic zone following intercropping system i.e. pearl millet + black gram (2:4) in *kharif* and wheat + chick pea (4:2) in *rabi* season are recommended to adopt integrated crop management module [Seed treatment with *Trichoderma* (20 g/kg seeds); NPK 50% of RDF (80-40-00 kg NPK/ha for Pearl millet, 20-40-00 kg NPK/ha for Black gram, 120-60-00 kg NPK/ha for Wheat, 20-40-00 kg NPK/ha for Chick pea) + 25% N through FYM as soil application at sowing + Bio NPK

1 L/ha each with irrigation at sowing and at 30 DAS)] to get higher pearl millet equivalent yield and net returns besides improving bulk density, WHC and soil microbial count.

Sr. No.	Crop	Recommended Dose of Fertilizer (NPK kg/ha)	50% of RDF (NPK kg/ha)	25% RDN Through FYM (t/ha) (Approx.)	Rate and time of application (NPK kg/ha)
1	Pearl millet	80-40-00	40-20-00	3.2	• 20 kg N, 20 kg P_2O_5 as basal • 20 kg N at 30 DAS
2	Black gram	20-40-00	10-20-00	0.8	• 5 kg N, 20 kg P_2O_5 as basal • 5 kg N at 30 DAS
3	Wheat	120-60-00	60-30-00	4.7	• 30 kg N, 30 kg P_2O_5 as basal • 30 kg N at 30 DAS
4	Chick pea	20-40-00	10-20-00	0.8	• 5 kg N, 20 kg P_2O_5 as basal • 5 kg N at 30 DAS

ખેડૂતોપયોગી ભલામણ:

મધ્ય ગુજરાતના ખેત-આબોહવાકીય વિસ્તારના બાજરી આધારીત આંતરપાક પધ્ધતિ ધ્વારા ખેતી કરતા ખેડૂતોને (બાજરી + અડદ (૨:૪) ચોમાસામાં અને ઘઉં + ચણા (૪:૨) શિયાળામાં) બાજરા સમકક્ષ વધુ ઉત્પાદન અને નફો મેળવવા માટે તેમજ જમીનની ઘનતા, ભેજ સંગ્રહ શક્તિ અને સૂક્ષ્મ જીવાણુંઓની સંખ્યામાં વધારો કરવા માટે સંકલિત પાક વ્યવસ્થાપન મોડ્યુલ [ટ્રાઇકોડર્માથી બીજ માવજત ૨૦ ગ્રામ/કિ.ગ્રા. બીજ, ભલામણ કરેલ ખાતરના ૫૦% ના.ફો.પો. (૮૦-૪૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર બાજરી માટે, ૨૦-૪૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર અદડ માટે, ૧૨૦-૬૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર ઘઉં માટે, ૨૦-૪૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર ચણા માટે) + ૨૫% નાઇટ્રોજન છાણિયા ખાતર ધ્વારા વાવણી સમયે + પિયત સાથે બાયો એન.પી.કે. ૧ લિટર/હેક્ટર વાવણી સમયે અને ૧ લિટર/હેક્ટર વાવણી પછી ૩૦ દિવસે) અપનાવવા ભલામણ કરવામાં આવે છે.

અ. નં.	પાક	ભલામણ કરેલ ખાતરનું પ્રમાણ ના.ફો.પો.	ભલામણ કરેલ ખાતરના પ્રમાણમાંથી ૫૦%	ભલામણ કરેલ ખાતરના પ્રમાણમાંથી ૨૫% નાઇટ્રોજન	ખાતર આપવાનો જથ્થો અને સમય ના.ફો.પો. (કિ.ગ્રા./હેક્ટર)

		(કિ.ગ્રા. /હેક્ટર)	ના.ફો.પો. (કિ.ગ્રા./ હેક્ટર)	છાણિયા ખાતર ધ્વારા (ટન/હેક્ટર) (અંદાજીત)	
૧	બાજરી	૮૦-૪૦-૦૦	૪૦-૨૦-૦૦	૩.૨	• ૨૦ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૨૦ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૨	અડદ	૨૦-૪૦-૦૦	૧૦-૨૦-૦૦	૦.૮	• ૫ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૫ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૩	ઘઉં	૧૨૦-૬૦-૦૦	૬૦-૩૦-૦૦	૪.૭	• ૩૦ કિ.ગ્રા. નાઇટ્રોજન અને ૩૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૩૦ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૪	ચણા	૨૦-૪૦-૦૦	૧૦-૨૦-૦૦	૦.૮	• ૫ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૫ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ

Suggestion/s: Approved with following suggestion

1. Check microbial data of inputs used
2. Check the cost of cultivation of Module I and II

(Action: *Assistant Research Scientist, College of AIT, AAU, Anand*)

21.2.1.14

Title: Assessment of nutrient management modules in pearl millet + blackgram – wheat + chickpea intercropping system

Recommendation for farming community

The farmers of middle Gujarat agro-climatic zone following intercropping system i.e. pearl millet + black gram (2:4) in *kharif* and wheat + chick pea (4:2) in rabi season

are recommended to adopt integrated crop management module [Seed treatment with Trichoderma (20 g/kg seeds); NPK 50% of RDF (80-40-00 kg NPK/ha for Pearl millet, 20-40-00 kg NPK/ha for Black gram, 120-60-00 kg NPK/ha for Wheat, 20-40-00 kg NPK/ha for Chick pea) + 25% N through FYM as soil application at sowing + Bio NPK 1 L/ha each with irrigation at sowing and at 30 DAS)] to get higher pearmillet equivalent yield and net returns besides, improving soil microbial count.

Details of Nutrient content:

Sr. No	Crop	Recommended Dose of Fertilizer (NPK kg/ha)	50% of RDF (NPK kg/ha)	25% RDN Through FYM (t/ha) (Approx.)	Rate and time of application (NPK kg/ha)
1	Pearl millet	80-40-00	40-20-00	3.2	• 20 kg N, 20 kg P_2O_5 as basal • 20 kg N at 30 DAS
2	Black gram	20-40-00	10-20-00	0.8	• 5 kg N, 20 kg P_2O_5 as basal • 5 kg N at 30 DAS
3	Wheat	120-60-00	60-30-00	4.7	• 30 kg N, 30 kg P_2O_5 as basal • 30 kg N at 30 DAS
4	Chickpea	20-40-00	10-20-00	0.8	• 5 kg N, 20 kg P_2O_5 as basal • 5 kg N at 30 DAS

ખેડૂતોપયોગી ભલામણ:

મધ્ય ગુજરાતના ખેત-આબોહવાકીય વિસ્તારના બાજરી આધારીત આંતરપાક પધ્ધતિ ધ્વારા ખેતી કરતા ખેડૂતોને (બાજરી + અડદ (૨:૪) ચોમાસામાં અને ઘઉં + ચણા (૪:૨) શિયાળામાં) બાજરા સમકક્ષ વધુ ઉત્પાદન અને નફો મેળવવા માટે તેમજ સૂક્ષ્મ જીવાણુંઓની સંખ્યામાં વધારો કરવા માટે સંકલિત પાક વ્યવસ્થાપન મોડ્યુલ [ટ્રાઇકોડર્માથી બીજ માવજત ૨૦ ગ્રામ/કિ.ગ્રા. બીજ, ભલામણ કરેલ ખાતરના ૫૦% ના.ફો.પો. (૮૦-૪૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર બાજરી માટે, ૨૦-૪૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર અદડ માટે, ૧૨૦-૬૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર ઘઉં માટે, ૨૦-૪૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હેક્ટર ચણા માટે) + ૨૫% નાઇટ્રોજન છાણિયા ખાતર ધ્વારા વાવણી સમયે + પિયત સાથે બાયો એન.પી.કે. ૧

લિટર/હેક્ટર વાવણી સમયે અને ૧ લિટર/હેક્ટર વાવણી પછી ૩૦ દિવસે) અપનાવવા ભલામણ કરવામાં આવે છે.

અ. નં.	પાક	ભલામણ કરેલ ખાતરનું પ્રમાણ ના.ફો.પો. (કિ.ગ્રા./હેક્ટર)	ભલામણ કરેલ ખાતરના પ્રમાણમાંથી ૫૦% ના.ફો.પો. (કિ.ગ્રા./હેક્ટર)	ભલામણ કરેલ ખાતરના પ્રમાણમાંથી ૨૫% નાઇટ્રોજન છાણિયા ખાતર ધ્વારા (ટન/હેક્ટર) (અંદાજીત)	ખાતર આપવાનો જથ્થો અને સમય ના.ફો.પો. (કિ.ગ્રા./હેક્ટર)
૧	બાજરી	૮૦-૪૦-૦૦	૪૦-૨૦-૦૦	૩.૨	• ૨૦ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૨૦ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૨	અડદ	૨૦-૪૦-૦૦	૧૦-૨૦-૦૦	૦.૮	• ૫ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૫ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૩	ઘઉં	૧૨૦-૬૦-૦૦	૬૦-૩૦-૦૦	૪.૭	• ૩૦ કિ.ગ્રા. નાઇટ્રોજન અને ૩૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૩૦ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ

૪	ચણા	૨૦-૪૦-૦૦	૧૦-૨૦-૦૦	૦.૮	• ૫ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં • ૫ કિ.ગ્રા. નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ

Suggestion/s: Approved with following suggestion

1. Mention pearmillet equivalent yield instead of yield in text

(Action: *Unit Officer, AHRS, AAU, Khambolaj*)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.2.1.15

Title: Real time nitrogen fertilization using leaf colour chart in wheat

Recommendations for farming community

The farmers of South Saurashtra Agro-climatic Zone growing wheat are recommended to apply either 60 kg N/ha as basal + 30 kg N/ha when LCC ≤ 3 + 30 kg N/ha when LCC ≤ 3 or 40 kg N/ha as basal + 40 kg N/ha when LCC ≤ 3 + 40 kg N/ha when LCC ≤ 3 besides FYM 5 t/ha for securing higher yield and net realization. Take LCC observation at weekly interval for LCC value.

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઘઉનુ વાવેતર કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે વધારે ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે ૬૦ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટર વાવેતર સમયે પાયામાં અને ૩૦-૩૦ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટર પાકના પાનના કલર ચાર્ટના ૩ નંબર (નંબર ૩ કરતા ઓછો જોવા મળે ત્યારે) સાથે સરખામણી કરી બે સરખા હપ્તામાં રાસાયણીક ખાતર આપવુ અથવા ૪૦ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટર વાવેતર સમયે પાયામાં અને ૪૦-૪૦ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટર પાકના પાનના કલર સાથે ચાર્ટના ૩ નંબર (નંબર ૩ કરતા ઓછો જોવા મળે ત્યારે) સાથે સરખામણી કરી બે સરખા હપ્તામાં ખાતર આપવું. ઉપરાંત પાંચ ટન છાણીયું ખાતર પ્રતિ હેકટરે આપવું. એલસીસી ના અવલોકન દર અઠવાડીયે લેવા.

Suggestion/s: Approved with following suggestion

1. Add in recommendation "take LCC observation at weekly interval"
2. Check cost of cultivation
3. Add "FYM 5 t/ha in text in Recommendation para"
4. Add LCC value instead of LCC in Recommendation para.

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

21.2.1.16

Title: Effect of drip irrigation schedules and plastic mulch on yield of *rabi* sweet corn

Recommendations for farming community

The farmers of South Saurashtra Agro-climatic Zone growing *rabi* sweetcorn sown at 40-80-40 cm x 20 cm in paired row planting are recommended to irrigate the crop with surface irrigation at 1.0 IW/CPE with wheat straw mulch (5 t/ha) (15-20 DAS) for securing higher yield and net realization.

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં શિયાળુ મીઠી મકાઈનુ જોડીયા હારમાં (૪૦-૮૦-૪૦ સેમી × ૨૦ સે.મી.) વાવેતર કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે વધુ ઉત્પાદન અને નફો મેળવવા માટે વાવેતર કરી ૧૫ થી ૨૦ દિવસ પછી ઉભા પાકમાં ૫ ટન/હેક્ટરે ઘઉના પરાળનુ આચ્છાદન પાથરીને પાકને ૧.૦ બાષ્પીભવનાંકે બેઠું પિયત આપવું.

Suggestion/s: Approved with following suggestion

1. Check ' Economics' i.e. Cost of cultivation

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

21.2.1.17

Title: Effect of levels and schedules of nitrogen fertigation on growth and yield of summer sesame

Recommendations for farming community

The farmers of South Saurashtra Agro-climatic zone growing summer sesame are recommended to apply basal dose of fertilizer (10-25-0 kg N-P_2O_5-K_2O/ha) at time of sowing and then N fertigation with 50 kg/ha in water soluble form through drip fertigation (one week after sowing) in six equal splits at 10 days interval for getting higher yield and net returns.

Details of drip system

Particulars	**Details**	**Particulars**	**Details**
Lateral spacing	90 cm	Operating pressure	1.2 kg/cm^2
Dripper spacing	60 cm	Operating frequency	Alternate day
Dripper discharge rate	4 lit./hr.	Irrigation schedule	1.0 PEF

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ તલનુ વાવેતર કરતા ખેડુતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરવામાં આવે છે કે વાવેતર સમયે

પાયામાં ૧૦ કિ.ગ્રા. નાઈટ્રોજન/હેકટર અને ૨૫ કિ.ગ્રા. ફોસ્ફરસ/હેકટરે આપવુ અને ત્યારપછી ૫૦ કિ.ગ્રા. નાઈટ્રોજન/હેકટર પાણીમાં દ્રાવ્ય ખાતરના રૂપમાં ટપક સિંચાઈ પધ્ધિત દ્વારા (વાવેતરના એક અઠવાડીયા પછીથી) છ સરખા હપ્તામાં ૧૦ દિવસના અંતરે આપવુ.

ટપક પધ્ધિતની વિગત

વિગત		વિગત	
પાણીની નળીઓનુ અંતર	૯૦ સે.મી.	પરીચલનનુ દબાણ	૧.૨ કી.ગ્રા/ચો સે.મી.
ટપકણીયાનું અંતર	૬૦ સે.મી.	પરીચલનની પુનરાવૃતિ	એકાંતરા દિવસે
ટપકણીયાનો સ્રાવ ક્ષમતા	૪.૦ લી/કલાક	પિયત પત્રક	૧.૦ બાષ્પીભવનાંકે

Suggestion/s: Approved with following suggestion

1. Add 'Yield' in Recommendation para
2. Delete 'NUE' in Table 10.

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

21.2.1.18

Title: Effect of NPKS levels on growth, yield and nutrient uptake by *kharif* soybean

Recommendations for farming community

The farmers of South Saurashtra Agro-climatic Zone growing *kharif* soybean are recommended to apply 30 kg nitrogen, 60 kg phosphorus and 30 kg sulphur at the time of sowing besides FYM 5 t/ha for getting higher seed yield and net realization.

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ સોયાબીનનુ વાવેતર કરતા ખેડુતોને વધારે ઉત્પાદન અને ચોખ્ખુ વળતર મેળવવા માટે વાવેતર સમયે હેક્ટરે ૩૦ કી.ગ્રા. નાઈટ્રોજન, ૬૦ કી.ગ્રા. ફોસ્ફરસ અને ૩૦ કી.ગ્રા. સલ્ફર ઉપરાંત પાંચ ટન છાણીયું ખાતર આપવાની ભલામણ કરવામાં આવે છે.

Suggestion/s: Approved with following suggestion

1. Table 9 'P' replace by 'P_2O_5, and 'K' by 'K_2O'

	2. Av. S (kg/ha) by replace by Av. S (ppm) 3. Correct the units in the Av. nutrient soil after harvest ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.1.19	**Title: Bio-efficacy evaluation of pre-mix herbicides in summer soybean** **Recommendations for farming community** The farmers of south Saurashtra Agro-climatic zone growing summer soybean are recommended to apply pendimethalin 30% EC (60 ml/10 L water) 900 g/ha as pre-emergence *fb* pre-mix propaquizafop 2.5% + imazethapyr 3.75% ME (40 ml/10 L water) 50+75 g/ha as post-emergence at 30 DAS **OR** pre-mix pendimethalin 30%+ imazethapyr 2% EC (50 ml/10 L water) 750+50 g/ha as pre-emergence *fb* pre-mix fluazifop-p-butyl 11.1%+ fomesafen 11.1% SL (20.3 ml/10 L water) 125+125 g/ha as post-emergence at 30 DAS **OR** pre-mix pendimethalin 30%+ imazethapyr 2% EC (50 ml/10 L water) 750+50 g/ha as pre-emergence *fb* IC & HW at 30 DAS **OR** pendimethalin 30% EC (60 ml/10 L water) 900 g/ha as pre-emergence *fb* pre-mix imazamox 35% + imazethapyr 35% WG (2 g/10 L water) 35+35 g/ha as post-emergence at 30 DAS for effective weed management and achieving higher seed yield and net realization. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત-આબોહવાકીય વિસ્તારમાં ઉનાળુ સોયાબીનનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ, વધુ દાણાનું ઉત્પાદન અને ચોખ્ખું વળતર મેળવવા નીચે મુજબ ભલામણ કરવામાં આવે છે. • વાવણી બાદ તુરંત પાક અને નીંદણ ઉગ્યા પહેલા પેન્ડીમીથાલીન ૩૦% ઈ.સી. (૬૦ મી.લી/૧૦ લી. પાણી) ૯૦૦ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે પૂર્વ-મિશ્રિત પ્રોપાક્વીઝાફોપ ૨.૫%+ ઈમાઝેથાપાયર ૩.૭૫% એમ.ઈ. (૪૦ મી.લી/૧૦ લી. પાણી) ૫૦+૭૫ ગ્રા./હે પ્રમાણે છંટકાવ કરવો **અથવા** • વાવણી બાદ પરંતુ પાક અને નીંદણ ઉગ્યા પહેલા પૂર્વ-મિશ્રિત પેન્ડીમીથાલીન ૩૦%+ ઈમાઝેથાપાયર ૨% ઈ.સી. (૫૦ મી.લી./૧૦ લી. પાણી) ૭૫૦+૫૦ ગ્રા./હે.પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે ફ્લુઆઝીફોપ-પી-બ્યુટાઇલ ૧૧.૧% + ફોમેસાફેન ૧૧.૧% એસ.એલ. પૂર્વ-મિશ્રિત (૨૦.૩ મી.લી../૧૦ લી. પાણી) ૧૨૫+૧૨૫ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો **અથવા**

	• વાવણી બાદ પરંતુ પાક અને નીંદણ ઉગ્યા પહેલા પૂર્વ-મિશ્રિત પેન્ડીમીથાલીન ૩૦%+ ઈમાઝેથાપાયર ૨% ઈ.સી. (૫૦ મી.લી./૧૦ લી. પાણી) ૭૫૦+૫૦ ગ્રા./હે.પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે આંતરખેડ અને હાથ નિદાંમણ કરવું **અથવા** • વાવણી બાદ પરંતુ પાક અને નીંદણ ઉગ્યા પહેલા પેન્ડીમીથાલીન પેન્ડીમીથાલીન ૩૦% ઈ.સી. (૬૦ મી.લી/૧૦ લી. પાણી) ૯૦૦ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે પૂર્વ-મિશ્રિત ઈમાઝામોક્સ ૩૫% + ઈમાઝેથાપાયર ૩૫% ડબલ્યુ. જી. (૨ ગ્રા/૧૦ લી. પાણી) ૩૫ + ૩૫ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો. **Suggestion/s: Approved with following suggestion** 1. Add ' Treatment 'T_1' in Recommendation para and recast the recommendation 2. Delete 'CD' Value when DNMRT test done 3. Approved ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.1.20	**Title: Dynamics of soil weed seedbank in *kharif* groundnut** **Recommendations for farming community** The farmers of south Saurashtra Agro-climatic zone growing *kharif* groundnut are recommended to use following practices for effective management of wheat residue, weeds, better management and reduction of soil weed seedbank along with profitable cultivation of groundnut and for sustaining of soil health; Wheat residue incorporation *fb* reduced tillage (Rotavator) and application of waste decomposer 75 ml/ha with pre-sowing irrigation and *Trichoderma viride* 5 kg/ha + 20 kg N/ha and suicidal germination (Application of Ethylene 2 L/ha + KNO_3 2 kg/ha with pre-sowing irrigation *fb* Killing the weed flush by subsequent light harrowing) along with Inter-culturing and hand weeding at 15, 30 & 45 DAS according to availability of labourers. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ મગફળીનું વાવેતર કરતાં ખેડૂતોને અસરકારક ઘઉંના પાકના અવશેષોનું વ્યવસ્થાપન, નીંદણ નિયંત્રણ, જમીનની નીંદણ બીજ બેંકનું અસરકારક વ્યવસ્થાપન કરવા અને તેનો ઘટાડો કરવા તથા નફાકારક મગફળીનું ઉત્પાદન તેમજ જમીનની તંદુરસ્તી જાળવી રાખવા માટે નીચે મુજબ ભલામણ કરવામાં આવે છે. ઘઉંના અવશેષોનોને જમીનમાં રોટાવેટર વડે ભેળવી દેવા અને વાવણી પહેલા પિયત સાથે વેસ્ટ ડીકોમ્પોઝર ૭૫ મી.લી./હે. તથા ટ્રાઇકોડર્મા વિરીડી ૫ કિ.ગ્રા./હે. + ૨૦

	નાઇટ્રોજન કિ.ગ્રા./હે. મુજબ આપવુ અને સાથે ઇથિલિન ૨ લી/હે. + પોટેશીયમ નાઇટ્રેટ ૨ કિ.ગ્રા./હે આપી આત્મઘાતી અંકુરણ થયેલ નીંદણોનો ઉગાવો હળવી રાંપ ચલાવી નાશ કરવો ઉપરાંત ખેત મજુરોની ઉપલબ્ધી મુજબ વાવણી બાદ ૧૫, ૩૦ અને ૪૦ દિવસે આંતરખેડ અને હાથ નિદાંમણ કરવું . **Suggestion/s: Approved with following suggestion** 1. Keep $M_3W_2T_3$ in recommendation and recast the text of recommendation accordingly 2. 3-digit data of O.C. in Table-5 Correct it 3. Add methodology of waste decomposer in experiment and verify the dose 4. Approved ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.1.21	**Title: Bio-efficacy evaluation of different herbicides in *Bt* cotton** **Recommendations for farming community** The farmers of south Saurashtra Agro-climatic zone growing *Bt.* cotton are recommended to do IC & HW at 20, 40 and 60 DAS **OR** apply tank-mix pendimethalin 30% + pyrithiobac sodium 10% EC (30 + 7.5 ml/10 of water) 450 +37.5 g/ha as pre-emergence *fb* pre-mix pyrithiobac sodium 6% + quizalofop-ethyl 4% EC (25 ml/10 of water) 75+50 g/ha as post-emergence at 30 DAS *fb* IC & HW at 60 DAS **OR** tank-mix pendimethalin 30% + pyrithiobac sodium 10% EC (30+7.5 ml/10 of water) 450 + 37.5 g/ha as pre-emergence *fb* IC & HW at 30 & 60 DAS **OR** pendimethalin 30% EC (60 ml/10 of water) 900 g/ha as pre-emergence *fb* IC & HW at 30 & 60 DAS as per availability of labours for effective weed management and achieving higher seed cotton yield and net realization. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં બી.ટી. કપાસનું વાવેતર કરતાં ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા વધુ ઉત્પાદન અને ચોખ્ખું વળતર મેળવવા માટે ખેત મજુરોને ઉપલબ્ધી મુજબ નીચે મુજબ ભલામણ કરવામાં આવે છે. • વાવણી બાદ ૨૦, ૪૦ અને ૬૦ દિવસે આંતરખેડ અને હાથ નિદાંમણ કરવું **અથવા** • વાવણી બાદ પરંતુ પાક અને નીંદણ ઉગ્યા પહેલા ટાંકી-મિશ્રણ પેન્ડીમીથાલીન ૩૦% + પાઈરીથાયોબેક સોડીયમ ૧૦% ઈ.સી. (૩૦ + ૭.૫ મી.લી/૧૦ લી. પાણી) ૪૫૦ + ૩૭.૫ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે પૂર્વ-મિશ્રણ પાઈરીથાયોબેક

	સોડીયમ ૬%+ ક્વીઝાલોફોપ-ઈથાઈલ ૪% ઈ.સી. (૨૫ મી.લી/૧૦ લી. પાણી) ૭૫ + ૫૦ ગ્રા./હે પ્રમાણે છંટકાવ કરવો અને ૬૦ દિવસે આંતરખેડ અને હાથ નિદાંમણ કરવુ **અથવા** • વાવણી બાદ પરંતુ પાક અને નીંદણ ઉગ્યા પહેલા ટાંકી-મિશ્રણ પેન્ડીમીથાલીન ૩૦% + પાઈરીથાયોબેક સોડીયમ ૧૦% ઈ.સી. (૩૦ + ૭.૫ મી.લી/૧૦ લી. પાણી) ૪૫૦ + ૩૭.૫ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે અને ૬૦ દિવસે આંતરખેડ અને હાથ નિદાંમણ કરવુ **અથવા** • વાવણી બાદ પરંતુ પાક અને નીંદણ ઉગ્યા પહેલા પેન્ડીમીથાલીન ૩૦ % ઈ.સી. (૬૦ મી.લી/૧૦ લી. પાણી) ૯૦૦ ગ્રા./હે. પ્રમાણે છંટકાવ કરવો અને વાવણી બાદ ૩૦ દિવસે અને ૬૦ દિવસે આંતરખેડ અને હાથ નિદાંમણ કરવુ. • **Suggestion/s: Approved with following suggestion** 1. Delete 'CD' value from DNMRT 2. Delete Treatment 'T_9' in Text of recommendation 3. Approved ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.1.22	**Title: Response of castor to subsoiling and furrow irrigation** **Recommendations for farming community** The farmers of South Saurashtra Agro-climatic zone are recommended to sow the castor in in-row subsoiling (by subsoiler at 45 cm depth) prepared before sowing and irrigate the crop through furrow irrigation at 15 days interval (0.8 IW/CPE ratio) after cessation of monsoon for getting higher yield and net realization. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત-આબો હવાકીય વિસ્તારમાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે દિવેલાનું વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે વાવેતર પહેલા હારમાં ૪૫ સેમી ઊંડાઈએ સબસોઈલર દ્વારા સબસોઈલીંગ કરી દિવેલાનું વાવેતર કરવું તથા ચોમાસુ પૂરું થયા બાદ ૧૫ દિવસના અંતરે (૦.૮ બાષ્પીભવનાંકે) ચાસમાં પિયત આપવું. **Suggestion/s: Approved with following suggestion** 1. Mention depth of sub-soiling and name of equipment in recommendation para 2. Mention actual irrigation instead of 0.8 IW/CPE ratio 3. Check moisture % ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*

21.2.1.23	**Title: Guava based alternate land use system under rainfed condition** **Recommendations for farming community** The farmers of North Saurashtra Agro climatic zone (AES-VI) having two years old guava plantation at 6.0 m X 6.0 m spacing under rainfed are recommended to intercrop groundnut at 45 cm spacing (initial two years 10 rows, from third year 8 rows) in between two rows of guava for getting higher yield and net return. **ખેડુત ઉપયોગી ભલામણ** ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તાર (AES-VI) ના વરસાદ આધારિત પરિસ્થિતિમાં બે વર્ષ જૂના જામફળના બગીચામાં ૬.૦ મી. X ૬.૦ મી. અંતરે વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે જામફળની બે હરોળ વચ્ચે મગફળી પાકને ૪૫ સે.મી.ના અંતરે આંતર પાક તરીકે (શરૂઆતના બે વર્ષ ૧૦ હાર, ત્રીજા વર્ષથી ૮ હાર મગફળી) વાવેતર કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Add after two years of plantation in text of recommendation para 2. Delete '6 row' from recommendation para ***(Action:** Research Scientist, Main Dry Farming Research Station, JAU, Targhadia)*
21.2.1.24	**Title: High density planting and detopping in *Bt.* Cotton under rainfed condition** **Recommendations for farming community** The farmers of Bhal and Coastal Zone-VIII growing *Bt.* cotton under rainfed condition are recommended to sowing of cotton at 75 cm X 30 cm spacing for getting higher yield and net returns under rainfed farming condition. **ખેડુત ઉપયોગી ભલામણ** ભાલ અને કાંઠાળ આબોહવાકિય વિભાગ ૮ માં બીટી કપાસ અપનાવતા ખેડૂતોને વરસાદ આધારિત ખેતીમાં વધારે વળતર મેળવવા માટે બીટી કપાસના પાકને ૭૫ x ૩૦ સેમી. ના અંતરે વાવેતર કરવાની ભલામણ કરવામા આવે છે. **Suggestion/s: Approved with following suggestion** 1. Check cost of cultivation of treatments 2. Recast the text of recommendation para ***(Action:** Research Scientist, Dry Farming Research Station, JAU, Vallabhipur)*

21.2.1.25	**Title: Response of *Bt.* cotton to moisture conservation practices under rainfed condition** **Recommendations for farming community** The farmers of Bhal and Coastal Zone-VIII sowing *Bt.* cotton under rainfed condition are recommended to sow cotton with tied ridges and furrow at 3.0 m interval or Broad bed and furrow (120 cm x 60 cm) or ridge and furrow (30 cm x 60 cm) for getting higher yield and net returns under rainfed farming condition. **ખેડુત ઉપયોગી ભલામણ** ભાલ અને કાંઠાળ આબોહવાકિય વિભાગ ૮ માં વરસાદ આધારિત પરિસ્થિતિમાં બીટી કપાસનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા બીટી કપાસનું વાવેતર ૩ મીટરના અંતરે ચાસ-પાળા પદ્ધતિથી આડ બંધ સાથે અથવા ગાડી ક્યારા પદ્ધતિથી (૧૨૦ સેમી x ૬૦ સેમી) અથવા નિક પાળા પદ્ધતિથી (૩૦ સેમી x ૬૦ સેમી) કરવાની ભલામણ કરવામા આવે છે. **Suggestion/s: Approved with following suggestion** 1. Add treatment T_1 & T_2 in text of recommendation para 2. Give details of 'TRF' i.e. T_3 3.Remove (AES- 1(a), 1(b) and 3) from recommendation para and Recast the recommendation ***(Action:** Research Scientist, Dry Farming Research Station, JAU, Vallabhipur)*
21.2.1.26	**Title: Effect of mulching on different cultivars of castor under conserved soil moisture condition of *Ghed* area** **Recommendations for farming community** The farmers of South Saurashtra Agro Climatic Zone (*Ghed* area) growing castor under conserve soil moisture are recommended to grow castor under Silver black plastic mulch (25 micron) for obtaining higher yield and net returns under rainfed conditions. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તાર (ઘેડ વિસ્તાર) ના વરસાદ આધારિત પરિસ્થિતિમાં સંગ્રહિત ભેજથી એરંડાનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને આર્થિક

	વળતર મેળવવા માટે એરંડાનું વાવેતર સિલ્વર બ્લેક પ્લાસ્ટિક મલ્ચ (૨૫ માઈક્રોન) માં કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Table -2 check CD value in varieties ***(Action:** Research Scientist, Dry Farming Research Station, JAU, Ratia)*
21.2.1.27	**Title: Integrated weed management in autumn planted sugarcane** **Recommendations for farming community** The farmers of South Saurashtra Agro climatic Zone growing autumn-planted sugarcane are recommended to apply ametryne 80 % WG (50 g/10 L water) 2.0 kg/ha at 15-20 DAP followed by inter culturing and hand weeding at 60 and 90 days after planting **OR** hand weeding at 30, 60 and 90 days after planting and inter culturing at 45 and 90 days after planting for effective weed management and securing higher cane yield and net return. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત- આબોહવાકીય વિસ્તારમાં શરદકાલીન શેરડી ઉગાડતા ખેડૂતોને અસરકારક નીંદણ વ્યવસ્થાપન અને શેરડીની વધુ ઉપજ તથા ચોખ્ખું વળતર મેળવવા માટે એમીટ્રીન ૮૦% ડબલ્યુજી (૫૦ ગ્રામ/૧૦ લિટર પાણી) ૨.૦ કિગ્રા/હેક્ટર નીંદણ ઉગ્યા પછી શેરડીની રોપણી બાદ ૧૫-૨૦ દિવસે અર્લિ પોસ્ટઈમરજન્સ તરીકે આપવું અને ત્યાર બાદ ૬૦ અને ૯૦ દિવસે આંતર-ખેડ કરી હાથ નીંદામણ કરવું **અથવા** શેરડીની રોપણી બાદ ૩૦, ૬૦ અને ૯૦ દિવસે હાથ નીંદામણ તેમજ ૪૫ અને ૯૦ દિવસે આંતર-ખેડ કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Check the cost of cane yield ***(Action:** Research Scientist, Main Sugarcane Research Station, JAU, Kodinar)*
21.2.1.28	**Title: Evaluation of multi cut fodder sorghum varieties under different levels of nitrogen** **Recommendations for farming community** The farmers of North Saurashtra Agro-climatic Zone growing milti-cut fodder sorghum are recommended to grow sorghum variety SSG 59-3 (Mithi Sudan) with

	application of nitrogen 40 kg/ha at basal, 40 kg/ha at 21 days after sowing and 40 kg/ha after each cut along with 40 kg/ha P_2O_5 at basal for achieving higher green and dry fodder yield and net realization. **ખેડુત ઉપયોગી ભલામણ** ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં બહુવાઢ જુવારનું વાવેતર કરતા ખેડૂતોને લીલા અને સુકા ચારાનું વધારે ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે જુવારની એસ.એસ.જી.૫૯-૩ (મીઠી સુદાન) જાતનું વાવેતર સાથે નાઈટ્રોજન ૪૦ કિ.ગ્રા. પ્રતિ હેક્ટર પાયાના ખાતર તરીકે, ૪૦ કિ.ગ્રા. પ્રતિ હેક્ટર વાવેતર બાદ ૨૧ દિવસે અને ૪૦ કિ.ગ્રા. પ્રતિ હેક્ટર દરેક વાઢ વખતે ઉપરાંત પાયામાં ૪૦ કિ.ગ્રા. પ્રતિ હેક્ટર ફૉસ્ફરસ આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Add P_2O_5 dose in text of recommendation 2. Add RDF in fodder sorghum 3. Check nutrient status in soil initial and after harvest ***(Action:** Associate Research Scientist, Grassland Research Station, JAU, Dhari)*
21.2.1.29	**Title: Effect of cow dung on yield and nutrients uptake by wheat** **Recommendations for farming community** The farmers of South Saurashtra Agro-climatic Zone growing wheat are recommended to apply 60% RDF (72-36-36 kg N-P_2O_5-K_2O as basal) to wheat along with slurry (cow dung: water - 1:3) of 1500 kg/ha fresh cow dung (up to five days) (1/2 at basal and 1/2 at 30 DAS) with irrigation for getting higher yield and net return. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઘઉંના પાકનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ઘઉંના પાકમાં ભલામણ કરેલ ખાતરના ૬૦% (૭૨-૩૬-૩૬ કિ.ગ્રા. ના.ફો.પો./હે. પાયામાં) સાથે ૧૫૦૦ કિ.ગ્રા./હે. ગાયના તાજા છાણની (પાંચ દિવસ સુધીનુ) રબડી બનાવી (તાજુ છાણ: પાણી- ૧:૩) ૧/૨ પાયામાં અને ૧/૨ વાવેતરના ૩૦ દિવસે પિયત પાણીની સાથે આપવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Suggestion/s: Approved with following suggestion** 1. Mention details of Application of 60 % RDN *i.e.* Nitrogen ***(Action:** Professor and Head, Dept. of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*

21.2.1.30

Title: Study on intercrops and irrigation levels under drip irrigation system in banana under South Gujarat condition

Recommendations for farming community

The farmers of South Gujarat growing late *kharif* drip irrigated banana crop are recommended to irrigate the crop at 0.6 ETc. For getting higher banana equivalent yield and income by taking either cabbage or cauliflower or broccoli as intercrops in three lines (0.30 m x 0.30 m) in between two rows of banana (2.40 m x 1.20 m) after two months of planting. They have to also give lateral irrigation at 0.6 ETc for intercrops. Application of irrigation at 0.6 ETc resulted in total water saving of 24 and 47% over 0.8 and 1.0 ETc, respectively with higher water use efficiency. They are further advised to apply respective recommended doses of fertilizer to both the crops.

Drip details for banana and intercrop:

Lateral spacing:	2.40 m	Dripper spacing :	0.60 m
Dripper discharge:	4 lph	Operating pressure :	1.20 kg/cm^2

System operating schedule: Alternate day

Banana:	Sept. to Oct.:	40-70 minute
	Nov. to Dec.:	70-100 minute
	Jan. to Feb.:	100-155 minute
	Mar. to Apr.:	155-170 minute
	May to June:	170-185 minute
Intercrop:	Nov.:	35-50 minute
	Dec.:	50-65 minute
	Jan.:	65-80 minute

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ ગુજરાતમાં ટપક સિંચાઈથી પાછતરા ચોમાસુમાં કેળ ઉગાડતા ખેડૂતોને ૦.૬૦ ઈટીસીના દરે સિચાઈ કરવાની ભલામણ કરવામાં આવે છે. વધારાની કેળ સમકક્ષ ઉત્પાદન અને આવક મેળવવા માટે ખેડૂતો કેળ વાવેતરના બે મહિના બાદ બે હરોળ (૨.૪૦ મી x ૧.૨૦ મી) વચ્ચે ત્રણ હારમાં (૦.૩૦મી x ૦.૩૦ મી) કોબી અથવા ફ્લાવર અથવા બ્રોકોલી આંતરપાક તરીકે લઈ શકે. તેઓએ આંતરપાકને ૦.૬૦ ઈટીસીના દરે લેટરલ પિયત પણ આપવાનું રહેશે. સિચાઈ દર ૦.૬૦ ઈટીસીના ઉપયોગને લીધે પાણીના વધુ કાર્યક્ષમ ઉપયોગ સાથે પાણીની કુલ બચત ૨૪ તથા ૪૭% અનુક્રમે ૦.૮૦ અને ૧.૦ ઈટીસીની સાપેક્ષમાં થાય છે. તેઓને વધુ સલાહ આપવામાં આવે છે કે બંને પાક માટે ભલામણ કરેલ ખાતરનો ઉપયોગ કરવો.

કેળ અને આંતરપાક માટે ટપક વિગતો:

લેટરલ અંતર :	૨.૪૦ મી	ડ્રીપર અંતર :	૦.૬૦ મી.
ડ્રીપર દર :	૪લી/કલાક	ચલાવવાનું દબાણ :	૧.૨૦ કિગ્રા / સેમી^{૨}

પધ્ધતિ ચલાવવાનો સમય : એકાંતરે દિવસે

કેળ:	સપ્ટેમ્બર થી ઑક્ટો.:	૪૦-૭૦ મિનિટ
	નવેમ્બર થી ડિસેમ્બર:	૭૦-૧૦૦ મિનિટ
	જાન્યુઆરી થી ફેબ્રુઆરી:	૧૦૦-૧૫૫ મિનિટ
	માર્ચ થી એપ્રિલ:	૧૫૫-૧૭૫ મિનિટ
	મે થી જૂન:	૧૭૫-૧૮૫ મિનિટ
આંતરપાક:	નવેમ્બર:	૩૫-૫૦ મિનિટ
	ડિસેમ્બર:	૫૦-૬૫ મિનિટ
	જાન્યુઆરી:	૬૫-૮૦ મિનિટ

Suggestion/s: Approved with following suggestion

1. Recast the recommendation with adding lateral irrigation with removing additional irrigation in intercropping
2. Add "banana equivalent yield" in the text of recommendation para
3. Add BCR column
4. Delete આંતરપાક તરીકે બ્રોકોલી વધુ નફાકારક છે in gujarati para

***(Action:** Res. Sci., SWMRU, NAU, Navsari)*

21.2.1.31

Title: Response of sugarcane to different row spacing and drip irrigation levels under South Gujarat condition

Recommendations for farming community

Farmers of South Gujarat growing drip irrigated sugarcane are recommended to adopt paired row planting (60 cm in pair and 120 cm between pair) with one lateral serving two rows of sugarcane in place of wider row spacing with drip lateral per each row and irrigated at 0.6 to 0.8 ETc for achieving higher cane yield and net profit along with 18 to 35 per cent water saving. *System details:*

Lateral spacing:	1.8 m	Dripper spacing :	0.60 m
Dripper discharge:	4 lph	Operating pressure :	1.20 kg/cm^2

Operating time (alternate day):

January:	80-110 minute	April:	165-190 minute
February:	85-136 minute	May-Jun:	190-202 minute
March:	130-160 minute	Nov.-Dec.:	95-115 minute

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ ગુજરતના ટપક પધ્ધતિથી શેરડી વાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે શેરડીની હાર વચ્ચે વધારે અંતર રાખી દરેક હારમાં ટપક પધ્ધતિની લેટરલ મુકવાની જગ્યાએ શેરડીને જોડીયા હારમાં (જોડની અંદર ૬૦ સે.મી. અને બે જોડ વચ્ચે ૧૨૦ સે.મી.) વાવેતર કરી બે હાર વચ્ચે એક લેટરલ મુકી અને ૦.૬ થી ૦.૮ ઈંટીસી ના દરે પિયત કરવાથી વધારે શેરડીના સાઠાનુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે સાથે ૧૮ થી ૩૫ ટકા પાણીની બચત થાય છે. પધ્ધતિની વિગત:

લેટરલ અંતર :	૧.૮૦ મી.	ડ્રીપર અંતર :	૦.૬૦ મી.
ડ્રીપર દર :	૪ લી/કલાક	ચલાવવાનું દબાણ :	૧.૨૦ કિગ્રા / સેમી^{૨}

ચલાવવાનો સમય (એકાન્તરે દિવસે):

જાન્યુઆરી :	૮૦-૧૧૦ મીનીટ	એપ્રિલ:	૧૬૫-૧૯૦ મીનીટ
ફેબ્રુઆરી:	૮૫-૧૩૬ મીનીટ	મે-જુન:	૧૯૦-૨૦૨ મીનીટ
માર્ચ:	૧૩૦-૧૬૦ મીનીટ	નવેમ્બર-ડીસેમ્બર:	૯૫-૧૧૫ મીનીટ

Suggestion/s: Approved with following suggestion

1. Add BCR column

***(Action:** Res. Sci., SWMRU, NAU, Navsari)*

21.2.1.32

Title: Effect of different forms of gypsum and wheat crop residue incorporation on rice-wheat cropping system in coastal salt affected soil

Recommendations for farming community

Farmers growing rice-wheat cropping system in coastal saline-sodic soils of South Gujarat are recommended to apply 50% of phosphogypsum powder during land preparation of *kharif* rice with 100% wheat straw incorporation in terms of straw production after harvest of *rabi* wheat every year followed by an irrigation for getting higher rice equivalent yield and net income. Further, application of phosphogypsum and wheat straw incorporation in addition to recommended dose of fertilizer (*kharif* rice 120:30:0 and *rabi* wheat 180:90:00 $N:P_2O_5:K_2O$ kg/ha) also improved soil properties especially organic carbon.

	ખેડુત ઉપયોગી ભલામણ દક્ષિણ ગુજરાતના દરિયાકાંઠાની ક્ષારીય-ભાસ્મિક જમીન વિસ્તારમાં ડાંગર- ઘઉં પાક પધ્ધતિનું વાવેતર કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે દર વર્ષે ૫૦ ટકા જીપ્સમની જરૂરીયાત મુજબનો ફોસ્ફોજીપ્સમ પાવડરનો જથ્થો ખરીફ ડાંગરની જમીનની તૈયારી સમયે અને રવિ ઘઉંની લણણી પછી ૧૦૦ ટકા ઘઉંના પરાળના ઉત્પાદનને જમીનમાં ઉમેરી ત્યાર બાદ પિયત આપવાથી ડાંગર સમકક્ષ વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. વધુમાં ભલામણ કરેલ ખાતર (ખરીફ ડાંગર ૧૨૦:૩૦:૦૦ અને રવિ ઘઉં ૧૮૦:૯૦:૦૦ ન: ફો: પો કિગ્રા/હે), ફોસ્ફોજીપ્સમ અને ઘઉંના પરાળનો ઉપયોગ જમીનનાં ગુણધર્મમાં સુધારો કરે છે મુખ્યત્વે સેંદ્રિય કાર્બન **Suggestion/s: Approved with following suggestion** 1. Add BCR column 2. Rice-wheat yield be replaced by rice equivalent yield 3. Adding "irrigation" in recommendation para after straw incorporation 4. Saline-sodic soil instead of coastal salt affected soil 5. Add dose of both the crops in text of recommendation para ***(Action:** Res. Sci., SWMRU, NAU, Navsari)*
21.2.1.33	**Title: Effect of gypsum and $CaCl_2$ amendments on reclamation of saline-sodic soil under rice and its residual effect on wheat crop** **Recommendations for farming community** Farmers growing rice-wheat cropping sequence in coastal saline-sodic soils of South Gujarat are recommended to apply 56.25% GR of phosphogypsum along with 18.75% GR of calcium chloride (1 ton of phosphogypsum = 0.817 ton of $CaCl_2$) during land preparation of *kharif* rice for getting higher rice equivalent yield and net income. Further, they are advised to apply recommended dose of fertilizers. Application of phosphogypsum with calcium chloride reduced soil sodicity. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતના દરિયાકાંઠાની ક્ષારીય-ભાસ્મિક જમીન વિસ્તારમાં ડાંગર-ઘઉ પાક પધ્ધતિનું વાવેતર કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે ખરીફ ડાંગરની જમીનની તૈયારી સમયે જીપ્સમની જરૂરીયાત મુજબનો ૫૬.૨૫% ફોસ્ફોજીપ્સમ પાવડરના જથ્થા સાથે ૧૮.૭૫ % કેલ્શિયમ ક્લોરાઇડનો જથ્થો (૧ ટન ફોસ્ફોજીપ્સમ = ૦.૮૧૭ ટન

કેલ્શિયમ ક્લોરાઇડ) ઉમેરવાથી ડાંગર સમકક્ષ વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. વધુમાં તેઓને ભલામણ કરેલ ખાતરનો જથ્થો આપવાની સલાહ આપવામા આવે છે. ફોસ્ફોજીપ્સમ સાથે કેલ્શિયમ ક્લોરાઇડનો ઉપયોગ કરવાથી જમીનની ભાસ્મીક્તામાં ઘટાડો થાય છે.

Suggestion/s: Approved with following suggestion

1. Add BCR Column
2. Mention rice equivalent yield instead of rice-wheat yield
3. Add (1 tone of gypsum equivalent to 0.817 $CaCl_2$) in recommendation para

***(Action:** Res. Sci., SWMRU, NAU, Navsari)*

21.2.1.34

Title: Effect of land configuration and irrigation level for beetroot grown after *kharif* rice

Recommendations for farming community

The farmers of South Gujarat growing beetroot during *rabi* season in *kyari* land are recommended to irrigate beetroot as per below table (1.0 IW/CPE) and to sow on broad bed furrow method with bed width: 90 cm and furrow depth: 30 cm by pair row planting at 30 cm (3 rows) x 15 cm: 45 cm for getting higher beetroot yield and net return.

Irrigation scheduling:

No. of Irrigation	Month	Interval (Days)
1st	December	At the time of sowing
2nd and 3rd	January	16-19 days
4th to 5th	February- April	12-14 days

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ ગજરાત વિસ્તારમાં રવિ ઋતુમાં ક્યારીવાળી જમીનમાં બીટરુટ ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે બીટરુટને પિયત નીચે આપેલ કોષ્ટક મુજબ (૧.૦ પાણી/સંચિત પાન બાષ્પીભવન ગુણોત્તર) આપવું તથા વાવણી ગાદીક્યારા પદ્ધતિમાં ગાદીક્યારાની પહોળાઈ ૯૦ સે.મી. અને નીકની ઊંડાઈ ૩૦ સે.મી. રાખી જોડિયા હાર ૩૦ સે.મી. (૩ હાર) x ૧૫ સે.મી.: ૪૫ સે.મી. ના અંતરે કરવાથી બીટરુટનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે.

પિયત સમયપત્રક:

પિયતની સંખ્યા	મહિનો	સમયગાળો (દિવસમાં)
પ્રથમ	ડીસેમ્બર	વાવણીના સમયે

	બીજું અને ત્રીજુ	જાન્યુઆરી	૧૬-૧૯(દિવસ આંતરે)
	ચાર થી પાંચ	ફેબ્રુઆરી-એપ્રિલ	૧૨-૧૪(દિવસ આંતરે)

Suggestion/s: Approved with following suggestion

1. Add kyari land word instead of after *kharif* rice in recommendation para
2. Add treatment combination I_3L_3 in recommendation para
3. Add Month wise details below recommendation para
4. Recast the text of recommendation para

***(Action:** Res. Sci., SWMRU, NAU, Navsari)*

21.2.1.35

Title: Enhancing productivity of rice based cropping system under aerobic rice cultivation

Recommendations for farming community

The farmers of South Gujarat following *kharif* aerobic rice based cropping system are recommended to adopt Rice (*kharif*)-Indian bean (vegetable) cropping sequence for achieving higher rice equivalent yield and net return along with improvement in soil-chemical properties.

ખેડુત ઉપયોગી ભલામણ

દક્ષિણ ગુજરાત વિસ્તારમાં ચોમાસુ એરોબીક ડાંગર આધારિત પાક પધ્ધતિ કરતાં ખેડુતોને ભલામણ કરવામાં આવે છે કે ડાંગર (ખરીફ)-પાપડી (શાકભાજી) પાક પધ્ધતિ અપનાવવાથી વધુ ડાંગર સમકક્ષ ઉત્પાદન અને ચોખ્ખાં નફાની સાથે જમીનની રાસાયણિક ગુણધર્મોમાં સુધારો થાય છે.

Suggestion/s: Approved with following suggestion

1. Add BCR Colum
2. Delete 'Physical properties' in text of recommendation para
3. Check the report in rice equivalent yield table

***(Action:** Res. Sci., SWMRU, NAU, Navsari)*

21.2.1.36

Title: Effect of nutrient management on sugarcane planted through single eye budded settling under south Gujarat condition

Recommendations for farming community

The farmers of south Gujarat planting sugarcane through single eye bud settling are recommended to apply FYM 25 t/ha or bio compost 15 t/ha and to fertilize the crop with 188-94-94 kg N-P_2O_5-K_2O/ha (in four splits @ 15 % at basal, 30 % at 1.5 month after planting, 20 % at 3 month after planting and 35 % at 5 month after planting) along with bio fertilizer application (*Acetobacter* + Phosphate solubilizing

	bacteria(PSB) + Potash mobilizing bacteria(KMB) applied two times as basal and before final earthing up @ 2.5 l/ha each both time) for saving 25 % fertilizer dose. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાત વિસ્તારમાં એક આંખના રોપાથી શેરડીની રોપણી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે ૨૫ ટકા ખાતરની બચત માટે શેરડીના પાકમાં છાણીયું ખાતર ૨૫ ટન/હે અથવા બાયોકમ્પોસ્ટ ૧૫ ટન/હે આપવુ અને ૧૮૮-૯૪-૯૪ નાઈટ્રોજન–ફોસ્ફરસ–પોટાશ કિલો/હે (ચાર હપ્તામા, ૧૫ % પાયામા, ૩૦ % રોપણી પછી ૧.૫ મહિને, ૨૦ % રોપણી પછી ૩ મહિને અને ૩૫ % રોપણી પછી ૫ મહિને) રાસાયણિક ખાતરની સાથે જૈવિક ખાતર (એસીટોબેકટર+ફોસ્ફેટ સોલ્યુબ્લાઇઝીંગ બેકટરીયા (પીએસબી)+પોટાશ મોબીલાઇઝીંગ બેકટરીયા(કેએમબી)) બે વખત, પાયામા અને પાળા ચઢાવતા પહેલા, ૨.૫ લિ./હે બંને વખતે આપવું. **Suggestion/s: Approved** ***(Action:** Res. Sci., MSRS, NAU, Navsari)*
21.2.1.37	**Title: Effect of nitrogen levels and growth retardants on cotton under HDPS** **Recommendations for farming community** Farmers of South Gujarat growing *Bt* cotton hybrid GTHH-49 (BG-II) with high density planting system (60 x 45 cm spacing) under irrigated condition are recommended to apply 300 kg nitrogen/ha in five equal splits (each of 60 kg N/ha) at 30, 60, 75, 90 and 105 days after sowing along with 40 kg P_2O_5/ha and 5 tonnes FYM/ha as basal dose and spray Mepiquat Chloride 5 % AS @ 37.5 g a.i./ha (1.5 ml/ lit of water) at 60 and 75 days after sowing for achieving higher seed cotton yield as well as net returns. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતના પિયત વિસ્તારમાં બીટી સંકર કપાસ જીટીએચએચ-૪૯ (બીજી-૨)નું સાંકડા ગાળે (૬૦ x ૪૫ સેમીના અંતરે) વાવેતર કરતા ખેડૂતોને હેક્ટર દીઠ કપાસનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે કુલ ૩૦૦ કીલો નાઈટ્રોજન/હેક્ટર, પાંચ સરખા હપ્તામાં (દરેક હપ્તે ૬૦ કીલો નાઈટ્રોજન/હેક્ટર) વાવણી બાદ ૩૦, ૬૦, ૭૫, ૯૦ અને ૧૦૫ દિવસે તથા હેકટર દીઠ ૪૦ કીલો ફોસ્ફરસ અને ૫ ટન છાણીયુ ખાતર પાયામાં આપવાની અને વાવણી બાદ ૬૦ અને ૭૫ દિવસે મેપીક્વાટ ક્લોરાઈડ ૫% એએસ ૩૭.૫

	ગ્રામ સક્રીય તત્વ/હેક્ટર પ્રમાણે (૧.૫ મીલી/ લીટર પાણી) બે વખત છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Mention Specing in ( ) 2. Add FYM 5 t/ha and 40 kg P_2O_5 in text of recommendation para 3. Delete word "monetory" from text of recommendation para ***(Action:** Res. Sci., MCRS, NAU, Surat)*
21.2.1.38	**Title: Feasibility of different intercrops in *Bt C*otton hybrid** **Recommendations for farming community** Farmers of South Gujarat growing *Bt* cotton hybrids under irrigated condition are recommended to adopt pair row planting system with 180 cm-60 cm x 45 cm spacing and grow three rows of vegetable Indian bean as intercrop at 45 x 15 cm spacing between two pairs of *Bt* cotton hybrid for achieving higher seed cotton equivalent yield and net return. Moreover, *Bt* cotton hybrid should be fertilized with 240 kg nitrogen/ha in five equal splits at 30, 60, 75, 90 and 105 days after sowing along with 40 kg P_2O_5 /ha and 5 tonnes FYM/ha as basal dose. Indian bean should be fertilized with 20-40-00 NPK kg/ha at the time of inter crop sowing. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતના પિયત વિસ્તારમાં હેક્ટર દીઠ કપાસનું વધુ સમકક્ષ ઉત્પાદન અને આર્થિક નફો મેળવવા માટે બીટી સંકર કપાસની વાવણી ૧૮૦ સેમી -૬૦ સેમી x ૪૫ સેમીનું અંતર રાખી જોડીયા હાર પધ્ધતિ અપનાવી અને કપાસની બે જોડી વચ્ચે ૪૫ x ૧૫ સેમીના અંતરે શાકભાજી પાપડીની ત્રણ હાર આંતર પાક તરીકે વાવવાની ભલામણ કરવામાં આવે છે. વધુમાં, બીટી સંકર કપાસને કુલ ૨૪૦ કીલો નાઈટ્રોજન/હેક્ટર, પાંચ સરખા હપ્તામાં વાવણી બાદ ૩૦, ૬૦, ૭૫, ૯૦ અને ૧૦૫ દિવસે તથા હેકટર દીઠ ૪૦ કીલો ફોસ્ફરસ અને ૫ ટન છાણીયુ ખાતર પાયામાં આપવું. શાકભાજી માટેની પાપડીને ૨૦-૪૦-૦૦ નાઇટ્રોજન: ફોસ્ફરસ:પોટાશ કીલો / હેકટર વાવણી સમયે આપવું. **Suggestion/s: Approved with following suggestion** 1. Add Fertilizer schedule 2. Add RDF of both crops in text of recommendation ***(Action:** Res. Sci., MCRS, NAU, Surat)*
21.2.1.39	**Title: Spacing and Fertilizer requirement of *kharif* grain sorghum** **Suggestion/s:** Conclude ***(Action:** Res. Sci., MSRS, NAU, Surat)*

21.2.1.40	**Title: Effect of different age of seedling for transplanting of *kharif* grain sorghum** **Recommendations for farming community** The farmers of south Gujarat growing sorghum crop are recommended to grow sorghum with direct sowing by drilling at onset of monsoon but, in case of delayed onset of monsoon, nursery sowing during mid of June and transplanting in 1st week of July (21 days age of seedling) for getting higher production and net returns. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતના જુવાર ઉગાડતા ખેડૂતોને ચોમાસુ શરૂ થતા બિજ વાવણી કરી જુવાર ઉગાડવાની ભલામણ કરવામાં આવે છે, પરંતુ ચોમાસાની શરૂઆત જો મોડી થાય તો, અન્ય વિકલ્પ તરીકે જૂનના મધ્યમાં નર્સરી વાવણી કરી અને (૨૧ દિવસનું ધરુ) જુલાઈના પહેલા અઠવાડિયામાં ફેરરોપણી કરવાથી સારું ઉત્પાદન અને ચોખ્ખું વળતર મળે છે. **Suggestion/s: Approved with following suggestion** 1. Replace word 'gives good' by 'for getting higher' in text of recommendation para ***(Action:** Res. Sci., MSRS, NAU, Surat)*
21.2.1.41	**Title: Effect of nitrogen scheduling and cultivars on *kharif* grain sorghum** **Recommendations for farming community** Farmers of south Gujarat growing *kharif* sorghum crop are recommended to apply seed treatment of *Azospirilium* + PSB @ 10 ml/kg seed and 5 t/ha FYM along with 80 kg/ha N in three splits *viz*.; 25% N as basal + 50% N at 30 DAS + 25% N at boot leaf stage (at 55-65 DAS) for achieving higher yield and net returns. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતના ખરીફ ઋતુમા જુવાર પાક ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખુ વળતર મેળવવા માટે એઝોસ્પિરિલિયમ + પી.એસ.બી. ૧૦ મિલિ./કિગ્રા. બિજ માવજત આપી, ૫ ટન/હે. છાણિયા ખાતર સાથે ૮૦ કિગ્રા/હે. નાઇટ્રોજન ત્રણ હપ્તામાં એટલે કે; ૨૫% નાઇટ્રોજન પાયામા + ૫૦% નાઇટ્રોજન વાવેતરના ૩૦ દિવસ બાદ + ૨૫% નાઇટ્રોજન પર્ણ ધ્વજ (વાવણીના ૫૫-૬૫ દિવસ બાદ) આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Add FYM 5 t/ha and seed treatment *Azospirilium* and *Azotobactor* 10 ml/kg seed in text of recommendation 2. Add yield in text of recommendation 3. Replace “word profitable” with “net return” ***(Action:** Res. Sci., MSRS, NAU, Surat)*

21.2.1.42	**Title: Response of pigeonpea to irrigation schedule** **Recommendations for farming community** The farmers of South Gujarat growing *kharif* pigeonpea are recommended to irrigate the crop in alternate furrow at 15 and 45 days after cessation of monsoon for getting higher yield, net return and saving 43% water. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતનાં ચોમાસુ તુવેર ઉગાડતાં ખેડૂતોને વધુ ઉત્પાદન અને આવક મેળવવા માટે પાકને ચોમાસુ પૂર્ણ થયા બાદ ૧૫ અને ૪૫ દિવસે એકાંતરે ચાસમાં પિયત આપવાની ભલામણ કરવામા આવે છે. વધુમા ૪૩ ટકા પાણીની બચત થાય છે. **Suggestion/s: Approved with following suggestion** 1. Delete word "irrigation" from text of recommendation 2. Write word “getting” in place of “achieving ***(Action:** Assoc. Res. Sci., ARS, NAU, Achhalia)*
21.2.1.43	**Title: Studies on spacing, irrigation levels and method on growth and yield of cotton** **Recommendations for farming community** The farmers of South Gujarat Agroclimatic Zone II cultivating irrigated Bt. cotton hybrid (G. Cot. Hy 12 BG II) for obtaining higher seed cotton yield and net return are recommended to sow the crop at 150 cm x 45 cm spacing and scheduled the irrigation in all furrows at 15, 33-35 and 58-60 days after cessation of monsoon (0.6 IW/CPE) **OR** schedule the irrigation in alternate furrow at 15, 29-30, 49-51 and 69-71 days after cessation of monsoon (0.8 IW/CPE) for saving about 36% irrigation water as compared to every furrow irrigation. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાત આબોહવાકીય વિભાગ-૨માં પિયત બીટી કપાસ (જાત-જી.કોટ.હાઇ. ૧૨ બિજી-II) વાવતાં ખેડૂતોને વધુ ઉત્પાદન અને આવક મેળવવા કપાસનું વાવેતર ૧૫૦ સેમી x ૪૫ સેમી અંતરે કરવું અને ચોમાસુ પૂર્ણ થયા બાદ બધા ચાસમાં ૧૫ દિવસે, ૩૩-૩૫ દિવસે અને ૫૮-૬૦ દિવસે પિયત આપવું (૦.૬ IW/CPE) અથવા એકાંતરે ચાસમાં ચોમાસુ પૂર્ણ થયા બાદ ૧૫ દિવસે, ૨૯-૩૦ દિવસે, ૪૯-૫૧ દિવસે અને ૬૯-૭૧ દિવસે પિયત (૦.૮ IW/CPE) આપવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિ અપનાવવાથી બધા ચાસમાં પિયત કરતા ૩૬% જેટલી પિયત પાણીની બચત થાય છે. **Suggestion/s: Approved with following suggestion** 1. Add South Gujarat Zone II in recommendation 2. Recast the recommendation para ***(Action:** Assoc. Res. Sci., ARS, NAU, Achhalia)*

21.2.1.44	**Title: Effect of spacing on the performance of sweet corn** **Recommendations for farming community** The farmers of south Gujarat growing sweet corn during the *rabi* season are recommended to sow at 60 cm X 20 cm spacing for getting higher yield and net return. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતમાં શિયાળુ ઋતુમાં મીઠી મકાઈ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે મીઠી મકાઈ નું ૬૦ સેમી x ૨૦ સેમી અંતરે વાવેતર કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Delete 'the crop' from text of recommendation ***(Action:** Professor Agronomy, NMCA, NAU, Navsari)*
21.2.1.45	**Title: Response of marvel grass (*Dichanthium annulatum*) to nitrogen and phosphorus** **Recommendations for farming community** The farmers of south Gujarat growing marvel grass are recommended to apply 90 kg N per ha (25 % as basal and 25 % each after 1st, 2nd and 3rd cut) for getting higher yield and net return. Moreover, application of phosphorus was not found beneficial. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતના મારવેલ ઘાસ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે હેકટરે ૯૦ કિગ્રા નાઇટ્રોજન (૨૫ % પાયામાં અને ૨૫% પહેલી, બીજી અને ત્રીજી દરેક કાપણી પછી) આપવાની ભલામણ કરવામાં આવે છે. વધુમાં, ફોસ્ફરસનો ઉપયોગ ફાયદાકારક જોવા મળેલ નથી. **Suggestion/s: Approved with following suggestion** 1. Check data NDF and ADF 2. Mention No. of cuts 3. Delete column of cellulose, hemicellulose and lignin from the table 3 ***(Action:** Professor Agronomy, NMCA, NAU, Navsari)*
21.2.1.46	**Title: Nutrient management in forage sunflower (*Helianthus annuus* L.) under south Gujarat condition** **Recommendations for farming community** The farmers of south Gujarat growing forage sunflower are recommended to apply 75 kg N /ha (37.5 kg/ha as basal and 37.5 kg/ha at 30 DAS) and 50 kg P_2O_5/ha along with FYM 5t/ha as basal for getting higher yield and net return

	ખેડુત ઉપયોગી ભલામણ દક્ષિણ ગુજરાતમાં ઘાસચારા તરીકે સૂર્યમુખી ઉગાડતા ખેડૂતોને લીલાચારાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે નાઇટ્રોજન ૭૫ કિગ્રા/હેકટરે (૩૭.૫ કિગ્રા/હેકટર પાયામાં અને ૩૭.૫ કિગ્રા/હેકટર ૩૦ દિવસ પછી) અને ફોસ્ફોરસ ૫૦ કિગ્રા/હેકટરે અને છાણિયું ખાતર ૫ ટન/ હેકટરે પાયામાં આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Add FYM 5 t/ha in text of recommendation para 2. Add at 50 % flowering stage in text of recommendation 3. Delete column of "cellulose, hemicellulose and lignin" from the table 4. Add harvesting days recommendation 5. Check the data and correct it in table 7 ***(Action:** Professor Agronomy, NMCA, NAU, Navsari)*
21.2.1.47	**Title: Influence of different organics on fruiting, yield and quality of mango (*Mangifera indica* L.) cv. Kesar** **Suggestion/s:** 1. Hold for more one year 2. Analysis of *gliricidia* leaf extract periodical interval (7 days interval upto spraying) ***(Action:** Professor, NRM, ACH, NAU, Navsari)*
21.2.1.48	**Title: Response of Barnyard millet to organics and their residual effect in *rabi* green gram** **Recommendations for farming community** The farmers of south Gujarat follow *kharif* barnyard millet–*rabi* green gram cropping sequence are advised to apply recommended dose of N (40 kg N/ha) through 3.5 t/ha biocompost (1.10 % N) or 7.5 t/ha FYM along with 2 L/ha *Azotobacter* and 2 L/ha PSB to barnyard millet and apply FYM 5 t/ha to succeeding *rabi* green gram crop for getting higher yield and net return. **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતમાં ચોમાસુ બંટી–શિયાળુ મગ પાક પધ્ધતિ અપનાવતા ખેડૂતોને વધુ ઉત્પાદન તેમજ નફાકારક ખેતી કરવા માટે બંટી પાકને ભલામણ કરેલ નાઇટ્રોજન ને (૪૦ કિગ્રા/હે) ૩.૫ ટન/હે બાયોકમ્પોસ્ટ (૧.૧૦ % નાઈટ્રોજન) અથવા ૭.૫ ટન/હે છાણિયા ખાતર મારફત અને સાથે ૨ લિ/હે એઝેટોબેક્ટર તથા ૨ લિ/હે પી.એસ.બી. જૈવિક ખાતર અને શિયાળુ મગ પાકને ૫ ટન/હે છાણિયુ ખાતર આપવાની ભલામણ કરવામાં આવે છે.

	Suggestion/s: Approved with following suggestion 1. Net return instead of profit 2. Delete word '(0.55% N)' from text of recommendation para ***(Action:** Professor Agronomy, CoA, NAU, Waghai)*
21.2.1.49	**Title: Response of paddy to foliar spray of organic liquid under hilly region of south Gujarat** **Recommendations for farming community** The farmers of south Gujarat growing *kharif* paddy (Sardar) organically are recommended to apply foliar spray of 3% panchgavya (300 ml per 10 lit. water) at 15, 30 and 45 DATP for getting higher and profitable yield **ખેડુત ઉપયોગી ભલામણ** દક્ષિણ ગુજરાતમાં સેંદ્રિય રીતે ચોમાસું ડાંગર (સરદાર) ની ખેતી કરતાં ખેડૂતોને વધુ અને નફાકારક ઉત્પાદન મેળવવા માટે પાકની ફેરરોપણી પછી ૧૫, ૩૦ અને ૪૫ દિવસે ૩ % પંચગવ્ય (૩૦૦ મિલી. પ્રતિ ૧૦ લી. પાણી) છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Delete the microbial population from table -7 2. Delete "BDLM" from text of recommendation para 3. Recommend only Panchgavya in recommendation para 4. Check the economics ***(Action:** Professor Agronomy, CoA, NAU, Waghai)*
21.2.1.50	**Title: Determination of heat unit indices and crop weather relationship of soybean (*Glycine max* L. Merrill)** **Suggestion/s:** 1. Approved for scientific information *(**Action:** Professor Agronomy, CoA, NAU, Bharuch)*
21.2.1.51	**Title: Effect of sulphur and zinc levels on yield and quality of sweet corn (*zea mays* L. Saccharata Sturt) and soil fertility status after harvest** **Recommendations for farming community** Farmers of South Gujarat cultivating rainfed sweet corn under sulphur and zinc deficient soils are recommended to fertilize the crop with 40 kg S/ha (44.50 kg/ha - Bentonite sulphur) + 5.0 kg Zn/ha (13.70 kg/ha- Zinc sulphate) in addition to the RDF i.e. 120:60:00 NPK kg/ha along with 10 t FYM/ha and treat the seeds with biofertilizer *Azotobacter*, PSB, and KMB (10 ml each/kg seed) for achieving profitable quality production. Besides, it also improves soil's sulphur and zinc availability.

	ખેડુત ઉપયોગી ભલામણ દક્ષિણ ગુજરાતના વરસાદ આધારિત સલ્ફર અને જસતની ઉણપવાળી જમીનમાં મીઠી મકાઈનું વાવેતર કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, તેઓ પાકને ૪૦ કિગ્રા સલ્ફર/હેક્ટર (૪૪.૫૦ કિગ્રા/હે-બેન્ટોનાઈટ સલ્ફર) + ૫.૦ કિગ્રા જસત/હેક્ટર (૧૩.૭૦ કિગ્રા/હે-ઝીંકસલ્ફેટ) સાથે ભલામણ કરેલ ખાતરનો જથ્થો ૧૨૦:૬૦:૦૦ નાઇટ્રોજન:ફોસ્ફરસ:પોટાશ કિગ્રા/હેક્ટર તથા ૧૦ ટન છાણીયું ખાતર ઉપરાંત બીજને જૈવિક ખાતર એઝોટોબેક્ટર, પીએસબી અને કેએમબી (૧૦ મિલી/કિગ્રા બીજ) થી માવજત કરતાં પાકનું નફાકારક તેમજ ગુણવત્તા સભર ઉત્પાદન લઈ શકાય છે. વધુમાં, આમ કરવાથી જમીનમાં સલ્ફર અને જસતની ઉપલબ્ધતામાં પણ નોંધપાત્ર વધારો થાય છે. **Suggestion/s: Approved with following suggestion** 1. Delete word "જેવા કે" from Gujarati para *(**Action:** Professor Agronomy, CoA, NAU, Bharuch)*

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21.2.1.52	**Title: Effect of potassium and sulphur on wheat-greengram sequence** **Recommendation for farming community** The farmers of North Gujarat agro-climatic zone IV adopting wheat-greengram cropping sequence having medium available potash and sulphur of soil are recommended to apply 30 kg K_2O/ha in two equal splits (basal and at 30 DAS) and 40 kg S/ha to wheat besides 90:60 kg N:P_2O_5/ha along with 10 t FYM/ha and NPK consortium @ 5.0 ml/kg seed and recommended dose of fertilizer (20:40:00 kg N:P_2O_5:K_2O/ha) to succeeding summer greengram for obtaining higher wheat equivalent yield and net returns. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના મધ્યમ લભ્ય પોટાશ અને સલ્ફર ધરાવતી જમીનમાં ઘઉ-મગ પાક પદ્ધતિ અપનાવતા ખેડૂતોને હેક્ટરદીઠ વધુ ઘઉ સમતુલ્ય ઉત્પાદન અને નફો મેળવવા માટે ઘઉને ૩૦ કિગ્રા પોટાશ પ્રતિ હેકટર બે સરખા હપ્તામાં (વાવણી વખતે અને વાવણી બાદ ૩૦ દિવસે) અને ૪૦ કિગ્રા ગંધક પ્રતિ હેકટર ઉપરાંત ૯૦: ૬૦ કિગ્રા ના: ફો પ્રતિ હેકટર તેમજ ૧૦ ટન છાણિયુ ખાતર પ્રતિ હેકટર અને

	એનપીકે કન્સોર્ટિયમ (૫ મિલી/કિગ્રા બીજ) અને ઉનાળુ મગને ભલામણ કરેલ ખાતર (૨૦:૪૦:૦૦ કિગ્રા ના:ફો:પો પ્રતિ હેકટર) આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Replace word "have" with "having" in text of recommendation para **(Action:** *Prof. and Head, Dept. of Agronomy, CPCA, SDAU, Sardarkrushinagar*)
21.2.1.53	**Title: Response of forage sorghum (*Sorghum bicolor* L.) to nano urea** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing forage sorghum are recommended to apply 40 kg N and 40 kg P_2O_5/ha along as basal and foliar application of 4% urea at 30 and 55 days after sowing besides 10 t FYM/ha as basal for getting higher forage sorghum yield and net return. This also saves 27 % of nitrogen. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪ના ઘાસચારા જુવારનું વાવેતર કરતા ખેડુતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે હેક્ટર દીઠ ૪૦ કિગ્રા નાઇટ્રોજન અને ૪૦ કિગ્રા ફોસ્ફરસ પાયામાં અને ૪ ટકા યુરિયા દ્રાવણનો વાવણી બાદ ૩૦ અને ૫૫ દિવસે છંટકાવ ઉપરાંત ૧૦ ટન છાણિયું ખાતર પાયામાં આપવાની ભલામણ કરવામાં આવે છે. જેનાથી ઘાસચારા જુવારમાં ૨૭ ટકા નાઇટ્રોજનની બચત થાય છે. **Suggestions:** 1. Recast recommendation text 2. Write recommended treatment first than write besides 10 t FYM (**Action: -** *Prof. and Head, Dept. of Soil Science, CPCA, SDAU, Sardarkrushinagar*)
21.2.1.54	**Title: Phosphorus management in groundnut (*Arachis hypogaea* L.)** **Recommendation for farming community** The farmers of North Gujarat Agro Climatic Zone IV growing *kharif* groundnut having medium phosphorus status of soil are recommended to apply 50% RDP (12.5 kg P_2O_5/ha) through either PROM or DAP besides recommended dose of fertilizer (12.5:20:25:15 kg N:K_2O:S:Fe/ha). **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ના મધ્યમ ફોસ્ફરસ ધરાવતી જમીનમાં મગફળી વાવતા ખેડૂતોને ફોસ્ફરસ જથ્થાના ૫૦ ટકા (૧૨.૫ કિગ્રા

	ફોસ્ફરસ/હેકટર) પ્રોમ અથવા ડીએપીના રૂપમાં ભલામણ કરેલ ખાતર (૧૨.૫:૨૦:૨૫:૧૫ કિગ્રા. ના.:પો.:સ.:લોહ/હેકટર) ઉપરાંત આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Delete data of economics of treatment combinations 2. Add "*Kharif*" in the text of recommendation para **(Action:** *Unit Head, Bio Science Research Station, SDAU, Sardarkrushinagar*)
21.2.1.55	**Title: Performance evaluation of agrivoltaic system for crop productivity and power generation** **Recommendation for farming community** The farmers of North Gujarat agro climatic zone IV interested in growing crops under solar power structure are recommended to adopt overhead double frame equal space string (Chess board pattern having dimension of 1990 mm × 980 mm, 10 plates in each structure and power generation of 3.26 Kw) South end at 10.5 feet height from ground level and grow green manuring-linseed- cluster bean (veg.) or green manuring-fenugreek-okra crop sequence for getting higher system net return with solar power generation. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત અબોહવાકીય વિભાગ ૪ ના સોલાર સ્ટ્રક્ચરની નીચે પાકની વાવણીમાં રસ ધરાવતા ખેડૂતોને સોલાર પાવર ઉત્પાદન સાથે વધુ નફો મેળવવા માટે ૧૦.૫ ફુટ ઉંચાઈ, સરખી જગ્યાનું ડબલ ફ્રેમ ચેસ બોર્ડ પેટર્ન વાળા સોલાર સ્ટ્રક્ચર (સાઇઝ ૧૯૯૦ એમ.એમ x ૯૮૦ એમ.એમ., દરેક સ્ટ્રક્ચરમા ૧૦ પ્લેટ અને ૩.૨૬ કીલો વોટ વિધુત ઉત્પાદન) ની નીચે ચોમાસુ લીલો પડવાસ-અળસી-શાકભાજીનો ગુવાર અથવા ચોમાસુ લીલો પડવાસ-મેથી-ભીંડાની પાક પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestion** 1. Add "Structure size" & "Solar power generation" in the text of recommendation para. 2. Replace words "advised" with "recommended", "to achieve" with "for getting" and "profit" with "return" in the text of recommendation para **(Action:** *Research Scientist, Centre for Research on IFS, SDAU, Sardarkrushinagar*)
21.2.1.56	**Title: Sustainable resource management for climate smart IFS model for North Gujarat condition (1.0 ha)** **Recommendation for farming community** The small and marginal farmers of North Gujarat Agro Climatic Zone IV are recommended to adopt following integrated farming systems approach under irrigated condition for obtaining higher groundnut equivalent yield, system productivity,

system profitability and employment generation, improvement in carbon sequestration, soil fertility with low greenhouse gas emission, assured livelihood, nutritional security and increasing climate resilient sustainability with wide range of crops and cropping systems.

Sr. No.	Components of IFS	Area (ha)
1	C_1: Groundnut-potato-pearlmillet	0.23
	C_2: Green gram-fennel+ cabbage (1:1)-fennel continue	0.23
	C_3: Groundnut-wheat-green gram	0.23
	C_4: Seasonal vegetables	0.10
	C_5: Fodder pearl millet-lucerne-lucerne continue	0.13
2	Livestock (Two Mehsani buffaloes) + vermicompost	0.035
3	*Azolla*	0.01
4	Fruits and vegetables seedling/sapling nursery	0.01
5	Composting	0.01
6	Boundary plantation **I**. Drum stick: 30, Subabool: 50, Aonla: 20, Gliricidia: 50, **II.** Fodder crops: bajra napier hybrid on bunds **III.** Creepers vegetables on farm fencing	---
7	Farm pond	0.015
	Total	**1.00**

ખેડૂતોપયોગી ભલામણ

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪ માં પિયત વિસ્તારના નાના અને સીમાંત ખેડૂતોએ એકમ વિસ્તારમાંથી મગફળી સમતુલ્ય ઉત્પાદન, ઉત્પાદકતા, નફાકારકતા, ખેડૂત કુટુંબના સભ્યોને વર્ષ દરમ્યાન નિયમિત રોજગારી, કાર્બન સ્થિરીકરણ, ખેડૂત કુટુંબની આજીવિકા પોષણની સુરક્ષા, આબોહવા પ્રતિરોધક ટકાવપણું તેમજ જમીનની ફળદ્રુપતા વધારવા અને ગ્રીન હાઉસ ગૅસ ઘટાડવા નીચે મુજબના સંકલીત ખેતી પધ્ધતિ મોડલના ઘટકો અપનાવવાની ભલામણ કરવામાં આવે છે.

અ. નં.	સંકલીત ખેતી પધ્ધતિના ઘટકો	વિસ્તાર (હે.)
૧	C_1: મગફળી-બટાટા-બાજરી	૦.૨૩
	C_2: મગ-વરિયાળી+કોબીજ (૧:૧)-વરિયાળી	૦.૨૩
	C_3: મગફળી-ઘઉં-મગ	૦.૨૩

	C_4: ઋતુમુજબના શાકભાજી	૦.૧૦
	C_5: ઘાસચારાની રાજકાબાજરી-રજકો-રજકો	૦.૧૩
૨	પશુપાલન (બે મહેસાણી ભેંસ) + અળસીયા ખાતર	૦.૦૩૫
૩	એજોલા	૦.૦૧૦
૪	ફળ અને શાકભાજીના ધરુ/રોપા માટેની નર્સરી	૦.૦૧૦
૫	કંપોસ્ટિંગ	૦.૦૧૦
૬	શેઢાપાળાના ઝાડ: I. સરગવા-૩૦, સુબાબુલ- ૫૦,આમળા- ૨૦, ગલીરીસિડીયા- ૫૦ II. શેઢા પાળા પર બાજરા નેપિયર હાઇબ્રીડ ઘાસ, III. વેલાવાળા શાકભાજી	---
૭	ખેત તલાવડી	૦.૦૧૫
	કુલ વિસ્તાર	૧.૦૦

Suggestion/s: Approved with following suggestion

1. In Sr. No. 6 write "bajra napier hybrid" instead of "Hybrid napier".

(Action: *Research Scientist, Centre for Research on IFS, SDAU, Sardarkrushinagar*

21.2.1.57

Title: Effect of date of sowing and spacing on spine gourd

Recommendation for farming community

The farmers of North Gujarat Agro-climatic Zone IV growing spine gourd with telephone system are recommended to plant sapling during last week of April at 100 cm × 60 cm spacing by maintaining 1:4 (male: female) ratio for obtaining higher yield and net return.

ખેડૂતોપયોગી ભલામણ

ઉતર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪-મા મંડપ પધ્ધતિથી કંકોડાની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે એપ્રિલ માસ ના છેલ્લા અઠવાડિયામા ૧૦૦ સે.મી. x ૬૦ સે.મી. ના અંતરે ૧ : ૪ ના પ્રમાણ માં નર અને માદા ના છોડ રાખી રોપાની ફેર વાવણી કરવા ભલામણ કરવામા આવે છે.

Suggestion/s: Approved with following suggestion

1. Add "with telephone system" in the recommendation para
2. Recast the language in text of Guajarati version

(Action: *Asso. Res. Scientist, Centre for Crop Improvement, SDAU, Sardarkrushinagar*)

21.2.1.58	**Title: Response of grain amaranth (*Amaranthus hypochondriacus* L.) to nano urea** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone (IV) growing grain amaranth are recommended to apply 30 kg N and 40 kg P_2O_5/ha as basal and foliar application of urea @ 2 % at 30 and 50 days after sowing besides 5 t FYM/ha as basal for getting higher grain yield and net return. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ના રાજગરાનું વાવેતર કરતા ખેડુતોને વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે હેક્ટર દીઠ ૩૦ કિગ્રા નાઇટ્રોજન અને ૪૦ કિગ્રા ફોસ્ફરસ પાયામાં આપવો અને ૨% યુરિયા દ્રાવણના વાવણી બાદ ૩૦ અને ૫૦ દિવસે છંટકાવ ઉપરાંત ૫ ટન છાણિયું ખાતર પાયામાં આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions** 1.Recast recommendation text 2. Write recommended treatment first than write besides 5 t FYM 3. "Nano urea" treatment "T_9" taken as scientific information **(Action: -** Asso. Res. Scientist, Centre for Crop Improvement, SDAU, Sardarkrushinagar)
21.2.1.59	**Title: Nutrient management in sunhemp (GM)-potato-groundnut and groundnut-potato-groundnut cropping sequence under organic farming** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV are recommended to adopt groundnut-potato-groundnut crop sequence under organic farming and should follow below mentioned nutrient management practices for getting higher potato equivalent yield and net return. 1. Apply FYM @ 5 t/ha before sowing and 12.5 kg N/ha through castor cake 15 days before sowing to *kharif* groundnut 2. Apply 165 kg of N/ha through castor cake 15 days before planting of potato. and 1 litre of Anubhav Bio NPK consortia/ha during the first irrigation and spray *panchgavya* @ 3% solution at 30, 45 and 60 days after planting

	3. Apply seed treatment with Anubhav Bio NPK consortia (5 ml/kg seed) and 18.75 kg N/ ha through castor cake and spray *panchgavya* @ 3% solution at 45 and 60 DAS to summer groundnut. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ૪માં સજીવ ખેતીમાં મગફળી-બટાકા-મગફળીની પાક પધ્ધતિ અપનાવતા ખેડુતોને બટાકા સમકક્ષ વધુ ઉત્પાદન અને નફો મેળવવા માટે નીચે મુજબ ખાતર આપવાની ભલામણ કરવામાં આવે છે ૧. મગફળીના પાકને ચોમાસામાંવાવણીના ૧૫ દિવસ પહેલા હેક્ટર દીઠ ૧૨.૫ કિલો નાઇટ્રોજન દિવેલી ખોળ મારફત તથા વાવેતર પહેલા હેક્ટર દીઠ ૫ ટન છાણિયુ ખાતર આપવો. ૨. બટાકાના પાકમાં વાવણીના ૧૫ દિવસ પહેલા હેક્ટર દીઠ ૧૬૫ કિલો નાઇટ્રોજન દિવેલી ખોળ મારફત તથા પ્રથમ પિયત વખતે હેક્ટરે ૧ લી. અનુભવ બાયો NPK consortia આપવું અને ત્યારબાદ ૩ ટકા પંચગવ્યનો રોપણી બાદ ૩૦, ૪૫ અને ૬૦ દિવસે છંટકાવ કરવો. ૩. ઉનાળુ મગફળીના પાકમાં વાવણી વખતે બિયારણને અનુભવ બાયો NPK consortia (૫ મી.લી/કી.ગ્રા.) ની બીજ માવજત આપવી અને હેક્ટર દીઠ ૧૮.૭૫ કિ.ગ્રા નાઇટ્રોજન દિવેલી ખોળ મારફત આપવો તથા ૩ ટકા પંચગવ્યના દ્રાવણનો ૪૫ અને ૬૦ દિવસે છંટકાવ કરવો. **Suggestion/s: Approved with following suggestion** 1. Check the data of "Nickel" in Table-11 2. Delete "3626 kg" from text of recommendation para **(Action:** *Research Scientist, CNRM, SDAU, Sardarkrushinagar*)
21.2.1.60	**Title: Response of pearl millet (*Pennisetum glaucum* L.) to nano urea under rainfed condition** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing pearlmillet under rainfed conditions are recommended to apply 40 kg N and 40 kg P_2O_5/ha as basal and foliar application of urea @ 4 % at 25 and 45 days after sowing besides 10 t FYM/ha as basal for getting higher grain yield and net return.

	ખેડૂતોપયોગી ભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ના વરસાદ આધારિત બાજરીનું વાવેતર કરતા ખેડુતોને વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે ૪૦ કિગ્રા નાઇટ્રોજન અને ૪૦ કિગ્રા ફોસ્ફરસ પાયામાં આપવો અને ૪% યુરિયા દ્રાવણ વાવણી બાદ ૨૫ અને ૪૫ દિવસે છંટકાવ ઉપરાંત ૧૦ ટન છાણિયું ખાતર નાખવાની પાયામાં ભલામણ કરવામાં આવે છે. જેનાથી યુરીયા છંટકાવમાં ૨૭ ટકા નાઇટ્રોજનની બચત થાય છે **Approved with following suggestions** 1. Recast recommendation text 2. Write recommended treatment first than write besides 10 t FYM 3. "Nano urea" treatment "T_9" taken as scientific information **(Action: -** *Research Scientist, CNRM, SDAU, Sardarkrushinagar*)
21.2.1.61	**Title: Response of castor (*Ricinus communis)* to nano urea** **Suggestion/s:** Approved for scientific community **(Action:** *Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar*)
21.2.1.62	**Title: Response of mustard (*Brassica juncea*) to nano urea** **Suggestions:** Approved for scientific community **(Action:** *Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar*)
21.2.1.63	**Title: Long term fertility on cropping system involving rapeseed-mustard (*kharif* moong-mustard)** **Suggestions:** Approved for scientific community **(Action:** *Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar*)
21.2.1.64	**Title: Effect of spacing and row ratio on seed production of castor (var. GCH 8)** **Recommendation for farming community** The seed producers of castor hybrid GCH 8 are recommended to dibble female JP 96 and male DCS 89 parents in the ratio of 3:1 at 150 cm × 60 cm spacing for obtaining higher seed yield with standard genetic purity and net return. **ખેડૂતોપયોગી ભલામણ** દિવેલા જી.સી.એચ. ૮નું બીજ ઉત્પાદન કરતા બીજ ઉત્પાદકોને ધારા ધોરણ મુજબની જનીનિક શુદ્ધતા, બીજ ઉત્પાદન અને નફો મેળવવા માટે માદા જે.પી. ૯૬ અને

	નર ડી.સી.એસ. ૮૯ નું વાવેતર ૩:૧ ના ગુણોત્તરમાં બે હાર વચ્ચે ૧૫૦ સે.મી. અને બે છોડ વચ્ચે ૬૦ સે.મી. અંતર રાખી વાવણી કરવાની ભલામણ કરવામાં આવે છે. **Suggestions:** **Approved** (**Action:** *Research Scientist, Department of Seed Technology, SDAU, Sardarkrushinagar*)
21.2.1.65	**Title: Response of summer fodder sorghum to NPK fertilization** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing multicut fodder sorghum are recommended to apply 30 kg N/ha, 60 kg P_2O_5/ha and 40 kg K_2O/ha as basal and 90 kg N/ha in three equal splits (at 35 DAS, after first cut and second cut) to obtain higher green and dry fodder yield and net returns. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ધાસચારાની બહુકાપણી જુવારનું વાવેતર કરતા ખેડુતોને લીલા અને સુકા ધાસચારાનું વધારે ઉત્પાદન અને નફો મેળવવા માટે પ્રતિ હેકટરે ૩૦ કિલો ગ્રામ નાઈટ્રોજન, ૬૦ કિલોગ્રામ ફોસ્ફરસ અને ૪૦ કિલોગ્રામ પોટાશ વાવણી સમયે પાયાના ખાતર તરીકે અને ૯૦ કિલો ગ્રામ નાઈટ્રોજન પ્રતિ હેકટરે ત્રણ સરખા હપ્તામાં (વાવણી બાદ ૩૫ દિવસે, પ્રથમ અને બીજી કાપણી બાદ) આપવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestions** 1. Delete word “application” and “a” from English version of recommendation para (**Action:** *Research Scientist, Department of Seed Technology, SDAU, Sardarkrushinagar*)
21.2.1.66	**Title: Effect of micronutrient on yield of sorghum-fenugreek cropping sequence** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV following sorghum-fenugreek cropping sequence are recommended to apply 60 kg N and 40 kg P_2O_5/ha to sorghum and 20 kg N and 40 kg P_2O_5/ha to fenugreek along with foliar spray of 1% solution of multi-micronutrient grade IV (Fe-4.0%, Mn-1.0%, Zn-6.0%, Cu-0.5%, B-0.5%) to both the crops at 30, 45 and 60 DAS for getting higher sorghum equivalent yield and net profit. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૪ના જુવાર-મેથી પાક પધ્ધતિમાં જુવાર સમકક્ષ વધુ ઉત્પાદન અને નફો મેળવવા માટે જુવારના પાકને હેક્ટર દીઠ ૬૦

	કિગ્રા નાઇટ્રોજન તથા ૪૦ કિગ્રા ફોસ્ફરસ અને મેથીને હેકટર દિઠ ૨૦ કિગ્રા નાઇટ્રોજન તથા ૪૦ કિગ્રા ફોસ્ફરસ તેમજ મલ્ટિ-માઇક્રોન્યુટ્રિઅન્ટ ગ્રેડ-૪ (Fe-4.0%, Mn-1.0%, Zn-6.0%, Cu-0.5%, B-0.5%)ના ૧% દ્રાવણને બન્ને પાકોન વાવણી બાદ ૩૦, ૪૫ અને ૬૦ દિવસે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestions** 1. Check data of "Fe content in plant" in Table-10 **(Action: -** *Research Scientist, Centre for Millet Research, SDAU, Deesa*)
21.2.1.67	**Title: Effect of fertilizer levels and cow based bioenhancer on *rabi* fennel (*Foeniculum vulgare* Mill.)** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing *rabi* fennel are recommended to apply 67.50 kg N/ha + 22.5 kg P_2O_5/ha of which 17 kg N/ha and 22.5 kg P_2O_5/ha as basal and remaining 51 kg N/ha in three equal splits at 20, 40 and 60 DAS besides 5 t FYM/ha for getting higher yield and net return. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત અબોહવાકીય વિભાગ-૪ ના રવિ વરિયાળી વાવતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ૬૭.૫ કિગ્રા નાઇટ્રોજન પ્રતિ હેક્ટર + ૨૨.૫ કિગ્રા ફોસ્ફરસ પ્રતિ હેક્ટર આપવો. જે પૈકી ૧૭.૦૦ કિ.ગ્રા. નાઇટ્રોજન પ્રતિ હેક્ટર અને ૨૨.૫ કિ.ગ્રા. ફોસ્ફરસ પ્રતિ હેક્ટર પાયામાં અને બાકીનો ૫૧ કિ.ગ્રા. નાઇટ્રોજન ત્રણ સરખા હપ્તામાં ૨૦, ૪૦ અને ૬૦ દિવસે આપવો ઉપરાંત પાયામાં ૫ ટન/હેક્ટર છાણિયું ખાતર આપવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestions** 1. Check the data of "CV% " in funnel 2. Recast the recommendation para **(Action:** *Research Scientist, Seed Spices Research Station, SDAU, Jagudan*)
21.2.1.68	**Title: Response of fennel (*Foeniculum Vulgare* MILL.) to nano urea** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing *rabi* fennel are recommended to apply 45 kg N and 30 kg P_2O_5/ha as basal and foliar application of 2% urea at 30, 60 and 90 days after sowing besides 10 t FYM as basal for getting higher yield and net return.

	ખેડૂતોપયોગી ભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ના રવિ વરિયાળીનું વાવેતર કરતા ખેડુતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે પ્રતિ હેક્ટર ૪૫ કિગ્રા નાઇટ્રોજન અને ૩૦ કિગ્રા ફોસ્ફરસ પાયામાં આપવો અને ૨ ટકા યુરિયાનો વાવણી બાદ ૩૦, ૬૦ અને ૯૦ દિવસે છંટકાવ ઉપરાંત ૧૦ ટન છાણીયું ખાતર નાખવાની ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Consider the treatment T_3 instead of T_4 for recommendation 2. Recast recommendation text 3. Write recommended treatment first than write besides 10 t FYM **(Action: -** Research Scientist, Seed Spices Research Station, SDAU, Jagudan)
21.2.1.69	**Title: Effect of fertilizer levels on growth and yield of broccoli (*Brassica oleracea var. italica*)** **Suggestions:** 1. Conclude the experiment **(Action:** *Principal, College of Horticulture, Jagudan*)
21.2.1.70	**Title: Module based organic wheat package of practice** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing wheat under organic farming are recommended to adopt following module for getting higher yield and net return. 1. Apply 90 kg N/ha through castor cake 2. Soil application of *Trichoderma viridie* @ 1.5 kg/ha + PSB and *Azotobacter* each @ 1 lit/ha as soil application + *Metarhizium anisopliae* @ 1.0 kg/ha enriched with 50 kg FYM 3. Soil application of Jivamrut @ 500 lit/ha at sowing, 30 and 60 DAS 4. Foliar application of *Panchgavya* @ 3% at 30 and 45 DAS **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર ૪ના સેન્દ્રિય ખેતી હેઠળ ઘઉંની વાવણી કરતાં ખેડુતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે નીચે મુજબના પગલા લેવા ભલામણ કરવામાં આવે છે. ૧. જમીનમાં પ્રતિ હેક્ટરે ૯૦ કિ.ગ્રા .નાઇટ્રોજન દિવેલી ખોળના રૂપે આપવો

	૨. જમીનની તૈયારી વખતે ૧.૫ કિ.ગ્રા. ટ્રાઇકોડર્મા વીરીડી + એક-એક લીટર પીએસબી અને એઝોટોબેક્ટર કલ્ચર + ૧ કિ.ગ્રા. મેટારીઝીયમ એનીસોપ્લી દ્વારા સમૃદ્ધ કરેલ ૫૦ કિ.ગ્રા. છાણીયુ ખાતર આપવું ૩. વાવણી સમયે તથા વાવણી બાદ ૩૦ અને ૬૦ દિવસે પ્રતિ હેક્ટરે ૫૦૦ લીટર જીવામૃત જમીનમાં આપવું ૪. વાવણી બાદ ૩૦ અને ૪૫ દિવસે પંચગવ્યના ત્રણ ટકાના દ્રાવણનો છંટકાવ કરવો. **Suggestions: Approved with following suggestions** 1. Approved (**Action:** *Research Scientist, Wheat Research Station, SDAU, Vijapur*)
21.2.1.71	**Title: Performance of Soyabean varieties under various spacing** **Recommendation for farming community** The farmers of North Gujarat Agro-climatic Zone IV growing soyabean are recommended to sow the soyabean at a distance of 30 cm for getting higher yield and net profit. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ – ૪ માં સોયાબીનનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા સોયાબીનનું 30 સે.મી. ના અંતરે વાવેતર કરવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestions** 1. Approved (**Action:** *Asso. Research Scientist, Agricultural Research Station, SDAU, Ladol*)
21.2.1.72	**Title: Response of maize (*Zea mays*) to nano urea** **Suggestions: Approved with following suggestions** 1. Approved for scientific community (**Action:** *Principal, Polytechnic in Agriculture, Khedbrahma*)
21.2.1.73	**Title: Mix cropping study of greengram in castor under rainfed condition** **Recommendation for farming community** The farmers of North-West Gujarat Agro-climatic Zone V growing greengram under rainfed condition are recommended for intra-row mixed cropping of castor at 60 cm intra row spacing in every 3rd row of greengram or castor + green gram (1:1) intercropping for getting higher greengram equivalent yield, land equivalent ratio, rainwater use efficiency and net profit.

	ખેડૂતોપયોગી ભલામણ ઉત્તર-પશ્ચિમ ગુજરાત ખેત આબોહવાકીય વિભાગ ૫ માં વરસાદ આધારિત મગનું વાવેતર કરતાં ખેડૂતોને વધુ મગ સમકક્ષ ઉત્પાદન, જમીન સમકક્ષ ગુણોતર, વરસાદી પાણીનો કાર્યક્ષમ ઉપયોગ અને નફો મેળવવા માટે ૪૫ સે.મી. અંતરે વાવેતર કરેલ મગની દરેક ત્રીજી હારમાં દિવેલાનું બે છોડ વચ્ચે ૬૦ સે.મી. અંતરે આંતરપાક તરીકે અથવા દિવેલા + મગ (૧:૧) આતર પાક પધ્ધતિ વાવેતર કરવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestions** 1. Replace word "intercropping" with "intra row mix cropping" in the recommendation para and recast the para **(Action:** *Research Scientist, Dry Farming Research Station, Radhanpur*)
21.2.1.74	**Title: Response of isabgol (*Plantago ovate* Forsk.) to nano urea** **Suggestions:** 1. Approved for scientific community **(Action:** *Asso. Res. Scientist, Agricultural Research Station, Kholwada*)
21.2.1.75	**Title: Response of mustard (*Brasicca junceia*) to nano urea under salt affected soils** **Recommendation for farming community** The farmers of North-West Gujarat Agro-climatic Zone-V growing mustard are recommended to apply 25 kg N, 50 kg P_2O_5 and 40 kg S/ha as basal and two foliar spray of 4 % urea at 30 and 50 DAS besides 5 t FYM as basal for obtaining higher seed yield and net profit under salt affected soils. **ખેડૂતોપયોગી ભલામણ** ઉત્તર-પશ્ચિમ ગુજરાત ખેત આબોહવાકીય વિભાગ-૫ માં ક્ષારીય જમીનમાં રાઇનું વાવેતર કરતાં ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે પ્રતિ હેક્ટરે ૨૫ કિ.ગ્રા. નાઇટ્રોજન, ૫૦ કિ.ગ્રા. ફોસ્ફરસ અને ૪૦ કિગ્રા સલ્ફર પાયામાં અને ૪ % યુરિયાના દ્રાવણનો ૩૦ અને ૫૦ દિવસે છંટકાવ ઉપરાંત ૫ ટન છાણીયું ખાતર આપવાની ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Recast recommendation text for farming community 2. Write recommended treatment first than write besides 5 t FYM 3. Treatment "T_8" be approved for scientific community **(Action: -** *Assistant Research Scientist, Agricultural Research Station, Adiya*)

21.2.2 INFORMATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.2.2.1

Title: Effect of Nano Zn on crop growth, yield and its content in maize-wheat cropping sequence

Information to the scientific community

An application of recommended dose of fertilizers (Maize: 160-60-00 NPK kg/ha, and Wheat: 120-60-00 NPK kg/ha) along with different doses of Zn nano particles does not affect yield attributes, grain yield, content and uptake of Zn in maize-wheat cropping sequence.

However, an application of recommended dose of fertilizers (Maize: 160-60-00 NPK kg/ha and Wheat: 120-60-00 NPK kg/ha) along with foliar spray of 0.50% zinc sulphate at 30, 45 and 60 DAS gave higher grain yield, content and uptake of Zn in maize-wheat cropping sequence in comparison to Nano Zn.

Suggestion/s: Approved

(**Action:** *Research Scientist & Head, Micronutrient Research Centre, Anand*)

21.2.2.2

Title: Screening of wheat varieties for Zinc efficiency based on yield and uptake efficiency

Information to the scientific community

The genotypes/varieties of wheat were classified into four groups using Zn efficiency and average yield of genotypes/varieties under Zn deficient conditions. Summary of the classified groups are given below:

Group I	Group II	Group III	Group IV
Efficient and Responsive (ER)	**Efficient and Non Responsive (ENR)**	**Inefficient and Responsive (IER)**	**Inefficient and Non Responsive (IENR)**
GW 496, GW 547, HI 1544, GW 1364, GW 451, GW 513	GW 322, GW 540, GW 541, GW 536, HI 8737, HI 8498	GW 366, GW 499, GW 1363, GW 1346	GDW 1255, GW 1360, GW 1361, GW 537

Genotypes/varieties under ER group would be most suitable for cultivation under Zn deficient condition as they would yield higher and respond well to Zn application.	Genotypes/varieties under the ENR group can be sown to Zn deficient soil where further fertilizers would not be applied.	The prime concern of a farmer is the yield of genotypes/varieties, so varieties under the IER would be of no interest for farmers as they have low yield potential but for plant breeders, the Zn-responsive characteristics of these genotypes/varieties would be of prime interest as they could use it in breeding programs.	The most undesirable genotypes/varieties are the IENR type as they yield least as well as did not respond to applied Zn.

Suggestion/s: Approved

(**Action:** *Research Scientist & Head, Micronutrient Research Centre, Anand*)

21.2.2.3

Title: Effect of nano Zn on crop growth, green fodder yield and its content in fodder sorghum-oat-fodder bajra cropping sequence

Information for the Scientific community

In fodder sorghum- fodder oat- fodder bajra cropping sequence, an application of recommended dose of fertilizer (80-40-0 NPK kg/ha) along with either Zn nano particles @ 0.50 kg/ha *fb* two foliar spray of Zn nano particles @ 500 ppm or foliar spray of $ZnSO_4$@ 0.5% at 20 and 40 DAS are equally effective in getting higher fodder sorghum equivalent yield.

Higher concentration *i.e.* soils application of Zn nano particles @ 0.75 kg/ha and foliar spray of Zn nano particles @ 750 ppm adversely affected yield of fodder oat and fodder bajra.

Suggestion/s: Approved with following suggestion

1. Delete word 'content' from 'dry matter content' in Table -10

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

21.2.2.4	**Title: Persistence of metribuzin and its premix herbicide in irrigated wheat under field Conditions** **Information for the Scientific community** A single pre-emergence application (2 days after sowing) of either Metribuzin 70% WP at 175 g a.i./ha or Pendimethalin 35% + metribuzin 3.5% SE at 1050 + 105 g a.i./ha, resulted in metribuzin residues persisting in the soil for up to 21 days before declining below the limit of quantification (LOQ) of 0.01 mg/kg, with half-lives ranging from 6.4 to 7.5 days. In contrast, a single post-emergence application (28 days after sowing) of either Clodinafop propargyl 9% + metribuzin 20% WP at 54 +120 g a.i./ha or Metribuzin 42% + clodinafop propargyl 12% WG at 210 + 60 g a.i./ha, resulted in metribuzin residues remaining in the soil for up to 5 days before declining below the LOQ of 0.01 mg/kg, with relatively shorter half-lives of 2.5 to 2.6 days. Phytotoxic effects on wheat plants were observed up to 7 days following post-emergence herbicide application but showed complete recovery by 14 days after application. The metribuzin residues in wheat grains and straw remained below the LOQ of 0.01 mg/kg for all tested herbicide formulations. **Suggestion/s: Approved** (**Action:** *Assistant Research Scientist, AINP on Pesticide Residue*)
21.2.2.5	**Title: Study of association of weather parameters with yield of major perennial fruit crops of Gujarat** **Information to the scientific community** **Association of weather parameters with Fruit yield** The flowering and yield of major fruit crops (10) were significantly influenced by weekly meteorological parameters playing a crucial role in their growth and development in twenty (20) districts of Gujarat. ➢ The Ber yield was positively associated with maximum temperature during weeks 27, 28 and 38 and rainfall during weeks 2, 4, 27, 28, 29 and 36. It had negative impact on yield due to maximum temperature, bright sunshine and mean humidity in December. ➢ The Sapota yield was positively associated with maximum temperature and mean relative humidity during February–March and May–July, while yield had negative impact with wind speed during April–June and rainfall during April–July and November–December.

	➢ In Pomegranate, yield was positively influenced by rainfall and bright sunshine in July, as well as unseasonal rainfall during weeks 1, 2, 4 and 8 and favorable mean humidity in January–February. However, wind speed in January–February and rainfall in December (Week 50) negatively impacted the yield. ➢ The yield of Gooseberry was positively associated with mean humidity and bright sunshine in January, February, March, and November–December, along with maximum temperatures in February–March and rainfall during April–May. While, wind speed in April negatively affected yield. ➢ Banana yield was favored by wind speed, temperature, and bright sunshine in February–March and June–July, as well as rainfall and sunshine from April–June and in October, but maximum temperatures in August and mean humidity in September were negatively associated. ➢ Guava yield in Gujarat showed a positive response to Bright Sunshine, Maximum Temperature, Minimum Temperature, Wind Speed and Relative Humidity between January and July. On the other hand, Bright Sunshine and mean humidity during July–August reduced the yield. ➢ Mango yield benefited from maximum temperatures and humidity in February, as well as from April to June, along with bright sunshine. Additionally, sunshine and wind in December helped to boost the yield. However, wind speed, maximum temperatures in May, and mean humidity in December negatively impacted the yield. ➢ Date palm growth in Gujarat was positively influenced by maximum temperature and wind speed in January - February and May, along with bright sunshine in May. However, minimum temperature of weeks 4–6, mean humidity of weeks 5, 20, 24 and wind speed of weeks 19, 23, 25 negatively impacted yield. ➢ Coconut yield was boosted by favorable temperature, rainfall, and sunshine in February, March, May, June, and September and beneficial minimum temperatures in January, March, April, May, June, August, and September. Wind speed in February, March, May, June, and October supported yield, while wind speed in March, May, August, September, and October negatively impacted yield. Maximum temperatures in October, November, and December had a negative effect on yield.

- Citrus yield was positively influenced by maximum temperature (weeks 7, 8) and wind speed and minimum temperature during Feb-March had negative impact. In February, minimum temperature and mean humidity of weeks 6, 9-12 boosted yield. The mean humidity and bright sunshine in August months were favorable, but maximum temperature of week 32 reduced the yield.

The yield modelling based on these associations can be done by approaches given as under

The five Machine learning models (XGBoost, ANN, KNN, RF and SVR) were explored and the association between weather parameters and fruit yield found better compared to stepwise regression method. Five-fold cross-validation (CV) helps in sensitivity analysis to test the model's reliability under different weather conditions across 20 districts of Gujarat. Optimized machine learning models are efficient to explore yield association and accurately capture sensitive weekly weather effects on 10 fruit crops. Feature selection techniques enhance model interpretability by identifying the most influential weather parameters and periods affecting fruit yield.

Five machine learning models with hyper-parameters

Model	Hyper-parameters
Random Forest	n_estimators: [100, 200], max_depth: [10, 20], min_samples_split: [2, 5], min_samples_leaf: [1, 2], max_features: ['sqrt', 'log2'], bootstrap: [True]
XGBoost	n_estimators: [1000, 1500], learning_rate: [0.01, 0.1], max_depth: [6, 10], subsample: [0.8, 1.0], colsample_bytree: [0.8, 1.0], gamma: [0, 0.1], lambda: [1.0, 1.5], alpha: [0.1, 0.5]
KNN	n_neighbors: [2, 10], weights: ['uniform', 'distance'], algorithm: ['auto', 'ball_tree'], p: [1, 2]
SVR	kernel: ['linear', 'rbf'], C: [1, 10], gamma: ['scale', 'auto'], epsilon: [0.1, 0.2]
ANN	hidden_layer_sizes: [(50,), (100,)], activation: ['relu', 'tanh'], solver: ['adam'], learning_rate: ['constant', 'adaptive'], alpha: [0.0001, 0.001], batch_size: [32, 64], max_iter: [1000]

Suggestion/s: Approved

(**Action:** *Professor & Head, Department of Ag. Meteorology, BACA, Anand*)

21.2.2.6 **Title: Climate change impact assessment and adaptation strategies for cotton in different districts of middle Gujarat**

Information to the scientific community

Model simulations project that seed cotton yields in middle Gujarat will decrease by 14.6% to 21.1% under RCP 4.5 during the early scenario (2026-2050) if the recommended variety, sowing date, nitrogen dose, and conventional irrigation methods are used across various locations. Adaptation options of changing the variety, shifting the sowing window, increasing nitrogen application, and change in irrigation method have been shown to recover by 4.1% to 5.9%, 4.2% to 10.3%, 1.1% to 2.7%, and 1.1% to 4.6%, respectively from yield losses, depending on the location in middle Gujarat. When these strategies are combined, the overall negative impact on cotton yield can be reduced by 9.1% to 14.4%, depending on the district.

To address the future climate scenario under RCP 4.5 (2026-2050), the GTHH 49 variety, which performs better than G.Cot H8 under projected conditions, should be used. Additionally, a 10-day sowing delay, shifting from the normal, June 11 to June 21, along with increasing nitrogen application from 240 kg/ha to 288 kg/ha, and replacing flood irrigation with drip irrigation, will help reduce the adverse effects of climate change. These combined adaptations are particularly recommended for the districts of Anand, Kheda, Ahmedabad, Vadodara, Panchmahals, and Dahod in middle Gujarat.

Suggestion/s: Approved

(**Action:** *Professor & Head, Department of Ag. Meteorology, BACA, Anand*)

21.2.2.7 **Title: Characterization of soil of Kansari Farm**

Information to the scientific community

The "Kansari farm" is a newly acquired land unit by AAU, Anand and converted into an "Agricultural Research Station (ARS)" farm after restoration of the land from 15 years' old natural vegetative cover of Babul (dominating shrub) from the land. The characteristics of the soil of the farm are as below:

1. **Chemical properties of soil**

Sr. No.	Particulars	Average	NIC	Sr. No.	Particulars	Average	NIC
1.	pH	8.17	-	**8.**	Fe (mg/kg)	6.19	Low
2.	ECe (dS/m)	4.03	-	**9.**	Mn (mg/kg)	8.77	Medium
3.	Organic Carbon (%)	0.91	High	**10.**	Cu (mg/kg)	1.64	High
4.	Av. Nitrogen (kg/ha)	310	Low	**11.**	Zn (mg/kg)	0.46	Low

5.	Av. Phosphorus (P_2O_5) (kg/ha)	20.49	Low	**12.**	CEC (cmol (P^+) kg^{-1})	16.11	--
6.	Av. Potash (K_2O) (kg/ha)	280	Medium	**13.**	ESP (%)	8	--
7.	Av. Sulphur (mg/kg)	4.87	Low				

NIC: Nutrient Index Class

2. Physical Properties of soil

Sr.	Particulars	Average
1.	Soil Textural Class	*Loamy Sand*
2.	Bulk density (Mg m^{-3})	1.28
3.	Particle density (Mg m^{-3})	2.41
4.	Porosity (%)	52.97
5.	MWHC (%)	41.50
6.	HC (cm hr^{-1})	4.92

MWHC: Maximum Water Holding Capacity, HC: Hydraulic Conductivity

3 Quality of Irrigation water

A.	**Ground water quality as per Minhas *et al.,* (1988) of CSSRI, Karnal, Haryana**		**B. Class of ground water quality as per Richards (1954)**
Sr. No.	**Particulars**	**Value**	
1.	EC (dS m^{-1})	5.0	**C_4S_2**
2.	SAR	14.99	
3.	RSC	0.00	
Water Class	**High SAR Saline**		

Soil Profile Results: The variation of physico-chemical properties distributed throughout horizons of soil profile did not find any significant variation on soil behavior and properties of soil. The results of the soil profile were as equal as the surface soil results.

Suggestion/s: Approved

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

21.2.2.8 **Title: Assessment of crop management module in maize + soybean - wheat + chickpea cropping system**

Information to the scientific community

Increase organic carbon, available P_2O_5, available K_2O and microbial counts besides, reduction in DTPA heavy metals in soil than that of initial value under natural

	farming and organic farming module after five years of experiments on maize + soybean - wheat + chickpea cropping system. **Suggestion/s:** Approved (**Action:** *Professor & Head, Department of Agronomy, BACA, Anand*)
21.2.2.9	**Title: Comparative study of nano nitrogen and nano urea on *rabi* maize** **Information to the scientific community** Application of 50% RDN as basal and 25% RDN at 30 days after sowing (DAS) followed by foliar application of either nano nitrogen (4 ml/L) or nano urea 4% (4 ml/L) or 2% urea at 45 to 50 days after sowing (DAS) to *rabi* maize produced higher yield. **Suggestion/s: Approved with following suggestion** 1. Recast the recommendation para (**Action:** *Professor & Head, Department of Agronomy, BACA, Anand*)
21.2.2.10	**Title: Comparative study of nano nitrogen and nano urea on irrigated wheat** **Information to the scientific community** Application of 50% RDN as basal and 25% RDN at 30 days after sowing (DAS) followed by foliar application of either nano nitrogen (4 ml/L) or nano urea 4% (4 ml/L) at 45 to 50 days after sowing (DAS) to wheat gave higher yield. **Suggestion/s: Approved with following suggestion** 1. Recast the recommendation para (Club both paragraph) 2. Delete from recommendation para 'Further, 25 % N (30 kg N/ha) saving is obtained with compare to 100 % RDN (120 kg N/ha)' (**Action:** *Professor & Head, Department of Agronomy, BACA, Anand*)
21.2.2.11	**Title: Comparative study of nano nitrogen and nano urea on potato** **Information to the scientific community** Application of 50% RDN as basal and 25% RDN at 30 days after sowing (DAS) followed by foliar application of nano nitrogen (4 ml/L) at 45 to 50 days after sowing (DAS) to potato produced higher potato tuber yield. **Suggestion/s: Approved with following suggestion** **1.** Delete from recommendation para ' Further, 25% N (50 kg N/ha) saving is obtained due to foliar application of Nano Nitrogen 4%' (**Action:** *Research Scientist, Regional Research Station, AAU, Anand*)

21.2.2.12	**Title: Integrated weed management in *kharif* groundnut** **Information to the scientific community** Application of either pendimethalin 30%+ imazethapyr 2% EC (RM) 800 g a.i./ha *fb* IC + HW at 40 DAS or oxyfluorfen 23.5% EC + pendimethalin 30% EC (tank mix) 188+500 g a.i./ha *fb* IC + HW at 40 DAS or diclosulam 84% WDG + pendimethalin 30% EC (tank mix) 25.2+500 g a.i./ha *fb* IC + HW at 40 DAS or pendimethalin 30% EC 750 g a.i./ha *fb* IC + HW at 40 DAS or flumioxazin 50% SC 125 g a.i./ha *fb* IC + HW at 40 DAS or provide effective and economical weed control of complex weed flora in in *kharif* groundnut. There was no adverse effect of applied herbicide in *kharif* groundnut on succeeding (wheat, chickpea and mustard) crops. **Suggestion/s:** Approved (**Action:** *Agronomist & PI, AICRP on weed management, BACA, AAU, Anand*)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.2.2.13	**Title: Dynamics and depletion of soil weed seedbank in wheat** **Information to the scientific community** It is informed to scientific community that for effective weed management along with weed seedbank depletion and achieving higher grain yield of wheat, apply ethylene 2 L/ha + KNO_3 2 kg/ha with pre-sowing irrigation as suicidal germination *fb* killing the weed flush by subsequent harrowing *fb* HW at 30 DAS. Further, the seed physical extraction method is more precise over the seed emergence method for proper estimation of soil weed seedbank. **Suggestion:** Approved *(**Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.2.14	**Title: Effect of silicon on chickpea under saline irrigation water** **Information to the scientific community** It is informed to scientific community that, chickpea crop irrigated with saline irrigation water yield was decreased with increase in salinity levels from 2.0 to 8.0 dS/m. With increase in soil application of silicon in form of SiO_2 at the time of sowing from 0 to 300 ppm there was increased in yield and Si content in soil and decreased in Na/K ratio in plant and soil, $EC_{2.5}$, SAR and ESP of soil under saline irrigation water. Application of 300 ppm silicon performed better with different salinity tolerance criteria like highest mean seed yield (10.17 g/plant), as well as mean salinity index (78.65 %) and yield reduction 36.80 % at EC 8.0 (dS/m) over control, 50% yield decline at EC level 9.59 dS/m. **Suggestion:** Approved *(**Action:** Professor and Head, Dept. of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*

21.2.2.15	**Title: Effect of silicon on wheat under saline irrigation water** **Information to the scientific community** It is informed to scientific community that, wheat crop irrigated with saline irrigation water, yield was decreased with increase in salinity levels from 2.0 to 8.0 dS/m. With increase in soil application of silicon in form of SiO_2 at the time of sowing from 0 to 300 ppm there was increased in yield and Si content in soil and decreased in Na/K ratio in plant and soil under saline irrigation water. Application of 300 ppm silicon (Si_4) performed better with different salinity tolerance criteria like highest mean seed yield (16.35 g/plant), as well as mean salinity index (77.76 %) and reduction at EC 8.0 (dS/m) over control 35.6 %, 50% yield decline at EC level 10.12 dS/m. **Suggestion:** Approved *(**Action:** Professor and Head, Dept. of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.2.16	**Title: Study on relative salinity tolerance of leafy vegetables** **Information to the scientific community** It is informed to scientific community that, among the different leafy vegetable crops like coriander, fenugreek and spinach, higher mean salinity index (69.12) and mean leaf yield (619.64 g/plot) was observed in spinach crop. While, 50 % yield reduction at EC 8.02 dS/m for spinach, 6.09 dS/m for fenugreek and 4.78 dS/m for coriander. Spinach crop found more salt tolerance as compared to coriander and fenugreek on the basis of salinity indices. **Suggestion/s:** Approved with following suggestion 1. Mention pot size in text *(**Action:** Professor and Head, Dept. of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.2.17	**Title: Soil test-based fertilizer recommendation for targeted yields of coriander** **Information to the scientific community** Soil testing laboratories are informed that the nutrients requirement for production of one quintal coriander seed was assessed as 3.92, 0.51 and 2.61 kg; N, P_2O_5 and K_2O, respectively and the fertilizer prescription equations are: for N: [FN : 8.13 x T - 0.46 x SN - 0.23 x FYM], P: [FP_2O_5 : 4.75 x T - 3.60 x SP - 0.24 x FYM] and K: [FK_2O : 8.05 x T - 0.56 x SK - 0.26 x FYM] with FYM 5 t/ha. While, without FYM the fertilizer prescription equations are: for N: [FN : 11.16 x T - 0.63 x SN], P: [FP_2O_5 : 9.41 T - 7.13 x SP] and K:[FK_2O : 9.23 x T - 0.63 x SK]. Targeted yield concept could be effectively adopted from 12.5 to 17.5 q/ha for site specific fertilizer recommendation to achieve high yield of coriander in the medium black calcareous soils of Saurashtra region of Gujarat. **Suggestion:** Approved *(**Action:** Professor and Head, Dept. of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*

21.2.2.18	**Title: Evaluation of soil textural classes in the soils of different talukas of Rajkot district** **Information to the scientific community** It is informed to scientific community that in Rajkot district overall soil texture class is clay (25.48, 30.19 and 44.33 % sand, silt and clay, respectively), i.e. 51 % area of soils of Rajkot district. Among the different talukas, Gondal and Jetpur talukas soils are comes under Silty clay loam soil texture. While, remaining talukas like Rajkot taluka, Padadhari, Jam-Kandorna, Kotda-Sangani, Vinchhiya, Dhoraji, Upleta, Jasdan and Lodhika comes under clay soil texture. **Suggestion:** Approved *(**Action:** Professor and Head, Dept. of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

21.2.2.19

Title: Study on dynamics of humus, N and S under organically and conventionally managed crops

Information to the scientific community

The N fractions was found significantly higher in conventionally managed soil and S fractions, OC as well as humus fractions was observed significantly higher in organically managed soils under paddy, mango and sugarcane. The details are given below

SN	Parameters	Conventional Soil	Organic soil
N fraction			
1	Ammoniacal N	Significantly higher	-
2	Nitrate N	Significantly higher	-
3	Mineralizable N	Significantly higher	-
4	Available N	-	Significantly higher
S fraction			
5	Available S	No significant difference	
6	Water soluble S	-	Significantly higher
7	Adsorbed S	-	Significantly higher
8	Sulphate S	-	Significantly higher
9	Organic S	-	Significantly higher
10	Total S	-	Significantly higher
11	Non-sulphate S	No significant difference	
Humus			
12	Humic acid	-	Significantly higher
13	Fulvic acid	-	Significantly higher
14	Organic Carbon	-	Significantly higher

Suggestion/s: Approved

***(Action:** Professor, SSAC, NMCA, NAU, Navsari)*

21.2.2.20

Title: Study on heavy metal content in organically and conventionally managed soils and crops

Information to the scientific community

The concentration of heavy metals viz. Fe, Mn, Zn, Cr, Ni, Pb, and Cd were more or less similar in soils collected from the field of organically and conventionally grown crops viz. paddy, sugarcane and mango, but these were under their permissible limit given by Awashthi (2000) and European Union. The details are tabulated below.

Sr. No.	Managment	Soils	Crop
1	Higher in organically managed	pH, EC, OC*, N, P_2O_5, K_2O*, S, Mn and Zn	Cu
2	Higher in conventionally managed	Fe, Cu, Cr, Ni, Pb*, and Cd	Fe, Mn, Zn, Cr, Ni, Pb, and Cd

**Significantly higher*

Suggestion/s: Approved

***(Action:** Professor, SSAC, NMCA, NAU, Navsari)*

21.2.2.21

Title: Characterization of Biochar prepared from different plant residues and its enrichment with organic sources

Information to the scientific community

- The biochar yield and different physiochemical properties of biochar depend on the source as well as on pyrolysis temperature. Higher biochar yield, total OC, CEC and Cu content as well as lower EC were observed in biochar prepared from coconut stalk residue. Significantly lower pH and higher porosity were recorded in biochar prepared from *Prosopis Juliflora* residues.
- Significantly Higher total N, K_2O and micronutrients (Fe, Mn, Zn) were observed in biochar prepared from pigeon pea residues.
- Increasing pyrolysis temperature impacts the physiochemical properties of biochar leading to a lower biochar yield, CEC and total NPK content while higher organic carbon, pH, EC, porosity and micronutrients.
- Enrichment of biochar with different organic sources has significantly improvement in pH and total OC as well as in total NPK content of enriched biochar. Significantly improvement in pH and higher total P_2O_5 and total K_2O were found in enrichment of biochar with Jivaamrut while higher total nitrogen was found in enrichment with spent wash.

Suggestion/s: Approved

***(Action:** Research Scientist, Soil Science, NAU, Navsari)*

21.2.2.22	**Title: Dissipation kinetics and residues of pyroxasulfone in wheat field ecosystem** **Information to the scientific community** • The dissipation half-life (DT50) pyroxasulfone in soil was 9-10 days when it was applied in wheat at the rate of 127.5 g ai/ha as a pre-emergence under South Gujarat agro-climatic conditions. • Residues of pyroxasulfone in wheat leaves at various growth stages (tillering, jointing, flowering, milking, and doughing) as well as in grains and wheat straw were found to be below the quantification level (BQL). **Suggestion/s: Approved with following suggestion** 1. Recast the Scientific way of information ***(Action:** Professor, FQTL, NAU, Navsari)*
21.2.2.23	**Title: Microbial degradation of paddy straw under *in-situ* condition (19.2.3.77)** **Information to the scientific community** • The cellulolytic bacterial strains *Bacillus altitudinis* (NAUD8:PP814980) and *Microbacterium paraoxydans* (NAUDD2:PP814979) (are found potent decomposer under *in-situ* condition which reduces the <20:1 C:N ratio at 90 days in acceptable range for the mineralization of paddy straw having initial C:N ratio 87:1. The bacterial population are also negatively correlates with the C:N ratio of paddy straw. • After incorporation of paddy straw, ideal C:N ratio (~10:1) of soil is achieved with cellulolytic bacterial strains *Bacillus altitudinis* and *Microbacterium paraoxydans* at 75 days. Further, the availability of major nutrients are also increased with the increase in microbial population. **Suggestion/s: Approved with following suggestion** 1. Add NCBI Accession number in scientific information para 2. Add Total N and Carbon in table -14 ***(Action:** Associate Professor, NRM, ACH, Navsari)*
21.2.2.24	**Title: Response of *kharif* rice to foliar spray of liquid nano nitrogen urea** **Information to the scientific community** Fertilize the rice crop with 100-30-00 kg NPK/ha + 5 tonne biocompost for getting higher profitable yield. Sole application of nano nitrogen urea (4%N) spray (2.5 L/ha) or 40 % basal dose of urea with nano nitrogen urea spray (1.5 L/ha) cannot produce rice yields comparable to those of the recommended dose of nitrogen

	Suggestion/s: Approved ***(Action:*** *Professor, Agronomy, NMCA, NAU, Navsari)*
21.2.2.25	**Title: Determination of heat unit indices and crop weather relationship of soybean (Glycine max L. Merrill)** **Information for scientific community** The calculated accumulated GDD, PTU and HTU from sowing to physiological maturity in soybean crop were ranged between 1235 to 19390C days, 14850-238080C days hrs and 6575-9099 0C days hrs respectively, furthermore it was noticed that the grain yield was positively correlated with rainfall during initial phase of crop, so complete the sowing of rainfed soybean under South Gujarat on first week of July with commencement of the monsoon for achieving higher crop production. **Suggestions: Approved** ***(Action:*** *Professor Agronomy, CoA, NAU, Bharuch)*

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

21.2.2.26	**Title: Establishment of critical limit of iron for groundnut in light textured soils of North Gujarat** **Information for scientific community** **Recommendation for Soil Testing Laboratories (STL) of North Gujarat** While recommending Fe application to groundnut crop grown in North Gujarat, STL should consider the critical limit of 5.09 ppm in soil and 592.50 ppm in groundnut plant at 50 DAS. **Suggestions: Approved** **(Action:** *Department of Agril. Chemistry and Soil sci, CPCA, Sardarkrushinagar*)
21.2.2.27	**Title: Evaluation of different components of natural farming for vegetable cowpea-grain amaranth-vegetable kalingada cropping sequence** **Information for scientific community** **mation for scientific community** Based on the experimental results, the rate of *Ghanjivamrut* (upto 1 t/ha) and *Jivamrut* (500 lit/ha) is insufficient for crop nutrient requirement in vegetable cowpea- grain amaranth-vegetable kalingada cropping sequence under natural farming. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para 3. Compare yield data of crop with state average yield of respective crop 4. Replace word "too low" with "insufficient" in information para ***(Action: -*** *Centre for Crop Improvement, SDAU, Sardarkrushinagar)*

21.2.2.28	**Title: Evaluation of different components of natural farming for mungbean-mustard-cowpea cropping sequence** **Information for scientific community** Based on experimental results the rate of *Ghanjivamrut* (upto 0.75 t/ha for moongbean, 1.5 t/ha for mustard and 0.75 t/ha for cowpea) and *jivamurt* (500 l/ha) is insufficient for crop nutrient requirement in mungbean- mustard- cowpea cropping sequence. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below state average" in text para 3. Compare yield data of crop with the state average yield of respective crop 4. Replace word "too low" with "insufficient" in information para ***(Action: -** Research Scientist, Pulses Research Station, SDAU, Sardarkrushinagar)*
21.2.2.29	**Title: Evaluation of different components of natural farming for groundnut-wheat + lucerne cropping sequence** **Information for scientific community** Based on the experimental results, the rate *ghanjivamrut* (0.75 t /ha for ground nut and 1.5 t/ha for wheat) and *jivamrut* (500 l/ha) is insufficient for crop nutrient requirement in groundnut- wheat + lucerne cropping sequence. The yield of these crops is below state average yield. **Suggestions:** 1. Add "Yield of crops are below state average yield" in the text of para 2. Compare yield data of crop with state average yield of respective crop. 3. Replace word "too low" with "insufficient" in information para (**Action:** *Research Scientist, CNRM, SDAU, Sardarkrushinagar*)
21.2.2.30	**Title: Evaluation of different components of natural farming for green gram-mustard-pearl millet cropping sequence** **Information for scientific community** Based on experimental results the rate of *Ghanjivamrut* (upto 1.5 t/ha) and *Jeevamrut* (500 lit/ha) is insufficient for crop nutrients requirement in green gram-mustard-pearl millet cropping sequence under natural farming. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para

	3. Compare yield data of crop with state average yield of respective crop 4. Replace word "too low" with "insufficient" in information para 5. "Aphid were not controlled in mustard crop" gave low mustard seed yield ***(Action: -** Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar)*
21.2.2.31	**Title: Evaluation of natural farming practices in different crop sequence** **Information for scientific community** Based on experimental results, the rate of *ghanjeevamruit* (upto 1 t/ha) and *jeevamruit* (500 lit/ha) is insufficient for fulfill the nutrient requirement of fennel and cabbage/green onion crop during *rabi* season. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para 3. Compare yield data of crop with state average yield of respective crop 4. Replace word "too low" with "insufficient" in information para ***(Action: -** Research Scientist, Centre for IFS, SDAU, Sardarkrushinagar)*
21.2.2.32	**Title: Evaluation of the selected tree species under agri-silvi culture system under rainfed conditions of Gujarat** **Information for scientific community** Results of the 12 years of experimentation revealed that the growth and survival percent of Sharu, Seven, Bakyan and Mahogani were very poor indicating unsuitability in the North Gujarat under rainfed condition. In addition, intercrops rotation of Castor-greengram+ clusterbean were also not feasible due to very low castor equivalent yield in agri-silvi culture system in North Gujarat under rainfed condition. **Suggestions: Approved with the following suggestion** 1. Add reason for "nilgiri" and "teak trees" ***(Action: -** Research Scientist, Agroforestry Res. Station, SDAU, Sardarkrushinagar)*
21.2.2.33	**Title: Response of coriander to different component of natural farming** **Information for scientific community** Based on experimental results the rate of *ghanjivamrut* (upto 0.75 t/ha) and *jivamrut* (500 lit/ha) is insufficient for crop nutrients requirement of coriander crop under natural farming. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para 3. Compare yield data of crop with state average yield of respective crops 4. Replace word "too low" with "insufficient" in information para ***(Action: -** Research Scientist, Seed Spices Research Station, Jagudan)*

21.2.2.34	**Title: Evaluation of different component of natural farming for greengram- rabi fennel (multi cut coriander as inter crop) – cowpea (veg.) cropping sequence** **Information for scientific community** Based on experimental results the rate of *ghanjivamrut* (upto 0.75 t/ha) and *jivamrut* (500 lit/ha) is insufficient for crop nutrients requirement in green gram –*rabi* fennel (multicut coriander as inter crop)-cowpea (veg.) cropping sequence under natural farming. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para 3. Compare yield data of crops with state average yield of respective crops 4. Replace word "too low" with "insufficient" in information para ***(Action: -** Research Scientist, Seed Spices Research Station, Jagudan)*
21.2.2.35	**Title: Evaluation of different components of natural farming for Black gram-wheat-green gram cropping sequence** **Information for scientific community** Based on the experimental results, the rate of *Ghanjivamrut* (upto 1.5 t/ha) and *Jivamrut* (500 lit/ha) is insufficient for crop nutrient requirements in blackgram-wheat-greengram cropping sequence under natural farming. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para 3. Compare yield data of crops with state average yield of respective crops 4. Replace word "too low" with "insufficient" in information para 5. Replace "(1000-1500 kg/ha)" with "(upto 1.5 t/ha)" in information para ***(Action: -** Research Scientist, Wheat Research Station, SDAU, Vijapur)*
21.2.2.36	**Title: Response of wheat to nano urea** **Information for scientific community** Foliar spray of either nano urea (2 ml/l or 4 ml/l) containing 4% N w/v or urea (2 % or 4 %) at 35 and 65 days after sowing along with 100 % basal dose of N could not produce at par levels of yield as compared to recommended dose of nitrogen in irrigated wheat. **Suggestions: Approved with the following suggestion** 1. Recast the Scientific Information Para 2. Add "containing 4% N w/v" and "along with 100 % basal dose of N" in Scientific Information Para ***(Action: -** Research Scientist, Wheat Research Station, SDAU, Vijapur)*

21.2.2.37	**Title: Effect of *jivamrut* and *ghanjivamrut* on growth and yield of wheat in salt affected soil under natural farming** **Information for scientific community** Based on the experimental results, the rate *Ghanjivamrut* (upto 2 t/ha) and *Jivamrut* (500 lit/ha) is insufficient for crop nutrient requirement on wheat crop in salt affected soil under natural farming. The yield of wheat is below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crop is below the state average" in text para 3. Replace word "too low" with "insufficient" in information para 4. Replace "(1-2 t/ha)" with "(upto 2 t/ha)" in information para ***(Action: -** Asst. Res. Scientist, ARS, SDAU, Adiya)*
21.2.2.38	**Title: Response of isabgul to different component of natural farming** **Information for scientific community** Based on the experimental results the rate of *Ghanjivamrut* (upto 0.75 t/ha) and *jivamrut* (500 lit/ha) is insufficient for crop nutrient requirement in isabgol under natural farming. The yields of isabgul are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of isabgul is below the state average" in text para 4. Replace word "too low" with "insufficient" in information para ***(Action: -** Asst. Res. Scientist, ARS, SDAU, Kholwada)*
21.2.2.39	**Title: Evaluation of different components of natural farming for Groundnut-potato-pearl-millet cropping sequence** **Information for scientific community** Based on the experimental results the rate of *ghanjivamrut* (upto 2.0 t/ha) and *Jivamrut* (500 l/ha) is insufficient for crop nutrients requirement in Groundnut-potato-pearl millet cropping sequence under natural farming. The yields of these crops are below the state average yield. **Suggestions: Approved with the following suggestion** 1. Recast the information para 2. Add "Yield of crops are below the state average" in text para 3. Compare yield data of crops with state average yield of respective crops 4. Replace word "too low" with "insufficient" in information para ***(Action: -** Asso. Research Scientist, Potato Res. Station, SDAU, Deesa)*

21.2.2.40	**Title: Response of grain amaranth (*Amaranthus hypochondriacus* L.) to nano urea** **Information for scientific community** Application of 30 kg N and 40 kg P_2O_5/ha as basal and foliar application of nano urea (containing 4% N w/v) @ 2 ml per litre of water at 30 and 50 days after sowing besides 5 t FYM/ha as basal gave higher grain yield of amaranth. **Suggestions: Approved with the following suggestion** 1. Approved as scientific information (2 ml nano urea treatment) from farmer's recommendation (21.2.1.58) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Centre for Crop Improvement, SDAU, Sardarkrushinagar)*
21.2.2.41	**Title: Response of pearl millet (*Pennisetum glaucum* L.) to nano urea under rainfed condition** **Information for scientific community** Application of 40 kg N and 40 kg P_2O_5/ha as basal and foliar application of nano urea (containing 4% N w/v) @ 4 ml per litre of water at 25 and 45 days after sowing besides and 10 t/ha FYM as basal gave higher grain yield of pearlmillet under rainfed condition. **Suggestions: Approved with the following suggestion** 1. Approved as scientific information (2 ml nano urea treatment) from farmer's recommendation (21.2.1.60) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Research Scientist, CNRM, SDAU, Sardarkrushinagar)*
21.2.2.42	**Title: Response of castor (*Ricinus communis*) to nano urea** **Information for scientific community** Application of 27 kg N, 40 kg P_2O_5 and 20 kg S/ha as basal and foliar application of nano urea (containing 4% N w/v) @ 4 ml per litre of water at 30, 60 and 90 days after sowing besides 10 t FYM as basal for getting higher yield of castor. **Suggestions: Approved with the following suggestion** 1. Approved as scientific information instead of farmers' recommendation (21.2.1.61) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar)*

21.2.2.43	**Title: Response of mustard (*Brassica juncea*) to nano urea** **Information for scientific community** Application of 19 kg N, 50 kg P_2O_5 and 40 kg S/ha as basal and foliar application of nano urea (containing 4% N w/v) @ 2 ml per litre of water at 30 and 50 days after sowing besides 5 t FYM as basal gave higher yield of mustard. **Suggestions: Approved with the following suggestion** 1. Approved for scientific information instead of farmers' recommendation (21.2.1.62) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar)*
21.2.2.44	**Title: Long term fertility on cropping system involving rapeseed-mustard (kharif moong-mustard)** **Information for scientific community** Continuous growing of moong-mustard crops in a sequence in the same field, observed declining trend in seed yield of mustard. **Suggestions: Approved with the following suggestion** 1. Approved as scientific information instead of farmers' recommendation (21.2.1.63) ***(Action: -** Research Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar)*
21.2.2.45	**Title: Response of maize (*Zea mays*) to nano urea** **Information for scientific community** Application of 30 kg N and 60 kg P_2O_5/ha as basal and foliar application of nano urea (containing 4% N w/v) @ 2 ml per litre water at 30 and 50 days after sowing besides 10 t FYM as basal produced higher maize yield. **Suggestions: Approved with the following suggestion** 1. Approved as scientific information instead of farmers' recommendation (21.2.1.72) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Principal, Polytechnic in Agriculture, Khedbrahma)*
21.2.2.46	**Title: Response of isabgol (*Plantago ovate* Forsk.) to nano urea** **Information for scientific community** Application of 17 kg N and 30 kg P_2O_5/ha as basal and foliar spray of nano urea (containing 4% N w/v) @ 4 ml per litre water at 30 and 50 days after sowing besides 5 t FYM as basal for getting higher yield of isabgol.

	Suggestions: Approved with the following suggestion 1. Approved as scientific information instead of farmers' recommendation (21.2.1.74) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Assistant Res. Scientist, Agricultural Research Station, Kholwada)*
21.2.2.47	**Title: Response of mustard (*Brasicca juncea*) to nano urea under salt affected soils** **Information for scientific community** Application of 25 kg N, 50 kg P_2O_5 and 40 kg S/ha as basal and two foliar sprays of nano urea (containing 4% N w/v) @ 4 ml per litre of water at 30 and 50 days after sowing besides 5 t FYM as basal gave higher yield of mustard under salt affected soils. **Suggestions: Approved with the following suggestion** 1. Approved as scientific information (4 ml nano urea treatment) from farmer's recommendation (21.2.1.75) 2. Recast information para 3. Add word "(containing 4% N w/v)" in information para ***(Action: -** Assistant Research Scientist, Agricultural Research Station, Adiya)*

21.2.3 NEW TECHNICAL PROGRAMMES
S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

No.	Title	Suggestions
21.2.3.1	Sustainable resource management for climate smart IFS model for North Gujarat condition (1.0 ha)	**Accepted with following suggestion/s** 1. In treatment details mention that drum stick, subabul and gliricidia are existing plantation 2. Replace word "oat (concentrate)" by "oat (seed)" 3. Delete "(1.0 ha)" from title of experiment 4. Add "*Sesbania grandiflora*" (Agathio) in boundary plantation 5. Take observations on "Total bacterial, fungal count and micronutrients" at the end of experiment 6. Do analysis for "Heavy metals" at end of experiment. 7. Keep Oat RDF: 80-40-00 kg N: P_2O_5: K_2O/ha for seed purpose 8. Delete observation on "soil profile studies" 9. Observation on "Weather parameters" should be recorded

		10. Add observation on "Available NPKS (initial and after completion of sequence)" ***(Action:*** *Res. Sci., Centre for Research on Integrated Farming Systems, SDAU, S.K. Nagar)*
21.2.3.2	Evaluation of natural farming practices in different crop sequence	**Dropped** ***(Action:*** *Res. Sci., Centre for Research on Integrated Farming Systems, SDAU, S.K. Nagar)*
21.2.3.3	Screening of green gram varieties/genotype under natural farming condition	**Dropped** ***(Action:*** *Research Scientist, Pulses Research Station, SDAU, S.K. Nagar)*
21.2.3.4	Screening of urdbean variety/genotype under natural farming condition	**Dropped** ***(Action:*** *Research Scientist, Pulses Research Station, SDAU, S.K. Nagar)*
21.2.3.5	Screening of cowpea varieties/genotype under natural farming condition	**Dropped** ***(Action:*** *Research Scientist, Pulses Research Station, SDAU, S.K. Nagar)*
21.2.3.6	Screening of pigeonpea varieties/genotype under natural farming condition	**Dropped** ***(Action:*** *Research Scientist, Pulses Research Station, SDAU, S.K. Nagar)*
21.2.3.7	Effect of nipping and spacing on growth and yield of pigeonpea	**Accepted with following suggestion/s** 1. Recast the experiment title as "Effect of spacing and nipping on growth and yield of pigeonpea" 2. Take "4" replication instead of "3" 3. Use word 'Stalk yield' instead of 'straw yield' 4. Change objectives Sr. No. considering the new title of experiment. ***(Action:*** *Research Scientist, Pulses Research Station, SDAU, S.K. Nagar)*
21.2.3.8	Evaluation of different components of natural farming for greengram-mustard- cowpea cropping sequence	**Accepted with following suggestion/s** 1. Delete "M_1 treatment" 2. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment 3. In M_2 replace word 'cowpea stover' with 'crop residue mulch @ 5.0 t/ha' ***(Action:*** *Research Scientist, Pulses Research Station, SDAU, S.K. Nagar)*

21.2.3.9	Effect of irrigation and nutrient sources on growth and yield of potato and it's residual effect on pearlmillet	**Accepted with following suggestion/s** 1. Recast objective No. 2 as "To study the effect of irrigation levels and nutrient sources on nutrient status of soil" 2. Delete word 'different' from objective No. 1 3. Keep dose of *Jivamrut* "1250 l/ha" instead of "1000 l/ha" 4. Add observation of "Heavy metals (five) initial and after end of experiment" 5. Delete observation of "sweetness" 6. Recast the treatments as under Main plot: Irrigation level: (0.4, 0.6 and 0.8 ETc) Sub plot: *Ghanjivamrut* level: (G_1: 10, G_2:15 and G_3:20 t/ha) and G_4: 20 t FYM/ha *(**Action:** Res. Sci., Centre for Natural Resource Management, SDAU, S.K. Nagar)*
21.2.3.10	Development of rainfed integrated farming system model under natural farming	**Accepted with following suggestion/s** 1. Delete observation on "greenhouse gas emission" by software 2. Take variety of hybrid bajra napier "CO 5" 3. Add "Agathio (*Sesbania grandiflora*)" in boundary plantation 4. Demarcate 2 metre area from boundary from all four sides of experiment for boundary plantation. *(**Action:** Res. Sci., Centre for Natural Resource Management, SDAU, S.K. Nagar)*
21.2.3.11	Evaluation of different components of natural farming for groundnut wheat + lucerne cropping sequence	**Accepted with following suggestion/s** 1. Do analysis of all inputs used in experiment every year 2. Delete "M_1 treatment" 3. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. 4. In M_2 replace word 'Wheat straw mulch' with 'Crop residue mulch @ 5.0 t/ha' *(**Action:** Res. Sci., Centre for Natural Resource Management, SDAU, S.K. Nagar)*
21.2.3.12	Evaluation of natural farming components for Potato	**Dropped** *(**Action:** Res. Sci., Centre for Natural Resource Management, SDAU, S.K. Nagar)*
21.2.3.13	Response of fennel (*Foeniculum vulgare* L.)	**Accepted with following suggestion/s**

	varieties to spacing in *rabi* season	1. Recast the title of experiment as "Response of *rabi* fennel (*Foeniculum vulgare* L.) varieties to spacing" 2. Correct "Net plot size" as under S_1: 7.20 m × 3.0 m, S_2: 6.60 m × 3.0 m and S_3: 6.0 m × 3.0 m *(**Action:** Res. Sci., Seed Spices Research Station, SDAU, S.K. Nagar)*
21.2.3.14	Evaluation of different component of natural farming for greengram-rabi fennel + leafy coriander – vegetable cowpea cropping sequence	**Accepted with following suggestion/s** 1. "Cover crop" should be incorporate in soil before sowing of *kharif* crop. 2. Delete "vegetable cowpea" from title of the experiment. 3. Delete "M_1 treatment" 4. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. *(**Action:** Research Scientist, Seed Spices Research Station, SDAU, S.K. Nagar)*
21.2.3.15	Response of coriander to different component of natural farming	**Accepted with following suggestion/s** 1. Recast the title of experiment as "Response of coriander to mulching and *ghanjivamrut* under natural farming 2. Delete "M_1 treatment" 3. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. 4. In treatment M_2 replace word 'straw/ stover mulch' with 'crop residue mulch @ 5.0 t/ha' *(**Action:** Research Scientist, Seed Spices Research Station, SDAU, S.K. Nagar)*
21.2.3.16	Effect of spacing and nitrogen on growth, yield and quality of rustica tobacco	**Accepted** *(**Action:** Asso. Research Scientist, Agricultural Research Station, SDAU, Ladol)*
21.2.3.17	Influence of mulching and organic sources of nutrients on growth and yield of blackgram under dry land agriculture	**Accepted with following suggestion/s** 1. Keep *Ghanjivamrut* levels G_1: 2 t/ha and G_2: 3 t/ha

		*(**Action:** Assistant Research Scientist, Dry Farming Research Station, S. D. Agricultural University, Radhanpur)*
21.2.3.18	Influence of mulching and organic sources of nutrients on growth and yield of greengram under dry land agriculture	**Accepted with following suggestion/s** 1. Keep *Ghanjivamrut* levels G_1: 2 t/ha and G_2: 3 t/ha *(**Action:** Assistant Research Scientist, Dry Farming Research Station, S. D. Agricultural University, Radhanpur)*
21.2.3.19	Screening of wheat varieties/genotypes under natural farming	**Dropped** *(**Action:** Research Scientist, Wheat Research Station, S. D. Agricultural University, Vijapur)*
21.2.3.20	Evaluation of different components of natural farming for Black gram-wheat- cowpea cropping sequence	**Accepted with following suggestion/s** 1. Recast title of experiment as "Effect of mulching and *ghanjivamrut* on black gram-wheat cropping sequence under natural farming 2. Delete "M_1 treatment" 3. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. 4. In M_2 treatment replace 'blackgram stover mulch' with 'crop residue mulch at 5.0 t/ha' *(**Action:** Research Scientist, Wheat Research Station, S. D. Agricultural University, Vijapur)*
21.2.3.21	Evaluation of biochar made from different crop residues	**Accepted with following suggestion/s** 1. Recast the title of experiment as "Characterization of biochar prepared from different crop residues" *(**Action:** Research Scientist, Centre for Oilseeds Research, S. D. Agricultural University, Sardarkrushinagar)*
21.2.3.22	Effect of biochar on growth and yield of castor	**Accepted with following suggestion/s** 1. Add observation on "Plant population at harvest" 2. Prepared biochar will be treated with 2% phosphoric acid to lower pH. *(**Action:** Research Scientist, Centre for Oilseeds Research, S. D. Agricultural University, Sardarkrushinagar)*

21.2.3.23	Evaluation of different components of natural farming for green gram-mustard-pearl millet cropping sequence	**Accepted with following suggestion/s** 1. Delete "M_1 treatment" 2. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. 3. In treatment M_2 replace 'straw mulch' with 'crop residue mulch @ 5.0 t/ha' *(**Action:** Research Scientist, Centre for Oilseeds Research, S. D. Agricultural University, Sardarkrushinagar)*
21.2.3.24	Effect of jivamrut and ghanjivamrut on growth and yield of wheat in salt affected soil under natural farming	**Accepted with following suggestion/s** 1. Add observation on "available K and ESP" initial and at end of experiment. 2. Take this experiment at two locations i.e. Adiya and Kothara *(**Action:** Asst. Research Scientist, Agricultural Research Station, S. D. Agricultural University, Adiya)* *(**Action:** Asst. Research Scientist, Regional Research Station, S. D. Agricultural University, Kothara)*
21.2.3.25	Effect of jivamrut and ghanjivamrut on growth and yield of wheat in salt affected soil under natural farming	**Dropped** *(**Action:** Asst. Res. Sci., Regional Research Station, S. D. Agricultural University, Kothara)*
21.2.3.26	Response of linseed (*Linum usitassimum* L.) to different component of natural farming	**Accepted with following suggestion/s** 1. Rewrite the objectives with using appropriate word *(**Action:** Asst. Research Scientist, Agricultural Research Station, S. D. Agricultural University, Kholwada)*
21.2.3.27	Evaluation of different components of natural farming for Groundnut-potato-pearlmillet cropping sequence	**Accepted with following suggestion/s** 1. Delete "M_2 treatment" 2. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. 3. In treatment M_3 replace 'Mustard/Bajra/Potato straw mulch' with 'crop residue mulch @ 5.0 t/ha' *(**Action:** Research Scientist, Potato Research Station, S. D. Agricultural University, Deesa)*

21.2.3.28	Evaluation of different components of natural farming for vegetable cowpea- amaranth- vegetable kalingada cropping sequence	**Accepted with following suggestion/s** 1. Delete "M_1 treatment" 2. Apply full dose of *Ghanjivamrut* during first year and during second year decrease 25% dose of *Ghanjivamrut* and continue it till end of experiment. 3. In treatment M_2 replace 'Wheat/Cowpea/Amaranth straw mulch' with 'Crop residue mulch @ 5.0 t/ha' *(**Action:** Asso. Research Scientist, Centre for Crop Improvement, S. D. Agricultural University, Sardarkrushinagar)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

21.2.3.29	Feasibility study of drip irrigation method in sugarcane under canal command area.	**Accepted with following suggestion/s** 1. Taken as a filler trial *(**Action:** Res. Sci., SWMRU, Navsari)*
21.2.3.30	Evaluation of Distillery Spent Wash (DSW) effluent as a source of potassium through drip irrigation on yield and quality of banana	**Accepted with following suggestion/s** 1. Approved *(**Action:** Res. Sci., SWMRU, Navsari)*
21.2.3.31	Standardization of fertilizer dose through drip irrigation system in high density planted hybrid guava under South Gujarat condition	**Accepted with following suggestion/s** 1. Mention age of Guava tree 2. Approved *(**Action:** Res. Sci., SWMRU, Navsari)*
21.2.3.32	Comparative study on efficiency of inorganic, organic and natural farming under drip and surface method of irrigation on *rabi* Indian bean and summer okra crops in coastal soil of South Gujarat	**Accepted with following suggestion/s** 1. Approved *(**Action:** Res. Sci., SWMRU, Navsari)*
21.2.3.33	Evaluation of biochar forms, its level and placement method on drip irrigated brinjal in coastal soil of south Gujarat	**Accepted with following suggestion/s** 1. Approved *(**Action:** Res. Sci., SWMRU, Navsari)*

21.2.3.34	Evaluation of biochar forms, its level and placement method in tomato after *kharif* arobic rice	**Accepted with following suggestion/s** 1. In title of experiment replace word "transplanted" with "arobic" *(**Action:** Res. Sci., MRRS, Navsari)*
21.2.3.35	Nitrogen management in fodder Sorghum	**Accepted with following suggestion/s** 1. Add observation on HCN at 35 DAS, ADF, NDF, dry matter yield 2. Nano urea spray at "20 & 40 DAS" instead of "30 & 50 DAS" 3. Add four treatments with 50% RDN with nano urea 0.2, 0.4, 0.6 and 0.8 % 4. Mention top dressing will be applied at 30 DAS *(**Action:** Res. Sci., MRRS, Navsari)*
21.2.3.36	Response of sugarcane planted through single eye budded settling to nano DAP under south Gujarat condition	**Accepted with following suggestion/s** 1. Mention time of foliar application as foot note and remove from the treatments T_2, T_4 & T_5 *(**Action:** Res. Sci., MSRS, Navsari)*
21.2.3.37	Effect of biochar and bio compost levels on yield and quality of plant and ratoon sugarcane under South Gujarat condition	**Accepted with following suggestion/s** 1. Revise treatments as under T_4 : Biochar 2.5 t/ha + Biocompost 9.5 t/ha T_5 : Biochar 5.0 t/ha + Biocompost 7.0 t/ha T_6 : Biochar 7.5 t/ha + Biocompost 4.5 t/ha T_7 : Biochar 10.0 t/ha + Biocompost 2.0 t/ha 2. Delete "NPK" from objective No. 2 & 3. *(**Action:** Res. Sci., MSRS, Navsari)*
21.2.3.38	Assessment of soil carbon pools and carbon stocks under different cropping systems of Navsari district	**Accepted with following suggestion/s** 1. Approved *(**Action:** Res. Sci., Soil Science, Navsari)*

21.2.3.39	Effect of sowing time and varieties on growth yield of pigeon pea during *rabi* season	**Accepted with following suggestion/s** 1. Recast the title as "Effect of sowing time and varieties on growth yield of pigeon pea during *rabi* season" 2. Add variety "vaishali" in the treatment 3. Delete treatments of nutrient management 4. Spacing: 120cm x 60 cm 5. Design: Split plot design 6. Main plot: date of sowing 7. Sub plot: varieties 8. Replication: 4 *(**Action:** Res. Sci., Pulse & Castor Res. Station, Navsari)*
21.2.3.40	Production potential of finger millet under organic nutrient management	**Accepted with following suggestion/s** 1. Delete observation on "Gross, Net, BCR and Cost of cultivation" 2. In treatments L_4: jivamrut @ 25% and L_3: Varmiwosh @ 10% at 25,50 and 75 DAS 3. Add observation on microbial population at end of experiments *(**Action:** Prof. Agronomy, CoA, Waghai)*
21.2.3.41	Impact of spacing and nitrogen levels on growth and yield of hybrid rice (*Oryzae sativa* L.)	**Accepted with following suggestion/s** 1. Recast N levels as N_1: 100 kg/ha, N_2: 120 kg/ha and N_3: 140 kg/ha 2. Mention split application N (40 % as Basal, 40 % at 20-25 DAP & 20 % at 40-45 DAP) 3. Use urea for N and SSP for phosphorus 4. Keep spacing of "30 cm x 15 cm" in S_3 treatment *(**Action:** Res. Sci. RRRS, Vyara)*
21.2.3.42	Effect of fertigation on growth, yield and quality of *Bt* cotton under drip irrigation	**Accepted with following suggestion/s** 1. Approved *(**Action:** Res. Sci., MCRS, Surat)*

21.2.3.43	Effect of spacing and sowing time in cotton (*Gossypium hirsutum* L.) under rainfed conditions	**Accepted with following suggestion/s** 1. Design: Split plot design 2. Keep Gross plot Size common 3. Main factor: Sowing time 4. Sub factor: Spacing 5. Keep seed rate as per treatments 6. Delete "economics" from observation *(**Action:** Asst. Res. Sci., CWBS, Hansot)*
21.2.3.44	INM in cotton (*Gossypium hirsutum* L.) under rainfed conditions	**Accepted with following suggestion/s** 1. Delete Name of Shri. P. S. Solanki, Agri Assistant 2. Add one more treatment as T_2: 100 % RDF through inorganic fertilizer (with FYM @5 t/ha) 3. T_1: RDF (without FYM) *(**Action:** Asst. Res. Sci., CWBS, Hansot)*
21.2.3.45	Effect of various nutrient sources on production of *rabi* sorghum under conserved moisture condition	**Accepted with following suggestion/s** 1. Recast title of Experiment as "Integrated Nutrient Management in sorghum during *rabi* season under conserved soil moisture condition 2. Azosprilium and PSB each at @10 ml/kg seed 3. Mention common dose of phosphorus will be applied 4. In recast the treatment T_4: 50% RDN through fertilizer + 50 % RDN through FYM and T_5: 50% RDN through fertilizer + 50 % RDN through vermicompost *(**Action:** Asstt. Res. Sci., ARS, Tanchha)*
21.2.3.46	Effect of sowing time and land configuration practices on growth and yield of soybean (*Glycine max* L.)	**Accepted with following suggestion/s** 1. Delete objective No. 3 2. Delete "economics" from observation 3. Recast sub plot treatments (Date of sowing as Time of sowing) T_1: 1st week of June T_2: 3rd week of June T_3: 1st week of July *(**Action:** Assttt. Res. Sci., ARS, Mangrol)*

21.2.3.47	Survey of parasitic weeds in Navsari	**Accepted with following suggestion/s** 1. Delete survey of uncultivated site 2. Add Sample size should be minimum 240 3. 50 samples from each taluka through GPS *(**Action:** Prof. & Head, Agronomy, NMCA)*
21.2.3.48	Response of forage chicory (*Cichorium intybus* L.) to nitrogen and phosphorus under south Gujarat condition	**Accepted with following suggestion/s** 1. Delete observations on cellulose and Hemicellulose 2. Add dry matter yield in observation 3. Delete treatment N4: 140 kg/ha 4. Add Available N, P, K and OC in soil (Initial and after harvest of crop) 5. Record observation on CP, CF, NDF, ADF at first, third and fifth cut 6. Nutrient content will be recorded at each cut *(**Action:** Prof. & Head, Agronomy, NMCA)*
21.2.3.49	Comparative assessment of soil metabolite signatures in organic and conventional farms	**Accepted with following suggestion/s** 1. Add observation on "Fungus count" 2. Record time of sampling (Month) and with geo tagging (GPS) *(**Action:** Prof. & Head, FQTL, Navsari)*
21.2.3.50	Evaluation of resource-based nutrient management practices for turmeric and its residual effect on green gram under natural farming	**Accepted with following suggestion/s** 1. Do Live mulch will be done as common 2. Record observation on heavy metals (at initial and at the end of experiment) *(**Action:** Assoc. Prof., NRM, ACH, Navsari)*
21.2.3.51	Optimizing Bt cotton productivity through spacing and canopy management in Rainfed condition	**Accepted with following suggestion/s** 1. Treatment: C_2 Topping at 75 DAS instead of 90 DAS 2. Treatment: C_2 Topping at 90 DAS instead of 105 DAS *(**Action:** Prof. (Agron.), CoA, Bharuch)*
21.2.3.52	Feasibility of liquid anaerobic digestate application in dragon fruit	**Accepted with following suggestion/s** 1. Approved *(**Action:** Principal, Horti. Poly., Navsari)*

21.2.3.53	Efficacy of polymer based super absorbent on Bt. Cotton hybrid under rainfed condition (19.2.3.62 as filler trial) consider as new trial	**Accepted with following suggestion/s** 1. Approved (**Action:** *Res. Sci., MCRS, NAU, Surat)*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.2.3.54	Response of summer pearl millet (*Pennisetum glaucum* L.) to levels and schedules of nitrogen fertigation	**Accepted with following suggestion/s** 1. Remove scientific name from title (**Action**: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.3.55	Effect of Nano-DAP on summer pearl millet	**Accepted with following suggestion/s** 1. Approved (**Action:** *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.3.56	Effect of different *in-situ* green manuring crops and organic manures on succeeding late *kharif* onion under organic condition	**Accepted with following suggestion/s** 1. In organic manure treatments recast as M2 : VC 2.0 t/ha, M3 : *Ghanjivamrut* 4.0 t/ha 2. Add Nutrient content (NPK) and total uptake by onion and green and dry biomass of green manure crops from 1 m^2 area in observation (**Action**: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.3.57	Response of soybean to different nutrient management practices under organic condition	**Accepted with following suggestion/s** 1. Recast title of experiment as "Response of soybean to nutrient management practices under organic farming" 2. Delete word "Application of" from treatments T_1 to T_7. 3. Add observation on no of nodules/plant, dry weight of nodule per plant (mg/plant) 4. In treatment T_4 & T_5 use *Jeevamrut* 400 L/ha instead of 300 L/ha. (**Action**: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*

21.2.3.58	Bio-efficacy evaluation of herbicides for weed management in garlic	**Accepted with following suggestion/s** 1. Take weed dry weight at 60 DAS & at harvest 2. Weed count at 30, 60 DAS & at harvest (***Action***: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.3.59	Effect of tillage, residue management and weed control practices on weed growth and yield of summer groundnut	**Accepted with following suggestion/s** 1. Approved (**Action**: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.3.60	Comparative bio-efficacy evaluation of drone and manual based herbicide application for weed management in *kharif* groundnut	**Accepted with following suggestion/s** 1. Recast treatment T_2, T_4 and T_6 as 2. T_2: Delete "*fb* HW & IC at 30 DAS" in treatment 3. T_4 and T_6: Take dose of pendimethalin 900 g/ha and delete "*fb* HW & IC at 30 DAS" in treatment (**Action**: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
21.2.3.61	Evaluation of major rainfed cropping systems for natural farming	**Accepted with following suggestion/s** 1. Write "Convectional farming" instead of "Farmers practice" 2. Remove 6 t FYM/ha from RDF of groundnut 3. mention the mulching of wheat straw 5 t/ha 4. Write "Cropping system" instead of "Predominate cropping system" (**Action**: *Research Scientist, Main Dry Farming Res. Station, JAU, Targhadia)*
21.2.3.62	Soil test-based fertilizer recommendation for targeted yields of chickpea	**Accepted with following suggestion/s** 1. Keep FYM 2.5 and 5.0 t/ha instead of 5.0 and 10.0 t/ha (**Action**: *Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.3.63	Establishment of critical limit of zinc for sesame in medium black calcareous soils	**Accepted with following suggestion/s** 1. Approved *(***Action**: *Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.3.64	Effect of saline irrigation water on different variety of okra	**Accepted with following suggestion/s** 1. Delete "Seed rate: 10 kg/ha" 2. Measure "MWHC" of soil to apply water at FC *(***Action**: *Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*

21.2.3.65	Evaluation of soil textural classes in the soils of different talukas of Bhavnagar district	**Accepted with following suggestion/s** 1. Approved (**Action**: *Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.3.66	Efficacy of micronutrient biofertilisers on productivity and quality of *kharif* groundnut	**Accepted with following suggestion/s** 1. Recast title of experiment as "Efficacy of micronutrient solubilizing biofertilisers on productivity and quality of *kharif* groundnut" 2. Remove *Rhizobium*, PSB & KSB common application (**Action**: *Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
21.2.3.67	Effect of nano DAP on growth, yield and quality of chickpea under conserved soil moisture condition	**Accepted with following suggestion/s** 1. Take observation on total NPK uptake by plant (**Action**: *Research Scientist, Dry Farming Research Station, JAU, Vallabhipur)*
21.2.3.68	Effect of nano – DAP on late *Kharif* mungbean crop	**Accepted with following suggestion/s** 1. Take observation on total NPK uptake by plant (**Action:** *Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh)*
21.2.3.69	Effect of nano DAP on growth, yield and quality of okra	**Accepted with following suggestion/s** 1. Take observation on total NPK uptake by plant (**Action**: *Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.3.70	Effect of nano DAP on growth, yield and quality of *kharif* groundnut	**Accepted with following suggestion/s** 1. Take observation on total NPK uptake by plant (**Action**: *Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
21.2.3.71	Effect of nano DAP on growth, yield and quality of groundnut under rainfed condition	**Accepted with following suggestion/s** 1. Take observation on total NPK uptake by plant (**Action**: *Research Scientist, Main Dry Farming Res. Station, JAU, Targhadia)*

21.2.3.72	Effect of nano DAP on growth, yield and quality of pearl millet	**Accepted with following suggestion/s** 1. Take observation on total NPK uptake by plant (**Action:** *Research Scientist (Pearl millet), Main Pearl millet Research Station, JAU, Jamnagar)*

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.2.3.73	Study of association of weather parameters with vegetable crops of Gujarat	**Accepted with following suggestion/s** 1. Approved (**Action:** *Professor & Head, Dept. of Meteorology, BACA, AAU, Anand)*
21.2.3.74	Effect of weather parameters on flowering and fruiting behaviors of bottle gourd [*Lagenaria siceraria (Mol.) Standl.]*	**Accepted with following suggestion/s** 1. Approved (**Action:** *Professor & Head, Dept. of Meteorology, BACA, AAU, Anand)*
21.2.3.75	Nutrient management in mustard under saline water irrigation	**Accepted with following suggestion/s** 1. Add observation of "ESP" every year (**Action:** *Professor and Head, Dept. of Soil Sci. &Agril. Chem., BACA, AAU, Anand)*
21.2.3.76	Bio-efficacy of herbicides against complex weed flora in soybean	**Accepted with following suggestion/s** 1. Approved (**Action:** *Agronomist & PI, AICRP-WM, BACA, AAU, Anand)*
21.2.3.77	Integrated weed management in Ajwain	**Accepted with following suggestion/s** 1. Approved (**Action:** *Agronomist & PI, AICRP-WM, BACA, AAU, Anand)*
21.2.3.78	Effect of different rates and frequencies of Zn application on maize-wheat cropping sequence	**Accepted with following suggestion/s** 1. Delete objective no. 3 (**Action:** *Associate Research Scientist, Micronutrient Research Centre, AAU, Anand)*
21.2.3.79	Effect of row spacing and mulch on brinjal under drip irrigation system	**Accepted with following suggestion/s** 1. Delete word 'control' from treatment T_1 **Note:** used Polymulch 25 micron silver colour (**Action:** *Research Scientist, Regional Research Station, AAU, Anand)*

21.2.3.80	Assessment of crop management module in Maize +Pigeonpea intercropping system	**Accepted with following suggestion/s** **Add Observation: Maize** 1. Plant height (cm) 30, 60 DAS and at harvest 2. Cob length (cm), 3. Cob girth (cm), 4. Protein content of grain (%) **Pigeonpea:** 1. Plant height (cm) at 30, 60 DAS and at harvest, 2. No. of pods/plant, 3. Protein content of seed (%) 4. Maize equivalent yield (kg/ha) *(***Action:** *Research Scientist, Main Maize Research Station, Godhra)*
21.2.3.81	Effects of Nitrogen, phosphorus and potassium on yield of hybrid maize in kharif season	**Accepted with following suggestion/s** 1. As a Feeler trial *(***Action:** *Research Scientist, Main Maize Research Station, Godhra)*
21.2.3.82	Evaluation of chickpea varieties under different date of sowing for vegetable purpose	**Accepted with following suggestion/s** 1. Approved *(***Action:** *Senior scientist & Head, Krushi Vighyan Kendra, AAU, Dahod)*
21.2.3.83	Effect of irrigation methods and scheduling at critical growth stages in *rabi* maize	**Accepted with following suggestion/s** 1. Take maize variety "GAYMH-3" 2. Experimental period: 2025-26 onwards instead of 2025-26 to 2026-27 *(***Action:** *Assistant Research scientist, COA, AAU, Jabugam)*
21.2.3.84	Performance of hybrid Bt. cotton under different surface irrigation techniques in heavy black soil.	**Accepted with following suggestion/s** 1. Design: Split plot design 2. Replication: "04" instead of "03" 3. In main plot: Subsurface irrigation techniques. In sub plot: Irrigation scheduling 4. Depth of irrigation: 60 mm instead of 80 mm 5. Add observation on WUE and stalk yield 6. Use variety G. Cot. Hy. 24 (BG-II) **7.** Delete word "condition from title of experiment" *(***Action:** *Assistant Research Scientist, NIRP, AAU, Khandha)*

21.2.3.85	Effect of irrigation scheduling at critical growth stage and foliar application of NPK on summer green gram	**Accepted with following suggestion/s** 1. Add observation on NPK content and protein content and no. of seed/pod 2. Keep "stover yield" instead of "Haulm yield" *(***Action:** *Assistant Research Scientist, NIRP, AAU, Khandha)*
21.2.3.86	Determination of sowing time of DSR method in summer season	**Accepted with following suggestion/s** 1. Revised title: Determination of sowing time of direct seeded rice method in summer season 2. In note machine sowing in DSR method in treatment T_1 to T_5 instead of T_1 to T_4 *(***Action:** *Assistant Research Scientist, MRRS, AAU, Nawagam)*
21.2.3.87	Nutrient management in direct seeded rice in *kharif* season	**Accepted with following suggestion/s** 1. Design: FRBD instead of large plot (CRD) 2. Add observation on content and total uptake of N, P and K *(***Action:** *Assistant Research Scientist, MRRS, AAU, Nawagam)*
21.2.3.88	Response of mustard to levels of irrigation and nitrogen in *bhal* region	**Accepted with following suggestion/s** 1. N level: 50, 60 and 70 kg/ha 2. Replication: Four (4) 3. Add observation of N content and uptake by mustard 4. In Note no 2: Delete Gypsum 1.0 t/ha 5. In Note no 4: Delete word 'around' *(***Action:** *Assistant Research Scientist, ARS, Arnej)*
21.2.3.89	Nutrient Management through organic sources in summer mung bean (*Vigna radiata* L.) in Bhal region	**Accepted with following suggestion/s** 1. Bio NP consortium instead of Bio NPK consortium in treatments T_5, T_6 and T_7. 2. Mention NADEP compost in treatment 3. Add observation N content and uptake *(***Action:** *Assistant Research Scientist, ARS, Arnej)*
21.2.3.90	Preparation of phosphate rich organic manure (PROM) using native PGPF on different agro-waste materials and their effects on green gram	**Accepted with following suggestion/s** 1. Recommended dose of phosphorous will be applied through DAP in treatment T_1 only *(***Action:** *Assistant Research Scientist, Dept. of Agril. Microbiology, BACA, AAU, Anand)*

21.2.3.91	Assessment of nutrient properties of soil and crop produce under natural farming practices	**Accepted with following suggestion/s** 1. Revised title: Assessment of nutrient content in soil and crop produce under natural farming practices 2. Delete only certified farm word from objective 3. Take 40 samples each from natural and nearby conventional farm from each district 4. N, P, K content from produce 5. Take observation of total microbial population instead of bacterial population *(***Action:** *Assistant Research Scientist and Head NAIP on Pesticide Residue Lab, Anand)*
21.2.3.92	Degradation of Cybenzoxasulfyl, Isoprothiolane, Picoxystrobin, Flonicamid, Spinosad, Pyraziflumid and Pyraclostrobin in different types of soil- In vitro incubation study	**Accepted with following suggestion/s** 1. SDAU – Loamy sand instead of sandy soil 2. JAU – Medium black instead of black soil *(***Action:** *Assistant Research Scientist and Head NAIP on Pesticide Residue Lab, Anand)*

21.3 PLANT PROTECTION

Date & Venue: May 05-07, 2025 at NAU, Navsari

Chairman	**Dr. Z. P. Patel, Hon'ble Vice Chancellor, NAU, Navsari**
Co-Chairmen	Dr. C. M. Muralidharan, Director of Research, SDAU, Sardarkrushinagar
	Dr. D. M. Jethva, JAU, Junagadh
Rapporteurs	Dr. Lalit Mahatma, NAU, Navsari
	Dr. J. B. Bhut, JAU, Junagadh
	Dr. R. G. Parmar, AAU, Anand
	Dr. N. R. Patel, SDAU, Jagudan
Statistician	Dr. Alok Shrivastava, NAU, Navsari

Name of Conveners of SAUs

Sr. No.	Name	University
1	Dr. Himanshu Desai	NAU, Navsari
2	Dr. R. S. Jaiman	SDAU, Sardarkrushinagar
3	Dr. D. M. Jethva	JAU, Junagadh
4	Dr. N. M. Gohel	AAU, Anand

The meeting of 21st Combined AGRESCO of Plant Protection Sub Committee regarding "Recommendation for Farmers and Scientific Community as well as New Technical Programmes" was held during May 5-7, 2025 at Navsari Agricultural University, Navsari. Inaugural function of 21st Combined AGRESCO of Plant Protection Sub Committee was presided by Dr. Z. P. Patel, Hon'ble Vice Chancellor of Navsari Agricultural University, Navsari.

At the outset, Dr. Timur R. Ahlawat welcomed Dr. Z. P. Patel, Hon'ble Vice Chancellor, NAU, Navsari, Co-Chairmen Dr. C. M. Muralidharan, Director of Research, SDAU, Sardarkrushinagar and Dr. D. M. Jethva, JAU, Junagadh, Dr. Hemant Sharma, Director of Extension Education of NAU, Dr. P. S. Patel, Director of Extension Education of SDAU, Conveners, Rapporteurs and all the members of 20th Combined AGRESCO Plant Protection Sub Committee of for SAUs. Dr. Ahlkawat appreciated the decision of organizing 21st Combined Joint AGRESCO of Plant Protection Sub Committee in physical mode after a long gap of five years due to Covid-19 epidemic and multiple engagements of authorities and members. He instilled confidence that the meeting will be very fruitful in a congenial environment. Dr. C. M. Muralidharan expressed his gratitude towards Hon'ble Vice Chancellor of Navsari Agricultural University, Navsari, Dr. Z. P. Patel for hosting this Combined Joint AGRESCO at NAU, Navsari and urged all the learned members of subcommittee have insightful discussion in a very cordial manner. He emphasized to work on sustainability, food security and climate resilent agriculture.

Hon'ble Vice Chancellor, Navsari Agricultural University, Navsari, Dr. Z. P. Patel welcomed all the members, shared his vast experience of more than 40 years with this group and motivated to do qualitative work. He encouraged scientists to work on cropping pattern, crop

phenology-based pests and disease management recommendations, climate resilent agriculture, eco-friendly management of pests and diseases and mode of action of various components of natural farming. He also sensitized the group to monitor, record and work on invasive pests and pathogens. Dr. Hemant Sharma, DEE of NAU proposed the vote of thanks.

In the plenary session Director of Research & Dean PGS of Sardar Krushinagar, Dantiwada Agricultural University (SDAU), Dantiwada Dr. C.M. Murlidharan expressed satisfaction over the discussion held in last three days during the Combined AGRESCO. Hon'ble Vice Chancellor of Navsari Agricultural University (NAU), Navsari Dr. Z.P. Patel congratulated all the scientists for the recommendation and expressed satisfaction for the quality new technical programmes by all the four SAUs to address the issues of farmers. The meeting ended with the vote of thanks by Dr. Himanshu R. Desai, Convener, PPSC, NAU, Navsari.

SUMMARY

Name of University	No. of Recommendations				New Technical Programs	
	Farmers/Entrepreneurs / Industry		Scientific information			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
NAU	08	05	07	09	36	21+10$+02Ω +02#+01@
SDAU	02	02	02	02	18	16+02$
JAU	08	07	05	05	14	13+01#
AAU	06	06+1*	32	32 (31+1**)	37	35+02$

* Shifted from scientific community to farming community
$ Not approved
@ Merged
# AICRP
Ω Shifted to Social Science sub-committee Group

21.3.1 RECOMMENDATIONS FOR FARMING COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY

21.3.1.1	**Bioefficacy of bio formulations against maize Fall armyworm, *Spodoptera frugiperda* (J.E. Smith) under South Gujarat conditions** Farmers of Gujarat growing maize are recommended to spray 10% *Agniastra* or *Brahmastra* or *Dashparni ark* (1000 ml/10 L water). First at initiation of pest and subsequent three sprays at 10-days interval for the effective management of fall armyworm. ગુજરાતમાં મકાઈની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, પુંછડે ચાર ટપકાવાળી લશ્કરી ઈયળ (ફોલ આર્મીવોર્મ) ના અસરકારક નિયંત્રણ માટે ૧૦% અગ્નિઅસ્ત્ર અથવા બ્રહ્માસ્ત્ર અથવા દશપર્ણી અર્ક (૧૦૦૦ મિલી પ્રતિ ૧૦ લિટર

પાણી) મિશ્ર કરી પ્રથમ છંટકાવ જીવાતની હાજરી જોવા મળે ત્યારે અને બાકીના ત્રણ છંટકાવ ૧૦ દિવસના આંતરે કરવા.

CIBRC Format:

Year	Crop	Pest	Pesticides/ Biopesticides with formulation	Dosage				Quantity of suspension/ Soil amen--dments required (kg or l/ha)	Application schedule	Waiting period / PHI (days)	Remark (s)
				a.i. (g / ha)	Quantity of formulation g or ml/kg seed, kg or l/ha	Conc. (%)	Quantity of formulation in 10 l of water (g or ml)				
1	2	3	4	5	6	7	8	9	10	11	12
2024-25	Maize	Fall army-worm, *Spodoptera Frugiperda*	Agniastra	--	50 litre/ha	10%	1 litre/10 litre of water	500 litre water	First spraying at initiation of pest infestation, second, third and fourth spraying at 10 days after first application	--	--
			Brahmastra	--	50 litre/ha	10%	1 litre/10 litre of water			--	--
			Dashparni ark	--	50 litre/ha	10%	1 litre/10 litre of water			--	--

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુઘ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકો ની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવાની પધ્ધતિ	વેઈટીંગ પિરિયડ / પી.એચ.આઇ (દિવસ)	નોંધ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશન નો જથ્થો ગ્રામ અથવા મિલી / કિગ્રા બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશન નો જથ્થો (ગ્રામ અથવા મિલિ)				
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨
૨૦૨૪ ૨૫-	મકાઈ	પુંછડે ચાર ટપકાવાળી લશ્કરી ઈયળ (ફોલ આર્મીવોર્મ)	અગ્નિઅસ્ત્ર	--	૫૦ લી./હે	૧૦%	૧ લી. / ૧૦ લિટર પાણી	૫૦૦ લીટર પાણી	પ્રથમ છંટકાવ જીવાતની હાજરી જોવા મળે ત્યારે અને બાકીના છંટકાવ, ૧૦ દિવસના અંતરે કરવા	--	--
			બ્રહ્માસ્ત્ર	--	૫૦ લી./હે	૧૦%	૧ લી. / ૧૦ લિટર પાણી			--	--
			દશપર્ણી અર્ક	--	૫૦ લી./હે	૧૦%	૧ લી. / ૧૦ લિટર પાણી			--	--

Agniastra:

Sr. No.	Natural product and their ingredients	Quantity
1.	Neem (*Azadirachta indica*) leaves pulp	5 kg
2.	*Ipomoea* leaves paste	1 kg
3.	Green chili (*Capsicum annuum*) leaves paste	500 g
4.	Garlic (*Allium sativum*) paste	500 g
5.	Gir cow urine	10 L

Agniastra preparation procedure:

- For the preparation of Agniastra, 10 L of Gir cow urine was poured in plastic drum; thereafter paste of Ipomoea crushed leaves @ 1 kg was added. Crushed 500 g of green chilli was added in Gir cow urine.
- Crushed 500 g of garlic was added in Gir cow urine and then 5 kg neem leaves pulp was also added. All the natural ingredients were ground with the help of electric mixture for the preparation of paste/pulp.
- All the ingredients were taken into 26" capacity aluminum tope (*Tapela*) [113 litre capacity] and kept it on gas stove.
- The collected ingredients were boiled 5 times continuously till it became half quantity. Thereafter, this boiled solution was kept for cooling and fermentation purpose for the period of 24 hrs. After fermentation, the prepared agniastra was filtered through muslin cloth.
- The extracted agniastra solution was kept in final drum (30 litre capacity plastic drum) under shade condition (B/H Biocontrol lab) and covered with green shade net. The final prepared agniastra solution was stirred in clockwise direction by using bamboo stick regularly at one-day interval.

Brahmastra:

Sr. No.	Natural product and their ingredients	Quantity
1.	Neem (*Azadirachta indica*) leaves pulp	3 kg
2.	Karanja (*Millettia pinnata*) leaves pulp	2 kg
3.	Castor leaves pulp	2 kg
4.	Papaya leaves (*Carica papaya*) pulp	2 kg
5.	Guava leaves (*Psidium guajava*) pulp	2 kg
6.	Gir cow urine	10 L

Brahmastra preparation procedure:

- For the preparation of Brahmastra, 10 L Gir cow urine was taken into plastic container. Thereafter, crushed neem leaves paste @ 3 kg was added.
- Then 2 kg pulp of karanja leaves, 2 kg pulp of castor leaves, 2 kg pulp of papaya leaves and 2 kg pulp of guava leaves were added in it.
- All the natural ingredients were ground with the help of electric mixture for the preparation of paste/pulp.
- All the ingredients were taken into 26" capacity aluminum tope (*Tapela*) [113 litre capacity] and kept it on gas stove.
- The collected ingredients were boiled five times continuously.
- Thereafter, this boiled solution was kept for cooling and fermentation for 24 hrs.
- After fermentation, the prepared brahmastra was filtered through muslin cloth.
- The extracted brahmastra solution was kept in final drum (30 litre capacity plastic drum) under shade condition (B/H Biocontrol lab) and covered with green shade net.
- The final prepared brahmastra solution was stirred in clockwise direction by using bamboo stick regularly at one-day interval.

Dashparni Ark:

Sr. No.	Natural product and their ingredients	Quantity
1.	Neem (*Azadirachta indica*) leaves	5 kg
2.	Karanja (*Millettia pinnata*) leaves	2 kg
3.	Nirgundi (*Vitex negundo*) leaves	2 kg
4.	Custard apple (*Annona reticulata*) leaves	2 kg
5.	Papaya (*Carica papaya*) leaves	2 kg
6.	Castor (*Ricinus communis*) leaves	2 kg
7.	Ratangunj tree (*Adenanthera microsperma)* leaves	2 kg
8.	Calotropis (*Calotropis gigantea*) leaves	2 kg

9.	*Nerium indicum* leaves	2 kg
10.	Indian bael tree (*Aegle marmelos*) leaves	2 kg
11.	Green chilli (*Capsicum annuum*) paste	2 kg
12.	Garlic (*Allium sativum*) paste	250 g
13.	Gir cow urine	5 L
14.	Gir cow dung	3 kg
15.	Water	200 L

Dashparni Ark preparation procedure:

- Known quantity of detached neem leaves, karanja leaves, nirgundi leaves, custard apple leaves, papaya leaves, castor leaves, ratangunj tree leaves, Calotropis leaves, Nerium indicum leaves, bael tree leaves, green chilli paste, garlic paste, Gir cow dung, Gir cow urine were taken and added into 200 litre water (200 litre plastic drum) and it was kept to ferment for one month.
- For the preparation of solution, another plastic drum of 200 litre capacity was also used to mix all the ingredients and thereafter solution was transferred to final drum.
- The dashparni ark solution was taken out from the plastic drum by extracting the entire solution after filtering through muslin cloth.
- The extracted solution was kept in final drum under shade condition (B/H Biocontrol lab) and covered with green shade net. The prepared dashparni ark solution was stirred in clockwise direction by using bamboo stick regularly atleast three times a day.

અગ્નિઅસ્ત્ર

અ.નં .	જરૂરી વસ્તુઓ	પ્રમાણ
૧.	લીમડાનાં (*Azadirachta indica*) પાનની ચટણી	૫ કિલો
૨.	નફટીયાના (Ipomoea) પાનની ચટણી	૧ કિલો
૩.	લીલા મરચાની (*Capsicum annuum*) ચટણી	૫૦૦ ગ્રા
૪.	લસણની (*Allium sativum*) ચટણી	૫૦૦ ગ્રા
૫.	ગીર ગાયનું ગૌમૂત્ર	૧૦ લિટ

- અગ્નિસ્ત્ર તૈયાર કરવા માટે પ્લાસ્ટિકના ડ્રમમાં ૧૦ લિટર ગીર ગાયનું ગૌમૂત્ર રેડવું ત્યારબાદ ૧ કિગ્રા નફટીયાના પાનની ચટણી ઉમેરવી. ત્યારબાદ ગીર ગાયના ગૌમૂત્રમાં ૫૦૦ ગ્રામ લીલા મરચાંની ચટણી ઉમેરવી. તેમજ ગીર ગાયના ગૌમૂત્રમાં ૫૦૦ ગ્રામ લસણની ચટણી ઉમેરવી. ત્યારબાદ ૫ કિલો લીમડાના પાનની ચટણી ઉમેરવી. ઉપર મુજબના તમામ કુદરતી ઘટકોને ઇલેક્ટ્રીક મિક્ષરની મદદથી વાટીને ઝીણું કરવું.
- તમામ ઘટકોને ૨૬ ઇંચ ક્ષમતા વાળા એલ્યુમિનિયમના તપેલા (૧૧૩ લિટર ક્ષમતા) માં ઉમેરી લેવું અને તેને ગેસ સ્ટવ ઉપર ઉકાળવા માટે રાખવું.
- એકત્રિત કરેલી તમામ સામગ્રીને પાંચ વખત ઉકાળવી જ્યાં સુધી તે અડધી માત્રા ન બની જાય. ત્યારબાદ, આ ઉકાળેલા દ્રાવણને ૨૪ કલાકના સમયગાળા માટે ઠંડુ પાડવા માટે રાખી મૂકો, ત્યારબાદ તેને કપડા વડે ગાળીને અલગ વાસણમાં (ડ્રમમાં) સંગ્રહ કરવો.
- અંતિમ તૈયાર થયેલ અગ્નિઅસ્ત્ર દ્રાવણને એક દિવસના અંતરે નિયમિત રીતે વાંસની લાકડીના ઉપયોગથી ઘડિયાળના કાંટાની દિશામાં હલાવવું.

બ્રહ્માસ્ત્ર

અ.નં .	જરૂરી વસ્તુઓ	પ્રમાણ
૧.	લીમડાના પાનની ચટણી	૩ કિલો
૨.	કરંજના પાનની ચટણી	૨ કિલો
૩.	એરંડાના પાનની ચટણી	૨ કિલો
૪.	પપૈયાના પાનની ચટણી	૨ કિલો
૫.	જામફળના પાનની ચટણી	૨ કિલો
૬.	ગીર ગાયનું ગૌમૂત્ર	૧૦ લિટર

- બ્રહ્માસ્ત્ર તૈયાર કરવા માટે પ્લાસ્ટિકના ડ્રમમાં ૧૦ લિટર ગીર ગાયનું ગૌમૂત્ર રેડવું; ત્યારબાદ પાણીમાં ૩ કિલો લીમડાના પાનની ચટણી ઉમેરવી.
- ત્યારપછી તેમાં ૨ કિલો કરંજના પાનની ચટણી, ૨ કિલો એરંડાના પાનની ચટણી, ૨ કિલો પપૈયાના પાનની ચટણી અને ૨ કિલો જામફળના પાનની ચટણી ઉમેરવી.
- ઉપર મુજબના તમામ કુદરતી ઘટકોને ઇલેક્ટ્રીક મિક્ષરના મદદથી વાટીને ઝીણું કરવું.
- તમામ ઘટકોને ૨૬ ઇંચ ક્ષમતા વાળા એલ્યુમિનિયમના તપેલા [૧૧૩ લિટર ક્ષમતા]માં ઉમેરી લેવું અને તેને ગેસ સ્ટવ ઉપર ઉકાળવા માટે રાખવું. એકત્રિત કરેલી તમામ સામગ્રીને પાંચ વખત ઉકાળવી.
- ત્યારબાદ, આ ઉકાળેલા દ્રાવણને ૨૪ કલાકના સમયગાળા માટે રાખી મૂકો, ત્યારબાદ તેને કપડા વડે ગાળીને અલગ વાસણમાં (૩૦ લિટરના ડ્રમમાં) સંગ્રહ કરવો.
- અંતિમ તૈયાર થયેલ બ્રહ્માસ્ત્ર દ્રાવણને એક દિવસના અંતરે નિયમિત રીતે વાંસની લાકડીના ઉપયોગથી ઘડિયાળના કાંટાની દિશામાં હલાવવું.

દશપર્ણી અર્ક

અ.નં .	જરૂરી વસ્તુઓ	પ્રમાણ
૧.	લીમડાના પાન (*Azadirachta indica*)	૫ કિલો
૨.	કરંજના પાન (*Millettia pinnata*)	૨ કિલો
૩.	નગોડના પાન (*Vitex negundo*)	૨ કિલો
૪.	સીતાફળના પાન (*Annona reticulata*)	૨ કિલો
૫.	પપૈયાના પાન (Carica papaya)	૨ કિલો
૬.	એરંડાના પાન (*Ricinus communis*)	૨ કિલો
૭.	રતનગુંજના પાન (*Adenanthera microsperma*)	૨ કિલો
૮.	આકડાના પાન (*Calotropis gigantea*)	૨ કિલો
૯.	કરેણના પાન (*Nerium indicum)*	૨ કિલો
૧૦.	બિલીના પાન (*Aegle marmelos*)	૨ કિલો
૧૧.	લીલા મરચાની ચટણી (*Capsicum annuum*)	૨ કિલો
૧૨.	લસણની ચટણી (*Allium sativum*)	૨૫૦ ગ્રામ

૧૩.	ગીર ગાયનું ગૌમૂત્ર	૫ લિટર
૧૪.	ગીર ગાયનું ગોબર	૩ કિલો
૧૫.	પાણી	૨૦૦ લિટર

- લીમડાના પાન, કરંજના પાન, નાગોડના પાન, સીતાફળના પાન, પપૈયાના પાન, એરંડાના પાન, રતનગુંજના પાન, આકડાના પાન, કરેણના પાન, બિલીના પાન, લીલા મરચાની ચટણી, લસણની ચટણી, ગીર ગાયનું ગૌમૂત્ર અને ગીર ગાયનું ગોબર ઉપર જણાવેલ જથ્થામાં ૨૦૦ લીટર પાણીમાં ઉમેરવું.
- તમામ ઘટકોને વ્યવસ્થિત મિક્ષ કરવા માટે જરૂર પડે તો ૨૦૦ લિટર ક્ષમતાવાળા અન્ય પ્લાસ્ટિક ડ્રમનો પણ ઉપયોગ કરવો. ત્યારબાદ તેને કપડા વડે ગાળીને અલગ વાસણમાં (ડ્રમમાં) સંગ્રહ કરવો.
- અંતિમ તૈયાર થયેલ દશપર્ણી અર્કના દ્રાવણને દિવસમાં ઓછામાં ઓછુ ત્રણ વખત નિયમિત રીતે વાંસની લાકડીના ઉપયોગથી ઘડિયાળના કાંટાની દિશામાં હલાવવું.

Approved with following suggestion(s):

1 Mention active ingredient of the best treatment in the conclusion.
2 Calculate economics.
3 Recast recommendation text in English and Gujarati version

(Action: Professor and Head, Deptt. of Ento., NMCA, NAU Navsari)

21.3.1.2 Management of rugose spiraling whitefly, *Aleurodicus rugioperculatus* Martin in coconut under south Gujarat condition

Coconut growers of Gujarat are recommended to apply three sprays of *Beauveria bassiana* 1.15 WP (Min. 1×10^8 cfu/g) 0.007% (60 g/10 L of water) along with 1% starch (100 g/10 L of water), first at the initiation of pest infestation and subsequent two sprays at 10-day interval for the effective management of rugose spiraling whitefly.

ગુજરાતમાં નાળિયેરીની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, રૂગોસ સ્પાયરલિંગ સફેદમાખીના અસરકારક નિયંત્રણ માટે બ્યુવેરિયા બાસીયાના ૧.૧૫ ડબલુ. પી. (ન્યુનતમ ૧ × ૧૦૮ સીએફયુ/ગ્રા.) ૦.૦૦૭% (૬૦ ગ્રા./૧૦ લીટર પાણી) ની સાથે ૧% સ્ટાર્ચ (૧૦૦ ગ્રા./ ૧૦ લીટર પાણી) નો છંટકાવ જીવાતનો ઉપદ્રવ શરુ થયે અને ત્યારબાદ બીજા બે છંટકાવ ૧૦ દિવસના આંતરે કરવા.

CIBRC Format:

Year	Crop	Pest	Pesticides/ Biopesticides with formulation	Dosage				Quantity of suspension/ Soil amen-dments required (kg or l/ha)	Application schedule	Waiting period/ PHI (days)	Re m-ark(s)
				a.i. (g/ha)	Quantity of formulation g or ml/kg seed, kg or l/ha	Conc. (%)	Quantity of formulation in 10 l of water (g or ml)				
1	2	3	4	5	6	7	8	9	10	11	12

2024-25	Coconut	Rugose Spiralling Whitefly	*Beauveria bassiana* 1.15 WP (Min. 1 x 10^8 cfu/g)	35	3 kg/ha	0.007 %	60 g	500 litres of water	First spray at initiation of pest infestation, and subsequent sprays at 10 days interval	--	--

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુધ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકોની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવાની પધ્ધતિ	વેઇટીંગ પિરિયડ / પી.એચ.આઇ દિવસ) (	નોંધ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશન નો જથ્થો ગ્રામ અથવા મિલી / કિગ્રા બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશન નો જથ્થો (ગ્રામ અથવા મિલિ)				
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨
૨૦૨૪ ૨૫-	નાળિયેરી	નાળિયેરીની સફેદમાખી	બ્યુવેરિયા બાસીયાના ૧.૧૫ ડબલુ .પી. (ન્યુનતમ 1 x $10^{૯}$ સીએફયુ/ ગ્રામ)	૩૫	૩ કિ.ગ્રા/ હે	૦.૦૦૭ %	૬૦ ગ્રા.	૫૦૦ લીટર પાણી	પ્રથમ છંટકાવ જીવાતનો ઉપદ્રવ શરુ થયે અને ત્યારબાદ બાકીના છંટકાવ, ૧૦ દિવસના અંતરે	--	--

Approved with following suggestion(s):

1 Considered as regular recommendation

(Action: Professor and Head, Deptt. of Ento., NMCA, NAU Navsari)

21.3.1.3 Chemical Control of pest complex in cashew (Ad-hoc recommendation)

Cashew growers of South Gujarat are recommended to apply three sprays of buprofezin 25 SC at 0.05% (20 ml/10 L water) or carbosulfan 25 EC at 0.05% (20 ml/10 L water) each at flushing, flowering and fruiting stages for effective management of tea mosquito bug. A minimum pre harvest interval (PHI) of 30 days for buprofezin 25 SC and 35 days for carbosulfan 25 EC should be kept.

દક્ષિણ ગુજરાતમાં કાજુની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે નવી ફુટ, ફુલો (મોર) અને ફળ અવસ્થાએ બુપ્રોફેઝીન ૨૫ ઈ.સી. ૦.૦૫% (૨૦ મિલી/૧૦ લી. પાણી) અથવા કાર્બોસલ્ફાન ૨૫ ઈ.સી. ૦.૦૫% (૨૦ મિલી/૧૦ લી. પાણી) ના ત્રણ છંટકાવ કરવાથી ટી મોસ્કીટો બગનું અસરકારક નિયંત્રણ કરી શકાય છે. છેલ્લા

છંટકાવ અને ફળ ઉતારવા વચ્ચે ઓછામાં ઓછો બુપ્રોફેઝીન ૨૫ ઈ.સી. માટે ૩૦ દિવસ અને કાર્બોસલ્ફાન ૨૫ ઈ.સી. માટે ૩૫ દિવસનો સમયગાળો રાખવો.

CIBRC Format:

Year	Crop	Pest/ Disease	Pesticide with formulation	Dosage/ha			Waiting period (days)
				a.i./ha	Conc. (%)	Dilution in water (l)	
2025	Cashew	Tea mosquito bug	Buprofezin 25 SC	1 L	0.05	2000 L	30
			Carbosulfan 25 EC				35

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક	માત્રા/હે.			વેઇટીંગ પીરિયડ (દિવસ)
				સ.ત/.હે	સાંદ્રતા (%)	પાણીમાં મિશ્રણ (લી)	
૨૦૨૫	કાજુ	ટી મોસ્કીટો બગ	બુપ્રોફેઝીન ૨૫ ઈ.સી.	૧ લી.	૦.૦૫	૨૦૦૦ લી.	૩૦
			કાર્બોસલ્ફાન ૨૫ ઈ.સી.				૩૫

Suggestion: Approved as Ad-hoc recommendation till the insecticide registers in CIBRC

1. Looking at the severity of pest and request of the famers of the area, the above recommendation is accepted as Adhoc recommendation.
2. The recommendation may be consideration as regular recommendation by putting the same in the house once the crop of chemicals is recommended by the CIBRC.

(Action: Research Scientist, AES, NAU, Paria)

21.3.1.4 Evaluation of compatibility of NAUROJI Azotobacter Acetobacter, Azospirillum, Rhizobium, PSB, KMB and Pseudomonas with different agrochemicals

Farmers can mix Azotobacter, Acetobacter, Azospirillum, Rhizobium, Phosphate Solublizing Bacteria, Potash Mobilizing Bacteria and Pseudomonas as a biofertilizer or Plant Growth Promoting Rhizobacteria (PGPR) with recommended doses of insecticides, fungicides, weedicides and chemical fertilizers as per Annexure-I.

જૈવિક ખાતરો જેવા કે એઝોટોબેક્ટર, એસિટોબેક્ટર, એઝોસ્પિરિલમ, રાઈઝોબિયમ, ફોસ્ફરસ સોલ્યુબ્લાયઝિંગ બેક્ટેરિયા, પોટાશ મોબિલાયઝિંગ બેક્ટેરિયા તથા છોડ વૃધ્ધિકારક રાઇઝોબેક્ટેરિયા (પીજીપીઆર) સ્યુડોમોનાસ વાપરતા ખેડૂતોને પરિશિષ્ટ-૧ માં દર્શાવેલ જંતુનાશકો, ફૂગનાશકો, નીંદણનાશકો અને રાસાયણિક ખાતરો તેમની ભલામણ કરેલ માત્રામાં ભેળવી વપરાશ કરી શકે છે.

Annexure-I (Agrochemicals tested for the compability with biofertilizers & PGPG)

Insecticides	Fungicides	Weedicides	Chemical fertilizers
Abamectin 1.8% EC	Azoxystrobin 23% SC	2,4-D Amine Salt 58% WSC & SL	Urea
Acephate 75% SP	Captan 50% WP	2,4-D Ethyl Easter 38% EC	DAP
Acetamiprid 20% SP	Carbendazim 50% WP	2,4-D Sodium Salt 80% WP	SSP
Alpha-Cypermethrin 10% WP	Chlorothalonil 75% WP	Atrazine 50% WP	MOP
Alphamethrin 10% EC	Copper Hydroxide 77% WP	Bispribac Sodium 10% SC	SOP
Bifenthrin 10% EC	Paclobutrazol 23% SC	Butachlor 50% EC/EW	Urea Phosphate 17:44:0
Buprofezin 25% SC	Copper Oxychloride 50% WP	Ethoxysulfuron 15% WDG	Urea Phosphate with SOP 18:18:18
Carbofuran 3% GR	Difenconazole 25% EC	Fenoxaprop-P- Ethyl 6.7% EC	Potassium Nitrate (13:0:45)
Chlorantraniliprole 18.5% SC	Dinocap 48% EC	Glyphosate 41% SL Iso-propyl-amine (IPA) Salt	Mono Potassium P (0:52:34)
Chlorfenapyr 10% SC	Fosefyl AL 80% WP	Metribuzine 70% WP	Mono Ammonium P (12:61:0)
Chlorpyrifos 20% EC	Hexaconazole 5% EC	Oxadiargyl 80% WP	Ammonium Sulphate
Cypermethrin 10% EC	Kasugamycin 3% SL	Oxyfluorfen 23.5% EC	Grade-I : Fe-2.0%, Mn-0.5%, Zn-4.0%, Cu-0.3%, B-0.5%
Diafenthiuron 50% SP	Kresoxim Methyl 44.3% SC	Paraquat Dichloride 24% SL	Zn-deficiency (grade-II: Fe-2.0%, Mn-0.5%, Zn-8.0%, Cu-0.5%, B-0.5%)
Dicofol 18.5% EC	Mancozeb 75% WP	Pendimethaline 30 EC	Fe-deficiency (grade-III: Fe-6.0%, Mn-1.0%, Zn-4.0%, Cu-0.3%, B-0.5%)
Fipronil 5% SC	Metalaxyl 35% WS		Zn+Fe-deficiency (grade–IV: Fe-4.0%, Mn-1.0%, Zn-6.0%, Cu-0.5%, B-0.5%)
Flubendiamide 20% WG	Myclobutanil 10% WP		Grade –V (Fe-2.0%, Mn-0.5%, Zn-5.0%, Cu-0.2%, B-0.5%)
Imidachloprid 17.8% SL	Propiconazole 25% EC		
Indoxacarb 14.5% SC	Pyraclostrobin 20% WG		
Lambda Cyhalothrin 2.5% EC	Sulphur 80% WP		
Thiodicarb 75% WP	Tebuconazole 25.9% EC		
Thiamethoxam 25% WG	Thiophanate Methyl 70% WP		
Profenophos 50% EC	Thiram 75% DS		
Propergite 57% EC	Triadimefon 25% WP		

Spinosad 45% SC	Tricyclazole 75% WP			
	Validamycin 3% SL			
	Zineb 75% WP			

પરિશિષ્ટ-૧ (જૈવિક ખાતરો અને પીજીપીઆર સાથે સુસંગતતા માટે પરીક્ષણ કરાયેલ કૃષિ રસાયણો)

જંતુનાશકો	ફૂગનાશકો	નીંદણનાશકો	રાસાયણિક ખાતરો
એબેમેક્ટીન ૧.૮% ઇસી	એઝોક્સિસ્ટ્રોબિન ૨૩% એસસી	૨,૪,ડી એમાઇન સોલ્ટ 58% ડબલ્યુએસસી અને એસએલ	યુરિયા
એસેફેટ ૭૫% એસપી	કેપ્ટન ૫૦% ડબલ્યુપી	૨,૪,ડી ઇથિલ ઇસ્ટર 38% ઇસી	ડીએપી
એસેટામીપ્રિડ ૨૦% એસપી	કાર્બેન્ડાઝીમ ૫૦% ડબલ્યુપી	૨,૪,ડી સોડિયમ સોલ્ટ 80% ડબલ્યુપી	એસએસપી
આલ્ફા-સાયપરમેથ્રિન ૧૦% ડબલ્યુપી	ક્લોરોથેલોનિલ ૭૫% ડબલ્યુપી	એટ્રાઝિન 50% ડબલ્યુપી	એમઓપી
આલ્ફામેથ્રિન ૧૦% ઇસી	કોપર હાઇડ્રોક્સાઇડ ૭૭% ડબલ્યુપી	બિસ્પ્રિબેક સોડિયમ 10% એસસી	એસઓપી
બાયફેન્થ્રિન ૧૦% ઇસી	પેક્લોબ્યુટ્રાઝોલ ૨૩% એસસી	બ્યુટાક્લોર 50% ઇસી/ઇડબ્લ્યુ	યુરિયા ફોસ્ફેટ ૧૭:૪૪:૦
બુપ્રોફેઝિન ૨૫% એસસી	કોપર ઓક્સીક્લોરાઇડ ૫૦% ડબલ્યુપી	ઇથોક્સીસલ્ફ્યુરોન 15% ડબલ્યુડીજી	યુરિયા ફોસ્ફેટ ૧૮:૧૮:૧૮ સાથે
કાર્બોફ્યુરાન ૩% જીઆર	ડાયફેન્કોનાઝોલ ૨૫% ઇસી	ફેનોક્સાપ્રોપ-પી- ઇથિલ ૬.૭% ઇસી	પોટેશિયમ નાઈટ્રેટ (૧૩:૦:૪૫)
ક્લોરાન્ટ્રાનિલિપ્રોલ ૧૮.૫% એસસી	ડાયનોકેપ ૪૮% ઇસી	ગ્લાયફોસેટ ૪૧% એસએલ	મોનો પોટેશિયમ પી (૦:૫૨:૩૪)
ક્લોરફેનાપીર ૧૦% એસસી	ફોસેફિલ એએલ ૮૦% ડબલ્યુપી	મેટ્રિબ્યુઝિન ૭૦% ડબલ્યુપી	મોનો એમોનિયમ પી

				(૧૨:૬૧:૦)	
	ક્લોરપાયરિફોસ ૨૦% ઇસી	હેક્સાકોનાઝોલ ૫% ઇસી	ઓક્સાડિયાર્ગિલ ૮૦% ડબલ્યુપી	એમોનિયમ સલ્ફેટ	
	સાયપરમેથ્રિન ૧૦% ઇસી	કાસુગામાયસીન ૩% એસએલ	ઓક્સીફ્લોરફેન ૨૩.૫% ઇસી	સૂક્ષ્મ પોષકતત્વ ગ્રેડ-૧ (Fe-૨.૦%, Mn-૦.૫%, Zn-૪.૦%, Cu-૦.૩%, B-૦.૫%)	
	ડાયફેન્થ્યુરોન ૫૦% એસપી	ક્રેસોક્સિમ મિથાઈલ ૪૩.૩% એસસી	પેરાક્વાટ ડાયક્લોરાઇડ ૨૪% એસએલ	સૂક્ષ્મ પોષકતત્વ ગ્રેડ-૨ (Zn ઉણપ: Fe-૨.૦%, Mn-૦.૫%, Zn-૮.૦%, Cu-૦.૫%, B-૦.૫%)	
	ડીકોફોલ ૧૮.૫% ઇસી	મેનકોઝેબ ૭૫% ડબલ્યુપી	પેન્ડીમેથાલિન ૩૦% ઇસી	સૂક્ષ્મ પોષકતત્વ ગ્રેડ-૩ (Fe ઉણપ: Fe-૬.૦%, Mn-૧.૦%, Zn-૪.૦%, Cu-૦.૩%, B-૦.૫%)	
	ફિપ્રોનિલ ૫% એસસી	મેટાલેક્સિલ ૩૫% ડબલ્યુએસ		સૂક્ષ્મ પોષકતત્વો ગ્રેડ-IV (Zn+Fe	

				ઉણપ: Fe-૪.૦%, Mn-૧.૦%, Zn-૬.૦%, Cu-૦.૫%, B- ૦.૫ %)	
	ફ્લુબેન્ડિયામાઇડ ૨૦% ડબલ્યુજી	માયક્લોબ્યુટાનિલ ૧૦% ડબલ્યુપી		સૂક્ષ્મ પોષકત ત્વો ગ્રેડ-V (Fe-૨.૦%, Mn-૦.૫%, Zn-૫.૦%, Cu-૦.૨%, B-૦.૫%)	
	ઇમિડાક્લોપ્રિડ ૧૭.૮% એસએલ	પ્રોપીકોનાઝોલ ૨૫% ઇસી			
	ઇન્ડોક્સાકાર્બ ૧૪.૫% એસસી	પાયરાક્લોસ્ટ્રોબિન ૨૦% ડબલ્યુજી			
	લેમ્બડા સાયહાલોથ્રિન ૨.૫% ઇસી	સલ્ફર ૮૦% ડબલ્યુપી			
	થિયોડીકાર્બ ૭૫% ડબલ્યુપી	ટેબુકોનાઝોલ ૨૫.૯% ઇસી			
	થિયામેથોક્સામ ૨૫% ડબલ્યુજી	થિયોફેનેટ મિથાઈલ ૭૦% ડબલ્યુપી			
	પ્રોફેનોફોસ ૫૦% ઇસી	થીરામ ૭૫% ડી.એસ			
	પ્રોપરગાઇટ ૫૭% ઇસી	ટ્રાયડીમેફોન ૨૫% ડબલ્યુપી			
	સ્પિનોસેડ ૪૫% એસસી	ટ્રાઇસાયક્લેઝોલ ૭૫% ડબલ્યુપી			
		વેલિડામિસિન ૩% એસએલ			
		ઝીનેબ ૭૫% ડબલ્યુપી			

Approved with following suggestion(s):

1 Recast recommendation text in English and Gujarati version

(Action: Prof. & Head, Deptt. of Plant Pathology, NMCA, NAU, Navsari)

21.3.1.5	**Management of damping off of tomato in field condition** Tomato nursery growers/farmers of South Gujarat are recommended to treat seeds with *Trichoderma viride* 1.5 % WP (10 g/kg seeds) along with soil application of *Trichoderma viride* 1.5% WP (50 g/m^2) and neem cake (50 g/ m^2)10 days after sowing or with seed treatment with Metalaxyl 31.8 ES (2 g/kg seeds) + soil drenching of Metalaxyl 4%+ Mancozeb 64% WP (3 g /L/ m^2) 10 days after sowing for effective management of damping off of tomato in field condition. **<u>ખેડૂતોપયોગી ભલામણ:</u>** દક્ષિણ ગુજરાતના ટામેટાનું ધરુવાડિયું કરતાં ખેડૂતોને ધરુના કોહવારાના અસરકારક નિયંત્રણ માટે ભલામણ કરવામાં આવે છે કે *ટ્રાઇકોડેર્મા વીરીડી* ૧.૫ % વે.પા. (૧૦ ગ્રામ/કિ.ગ્રા. બીજ) માવજત તરીકે તેમજ ૫૦ ગ્રામ *ટ્રાઇકોડેર્મા વીરીડી* અને ૫૦ ગ્રામ લીમડાના ખોળને સાથે ભેળવીને પ્રતિ ચો.મી. પ્રમાણે વાવણીના ૧૦ દિવસ બાદ જમીનમાં માવજત આપવી અથવા મેટાલેક્ઝીલ ૩૧.૮% ઈએસ (૨ ગ્રામ/કિ.ગ્રા. બીજ) માવજત તરીકે તેમજ મેટાલેક્ઝીલ ૪% + મેન્કોઝેબ ૬૪% ડબલ્યુપી (૩ ગ્રામ પ્રતિ લિટર પ્રતિ ચો. મી.) વાવણીના ૧૦ દિવસ બાદ જમીનમાં દરેડવું. **Approved with following suggestions:** 1 Can be considered as general farmers recommendation *(Action: Prof. & Head, Deptt. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.1.6	**Management of mothbean wilt** Seed treatment with Carboxin 37.5% + Thiram 37.5% (3 g/kg seed) before sowing and drenching of Propiconazole 25 EC (2 ml/L) at 25 days after sowing for effective management of wilt disease. **Approved with following suggestion(s):** 1 Shifted to Scientific information *(Action: Principal, COA, NAU, Bharuch)*
21.3.1.7	**Management of banana wilt** Farmers growing banana in South Gujarat are recommended to apply *Trichoderma viride* (Navsari isolate) 1.5 WP (2x10^6 cfu/g) 10 g and *Pseudomonas fluorescens* (Navsari isolate) 1.5 LF (1x10^8 cfu/ml) 10 ml mixed in one kg/ plant well decomposed FYM at the time of planting for the effective management of wilt disease. દક્ષિણ ગુજરાતના કેળની ખેતી કરતાં ખેડૂતોને સુકારા રોગના અસરકારક નિયંત્રણ માટે ટ્રાયકોડર્મા વિરીડી (નવસારી આઇસોલેટ) ૧.૫ ડબ્યુપી (૨x૧૦^{૬} સીએફયુ/ ગ્રામ) ૧૦ ગ્રામ અને સ્યુડોમોનાસ ફ્લુરોસન્સ (નવસારી આઇસોલેટ) ૧.૫ એલફ (૧x૧૦^{૮} સીએફયુ/ મિલી) ૧૦ મિલી ૧ કિલો પ્રતિ છોડ સારા કોહવાયેલા છાણીયા ખાતર સાથે મિશ્ર કરી રોપણી સમયે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **Suggestion: Not approved, advisory should be released in local newspaper** *(Action: Principal, COA, NAU, Bharuch)*

21.3.1.8	**Evaluation of fungicides against sugary diseases of sorghum** Two sprays of Tebuconazole 50% + Trifloxystrobin 25% WG (4 g /10 L) or Tebuconazole 25 EC (10 ml/ 10 L of water) for effective management of sugary disease, first spray at the time of earhead emergence and second at 15 days after first spray. **Suggestion:** Shifted to Scientific information *(Action: Research Scientist (Sorghum), MSRS, NAU, Surat)*

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21.3.1.9 Bio efficacy of insecticides against leaf miner (*Aproaerema modicella*) in *kharif* groundnut

Farmers of Gujarat growing groundnut are recommended to apply two sprays of lambda-cyhalothrin 5 EC, 0.0025% (5 ml/10 L water), first at appearance of pest and second at 15 days after first spray for effective management of leaf miner. Add jaggery (400 g/ 10 L water) at the time of spraying. A minimum pre-harvest interval (PHI) of 10 days should be kept.

ગુજરાતમાં મગફળી ઉગાડતા ખેડૂતોને પાન કોરીયાના અસરકારક નિયંત્રણ માટે લેમડા-સાયહેલોથ્રિન ૫ ઈસી, ૦.૦૦૨૫ % (૫ મિલી/૧૦ લિટર પાણી) ના બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે .પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવ બાદ ૧૫ દિવસે કરવો. છંટકાવ સમયે ગોળ (૪૦૦ ગ્રામ/૧૦ લીટર પાણી) ઉમેરવો. છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામાં ઓછો ૧૦ દિવસનો રાખવો.

CIBRC Format:

Year	Crop	Pest	Pesticide with formulation	Dosage				Dilution in water (L/ha)	Application schedule	Waiting period / PHI (days)
				g a.i. / ha	Conc. (%)	Quantity of Formulation /ha	Dose / 10 L			
2024	Groundnut	Leaf miner	Lambda-cyhalothrin 5 EC	12.5	0.0025	250 ml	5 ml	500	First spray at pest appearance and second at 15 days after first spray	10

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક દવા અને તેનું ફોર્મ્યુલેશન	પ્રમાણ				દવા અને પાણીના દ્રાવણ ની કુલ જરુરીયાત (લિટર/હેક્ટર)	વાપરવા ની પદ્ધતિ	વેઇટીન્ગ પિરિયડ પી.એચ.આઇ. (દિવસો)
				સક્રિય તત્વ (ગ્રામ /હેક્ટર)	સાંદ્રતા (%)	ફોર્મ્યુલેશન ની માત્રા પ્રતિ હેક્ટર	૧૦ લીટર પાણી માં દવાનો જથ્થો			

૨૦૨૪	મગફળી	પાન કોરીયુ	લેમડા-સાયહાલોથ્રિન ૫ ઈસી	૧૨.૫	૦.૦૦૨૫	૨૫૦ મિલી	૫ મિલી	૫૦૦	પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ તેના ૧૫ દિવસ પછી	૧૦

Suggestion: Approved

[Action: Professor & Head, (Ento.), CPCA, SDAU, Sardarkrushinagar]

21.3.1.10

Eco-friendly management of thrips, *Thrips tabaci* (Lindeman) in onion

Farmers of Gujarat growing onion are recommended to apply three sprays of Neem seed kernel extract, 5% (500 ml/10 L water) or Neem leaf extract, 10% (1000 ml per 10 L water), first at appearance of pest and subsequent two sprays at 10 days interval for effective and eco-friendly management of thrips. Add soap (10 g/ 10 L water) at the time of spray.

ગુજરાતમાં ડુંગળીની ખેતી કરતા ખેડૂતોને થ્રીપ્સના અસરકારક અને પર્યાવરણીય અનુકુળ વ્યવસ્થાપન માટે લીંબોળીના મીંજનો અર્ક, ૫% (૫૦૦ મિલિ/૧૦ લિ. પાણી) અથવા લીમડાના પાનનો અર્ક, ૧૦ %(૧૦૦૦ મિલિ/૧૦ લિ. પાણી) પ્રમાણે ત્રણ છંટકાવ કરવાની ભલામણ કરવામાં આવે છે .પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થયે અને ત્યારબાદ બે છંટકાવ ૧૦ દિવસના અંતરે કરવા. છંટકાવ સમયે સાબુ (૧૦ ગ્રામ/૧૦ લીટર પાણી) ઉમેરવો.

CIBRC Format:

Year	Crop	Pest	Pesticide	Dosage				Application schedule	Waiting period/PHI (days)
				Conc. (%)	Dose ml/10 lit.	Qun. of Formulation L/ha)	Dilution in water (L/ha)		
2023-24	onion	thrips	Neem seed kernel extract	5	500	50	500	First spray on pest initiation and subsequent two sprays at 10 days interval	-
			Neem leaf extract	10	1000	100			-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	કીટનાશક	પ્રમાણ				છંટકાવનો સમય	પ્રતીક્ષા સમય (દિવસો)
				સાંદ્રતા (%)	માત્રા મિલી/ ૧૦ લિટર પાણી	જૈવિક કીટનાશક નું પ્રમાણ (લીટર/હે.)	પાણી સાથે મિશ્રણ (લીટર/હે.)		
૨૦૨૩ - ૨૪	ડુંગળી	થ્રીપ્સ	લીંબોળ ના મીંજનો અર્ક	૫	૫૦૦	૫૦	૫૦૦	પ્રથમ છંટકાવ જીવાત ઉપદ્રવની શરૂઆતે અને ત્યારબાદ બે છંટકાવ ૧૦ દિવસના ગાળે	-
			લીમડાના પર્ણનો અર્ક	૧૦	૧૦૦૦	૧૦૦			-

Suggestion: Approved

[Action: Professor & Head, (Ento.), CPCA, SDAU, Sardarkrushinagar]

JUNAGADH AGRICULTURAL UNIVERSITY

21.3.1.11 **Standardization of number of pheromone traps for shoot and fruit borer, *Leucinodes orbonalis* (Guenée) in brinjal**

Farmers of Gujarat growing brinjal are recommended to install 40 sex pheromone traps per hectare (equal distance between each trap) after 15 days of transplanting for effective management of brinjal shoot and fruit borer and the lure to be changed three times at an interval of 40 days.

ગુજરાતમાં રીંગણની ખેતી કરતાં ખેડૂતોને ડુંખ અને ફળ કોરી ખાનાર ઈયળના અસરકારક નિયંત્રણ માટે ફેરરોપણી કર્યાના ૧૫ દિવસે ૪૦ ફેરોમોન ટ્રેપ પ્રતિ હેકટરે લગાવવા (બે ટ્રેપ વચ્ચે સમાન અંતર) ભલામણ કરવામાં આવે છે તથા લ્યુર ૪૦ દિવસના અંતરે ત્રણ વાર બદલવી.

Approved with following suggestion(s):

1. Recast recommendation languages in English and Gujarati version.

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

21.3.1.12 **Effect of different sequence based insecticidal spray against shoot and fruit borer, *Leucinodes orbonalis* (Guenée) in brinjal**

Farmers of Gujarat growing brinjal are recommended to apply sequence-based spraying of emamectin benzoate 5 SG 0.002% (4 g /10 L water), chlorpyriphos 20 EC 0.04% (20 ml/10 L water), azadirachtin 1.0 EC 0.002% (20

ml/10 L water) and chlorantraniliprole 18.5 SC 0.007% (4 ml/10 L water) at 15 days interval after pest crosses ETL (5% fruit damage) for the effective management of brinjal shoot and fruit borer. A minimum pre-harvest interval (PHI) of 3 days for emamectin benzoate 5 SG 0.002%, azadirachtin 1.0 EC 0.002% and chlorantraniliprole 18.5 SC 0.007% should be kept.

ગુજરાતમાં રીંગણની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, રીંગણની ડુંખ અને ફળ કોરી ખાનાર ઈયળના અસરકારક નિયંત્રણ માટે ક્રમાનુસાર દવાઓ જેવી કે એમામેક્ટીન બેન્ઝોએટ ૫ એસજી ૦.૦૦૨% (૪ ગ્રા./૧૦ લી. પાણી), ક્લોરપાયરીફોસ ૨૦ ઇસી ૦.૦૪% (૨૦ મિ.લી. /૧૦ લી. પાણી), એઝાડીરેક્ટીન ૧ ઇસી ૦.૦૦૨% (૨૦ મિ.લી./૧૦ લી. પાણી) અને ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી, ૦.૦૦૭% (૪ મિ.લી. /૧૦ લી. પાણી) નો છંટકાવ જીવાત ક્ષમ્યમાત્રા (૫% ફળોમાં નુકશાન) વટાવે ત્યારે ૧૫ દિવસના અંતરે કરવો. એમામેક્ટીન બેન્ઝોએટ ૫ એસજી ૦.૦૦૨%, એઝાડીરેક્ટીન ૧.૦ ઇસી ૦.૦૦૨% અને ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી ૦.૦૦૭% ના છંટકાવ અને ફળ ઉતારવા વચ્ચેનો સમયગાળો ૩ દિવસનો રાખવો.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Total Quantity of Chemical suspension required/ ha	Application schedule	Waiting period / PHI (days)	Remark (s)
				a.i. / ha	Quantity of formulation Kg or ml/ha	Conn. (%)	Dilution in water (10 lit.)				
1	2	3	4	5	6	7	8	9	10	11	12
2024-25	Brinjal	Brinjal shoot and fruit borer	Emamectin benzoate 5 SG	10	0.20 kg	0.002 %	4 g	500 L	Sequence based spraying of emamectin benzoate 5 SG 0.003%, chlorpyriphos 20 EC 0.04%, azadirachtin 1.0 EC 0.002% and chlorantraniliprole 18.5 SC 0.007% at 15 days interval after pest crosses ETL (5 per cent fruit damage)	03	
			Chlorpyriphos 20 EC	200	1.0 lit.	0.04%	20 ml			-	
			Azadirachtin 1 EC	10	1.0 lit.	0.002 %	20 ml			03	
			Chlorantraniliprole 18.5 SC	40	0.20 lit.	0.007 %	4 ml			03	

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુઘ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકો ની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવાની પધ્ધતિ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશન નો જથ્થો ગ્રામ અથવા મિલી / કિગ્રા બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશન નો જથ્થો (ગ્રામ અથવા મિલિ)		
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦
૨૦૨૪ ૨૫-	રીંગણ	ડુંખ અને ફળ કોરી ખાનાર ઈયળ	એમામેક્ટીન બેન્ઝોએટ ૫ એસજી	૧૦	૦.૨૦ કિ.ગ્રા.	૦.૦૦૨ %	૪ ગ્રા.	૫૦૦ લી.	ક્રમ અનુસાર દવાઓ જેવી કે એમામેક્ટીન બેન્ઝોએટ ૫ એસજી ૦.૦૦૨% ક્લોરપાયરીફોસ ૨૦ ઇસી ૦.૦૪% એઝાડીરેક્ટીન ૧૦ ઇસી અને ૦.૦૨% ક્લોરાન્ટ્રાનીલી પ્રોલ ૧૮.૫ એસસી ૦.૦૭% નો છંટકાવ જીવાતક્ષમ્યમા ત્રાપ ટકા ફળોમા નુકસાન વટાવે ત્યારે ૧૫ દિવસના અંતરે
			ક્લોરપાયરીફોસ ૨૦ ઇસી	૨૦૦	૧.૦ લી.	૦.૦૪%	૨૦ મિ.લી.		
			એઝાડીરેક્ટીન ૧૦ ઇસી	૧૦	૧.૦ લી.	૦.૦૦૭ %	૨૦ મિ.લી.		
			ક્લોરાન્ટ્રાનીલી પ્રોલ ૧૮.૫ એસ.સી	૪૦	૦ ૨૦. .લી	૦૦૦.૭ %	૪ મિ.લી.		

Suggestion: Approved

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

21.3.1.13 **Standardization of operational procedures for application of biopesticides through drone against defoliators in groundnut**

Farmers of Gujarat growing groundnut are recommended to apply three sprays of *Beauveria bassiana* 1.15 WP (Min. $1x10^8$ cfu/g) @ 3 kg/ha. in 20 L water through drone at a speed of 2 m/sec. and 2 m above crop canopy during morning or evening time in windward direction, first spray at initiation of pest and second spray at 10 days after first spray for effective, economical and time saving management of *Helicoverpa armigera* and *Spodoptera litura*.

Note: The drone should be operated, when wind speed is less than 3 m/sec.

ગુજરાતમાં મગફળીની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, લીલી અને લશ્કરી ઈયળના અસરકારક, અને સમય બચત નિયંત્રણ માટે *બ્યુવેરિયા બાસીયાના* ૧.૧૫ ડબલ્યુપી (ન્યુતમ ૧ x ૧૦^{૮} સી.એફ.યુ./ગ્રા.) ૩ કિગ્રા પ્રતિ હેક્ટર ૨૦ લી. પાણીમાં ભેળવી ડ્રોન દ્વારા ૨ મી. પ્રતિ સેકન્ડની ગતિ અને

પાકથી ૨ મી. ઉપર સવારના અથવા સાંજના સમયે પવનની દિશામાં ત્રણ છંટકાવ કરવા, પ્રથમ છંટકાવ જીવાત દેખાય ત્યારે અને ત્યારબાદ બે છંટકાવ પ્રથમ છંટકાવના ૧૦ દિવસના અંતરે કરવા.

નોંધ: જ્યારે પવનની ગતિ 3 મી/સેકન્ડથી ઓછી હોય ત્યારે ડ્રોન ચલાવવું

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Total Quantity of Chemical suspension required/ ha	Application schedule	Waiting period/ PHI (days)	Remark (s)
				a.i./ ha	Quantity of formulation Kg or ml/ha	Con. (%)	Dilution in water (10 lit.)				
1	2	3	4	5	6	7	8	9	10	11	12
2024-25	Groundnut	*S. H. armigera* and *litura*	*Beauveria bassiana* 1.15 WP	34.5	3.0 kg	0.173 %	-	20 L	First spray at initiation of pest infestation, subsequent two sprays at 10 days interval	-	-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુધ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકો ની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવા ની પધ્ધતિ	વેઈટીંગ પિરિયડ / પી.એચ. આઇ (દિવસ)	નોંધ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશનનો જથ્થો ગ્રામ અથવા મિલી / કિગ્રા બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશનનો જથ્થો (ગ્રામ અથવા મિલિ)				
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨
૨૦૨૪૨૫-	મગફળી	લીલી અને લશ્કરી ઇયળ	બ્યુવેરીયા બાસીયાના ૧.૧૫ વેપા	૩૪.૫	૩ કિ.ગ્રા	૦.૧૭૩	-	૨૦ લી.	પ્રથમ છંટકાવ જીવાત દેખાય ત્યારે અને ત્યારબાદ બીજા બે છંટકાવ, પ્રથમ છંટકાવના ૧૦ દિવસના અંતરે	--	

Approved with following suggestion(s):

1. Add word 'safer'
2. Mention wind speed in note

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

21.3.1.14 **Evaluation of insecticides against aphid, *Lipaphis erysimi* (Kalt.) infesting mustard**

Farmers of Gujarat growing mustard are recommended two sprays of thiamethoxam 25 WG 0.01% (4 g/10 L water), first spray when aphid crosses the ETL (1.5 aphid index/plant) and the second spray at 15 days after the first spray for the effective management of pest. A minimum pre-harvest interval (PHI) of 21 days should be kept.

ગુજરાતમાં રાઈ વાવતા ખેડુતોને મોલોમશીનાં અસરકારક નિયંત્રણ માટે થાયોમીથોકઝામ ૨૫ ડબલ્યુ.જી. ૦.૦૧% (૪ ગ્રામ/૧૦ લી. પાણી) નો પ્રથમ છંટકાવ જીવાત આર્થિક ક્ષમ્યમાત્રા (૧.૫ આંક/છોડ) વટાવે ત્યારે અને ત્યારબાદ બીજો છંટકાવ, પ્રથમ છંટકાવના ૧૫ દિવસ પછી કરવાની ભલામણ છે. છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછામાં ઓછો ૨૧ દિવસનો રાખવો.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Total Quantity of Chemical suspension required/ ha	Application schedule	Waiting Period/ PHI (days)	Remark (s)
				g a.i. / ha	Quantity of formulation g, ml, kg or l/ha	Con. (%)	Dilution in water (10 lit) (ml/g)				
1	2	3	4	5	6	7	8	9	10	11	12
2024	Mustard	Aphid	Thiamethoxam 25 WG	50	0.20	0.01 %	4	500 L	First spray when pest cross ETL level (1.5 aphid index/plant) and second spray at 15 days after first spray	21	--

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુઘ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકોની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવાની પધ્ધતિ	વેઈટીંગ પિરિયડ / પી.એચ. આઇ (દિવસ)	નોંધ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશનનો જથ્થો ગ્રામ અથવા મિલી / કિગ્રા બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશનનો જથ્થો (ગ્રામ અથવા મિલિ)				
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨

૨૦૨૪	રાઈ	મોલો મશી	થાયોમીથોક ઝામ ૨૫ ડબલ્યુ.જી.	૫૦	૦.૨૦%	૦.૦૦ ૧%	૪	૫૦૦ લી.	પ્રથમ છંટકાવ જીવાત ક્ષમ્યમાત્રા (૧.૫ આંક/છોડ) વટાવે ત્યારે અને ત્યારબાદ બીજો છંટકાવ, પ્રથમ છંટકાવના ૧૫ દિવસ પછી	૨૧	--

Approved with following suggestion(s):

1. In text, remove 'Apply' word and recast accordingly

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

21.3.1.15 **Management of sucking pests in cotton**

Farmers of Gujarat growing cotton are recommended three sprays of flonicamid 50 WG, 0.02% (4 g/10 L water) or dinotefuran 20 SG, 0.008% (4 g/10 L water), first spray at pest initiation and subsequent two sprays at 15 days interval after first spray for effective and economical management of aphid, jassid, thrips and whitefly. A minimum pre-harvest interval (PHI) of 25 and 15 days, respectively should be kept.

ગુજરાતમાં કપાસની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, આ પાકમાં મોલો, તડતડીયા, થ્રીપ્સ અને સફેદ માખીના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ફ્લોનીકામીડ ૫૦ ડબલ્યુ જી ૦.૦૨% (૪ ગ્રામ/૧૦ લી. પાણીમાં) અથવા ડીનેટોફ્યુરાન ૨૦ એસ જી ૦.૦૦૮% (૪ ગ્રામ/૧૦ લી. પાણીમાં) ના ત્રણ છંટકાવ, પ્રથમ છંટકાવ જીવાતની શરૂઆત થયે અને બીજા બે છંટકાવ, પ્રથમ છંટકાવના ૧૫ દિવસના અંતરે કરવા. દવાનો છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો અનુક્રમે ઓછામા ઓછો ૨૫ અને ૧૫ દિવસનો રાખવો.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage					Application schedule	Waiting period/ PHI (days)	Remark (s)
				g. a.i./ ha	Quantity of formulation Kg or ml/ha	Con. (%)	Dilution in water (10 lit.)	Total Quantity of Chemical suspension required/ ha			
1	2	3	4	5	6	7	8	9	10	11	12
2024-25	Cotton	Aphid, Jassid, Thrips and Whitefly	Flonicamid 50 WG	75	150	0.02 %	4 g	500 L	First spray at pest appearance and subsequent two sprays at 15 days	25	-
			Dinotefuran 20 SG	40	0.200	0.008 %	4 g			15	-

										interval after first spray		

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુઘ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકો ની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવા ની પધ્ધતિ	વેઇટીંગ પિરિયડ / પી.એચ. આઇ (દિવસ)	નોંધ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશનનો જથ્થો ગ્રામ અથવા મિલી / કિગ્રા બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશનનો જથ્થો (ગ્રામ અથવા મિલિ)				
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨
૨૦૨૪-૨૫	કપાસ	મોલો, તડતડીયા, થ્રીપ્સ અને સફેદ માખી	ફ્લોનીકામીડ ૫૦ ડબલ્યુ જી	૭૫	૧૫૦	૦.૦૨ %	૪ ગ્રામ	૫૦૦ લી.	પ્રથમ છંટકાવ જીવાત દેખાયે અને બીજા ત્રણ છંટકાવ પ્રથમ છંટકાવના ૧૫ દિવસના અંતરે	૨૫	-
			ડીનેટોફ્યુરાન ૨૦ એસ જી	૪૦	૦.૨૦૦	૦.૦૦૮ %	૪ ગ્રામ			૧૫	-

Approved with following suggestion(s):

1. Recommendation should be considered for whole Gujarat in place of Saurashtra
2. Recast recommendation text in English and Gujarati version

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

21.3.1.16 **Integrated pest management in cotton**

The cotton growers of Saurashtra region are recommended to adopt the following IPM module for management of sucking pests and pink bollworm.

1. Timely sowing (15th June to 15th July)
2. Installation of yellow sticky traps for whitefly and pheromone traps for pink bollworm @ 10 traps/ha at 45 DAS. The pheromone lure to be changed two times at 40 days interval.
3. Spray neem oil based formulation (50 ml/10 L water) at 50-60 DAS
4. For sucking pests *viz*., aphid, jassid, thrips and whitefly, need based application of flonicamid 50 WG 0.02% (4.0 g/10 L water) at 60-90 DAS
5. Release of *Trichogramma bactrae* @ 1.5 lakh/ha (thrice at weekly intervals) at 90-110 DAS
6. ETL (10% damage in green boll by pink bollworm) based application of

emamectin benzoate 5 SG 0.0025% (5 g/10 L water) at 110-120 DAS

7. Foliar spray of lambda cyhalothrin 2.5 EC 0.0025% (10 ml/10 L water) at 120-135 DAS and cypermethrin 10 EC 0.01% (10 ml/10 L water) at 130-150 DAS
8. Timely termination of crop at 180-190 DAS

A minimum pre-harvest interval (PHI) of 25,10, 21 and 7 days for flonicamid 50 WG 0.02%, emamectin benzoate 5 SG 0.0025%, lambda- cyhalothrin 2.5 EC 0.0025% and cypermethrin 10 EC 0.01% should be kept, respectively.

સૌરાષ્ટ્ર વિસ્તારનાં કપાસ ઉગાડતા ખેડૂતોને ચુસીયા જીવાતો અને ગુલાબી ઈયળના નિયંત્રણ માટે નીચે મુજબની સંકલિત જીવાત નિયંત્રણ પદ્ધતિની ભલામણ કરવામાં આવે છે.

૧. સમયસર વાવેતર કરવું (૧૫ જુન થી ૧૫ જુલાઈ)

૨. વાવેતરના ૪૫ દિવસ બાદ સફેદમાખીના નિયંત્રણ માટે પીળા ચીકણા પીંજર અને ગુલાબી ઈયળના નિયંત્રણ માટે ફેરોમોન ટ્રેપ ૧૦ ટ્રેપ/ હે. લગાવવા. ફેરોમોન લ્યુર ૪૦ દિવસના અંતરે બે વખત બદલવી.

૩. વાવેતરના ૫૦-૬૦ દિવસ બાદ લીમડાના તેલ આધારિત દવા (૫૦ મિલી/ ૧૦ લી. પાણી) માં ભેળવી છંટકાવ કરવો.

૪. વાવેતરના ૬૦-૯૦ દિવસ બાદ ચુસીયા પ્રકારની જીવાતો જેવી કે મોલોમશી, તડતડીયા, થ્રીપ્સ અને સફેદમાખીના નિયંત્રણ માટે ફ્લોનીકામીડ ૫૦ ડબલ્યુજી ૦.૦૨% (૪ ગ્રામ/૧૦ લી. પાણી) દવાનો જરૂરિયાત મુજબ છંટકાવ કરવો.

૫. પરજીવી ભમરી ટ્રાઈકોગામા બેકટરી @ ૧.૫ લાખ/હે. (ત્રણ વખત અઠવાડિયાના અંતરે) વાવેતરના ૯૦-૧૧૦ દિવસ પછી છોડવી.

૬. વાવેતર ના ૧૧૦-૧૨૦ દિવસ બાદ જીવાત જયારે ક્ષમ્યમાત્રા (૧૦ % લીલા જીંડવામાં ગુલાબી ઈયળ નુકશાન) વટાવે ત્યારે એમામેક્ટીન બેન્ઝોએટ ૫ એસજી ૦.૦૦૨૫% (૫ ગ્રામ/૧૦ લી.પાણી)નો છંટકાવ કરવો.

૭. વાવેતરના ૧૨૦-૧૩૫ દિવસ બાદ લેમડા સાયહેલોથ્રીન ૨.૫ ઈસી ૦.૦૦૨૫ % (૧૦ મિલી/ ૧૦ લી. પાણી) અને ૧૩૫-૧૫૦ દિવસ બાદ સાયપરમેથ્રીન ૧૦ ઈસી ૦.૦૧% (૧૦ મિલી/ ૧૦ લી. પાણી) નો છંટકાવ કરવો.

૮. સમયસર પાકનો નીકાલ કરવો (૧૮૦-૧૯૦ દિવસે).

ફ્લોનીકામીડ ૫૦ ડબલ્યુ જી, એમામેક્ટીન બેન્ઝોએટ ૫ એસજી, લેમ્બડા-સાયહેલોથ્રીન ૨.૫ ઈ સી અને સાયપરમેથ્રીન ૧૦ ઈ સી ના છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો અનુક્રમે ૨૫, ૧૦, ૨૧ અને ૭ દિવસનો રાખવો.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage					Application schedule	Waiting period/ PHI (days)	Remark (s)
				g. a.i./ ha	Quantity of formulation	Con. (%)	Dilution in water	Total Quantity of Chemical			

					Kg or ml/ha		(10 lit.)	suspension required /ha			
1	2	3	4	5	6	7	8	9	10	11	12
2024	Cotton	Aphid, jassid, thrips and whitefly	Flonicamid 50 WG	75	150	0.02%	4 g	500 L	First spray at pest appearance and subsequent three sprays at 15 days interval after first spray for effective control of sucking pests	25	-
		Pink bollworm	Emamectin benzoate 5 SG	9.5-11.0	190-220	0.0025%	5 g		First spray at pink bollworm cross the ETL (10 % damage in green boll by pink bollworm) and second spray after 15 days of first spray for effective control of pink bollworm	10	-
			Lambda-cyhalothrin 2.5 EC	15-25	300-500	0.0025%	10 ml			21	-
			Cypermethrin 10 EC	50-70	550-760	0.01%	10 ml			07	-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક / જૈવિક જંતુધ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકોની જરૂરિયાત કિગ્રા) અથવા લિ/હે.	વાપરવાની પ
				સક્રિય તત્વ (ગ્રામ/હે.)	ફોર્મ્યુલેશનનો જથ્થો ગ્રામ અથવા મિલી કિગ્રા / બીજ, કિગ્રા અથવા લિ/હે.	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશનનો જથ્થો (ગ્રામ અથવા મિલિ)		
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦
૨૦૨૪	કપાસ	મોલો, તડતડીયા, થ્રીપ્સ અને સફેદ માખી	ફ્લોનીકામીડ ૫૦ ડબલ્યુ જી	૭૫	૧૫૦	૦.૦૨ %	૪ ગ્રામ	૫૦૦ લી.	પ્રથમ છંટક જીવાત દેખાયે બીજા ત્રણ છં પ્રથમ છંટકા ૧૫ દિવસના

			ગુલાબી ઈયળ	એમામેક્ટીન બેન્ઝોએટ પએસજી	૯.૫-૧૧.૦	૧૯૦-૨૨૦	૦.૦૦૨ ૫%	૫ ગ્રામ		પ્રથમ છંટકાવ ગુલાબી ઈયળ ક્ષમ્ય માત્રા % ૧૦) લીલા જીંડવા માં કરવો (નુકશાન અને ત્યારબાદ ૧૫ દિવસ પછી બીજો છંટકાવ	૧૦	
				લેમ્બડા-સાયહેલોથ્રીન ૨.૫ ઈ સી	૧૫-૨૫	૩૦૦-૫૦૦	૦.૦૦૨ ૫%	૧૦ મિલી			૨૧	
				સાયપરમેથ્રીન ૧૦ ઈ સી	૫૦-૭૦	૫૫૦-૭૬૦	૦.૦૧ %	૧૦ મિલી			૦૭	

	Sugestion: Not approved 1. Extend one more year for multilocation testing with one additional module. *(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)*
21.3.1.17	**Management of post harvest diseases of mango** Mango growers of Gujarat are recommended to dip harvested mango fruits with hot water (52 ± 1°C for 5 minutes) for effective management of stem end rot and fruit rot. ગુજરાતમાં આંબાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, આંબાના પાકમાં કેરી ઉતાર્યા બાદ આવતા ડીંટ અને ફળના સડાના અસરકારક નિયંત્રણ માટે ફળોને ગરમ પાણીની (૫૨ ± ૧° સે. તાપમાને ૫ મિનિટ) માવજત આપવી. **Approved with following suggestion(s):** 1. Recommendation should be considered for whole Gujarat instead of Saurashtra 2. Recast recommendation text in English and Gujarati version *(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)*
21.3.1.18	**Effect of different substrate mixture on growth, yield and nutritional value of oyster mushroom (*Pleurotus ostreatus*)** Farmers of Gujarat growing oyster mushroom [*Pleurotus ostreatus* (Jacq.ex.fr) *P. kumm*] are recommended to use wheat straw + cocopeat + lime + gypsum + sucrose (70:27:1:1:1) or wheat straw + tea waste + lime + gypsum + sucrose (70:27:1:1:1) as substrate for higher production of mushroom. ગુજરાતના ખેડૂતોને ઢીંગરી મશરૂમનું વધુ ઉત્પાદન મેળવવા માટે ઘઉંનું પરાળ + કોકોપીટ + ચૂનો + જીપ્સમ + સુકોઝ (૭૦:૨૭:૧:૧:૧) અથવા ઘઉંનું પરાળ + વપરાયેલ ચાની ભૂકી + ચૂનો + જીપ્સમ + સુકોઝ (૭૦:૨૭:૧:૧:૧)નો માધ્યમ તરીકે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.

	Approved with following suggestions: 1. Put the tea waste second *(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)*

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21.3.1.19	**Impact of pollinators on seed yield of onion** Farmers growing onion for seed production in Gujarat are recommended to place four honeybee colonies/ha either European Honeybee or Asian Honeybee or Stingless bee at flowering stage for getting higher seed yield through pollination. **Note:** Do not apply insecticides during flowering stage ગુજરાતમાં ખેડૂતોને ડુંગળીનું બીજ ઉત્પાદન વધારવા યુરોપિયન મધમાખી અથવા ભારતીય મધમાખી અથવા ગુસ્યા મધમાખીની ચાર વસાહતો (મધપેટી) ફૂલ અવસ્થાએ ગોઠવી પરાગનયન કરાવવા ભલામણ કરવામાં આવે છે. **નોંધ :**ફૂલ અવસ્થાએ કીટનાશકનો છંટકાવ ન કરવો. **Approved with following suggestion(s):** 1. Recast recommendation text in English and Gujarati version *(Action: Professor and Head, Dept. of Agril. Entomology, BACA, AAU, Anand)*
21.3.1.20	**Bio-efficacy of insecticides against invasive thrips, *Thrips parvispinus* (Karny) infesting chilli** Farmers of Gujarat growing chilli are recommended to adopt following strategies for the effective management of black thrips, *Thrips parvispinus*. • Root dipping of chilli seedlings with fipronil 5 SC (2 ml/1 L water) for two hours at the time of transplanting followed by sequential single spray of following insecticides at 10 days interval starting from initiation of pest. 1. Spinetoram 11.7 SC, 0.012 % (10 ml/10 L water) 2. Emamectin benzoate 1.5 + fipronil 3.5 SC (10 ml/10 L water) 3. Tolfenpyrad 15 EC (20 ml/10 L water) **or** • Furrow application of carbofuran 3 CG (33.3 kg/ha) at the time of transplanting followed by sequential single spray of following insecticides at 10 days interval starting from initiation of pest. 1. Spinetoram 11.7 SC, (10 ml/10 L water) 2. Emamectin benzoate 1.5 + fipronil 3.5 SC (10 ml/10 L water) 3. Tolfenpyrad 15 EC (20 ml/10 L water) Note: A minimum pre-harvest interval (PHI) of 7,3 and 7 days for spinetoram 11.7 SC, emamectin benzoate 1.5 + fipronil 3.5 SC and tolfenpyrad 15 EC should be kept, respectively. ગુજરાતમાં મરચીની ખેતી કરતા ખેડૂતોને કાળી થ્રીપ્સના અસરકારક નિયંત્રણ માટે નીચે જણાવેલ પધ્ધતિ અનુસાર માવજત આપવાની ભલામણ કરવામાં આવે છે . • મરચીના ધરૂના મૂળને ફીપ્રોનીલ ૫ એસસી, (૨ મિ.લી .પ્રતિ લિટર પાણી)માં બે કલાક ડૂબાડી ફેરરોપણી કરવી અને ત્યારબાદ જીવાતનો ઉપદ્રવ શરૂ થયેથી ૧૦ દિવસના અંતરે નીચે દર્શાવેલ કિટનાશકોનો ક્રમશઃ એક છંટકાવ કરવો . ૧ .સ્પીનોટેરમ ૧૧.૭ એસસી (૧૦ મિ.લી./૧૦ લિટર પાણી)

૨ .એમામેકટીન બેન્ઝોએટ ૧.૫ + ફીપ્રોનીલ ૩.૫ એસસી (૧૦ મિ.લી./૧૦ લિટર પાણી)
૩ .ટોલ્ફેનપાયરાડ ૧૫ ઇસી (૨૦ મિ.લી./૧૦ લિટર પાણી)

અથવા

ધરૂની ફેરરોપણી વખતે ચાસમાં કાર્બોફ્યુરાન ૩ સીજી (૩૩.૩ કિ.ગ્રા./હેકટર) પ્રમાણે આપવુ અને ત્યારબાદ જીવાતનો ઉપદ્રવ શરૂ થયેથી ૧૦ દિવસના અંતરે નીચે દર્શાવેલ કિટનાશકોનો ક્રમશઃ એક છંટકાવ કરવો .

૧ .સ્પીનોટેરમ ૧૧.૭ એસસી (૧૦ મિ.લી./૧૦ લિટર પાણી)
૨ .એમામેકટીન બેન્ઝોએટ ૧.૫ + ફીપ્રોનીલ ૩.૫ એસસી (૧૦ મિ.લી./૧૦ લિટર પાણી)
૩ .ટોલ્ફેનપાયરાડ ૧૫ ઇસી (૨૦ મિ.લી./૧૦ લિટર પાણી)

કિટનાશકો સ્પીનોટેરમ ૧૧.૭ એસસી, એમામેકટીન બેન્ઝોએટ ૧.૫ + ફીપ્રોનીલ ૩.૫ એસસી અને ટોલ્ફેનપાયરાડ ૧૫ ઇસી માટે છંટકાવ અને કાપણી વચ્ચેનો ઓછામાં ઓછો સમયગાળો અનુક્રમે ૭, ૩ અને ૭ દિવસ રાખવો

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule	Safe Waiting period /PHI (days)	Remarks
				g a.i. /ha	Quantity of formulation	Conc. (%)	Dilution in water			
2023-24	Chilli	Black thrips, *Thrips parvispinus*	Fipronil 5 SC	-	20 mL	-	10 L	Dipping roots of chilli seedlings for two hours before transplanting	NA	-
			Carbofuran 3 CG	1000	33.3 kg/ha	-		Furrow application at the time of transplanting	NA	-
			Spinetoram 11.7 SC	58.50	500 ml/ha	0.012	500 L	Single spray of each insecticide 10 days interval starting from pest initiation	7	-
			Emamectin benzoate 1.5 + fipronil 3.5 SC	25.00	500 ml/ha	0.005			3	-
			Tolfenpyrad 15 EC	150.00	1000 ml/ha	0.030			**7**	-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	કીટનાશક અને તેનું ફોર્મુલેશન	માત્રા				છંટકાવનો સમય	સુરક્ષિત પ્રતિક્ષા સમયગાળો/ પીએચઆઇ (દિવસ)	રીમાર્ક
				ગ્રા. સ . ત/.હે.	કીટનાશક ફોર્મુલેશન નું પ્રમાણ	સાંદ્રતા (%)	પાણીનો જથ્થો			
૨૦૨૩-૨૪	મરચી	કાળી થ્રીપ્સ	ફીપ્રોનીલ ૫% એસસી	-	૨૦ મિ.લિ.	-	૧૦ લિટર	મરચીના ધરુનાં મૂળને બે કલાક માટે બોળી રાખીને ફેર રોપણી કરવી	-	-
			કાર્બોફ્યુરાન 3% CG	૧૦૦૦	૩૩.૩ કી.ગ્રા/.હે.	-	-	ધરૂની ફેરરોપણી વખતે ચાસમાં	-	-
			સ્પીનોટેરમ ૧૧.૭% એસસી	૫૮.૫૦	૫૦૦ મિ.લિ/.હે.	૦.૦૧૨	૫૦૦ લિટર	જીવાતનો ઉપદ્રવ શરુ થયે દરેક કિટનાશકનો ૧૦ દિવસના અંતરે ક્રમશઃ એક છંટકાવ કરવો	૭	-
			એમામેકટીન બેન્ઝોએટ ૧.૫ + % ફીપ્રોનીલ ૩.૫ %એસસી	૨૫.૦૦	૫૦૦ મિ.લિ/.હે.	૦.૦૦૫			૩	-
			ટોલ્ફેન-પાયરાડ ૧૫ ઇસી %	૧૫૦.૦	૧૦૦૦ મિ.લિ/.હે.	૦.૦૩૦			૭	-

Approved with following suggestion(s):

1. Add PHI in recommendation text

(Action: Professor and Head, Dept. of Agril. Entomology, BACA, AAU, Anand; Associate Res. Scientist (Ento.)/ Research Scientist (Veg.), MVRS, AAU, Anand; Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Sansoli)

21.3.1.21

Evaluation of the different seed priming technique with insecticides on insect pest and seed vigour of mungbean

Farmers of Gujarat cultivating mungbean in summer season are recommended to prime the seeds with mixture of 250 g polyethylene glycol (1500) and imidacloprid 17.8 SL, 7.5 ml in 1.25 L water or prime the seeds with mixture of 1.25 g Indole Acetic Acid (IAA) and imidacloprid 17.8 SL 7.5 ml /1.25 L water for one kg of seeds for 5 hrs. followed by drying under shade for 12 hrs. to reduce infestation of sucking insect pests *viz.,* thrips, jassid and whitefly for higher plant vigour and seed yield.

ઉનાળુ મગની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે ઇમિડાકલોપ્રીડ ૧૭.૮ એસ.એલ ,.૭.૫ મિ.લિ .અને પોલીઇથાઇલ ગ્લાયકોલ (૧૫૦૦) ૨૫૦ ગ્રામનું ૧.૨૫ લિટર પાણીમાં મિશ્રણ બનાવી અથવા ઇમિડાકલોપ્રીડ ૧૭.૮ એસ .એલ . ૭.૫ મિ .લિ./૧.૨૫ લિટર પાણી અને ઈન્ડોલ એસેટિક એસિડ (IAA) ૧ મિ.લિ .નું ૧.૨૫ લિટર પાણીમાં મિશ્રણ બનાવી, તેમાં ૧ કિ.ગ્રા .મગના બીજને ૫ કલાક સુધી બોળી અને ત્યારબાદ બીજને ૧૨ કલાક સુધી છાંયડામાં સૂકવી બીજને વાવેતર કરવામાં આવે તો મગમાં નુકશાન કરતી ચૂસીયા પ્રકારની જીવાતો જેવી કે, થ્રીપ્સ, તડતડીયા અને સફેદમાખીના ઉપદ્રવ ઓછો રહે છે તેમજ છોડની વૃધ્ધિ અને ઉત્પાદનમાં વધારો થાય છે

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule	Safe Waiting period/ PHI (days)	Remarks
				g a.i. /ha	Quantity of formulation	Conc. (%)	Dilution in water			
2025	Mung bean	Thrips, Jassid, whitefly	Imidacloprid 17.8 SL	267	150 ml	0.11	-	Seed treatment before sowing	-	-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	કીટનાશક અને તેનું ફોર્મુલેશન	માત્રા				છંટકાવનો સમય	સુરક્ષિત પ્રતિક્ષા સમયગાળો/પીએચ આઇ (દિવસ)	રીમાર્ક
				ગ્રા. સ . ત/.હે.	કીટનાશક ફોર્મુલેશન નું પ્રમાણ	સાંદ્રતા (%)	પાણીનો જથ્થો			
૨૦૨૫	મગ	થ્રીપ્સ, તડતડીયાં સફેદ માખી	ઈમીડાક્લોપ્રીડ ૧૭.૮ એસ.એલ.	૨૬૭	૧૫૦	૦.૧૧	-	વાવણી પહેલાં બીજ માવજત	-	-

Suggestion: Approved

(Action: Assistant Research Scientist (Ento.)/ Research Scientist & Nodal Officer (Seed), Regional Research Station, AAU, Anand)

21.3.1.22 **Evaluation of different module against fall armyworm, *Spodoptera frugiperda* (J. E. Smith) infesting maize**

Farmers of Gujarat cultivating maize are recommended to adopt the following Integrated Pest Management (IPM) module for the management of fall armyworm, *Spodoptera frugiperda* infesting maize:

- Treat the maize seeds with Cyantraniliprole 19.8 + Thiamethoxam 19.8 FS (6 ml/kg seed)
- Spray *Bacillus thuringiensis* 1 WG (20 g/10 L water) when infestation reaches 5 %
- Apply poison bait (1 pinch) (25 kg maize flour + 5 kg jaggery + 250 g thiodicarb 75 WP/ha) in the leaf whorl at 50 days after sowing.

Note:

1. **For Seed treatment:** Mix Cyantraniliprole 19.8 + Thiamethoxam 19.8 FS (6 ml/kg seeds) with equal quantity of water. Keep treated seeds under shade for 12 hours before sowing for drying.
2. **For poison bait preparation:** Dissolve 5 kg jaggery in 5 litres of water, then mix in 25 kg maize flour. Keep this mixture as such overnight followed by mixing of 250 g of Thiodicarb 75 WP before application.

ગુજરાતમાં મકાઈની ખેતી કરતાં ખેડૂતોને ટપકાંવાળી લશ્કરી ઇયળના નિયત્રંણ માટે નીચે મુજબની સંકલિત જીવાત વ્યવસ્થાપન પધ્ધતિને અનુસરવા ભલામણ કરવામાં આવે છે.

- મકાઈના બીજને સાયન્ટ્રાનીલીપ્રોલ ૧૯.૮ + થાયામેથોક્ષામ ૧૯.૮ એફએસ (૬ મિ.લિ/.કિ.ગ્રા.) પ્રમાણે બીજ માવજત આપવી.
- ૫ % ઉપદ્રવ દેખાય ત્યારે બેસીલસ થુરેન્જીનેન્સીંસ ૧ ડબલ્યુજી ને (૨૦ ગ્રામ/૧૦ લિટર) પાણીમાં ભેળવી છંટકાવ કરવો .
- વિષપ્રલોભિકા (એક ચપટી) (મકાઇનો લોટ ૨૫ કિ.ગ્ર + ગોળ ૫ કિ.ગ્રા + થાયોડીકાર્બ ૭૫ ડબલ્યુપી ૨૫૦ ગ્રામ/હે.) ને વાવણી પછીના ૫૦ દિવસે ભૂંગળીમાં આપવું.

નોંધ:

- **બીજ માવજત માટે:** સાયન્ટ્રાનીલીપ્રોલ ૧૯.૮ + થાયામેથોક્ષામ ૧૯.૮ એફએસ (૬ મિ.લિ /.કિ.ગ્રા.) પ્રમાણે સપ્રમાણ પાણી ભેળવી બીજ માવજત આપી ૧૨ કલાક છાયડે સૂકવી વાવેતર કરવું.
- **વિષપ્રલોભિકા બનાવવા માટે:** ૫ કિ.ગ્રા .ગોળને ૫ લિટર પાણીમાં ઓગાળી ૨૫ કિ.ગ્રા મકાઇના લોટમાં ભેળવી એક રાત રહેવા દેવુ અને બીજા દિવસે માવજત આપતા પહેલા તેમાં ૨૫૦ ગ્રામ થાયોડીકાર્બ ૭૫ ડબલ્યુપી કિટનાશક ઉમેરવી.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule	Safe Waiting period/	Remarks
				g a.i. /ha	Quantity of	Conc. (%)	Dilution in water			

					formulation				PHI (days)	
2025	Maize	Fall armyworm	Cyantraniliprole 19.8% + Thiamethoxam 19.8% FS	2.38	120 ml	-	-	Seed treatment before sowing: Cyantraniliprole 19.8% + Thiamethoxam 19.8% FS, 6 ml/kg seeds with equal quantity of water	-	-
			Bacillus thuringiensis var *kurstaki* 1% WG	1×10^8 cfu/g	1000 g	-	20 g	Spray at 5% infestation of Fall armyworm	-	-
			Thiodicarb 75% WP	-	250 g	-	25 kg maize flour + 5 kg jaggery + 5 L of water	Apply at 50 days after sowing in leaf whorl	-	-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	કીટનાશક અને તેનું ફોર્મુલેશન	માત્રા				છંટકાવનો સમય	સુરક્ષિત પ્રતિક્ષા સમયગાળો/ પીએચઆઇ (દિવસ)	રીમાર્ક
				ગ્રા. સ . ત/.હે.	કીટનાશક ફોર્મુલેશન નું પ્રમાણ	સાંદ્રતા (%)	પાણીનો જથ્થો			
૨૦૨૫	મકાઇ	ટપકાંવાળી લશ્કરી ઇયળ	સાયન્ટ્રાનીલીપ્રોલ ૧૯.૮ + થાયામેથોક્ષામ ૧૯.૮ એફએસ	૨.૩૮ ગ્રામ	૧૨૦ મિલી/૨૦ કિ. ગ્રા બીજ	-	-	વાવતાં પહેલાં બીજને બીજ માવજત આપવી	-	-
			બેસીલસ થુરેન્જીનેન્સીંસ કુસ્તાર્કી ૧ % ડબલ્યુજી	૧ x ૧૦૮ સી. એફ. યુ/ગ્રામ	૧૦૦૦ ગ્રામ	-	૨૦ ગ્રામ	૫ ઉપદ્રવ %દેખાય ત્યારે	-	-
			થાયોડીકાર્બ ૭૫ ડબલ્યુપી	--	૨૫૦ ગ્રામ	-	મકાઇનો લોટ ૨૫ કિ.ગ્ર + ગોળ ૫ કિ.ગ્રા + ૫ લિટર પાણી	વાવણી પછીના ૫૦ દિવસે ઉપદ્રવ વખતે ભૂંગળીમાં આપવું	-	-

Suggestion: Approved

(Action: Assistant Research Scientist (Ento.)/ Unit Head, Main Maize Research Station, AAU, Godhra)

21.3.1.23 **Efficacy of ready-mix insecticide against spotted pod borer of blackgram**

Farmers of Gujarat growing blackgram are recommended to spray novaluron 5.25 + indoxacarb 4.50 SC (16.50 ml/10 L water) first at pest initiation and second spray at 15 days after first spray for effective management of spotted pod borer. A minimum pre-harvest interval (PHI) of 9 days should be kept.

ગુજરાતમાં અડદની ખેતી કરતા ખેડૂતોને પૂછડે ચાર ટપકાવાળી ઈયળના અસરકારક નિયંત્રણ માટે નોવાલ્યુરોન ૫.૨૫ + ઇન્ડોક્ઝાકાર્બ ૪.૫૦ એસસી (૧૬.૫૦ મિ.લિ/૧૦ લિટર પાણી) નો પ્રથમ જીવાતના ઉપદ્રવની શરૂઆત થયે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૫ દિવસ પછી કરવાની ભલામણ કરવામાં આવે છે. છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ઓછા મા ઓછો ૯ દિવસ રાખવો.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule	Safe Waiting period/ PHI (days)	Remarks
				g a.i. /ha	Quantity of formulation	Conc. (%)	Dilution in water			
2024	Black gram	Spotted Pod borer	Novaluron 5.25% + indoxacarb 4.50% SC	43.31 + 37.13	0.83 L	0.016	16.50 ml	First spray at initiation of spotted pod borer and second spray at 15 days after first spray	9	-

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	કીટનાશક અને તેનું ફોર્મુલેશન	માત્રા				છંટકાવનો સમય	સુરક્ષિત પ્રતિક્ષા સમયગાળો/ પીએચઆઇ (દિવસ)	રીમાર્ક
				ગ્રા. સ. ત/.હે.	કીટનાશક ફોર્મુલેશન નું પ્રમાણ	સાંદ્રતા (%)	પાણીનો જથ્થો			
૨૦૨૪	અડદ	પૂછડે ચાર ટપકાવાળી ઈયળ	નોવાલ્યુરોન ૫.૨૫ + ઇન્ડોક્ઝાકાર્બ ૪.૫૦ એસસી	૪૩.૩૧ + ૩૭.૧૩	૦.૮૩ લિટર	૦.૦૧૬	૧૬.૫૦ મિલી	પ્રથમ છંટકાવ ટપકાવાળી ઈયળના ઉપદ્રવની શરૂઆત થયે અને ત્યારબાદ બીજો છંટકાવ પ્રથમ છંટકાવના ૧૫ દિવસ પછી	૯	-

Approved with following suggestion(s):

1. Add PHI in recommendation text

(Action: Assistant Research Scientist (Ento.)/ Unit Head, Agricultural Research Station, AAU, Derol)

21.3.1.24 **Assessment of different sawdust substrates on growth and yield of Reishi Mushroom (*Ganoderma lucidum*)**

The mushroom, *Ganoderma lucidum* (*Reishi* Mushroom) growers of Gujarat are recommended to supplement mango or eucalyptus or babool sawdust (800 g) substrate with 20% sterilized wheat bran (200 g) to get higher mushroom yield and net profit.

ગુજરાતમાં ગેનોડેર્મા *લ્યુસિડમ* (રીશી મશરૂમ) ઉગાડતા ખેડૂતોને મશરૂમનું વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે આંબા અથવા નીલગીરી અથવા બાવળના લાકડાનો વેર (૮૦૦ ગ્રામ) સાથે ૨૦% પ્રમાણે જંતુરહિત ઘઉંનો ભરડો (૨૦૦ ગ્રામ) ઉમેરવાની ભલામણ કરવામાં આવે છે.

Suggestion: Approved

(Action: Professor and Head, Dept. of Plant Pathology, BACA, AAU, Anand)

21.3.2 INFORMATION FOR SCIENTIFIC COMMUNITY
NAVSARI AGRICULTURAL UNIVERSITY

21.3.2.1 Biodiversity of mites associated with date palm in Kutch

Out of 15 mite species recorded from date palm, 3 were phytophagous, 1 saprophytic and 11 were predaceous in nature as mentioned below.

Order: Acariformes (Sub order: Actinedida)		
Family	**Species**	**Tropic group**
Tetranychidae	*Tetranychus urticae* Koch	Phytophagous
Tetranychidae	*Oligonychus tylus* (Baker & Pritchard)	Phytophagous
Tenuipalpidae	*Raoiella indica* Hirst	Phytophagous
Cunaxidae	*Cunaxa sp.*	Predaceous
Acaridae	*Tyrophagus longior* (Gervais)	Saprophytic
Order: Parasitiformes (Sub order : Gamasida)		
Phytoseiidae	*Amblyseius largoensis* Muma	Predaceous
	Amblyseius herbicolus (Chant)	
	Euseius alstoniae Gupta	
	Euseius finlandicus (Oudemans)	
	Euseius ovalis Evans	
	Neoseiulus barkeri Hughes	
	Neoseiulus longispinosus (Evans)	
	Neoseiulus paspalivorous (De Leon)	
	Paraphytoseius orientalis Narayanan, Kaur & Ghai	
	Amblyseius sp.	

Approved with following suggestion(s):

1. Text should be revised for scientific information

(Action: Professor and Head, Deptt. of Ento., NMCA, NAU Navsari)

21.3.2.2 Survey of coconut rugose spiraling whitefly (RSWF), *Aleurodicus rugioperculatus* Martin and its natural enemies in Valsad and Navsari district of South Gujarat

The peak infestation and intensity of coconut Rugose Spiralling Whitefly (RSWF), *Aleurodicus rugioperculatus* (Aleurodidae: Hemiptera) were noticed in October month (70% and 16.48%, respectively) in Navsari district, whereas it was 65.25% and 16.97%, respectively in Valsad district during October month. Moreover, the maximum infestation and intensity of coconut RSWF was noticed in Navsari district.

Status of coconut Rugose Spiralling Whitefly (RSWF) under south Gujarat condition

District	Infestation index (%)			Damage intensity (%)			Infestation index			Infestation category of coconut orchards
	Min	Max	Av. ±SD	Min	Max	Av. ±SD	Min	Max	Av. ±SD	
Navsari	30.63	70.00	50.77 ± 11.54	10.27	16.48	14.15 ± 1.69	1.5	2.5	1.9 ± 0.3	Low to Medium
Valsad	33.75	65.25	51.13 ± 9.47	10.50	16.97	14.76 ± 1.20	1.3	2.5	2.0 ± 0.4	Low to Medium

Approved with following suggestion(s):

1 Text should be recasted for scientific information.

(Action: Professor and Head, Deptt. of Ento., NMCA, NAU Navsari)

21.3.2.3 Determination on volatile/non-polar insecticidal active compound in different bioformulation

Following bioactive compounds were detected in various bioformulations *viz*., *Dashparni ark, Agniastra, Neemastra, Brahmastra and Garlic + Ginger + Mint* with its insecticidal/pesticidal property as per the table given here under (Annexure-I).

Annexure-I

S.N.	Chemical compound	Dashparni ark	Agniastra	Neemastra	Brahmastra	Garlic+ Ginger+ Min mixture	Insecticidal activity/ Pesticidal activity
1	n-Hexadecanoic acid	Present	Present	Present	Present	Present	Antifeedant
2	p-Cresol	Present	Present	Present	Present	Absent	Insect attractant
3	Phenol, 3-methyl or m-cresol	Present	Present	Present	Present	Absent	Attractant
4	Phenol, 3-propyl-	Absent	Present	Present	Present	Absent	Termiticidal
5	Phosphonic acid, (p-hydroxyphenyl)-	Present	Present	Present	Absent	Absent	Fungicidal activity
6	Benzyl alcohol	Present	Present	Present	Absent	Absent	Fumigant
7	Hydrocinnamic acid	Present	Present	Present	Absent	Absent	Anti-oviposition
8	2-Indolinone, 1-methyl-	Present	Present	Present	Absent	Absent	Larvicidal activity
9	β-Sitosterol	Present	Absent	Absent	Present	Present	Affect insect midgut enzymes, disrupting their digestive processes
10	Phenol, 4-ethyl-	Absent	Present	Present	Absent	Absent	Toxicity to sporangia formation and zoospore germination
11	Salannin	Absent	Absent	Present	Present	Absent	Antifeedant
12	Phenol	Absent	Present	Absent	Absent	Present	Attractant

Suggestion: Approved

(Action: Professor and Head, Deptt. of Ento., NMCA, NAU Navsari)

21.3.2.4 Evaluation of ardu (*Ailanthus excelsa* Roxb.) germplasm against web worm, *Atteva niphocosma* Turner (Attevidae: Lepidoptera)

Ardu (*Ailanthus excelsa* Roxb.) germplasms *viz*., Jhalrapatna and Kadodara showed the lowest web incidence (1.35 and 2.15 web/branch, respectively) against web worm, *Atteva niphocosma* Turner (Attevidae: Lepidoptera).

Suggestion: Approved

(Action: Principal, Polytechnic in Horticulture, NAU, Navsari)

21.3.2.5	**Population dynamics and patterns of mango hoppers and fruit fly through the statistical models** The Hoerl nonlinear growth model was the most accurate, explained 95.22 per cent of the mango hopper population and 92.10 per cent of the fruit fly population. The activity of mango hoppers was maximum between 7th to 13th standard metrological weeks while the activity of fruit fly was maximum between 22nd to 28th standard metrological weeks. Temperature and humidity had a positive and significant influencing factor on mango hoppers and fruit flies. Wind velocity had a negative correlation with hoppers but a positive correlation with fruit flies. **Approved with following suggestion(s):** 1 Considered and approved in 21st Combined AGRESCO of PPSC at Navsari *(Action: Professor and Head, Dept. of Agril. Statistics, NMCA, NAU, Navsari)*
21.3.2.6	**Assessing and interpreting the spatial distributions of insect populations in paddy crops in Navsari** In summer paddy, stem borer, skipper and leaf roller follow a binomial distribution, as their variance was smaller than the mean, indicated a uniform distribution and more even spread in the field. The major insect pests reached their peak during 15th to 19th standard metrological weeks due to high evapotranspiration, minimum temperature and afternoon humidity, whereas 12th and 18th standard metrological weeks were the most suppressive to the major insect pests due to high morning humidity, strong wind velocity and increased sunshine. **Approved with following suggestion(s):** 1 Considered and approved in 21st Combined AGRESCO of PPSC at Navsari *(Action: Professor and Head, Dept. of Agril. Statistics, NMCA, NAU, Navsari)*
21.3.2.7	**Persistence and dissipation pattern of Azoxystrobin and difenoconazole in turmeric (*Curcuma longa* L.)** Foliar application of a ready mix formulation of azoxystrobin (18.2%) and difenoconazole (11.4%) SC 150 g *a.i.*/ha (1 ml/L water) at the initiation of disease and subsequent two sprays at 15-days interval, resulted in residue levels of both azoxystrobin and difenoconazole below the limit of quantification (LOQ; 0.01 mg/kg) in turmeric rhizomes which were less than United State's MRL (difenoconazole, 4.0 mg/kg and azoxystrobin; 8.0 mg/kg). **Suggestion: Approved** *(Action: Professor & Head, FQTL, NAU, Navsari)*

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

21.3.2.8	**Bio efficacy of insecticides against leaf miner (*Aproaerema modicella*) in *kharif* groundnut** Two sprays of emamectin benzoate 5 SG, 0.0020% (4 g/10 L water) or profenofos 50 EC, 0.10% (20 ml/10 L water), first at appearance of pest and second at 15 days after first spray found effective for management of leaf miner in groundnut. Add jaggery (400 g/ 10 L water) at the time of spray. Minimum pre-harvest interval (PHI) of 25 days should be kept. **Suggestion: Approved** *[Action: Professor & Head, (Ento.), CPCA, SDAU, Sardarkrushinagar]*

21.3.2.9 Detection of leaf rust resistance genes in wheat by molecular markers

- Among 25 entries, 23 entries were identified as phenotypically resistant to leaf rust of wheat.
- Entry VA 2020-05 was molecularly characterized for the presence of both the effective durable *Lr34* and *Lr24* genes.
- 11 germplasms (VA-2021-10, VA-2021-14, VA-2021-15, VA-2021-07, VA-2020-05, VA-2021-06, VA-2021-03, GDW-1255, VA-2021-16, VA-2021-09 and GW1320) and 6 germplasms (GW1318, VA-2021-08, VA-2020-05, VA-2021-03, GW1339 and VA-2021-13) were detected for the presence of effective durable *Lr34* and *Lr24* genes respectively, with their linked markers which would help to speed up the process of selection in the field condition while working in resistant breeding against leaf rust.
- Following primers used for molecular characterization

Primer		Linked *Lr* gene	Product (bp)
SSR	csLV34	*Lr34*	150
	Xwmc313	*Lr24*	150
SCAR	SCS421	*Lr28*	200
	SCS123	*Lr19*	312

Suggestion: Approved

[Action: Assist. Res. Scientist, (Patho.), Wheat Research Station, SDAU, Vijapur]

JUNAGADH AGRICULTURAL UNIVERSITY

21.3.2.10 Effect of different sequence based insecticidal spray against shoot and fruit borer, *Leucinodes orbonalis* (Guenée) in brinjal

Sequence based spraying of spinetoram 11.7 SC 0.01% (8.5 ml /10 L water), azadirachtin 1.0 EC 0.002% (20 ml/10 L water), lambda-cyhalothrin 4.9 CS 0.003% (6.0 ml/10 L water) and spinosad 45 SC 0.016% (3.5 ml/10 L water) at 15 days interval after pest crosses ETL (5% fruit damage) was found effective for the management of brinjal shoot and fruit borer.

Suggestion: Approved

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

21.3.2.11 Evaluation of insecticides against aphid, *Lipaphis erysimi* (Kalt.) infesting mustard

Two sprays of afidopyropen 50 DC 0.10% (20 ml/10 L water) or dinotefuran 20 SG 0.008% (4 g/10 L water) or clothianidin 50 WDG 0.025% (5 g/10 L water), first spray when pest cross ETL (1.5 aphid index/plant) and second at 15 days after first spray for effective management of aphid in mustard.

Suggestion: Approved.

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

21.3.2.12	**Evaluation of different ready mixed insecticides against sucking insect pest in groundnut** Two sprays of thiamethoxam 12.6 + lambda-cyhalothrin 9.5 ZC 0.007% (3 ml/10 L water) or imidacloprid 19.81 + beta-cyfluthrin 8.49 OD 0.01% (4 ml/10 L water) or pyriproxyfen 10 + bifenthrin 10 EC 0.02% (10 ml/10 L water), first spray at initiation of the pest infestation and second spray after 15 days of first spray for effective management of thrips and jassid in groundnut. **Suggestion: Approved** *(Action: Research Scientist (G'nut), Main Oilseeds Research Station, JAU, Junagadh)*
21.3.2.13	**Efficacy of different insecticides against eriophyid mites (*Aceria guerrenonis* Keifer) infesting coconut cv. D X T** Four sprays of etoxazole 10 EC 0.01% (10 ml/10 L water) or abamectin 1.9 EC 0.0025% (12.5 ml/10 L water), first spray in early November and subsequent three sprays at two months interval after first spray was found effective against eriophyid mite (*Aceria guerrenonis* Keifer) in coconut. **Suggestion: Approved** *(Action: Research Scientist (F.C.), Agril. Research Station, JAU, Mahuva)*
21.3.2.14	**Management of twister disease complex in onion** Soil application of chlorantraniliprole 0.4 G (10 kg/ha) and copper oxychloride 50 WP (1.25 kg/ha) at the time of transplanting along with two sprays of tebuconazole 50 + trifloxystrobin 25 WG 0.075% (10 g/10 L water) or azoxystrobin 18.2 + difenoconazole 11.4 SC 0.03% (10 ml/10 L water), first spray at initiation and second spray at 15 days after first spray for effective management of twister disease complex. **Suggestion: Approved** *(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)*

ANAND AGRICULTURAL UNIVERSITY

21.3.2.15	**Evaluation of ready-mix insecticides and fungicides as seed treatment against sucking insect and disease of soybean** Farmers of Gujarat growing soybean are recommended to treat the seeds with ready-mix insecticide and fungicide either Pyraclostrobin 3.5% + Thiram 15% + Clothianidin 22.5% FS (7 ml/kg seed) or Azoxystrobin 2.5% + Thiophanate methyl 11.25% + Thiamethoxam 25% FS (10 ml/kg seed) to overcome the incidence of jassid, whitefly and yellow mosaic disease. **Note:** For seed treatment, prepare the solution by adding an equal quantity of water with ready-mix insecticide and fungicide followed by overnight drying. ગુજરાતમાં સોયાબીનની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે બીજને વાવણી પહેલા પાયરાયક્લોસ્ટ્રોબીન ૩.૫% + થાયરમ ૧૫% + ક્લોથીયાનીડીન ૨૨.૫% એફએસ (૭ મિ.લી./કી.ગ્રા. બીજ) અથવા એઝોકસીસ્ટ્રોબીન ૨.૫% +

થાયોફેનેટ મીથાઇલ ૧૧.૨૫% + થાયોમેથોક્ઝામ ૨૫% એફએસ (૧૦ મિ.લી./કી.ગ્રા. બીજ) થી બીજ માવજત આપવાથી તડતડીયા, સફેદમાખી અને પીળો પંચરંગીયાનો રોગનો ઉપદ્રવ રહે છે.

નોંધ: બીજ માવજત માટે સરખા પ્રમાણમાં પાણી દવામાં ઉમેરવું અને છાંયડામાં સૂકવીને વાવેતર કરવુ.

CIBRC Format:

Year	Crop	Pest	Pesticides with formulation	Dosage			
				g a.i. /ha	Quantity of formulation	Conc. (%)	Dilution in water
2024-25	Soybean	Jassid, whitefly, Yellow mosaic disease	Pyraclostrobin 3.5% + Thiram 15% + Clothianidin 22.5% FS	45+1.05+1.575	7 ml/kg seed	-	7 ml/kg seed
			Azoxystrobin 2.5% + Thiophanate methyl 11.25% + Thiamethoxam 25% FS	5+11.25+25	10 ml/kg seed	-	10 ml/kg seed

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	કીટનાશક અને તેનું ફોર્મુલેશન	માત્રા				છંટકાવનો સમય	સુરક્ષિત પ્રતિક્ષા સમયગાળો / પીએચઆઇ (દિવસ)	રીમાર્ક
				ગ્રા. સ . ત/.હે.	કીટનાશક ફોર્મુલેશન નું પ્રમાણ	સાંદ્રતા (%)	પાણીનો જથ્થો			
૨૦૨૪-૨૫	સોયાબીન	તડતાડીયા, સફેદ માખી, પીળો પાંચરંગયો	પાયરોક્લોસ્ટ્રોબીન ૩.૫% + થાયરમ ૧૫% + ક્લોથીયાનીડીન ૨૨.૫% એફએસ	૪૫ + ૧.૦૫ + ૧.૫૭૫	૭ મિ.લિ./કિ.ગ્રા.બીજ	-	૭ મિ.લિ./કિ.ગ્રા.બીજ	બીજ માવજત	-	-
			એઝોક્સોસ્ટ્રોબીન ૨.૫% + થાયોફેનેટ મીથાઇલ ૧૧.૨૫% + થાયોમેથોક્ઝામ ૨૫% એફએસ	૫ + ૧૧.૨૫ + ૨૫	૧૦ મિ.લિ./કિ.ગ્રા.બીજ	-	૧૦ મિ.લિ./કિ.ગ્રા.બીજ	બીજ માવજત	-	-

Suggestion: Recommendation is approved for farming community

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

21.3.2.16	**Evaluation of insecticides for the control of castor capsule borer, *Dichocrosis punctiferalis* Guenee** Two sprays of chlorpyriphos 50% + cypermethrin 5% EC, 625+62.5 g a.i./ha. (25 ml/10 L of water) or flubendiamide 19.92% + thiacloprid 19.92% SC, 60+60 g a.i./ha. (6 ml/10 L of water) first spray when capsule damage crosses 10% and second spray at 15 days after first spray found effective against capsule borer, *Dichocrosis punctiferalis* infesting castor. **Approved with following suggestion(s):** 1. Calculate economics and pesticides residue analysis 2. It can be presented in next combined AGRESCO as farming community *(Action: Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Sansoli)*
21.3.2.17	**Efficacy of ready-mix insecticide against spotted pod borer of blackgram** Two sprays of flubendiamide 8.33% + deltamethrin 5.56% SC, 22.50 + 15.00 g a.i./ha. (5 ml/10 L of water), first spray at initiation of pest and second spray at 15 days after first spray found effective against of spotted pod borer, *Maruca vitrata* in blackgram. **Suggestion: Approved** *(Action: Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Derol)*
21.3.2.18	**Residues and persistence of tebuconazole 50 + trifloxystrobin 25 WG in chickpea** Following three foliar applications of Tebuconazole 50% + Trifloxystrobin 25% WG, at 250 + 125 g a.i./ha, applied at 10 days interval starting from the pod initiation stage in chickpea fields, the residues of tebuconazole and trifloxystrobin in immature green chickpea seeds were observed below the limit of quantification (LOQ) of 0.01 mg/kg at 15 days after the last application. Similarly, residue levels in mature dry chickpea seeds and soil were also below the LOQ, when sampled at 20 days after the last treatment. So, a pre-harvest interval (PHI) of 15 days for immature green chickpea seeds and 20 days for mature dry chickpea seeds is suggested. Furthermore, the dissipation of tebuconazole and trifloxystrobin in immature green chickpea seeds followed a monophasic pattern, with half-lives of 5.3 and 6.5 days, respectively. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.19	**Residue and persistence of glyphosate IPA Salt 41 w/w SL in pomegranate** Following a single application of Glyphosate IPA salt 41% SL in basin area of pomegranate plant with a recommended dose of 1260 g a.i./ha, applied in pomegranate orchard at fruit development stage, the residues of glyphosate and amino methyl-phosphonic acid (AMPA) in mature pomegranate fruits and arils (edible portion) were observed below the LOQ level of 0.50 mg/kg at 15 days after application. So, the preharvest interval (PHI) of 15 days for mature pomegranate fruits and arils is

	suggested. Furthermore, glyphosate residues in soil were observed up to 15 days after application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.20	**Residues and persistence of flupyradifurone 200% g/L SL in chilli** Following three foliar applications of Flupyradifurone 200 g/L SL, each at 200 g a.i./ha, applied at 10-days interval starting from the fruit initiation stage in chilli fields, the residues of flupyradifurone in green chilli fruits were below the CODEX MRL of 0.9 mg/kg at 25 days after the last application. Whereas, the residues in red chilli (dry) fruits were observed below the CODEX MRL of 9.0 mg/kg at 67 days after the last application. So, the pre-harvest intervals (PHIs) of 25 days for green chilli fruits and 67 days for red chilli (dry) fruits are suggested. The dissipation of flupyradifurone in green chilli fruits followed a monophasic pattern, with a half-life of 10 days. Furthermore, residues of flupyradifurone was observed in soil sampled at 67 days after application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.21	**Residues and persistence of glyphosate IPA salt 41% w/w SL in chilli** Following a single foliar application of Glyphosate IPA salt 41% SL at 1260 g a.i./ha, applied as post-emergence of weeds in chilli fields, the residues of glyphosate and its metabolite aminomethyl phosphonic acid (AMPA) in green chilli and red chilli (dry) fruits, were observed below the LOQ of 0.5 mg/kg on 60 days and 144 days, respectively after the application. So, the preharvest intervals (PHIs) of 60 days for green chilli fruits and 144 days for red chilli (dry) fruits are suggested. Furthermore, the glyphosate residues in soil observed up to 60 days after application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.22	**Residues and persistence of isotianil 7% + fosetyl Al 70% WG in pomegranate** Following five foliar applications of isotianil 7% + fosetyl-Al 70% WG, each at 14 + 140 g a.i./ha, applied at 10 days interval starting from the fruit development stage in pomegranate orchard, the residues of isotianil and fosetyl-Al in mature pomegranate fruits, arils and soil were observed below their respective LOQ values of 0.01 and 0.05 mg/kg at 30 days after the last application. So, a pre-harvest interval (PHI) of 30 days for mature pomegranate fruits and arils is suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*

21.3.2.23	**Residues and persistence study of triafamone 37.5 g/L + fentrazamide 300 g/L SC and triafamone 40 g/L + oxadiazon 240 g/L SC in transplanted rice** Following a single pre-emergence (3 days after transplanting) or early post-emergence application (8 days after transplanting) of either Triafamone 37.5 g/L + Fentrazamide 300 g/L SC at 28.125 + 225 g a.i./ha or Triafamone 40 g/L + Oxadiazon 240 g/L SC at 35 + 210 g a.i./ha in rice fields, the residues of respective active ingredients in whole rice grains, dehusked rice grains and soil were observed below the LOQ of 0.01 mg/kg at 85 days after transplanting. So, a pre-harvest interval (PHI) of 85 days for whole rice grains and dehusked rice grains is suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.24	**Residues and persistence study of triafamone 37.5 g/L + fentrazamide 300 g/L SC and triafamone 40 g/L + oxadiazon 240 g/L SC in direct seeded rice** Following a single pre-emergence application (10 days after sowing) of either Triafamone 37.5 g/L + Fentrazamide 300 g/L SC at 28.125 + 225 g a.i./ha or Triafamone 40 g/L + Oxadiazon 240 g/L SC at 35 + 210 g a.i./ha in rice fields in summer season, the residues of the respective active ingredients in whole rice grains, dehusked rice grains and soil were observed below the LOQ of 0.01 mg/kg at 85 days after sowing. So, a pre-harvest interval (PHI) of 85 days for whole rice grains and dehusked rice grains is suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.25	**Residues and persistence study of flufenacet 24% + metribuzin 17.5% WG in potato** Following either a single pre-emergence (2 days after planting) or early post-emergence application (10 days after planting) of Flufenacet 24% + Metribuzin 17.5% WG at 480 + 350 g a.i./ha in potato fields, the residues of the flufenacet, metribuzin and their metabolites in potato tubers and soil were observed below the LOQ of 0.01 mg/kg at 107 days after planting. So, a pre-harvest interval (PHI) of 107 days for potato tubers is suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.26	**Residues and persistence study of flufenacet 24% + metribuzin 17.5% WG in soybean** Following either a single pre-emergence or early post-emergence application of Flufenacet 24% + Metribuzin 17.5% WG at 360 + 262.5 g a.i./ha in soybean fields, the residues of the flufenacet, metribuzin and its metabolites in soybean pods, dry seed,

	oil and soil were observed below the LOQ of 0.01 mg/kg at 105 days after sowing. So, a preharvest interval (PHI) of 105 days for soybean seeds is suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.27	**Residues and persistence study of thiencarbazone-methyl 68 g/L + tembotrione 345 g/L SC maize** Following a single mid-post-emergence application (15 days after sowing) of Thiencarbazone-methyl 68 g/L + Tembotrione 345 g/L SC at 20.4 + 103.5 g a.i./ha in maize fields, the residues of thiencarbazone-methyl, tembotrione, and their metabolites in immature maize cobs (at 70 days after herbicide application), and in dry maize grains, fodder and soil (at 90 days after herbicide application) were observed below the limit of quantification (LOQ) of 0.01 mg/kg. So, the pre-harvest intervals (PHIs) of 70 days for immature maize cobs and 90 days for dry maize grains and fodder are suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.28	**Residues and persistence of fluopyram 400 g/L SC in citrus** Following either a single soil drenching of Fluopyram 400 g/L SC at 500 g a.i./ha (at flowering stage) or two soil drenchings each at 250 g a.i./ha (at flowering stage and 30 days after first application) as a soil drenching in citrus orchards, the residues of fluopyram in mature citrus fruits was observed below the CODEX MRL of 1.0 mg/kg at 158 and 128 days, respectively after the last application. So, the pre-harvest intervals (PHIs) of 158 days for a single soil drenching (at 500 g a.i./ha) and 128 days for two soil drenchings (each at 250 g a.i./ha) are suggested. Furthermore, residue of fluopyram in soil at respective applications were observed up to 158 and 128 days after soil drenching. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.29	**Residues and persistence of fluopyram 400 g/L SC in guava** Following either a single application of Fluopyram 400 g/L SC at 500 g a.i./ha (at flowering stage) or two split applications each at 250 g a.i./ha (at flowering stage and 30 days after first application) through soil drenching around the guava plants, the residues of fluopyram in mature guava fruits and soil were observed below the limit of quantification (LOQ) of 0.01 mg/kg at 129 and 99 days after the last application, respectively. So, the pre-harvest intervals (PHIs) of 129 days for guava fruits for a single soil drenching and 99 days for two soil drenchings are suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.30	**Residues and persistence of fluopyram 400 g/L SC in carrot** Following a single soil drenching application of Fluopyram 400 g/L SC, at 500 g a.i./ha applied 7 days after sowing in carrot fields, the residues of fluopyram in carrots were observed below the CODEX MRL of 0.4 mg/kg at 73 days after the application. So, a pre-harvest interval (PHI) of 73 days for carrots is suggested.

	Furthermore, fluopyram dissipation in carrot leaves followed a monophasic pattern, with a half-life of 4 days under the tested conditions. The residue of fluopyram in soil was observed up to 73 days after soil drenching. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.31	**Residues and persistence study of fluopyram 250 g/L + difenoconazole 125 g/L SC, trifloxystrobin 500 g/L SC, fluopicolide 62.5 g/L + propamocarb hydrochloride 625 g/L SC in chilli crop** Following three foliar applications of Fluopyram 250 g/L + Difenconazole 125 g/L SC, each at 150 + 75 g a.i./ha, applied at 10-day intervals starting from the fruit initiation stage in chilli fields, the residues of fluopyram and difenoconazole in green chilli fruits observed below the respective CODEX MRLs of 3.0 mg/kg and 0.90 mg/kg at 0 days (2 h) after the last application. Likewise, the residues in red chilli (dry) fruits were observed below the respective CODEX MRLs of 30 mg/kg and 5 mg/kg at 48 days after the last application. Similarly, following three foliar applications of trifloxystrobin 500 g/L SC, each at 75 g a.i./ha, applied at 10-days interval starting from the fruit initiation stage, the residues of trifloxystrobin in green chilli fruits were observed less than the FSSAI MRLs of 0.4 mg/kg at 0 days (2 h) after the last application. Likewise, the residues in red chilli (dry) fruits were within the FSSAI MRLs of 4 mg/kg and 5 mg/kg at 48 days after the last application. Whereas, following three foliar applications of Fluopicolide 62.5 g/L + Propamocarb hydrochloride 625 g/L, each at 93.75 + 937.5 g a.i./ha, applied at 10-day intervals starting from the fruit initiation stage, the residues of fluopicolide and propamocarb residues in green chilli fruits were below the LOQ of 0.01 mg/kg at 30 days after the last application. Likewise, the residues in red chilli (dry) fruits were observed below the respective CODEX MRLs of 7 mg/kg and 10 mg/kg at 48 days after the last application. So, the pre-harvest interval (PHIs) of 1 day for green chilli fruits and 48 days for red chilli (dry) fruits are suggested for the use of Fluopyram 250 g/L + Difenoconazole 125 g/L SC and Trifloxystrobin 500 g/L SC. While a PHI of 30 days for green chilli fruits and 48 days for red chilli (dry) fruits is suggested for the use of Fluopicolide 62.5 g/L + Propamocarb hydrochloride 625 g/L at its recommended dose in chilli fields. The dissipation of fluopyram, difenconazole, trifloxystrobin, fluopicolide, and propamocarb hydrochloride in green chilli fruits followed a monophasic pattern, with respective half-lives of 20, 23.1, 15.7, 13.2, and 30.8 days. The residues of fluopyram, difenconazole, trifloxystrobin, fluopicolide and propamocarb hydrochloride in soil were 0.1, 0.09, 0.4, 2.9 and 2.5 mg/kg, respectively when collected at 48 days after last application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.32	**Residues and persistence study of beta-cyfluthrin 90 g/L + imidacloprid 210 g/L OD and spirotetramat 150 g/L OD in banana** Following three foliar applications of Beta-cyfluthrin 90 g/L + Imidacloprid 210 g/L OD, each at 6.75 + 15.75 g a.i./100 L water and Spirotetramat 150 g/L OD, each at 15 g a.i./100 L water in banana fields, applied at 10-days interval starting from the fruit development stage, the residues of their respective active ingredients in mature

	banana whole fruits (with peel), banana pulp and soil were observed below the respective LOQ of 0.01 mg/kg at 15 days after the last application. So, a pre-harvest interval (PHI) of 15 days is suggested for mature banana whole fruits (with peel) and banana pulp. Furthermore, for the recommended dose, dissipation of beta-cyfluthrin, imidacloprid, spirotetramat and spirotetramat enol in immature bananas followed a monophasic pattern, with respective half-lives of 4.3, 8.31, 1.51 and 2.18 days. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.33	**Residues and persistence study of Isotianil 120 g/L + Trifloxystrobin 100 g/L SC, Trifloxystrobin 500 g/L and propineb 70% WG in transplanted rice** Following three foliar applications of Isotianil 120 g/L + Trifloxystrobin 100 g/L SC at 90 + 75 g a.i./ha, Trifloxystrobin 500 g/L SC at 100 g a.i./ha and Propineb 70% WG at 1400 g a.i./ha, applied at 10 days interval starting from the booting stage in rice fields, the residues of their respective active ingredients in dehusked rice grains and soil were observed below the LOQ of 0.01 mg/kg at 30 days after the last application. So, a pre-harvest interval (PHI) of 30 days for dehusked rice grains is suggested. Furthermore, for the recommended doses, isotianil, DCIT acid, trifloxystrobin, CGA 321113 and propineb in rice plants dissipated with the respective half-lives of 1&17.5, 20.1, 1.4, 5.0 and 4.2 days. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.34	**Residues and persistence study of Isotianil 200 g/L + Trifloxystrobin 80 g/L FS (as seed treatment) in transplanted rice** Following a single wet or dry seed treatment with Isotianil 200 g/L + Trifloxystrobin 80 g/L FS at 1.5 + 0.60 g a.i./kg seed, the residues of isotianil and trifloxystrobin in dehusked rice grains and soil were observed below the LOQ of 0.01 mg/kg at 124 days after the seed treatment. So, a preharvest interval (PHI) of 124 days for dehusked rice grains is suggested. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.35	**Residues and persistence study of fluopyram 200 g/L + tebuconazole 200 g/L SC and spirotetramat 150 g/L OD in cucumber** Following three foliar applications of Fluopyram 200 g/L + Tebuconazole 200 g/L SC, each at 100 + 100 g a.i./ha, applied at 7-day intervals starting from the fruiting stage in cucumber fields, the residues of fluopyram and tebuconazole in cucumber fruits were observed below the respective CODEX MRL of 0.5 mg/kg and FSSAI MRL of 0.5 mg/kg at 0 days (2 h) after the last application. Whereas, following three foliar applications of Spirotetramat 150 g/L OD, each at 90 g a.i./ha, applied at 7-days interval starting from the fruiting stage, the residues of spirotetramat and its metabolites in cucumber fruits were observed below the LOQ of 0.01 mg/kg at 5 days after the last application. So, pre-harvest intervals (PHIs) of 1 day for fluopyram 200 g/L + Tebuconazole 200 g/L SC and 5 days for spirotetramat 150 g/L OD are suggested. Furthermore, the residue of fluopyram, tebuconazole, and spirotetramat in soil were observed below LOQ of 0.01 mg/kg at 35 days after application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*

21.3.2.36	**Residues and persistence study of beta-cyfluthrin 90 g/L + imidacloprid 210 g/L OD in cumin** Following three foliar applications of Beta-cyfluthrin 90 g/L + Imidacloprid 210 g/L OD, each at 45 + 105 g a.i./ha, applied at 10-days interval starting 30 days after sowing in cumin fields, the residues of beta-cyfluthrin and imidacloprid in dry cumin seeds and soil were found below their respective LOQs of 0.05 mg/kg and 0.01 mg/kg at 48 days after the last application. So, a pre-harvest interval (PHI) of 48 days for cumin seeds is suggested. Furthermore, for the recommended dose, dissipation of beta-cyfluthrin and imidacloprid in cumin leaves followed a monophasic pattern, with respective half-lives of 9.8 and 4.3 days. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.37	**Residues and persistence study of tetraniliprole 200 g/L SC in chickpea** Following three foliar applications of Tetraniliprole 200 g/L SC, each at 50 g a.i./ha, applied at 10-days interval starting at the pod formation stage in chickpea fields, the residues of tetraniliprole in immature green and mature dry chickpea seeds were observed below the LOQs of 0.01 mg/kg respectively at 15 and 20 days after the last application. So, the pre-harvest intervals (PHIs) of 15 days for immature green seeds and 20 days for mature dry seeds are suggested. Furthermore, for the recommended dose, dissipation of tetraniliprole in immature green seeds followed a monophasic pattern, with a half-life of 8.85 days. The residue of tetraniliprole in soil were observed below LOQ of 0.01 mg/kg at 20 days after application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.38	**Residues and persistence of tetraniliprole 200 g/L SC in black gram** Following three foliar applications of Tetraniliprole 200 g/L SC each at 50 g a.i./ha, applied at 10 days interval starting from pod formation stage in black gram fields, the residues of tetraniliprole and its metabolite (BCS-CQ63359) in mature seeds and soil were observed below the LOQ of 0.01 mg/kg at 30 days after the last application. So, a pre-harvest interval (PHI) of 30 days for mature black gram seeds is suggested. Furthermore, for the recommended dose, dissipation of tetraniliprole in immature pods followed a monophasic pattern, with a half-life of 8.1 days. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.2.39	**Residues and persistence study of chlorantraniliprole 4.3% + abamectin 1.7% SC in pomegranate** Following two foliar applications of Chlorantraniliprole 4.3% + Abamectin 1.7% SC, each at 26.875 + 10.625 g a.i./ha, applied at 15-days interval starting at the fruiting stage in pomegranate orchards, the residues of chlorantraniliprole in pomegranate fruits were observed below the CODEX MRL of 0.4 mg/kg at 0 days (2 h after the last application), while the abamectin residues in pomegranate fruits were observed below the LOQ & CODEX MRL of 0.01 mg/kg by 7 days after the last application. So, a pre-harvest interval (PHI) of 7 days for pomegranate fruits is

	suggested. Furthermore, the dissipation of chlorantraniliprole and abamectin in pomegranate fruits at the recommended dose followed a monophasic pattern, with respective half-lives of 13.81 and 7.3 days. The residue of chlorantraniliprole and abamectin in soil were observed below LOQ of 0.01 mg/kg at 20 days after application. **Suggestion: Approved** *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*

21.3.2.40	**Bioefficacy of ready-mix fungicides against powdery mildew of Indian mustard** Two foliar sprays of ready-mix fungicide, tebuconazole 50% + trifloxystobin 25% WG, 0.048% (6 g/ 10 L water) OR boscalid 25.2% + pyraclostrobin 12.8% WG, 0.048% (13 g/10 L water) first at the initiation of the disease and second spray at 15 days after first spray found effective for management of powdery mildew in Indian mustard. **Suggestion: Approved** *(Action: Professor and Head, Dept. of Plant Pathology, BACA, AAU, Anand)*
21.3.2.41	**Biomanagement of root-knot nematodes (*Meloidogyne* spp.) and wilt complex in brinjal** Soil application of FYM, 2.5 tones/ha enriched with 2.5 kg *Bacillus subtilis,* 1.0% WP (2 x 10^8 cfu/g) at the time of transplanting for effective and economical management of root-knot nematodes in brinjal. **Suggestions:** Approved *(Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand)*
21.3.2.42	**Evaluation of chemical molecules against *Meloidogyne* spp. infecting guava** Soil application of fluopyram 400 SC, 9 ml/2 L water/plant at on onset of monsoon reduced root-knot disease in guava. **Suggestion: Approved** *(Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand)*
21.3.2.43	**Evaluation of chemical molecules against *Meloidogyne* spp. infecting pomegranate** Soil application of fluopyram 400 SC, 9 ml/ 2 L water /plant at on onset of monsoon reduced root-knot disease in pomegranate. **Suggestion: Approved** *(Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand)*
21.3.2.44	**Efficacy of Vesicular Arbuscular Mycorrhiza in the management of *Meloidogyne* spp. in capsicum under protected cultivation** Spot application of *Glomus fasciculatum* 1 kg at the time of transplanting and *Pochonia chlamydosporia* (min. 2 x10^8 cfu/g soil) 1 kg /1000m^2 (enriched in FYM 100 kg) at 45 days after transplanting reduced root-knot nematode population and root-knot disease. **Note:**

	• Spot application of *G. fasciculatum* 2.43 g/bed (4.05 m^2) at the time of transplanting • FYM 243 g enriched with *P. chlamydosporia*, 2.43 g/bed (for 2 weeks) was applied at 45 days after transplanting. **Suggestions:** Approved *(Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand)*
21.3.2.45	**Evaluation of ready-mix fungicides against powdery mildew of coriander** Two sprays of boscalid 25.2% + pyraclostrobin 12.8% WG, 0.038% (10 g /10 L water) first at initiation of disease and second at 15 days after first spray found effective against powdery mildew in coriander. **Suggestion: Approved** *(Action: Assistant Professor and Head, Dept. of Plant Protection, CoH, AAU, Anand)*
21.3.2.46	**Management of Alternaria leaf spot and flower blight in marigold through ready-mix fungicides** Two foliar sprays of kresoxim-methyl 15% + chlorothalonil 56% WG, 0.177 (25 g/ 10 L water) first at the initiation of disease and second at 15 days after first spray found effective against Alternaria leaf spot and flower blight in marigold. **Suggestion: Approved** *(Action: Assistant Professor and Head, Dept. of Plant Pathology/ Principal, CoA, Jabugam)*

21.3.3 NEW TECHNICAL PROGRAMMES
NASVSARI ARICULTURAL UNIVERSITY

Sr. No.	Title	Suggestion/s and Action
21.3.3.1	Biodiversity of bamboo mites under south Gujarat	**Suggestion:** Not approved *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.2	Status of *Psyttalia fletcheri* (Silvestri) (Hymenoptera: Braconidae) in fruit fly infesting cucurbits under South Gujarat	**Approved with following suggestion(s):** 1. Merged with 21.3.3.6 2. Revise the title of an experiment as "Incidence of fruit fly *Zeugodacus duplicates* (Bezzi) and its parasitism in spine gourd under south Gujarat" *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.3	Impact assessment of Nauroji Stonehouse Fruit Fly Trap in South Gujarat	**Suggestion:** Shifted to Social Science group *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.4	Standardization of number of pheromone traps for sugarcane internode borer	**Approved with following suggestion(s):** 1. Mention distance between traps 2. Record yield (kg/plot) *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.5	Management of sugarcane whitefly, *Aleurolobus barodensis* (Mask.) under south Gujarat	**Approved with following suggestion(s):** 1. Need based spray should be done. 2. Add 2% urea in T_1, T_2 & T_3 3. T_4, T_5 & T_6 will be insecticide treatments only 4. Residue analysis of an effective treatments should be carried out *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.6	Status of fruit fly, *Zeugodacus duplicates* (Bezzi) and its parasitism in spine gourd under south Gujarat	**Merged with 21.3.3.2** *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.7	Status of Aak fruit fly, *Dacus persicus* Hendel and its biocontrol potential against calotrope in south Gujarat	**Suggestion: Not approved** *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.8	Status of bamboo shoot fruit fly, *Acroceratitis parastriata* David and Hancock in south Gujarat	**Suggestion: Not approved** *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.9	Investigation on the role of red brown beetle, *Epuraea moteschulskii* in pointed gourd pollination	**Suggestion: Not approved** *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*

21.3.3.10	Studies on pollinators diversity of sun hemp, *Crotalaria juncea* L.	**Suggestion: Not approved** *(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)*
21.3.3.11	Status of insect pests of major flower crops under Navsari condition	**Suggestion: Not approved** *(Action: Professor and Head, Dept. of Plant Protection, ACH, NAU, Navsari)*
21.3.3.12	Bio-efficacy of insecticides against okra shoot and fruit borer, *Earias vittella* Fabricius	**Approved with following suggestion(s):** 1. Replace T_2 with Broflamilide 20 SC 2. Spray should be done at 15 days interval 3. Observations to be recorded at 3,7,10 and 14 days after each spray 4. Record observations of fruit damage, shoot damage and yield *(Action: Principal, Polytechnic in Horticulture, NAU, Navsari)*
21.3.3.13	Management of banana weevils with novel insecticides	**Approved with following suggestion(s):** 1. Revise title as 'Standardization of method of application of insecticides against banana weevils' 2. Add one more treatment: Profenophos 50 EC *(Action: Associate Research Scientist, FRS, NAU, Gandevi)*
21.3.3.14	Evaluation of entomopathogenic fungi against banana weevils	**Suggestion: Approved** *(Action: Associate Research Scientist, FRS, NAU, Gandevi)*
21.3.3.15	Pesticide utilization pattern of cotton growers in the Tapi district of South Gujarat	**Suggestion: Shifted to Social Science group** *(Action: Senior Scientist and Head, KVK, NAU, Vyara)*
21.3.3.16	Impact of Foliar Urea Application on dissipation, persistence and Residue of major insecticide in Tomato (*Solanum lycopersicum* L.)	**Approved with following suggestion(s):** 1. Modify the objective 2. Revise title as 'Impact of foliar application of urea on dissipation, persistence and residue of major insecticides in tomato (*Solanum lycopersicum* L.)' 3. Record phytotoxicity *(Action: Professor & Head, FQTL, NAU, Navsari)*
21.3.3.17	Impact of polyethylene sleeving on dissipation behavior and distribution pattern of propiconazole and hexaconazole residues in/on banana	**Suggestion: Approved** *(Action: Professor & Head, FQTL, NAU, Navsari)*
21.3.3.18	Survey of insect pests in forest nurseries	**Suggestion: Not approved** *(Action: Principal & Dean, College of Forestry, NAU, Navsari)*

21.3.3.19	Diversity of insect pests of forest trees in NAU campus, Navsari	**Suggestion: Not approved** *(Action: Principal & Dean, College of Forestry, NAU, Navsari)*
21.3.3.20	Mass multiplication of AM (Arbuscular mycorrhiza) fungi on different plants using hydroponics system	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of different plants for mass multiplication of AM (*Arbuscular mycorrhiza*) fungi using hydroponics system' *(Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.3.21	Evaluation of locally available substrates for mass multiplication and shelf life of *Chaetomium brasilience*	**Approved with following suggestion(s):** 1. Take observations of shelf life up to 18 months. 2. Specify fruit and vegetable waste. *(Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.3.22	Influence of fungicides used for Controlling Powdery Mildew Disease on Pollen Vitality of Mango	**Approved with following suggestion(s):** 1. Revise title as 'Effect of fungicides on pollen germination of mango' 2. Keep maximum four scientists *(Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.3.23	Evaluation of BARC Biostimulant 1, a novel *Streptomyces rochei* C3-based formulation for management of damping off disease and plant growth promotion of brinjal	**Approved with following suggestion(s):** 1. Mention detailed methodology for nursery and field conditions 2. Revise title of an experiment "Evaluation of BARC Biostimulant 1 for management of damping off disease and plant growth promotion of brinjal" 3. Keep period of experiment two years 4. Add treatment of *Trichoderma viride* **(***Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.3.24	Mass multiplication of AM (*Arbuscular mycorrhiza*) fungi on different root using Aeroponic systems	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of roots for mass multiplication of AM (*Arbuscular mycorrhiza*) fungi using hydroponics system**'** *(Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.3.25	Formulation of biochar based biopesticides	**Suggestion: Approved** *(Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)*
21.3.3.26	Management of anthracnose of dragon fruit caused by *Colletotrichum gloeosporioides*	**Approved with following suggestion(s):** 1. Spray interval should be 15 days 2. Revise title as 'Evaluation of fungicides against anthracnose of dragon fruit' *(Action: Professor and Head, Dept. of Plant Protection, ACH, NAU, Navsari)*

21.3.3.27	Integrated disease management of collar rot (*Sclerotium rolfsii* Sacc.) of tuberose	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of fungicides against collar rot (*Sclerotium rolfsii* Sacc.) of tuberose' *(Action: Professor and Head, Dept. of Plant Protection, ACH, NAU, Navsari)*
21.3.3.28	Management of leaf blight (*Alternaria* sp.) of tuberose	**Approved with following suggestion(s):** 1. Take only T_1, T_3 and T_6 with three doses 2. Revise title as 'Evaluation of fungicides against leaf blight (*Alternaria* sp.) of tuberose' *(Action: Professor and Head, Dept. of Plant Protection, ACH, NAU, Navsari)*
21.3.3.29	Eco friendly management of pigeon pea wilt disease	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of soil amendment against wilt of pigeon pea' 2. Replace treatment of groundnut and sesame with Biochar and FYM, respectively *(Action: Principal, CoA, NAU, Bharuch)*
21.3.3.30	Management of banana fusarium wilt	**Approved with following suggestion(s):** 1. Modify T_8 as T_5 + 100 g Biochar plant at the time of planting *(Action: Principal, CoA, NAU, Bharuch)*
21.3.3.31	Survey of powdery mildew of coriander in Navsari district	**Suggestion: Not approved** *(Action: Assistant Professor, Office of the DEE, NAU, Navsari)*
21.3.3.32	Survey of leaf blotch of turmeric in Navsari district	**Suggestion: Not approved** *(Action: Assistant Professor, Office of the DEE, NAU, Navsari)*
21.3.3.33	Bio intensive management of Fusarium wilt disease in banana	**Suggestion: Noted as AICRP trial** *(Action: Associate Research Scientist, Fruit Res. Station, NAU, Gandevi)*
21.3.3.34	Biocontrol management of Eumusae leaf spot in banana	**Suggestion: Noted as AICRP trial** *(Action: Associate Research Scientist, Fruit Res. Station, NAU, Gandevi)*
21.3.3.35	Isolation, Characterization and Mass Production of *Ampelomyces quisqualis* Cesati for the management of Powdery mildew (*Erysiphe cichoracearum* DC) of okra	**Suggestion: Approved** *(Action: Senior Scientist and Head, KVK, NAU, Waghai & Assistant Professor, Office of the DoR, NAU, Navsari)*
21.3.3.36	Management of leaf blotch of turmeric caused by *Taphrina maculans* Butler	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of fungicides against leaf blotch of turmeric caused by *Taphrina maculans* Butler' 2. Carry out pesticide residue analysis of an effective treatment *(Action: Assistant Professor, Office of the DoR, NAU, Navsari)*

SARDARKRUSHINAGAR DANTIWADA ARICULTURAL UNIVERSITY

Sr. No.	Title	Suggestion/s and Action
21.3.3.37	Eco-friendly management of lepidopteran pests infesting castor	**Approved with following suggestion(s):** 1. Replace Neemastra with Dashparni ark (10%) in (T_7) 2. Take Azadirachtin 10000 ppm (T_4) 3. Economics should be worked out 4. Record yield (kg/plot) 5. Take observations of capsule borer, if observed 6. Delete T_5 7. Use commercial formulation of *Bacillus thurinenesis* *[Action: Asstt. Res. Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar]*
21.3.3.38	Management of lepidopteran pests of castor through insecticides	**Approved with following suggestion(s):** 1. Residue analysis of effective insecticide should be done. 2. Add T_7: Novaluron 5.25% + Indoxacarb 4.5% SC (20 ml/ 10 L water) 3. Mention pesticide residue analysis and economics in methodology *[Action: Asstt. Res. Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar]*
21.3.3.39	High Density Planting of Castor for Eri culture	**Approved with following suggestion(s):** 1. Revise title "Assessment of planting distance of castor for Eri culture" 2. Delete observation of green cocoon *[Action: Asstt. Res. Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar]*
21.3.3.40	Management of pest complex in ber through IPM approaches	**Suggestion: Not approved** *[Action: Res. Scientist, (Pl. Path.), Agroforestry Res. Station, SDAU, Sardarkrushinagar]*
21.3.3.41	Eco-friendly management of Pink boll worm in Bt cotton (*Gossypium hirsutum* L.)	**Approved with following suggestion(s):** 1. Replace Neemastra with Dashparni ark (10%) 2. Record number of rosette flowers 3. Take observations at 5, 7 and 9 days after each spray 4. Replace word 'per cent' with 'number' in observations *[Action: Res. Scientist, (Ento.), Cotton Res. Station, SDAU, Talod]*
21.3.3.42	Management of lepidopterous pests on cabbage through botanicals	**Approved with following suggestion(s):** 1. Revise title as "Evaluation of natural inputs against Lepidopteran pests infesting cabbage" 2. Add observation of No. of larvae per plant 3. Record yield (kg/plot) *[Action: Prof. & Head, (Ento.), CPCA, SDAU, Sardarkrushinagar]*

21.3.3.43	Efficacy of botanicals against fennel aphid	**Approved with following suggestion(s):** 1. Add Dashparni ark (10%) as one more treatment. 2. Remove scientific name from title 3. Delete seed midge damage (%) from observations *[Action: Prof. & Head, (Ento.), CPCA, SDAU, Sardarkrushinagar]*
21.3.3.44	Eco-friendly management of aphid infesting aonla	**Approved with following suggestion(s):** 1. Add Dashparni ark (10%) as one more treatment. 2. Add methodology for preparation of Nikunchi 3. Keep maximum four scientists. *[Action: Asstt. Prof., (Ento.), COH, SDAU, Jagudan]*
21.3.3.45	Management of white rust disease of mustard through fungicides	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of fungicides against white rust of mustard' 2. T_1-Mancozeb 0.2% (27 g/10 L water) 3. Mention no. of sprays with interval in methodology (First spray at initiation of disease, and second spray after 15 days of first spray) 4. Record observations: Before spray, 7 & 14 DAFS and 7 & 14 DASS 5. Five plants will be tagged and from each plant five leaves will be observed *[Action: Asstt. Res. Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar]*
21.3.3.46	Management of wilt disease of castor through organic inputs	**Approved with following suggestion(s):** 1. Add seed rate 7 kg/ha 2. Add one more treatment: **A.** Basal application of *P. fluorescens* **B.** Seed treatment with *P. fluorescens* **C.** Soil application with *P. fluorescens* *[Action: Asstt. Res. Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar]*
21.3.3.47	Evaluation of natural inputs for management of foliar diseases of groundnut	**Approved with following suggestion(s):** 1. Record observations of rust disease, if observed 2. Record germination count *[Action: Assoc. Res. Scientist, Centre for Oilseeds Research, SDAU, Sardarkrushinagar]*
21.3.3.48	Evaluation of different organic inputs against wilt and root rot diseases of cumin	**Suggestion: Approved** *[Action: Res. Scientist, (Pl. Path.), Seed Spices Research Station, SDAU, Jagudan]*
21.3.3.49	Influence of irrigation and bioagents on collar rot and stem rot of groundnut	**Approved with following suggestion(s):** 1. Add 500 kg FYM in all the treatments as T_3 & T_4 consists 500 kg FYM/ha 2. Replace furrow application with soil application in T_5 & T_6

		[Action: Professor & Head, (Pl. Path.), CPCA, SDAU, Sardarkrushinagar]
21.3.3.50	Effect of bio control agents on management of early and late blight of potato	**Approved with following suggestion(s):** 1. Add 500 kg FYM in all the treatments as T_3 & T_4 consists 500 kg FYM/ha 2. Replace furrow application with soil application in T_5 & T_6 3. Seed rate: 3000-3500 kg tubers/ha *[Action: Professor & Head, (Pl. Path.), CPCA, SDAU, Sardarkrushinagar]*
21.3.3.51	Ecofriendly management of foliar diseases of brinjal	**Suggestion: Not approved.** 1. Conduct a filler trial. *[Action: Professor & Head, (Pl. Path.), CPCA, SDAU, Sardarkrushinagar]*
21.3.3.52	Evaluation of organic formulations against powdery mildew of cluster bean	**Approved with following suggestion(s):** 1. Add T_7: Milk (4%) 2. Add T_8: Sunthastra (10%) 3. Revise title as 'Evaluation of natural inputs against powdery mildew of cluster bean' 4. Remove word 'foliar' from treatments *[Action: Prof., (Pl. Path.), College of Agriculture, Tharad]*
21.3.3.53	Management of die-back in ornamental rose (*Rosa indica*) nursery	**Approved with following suggestion(s):** 1. Keep maximum four scientists 2. Mention media: Sand + FYM (1:1) in T_1 to T_5 3. Revise title as 'Management of die-back in ornamental rose (*Rosa indica*) under nursery condition' *[Action: Asstt. Prof., (Pl. Path.), COH, SDAU, Jagudan]*
21.3.3.54	Evaluation of natural inputs against root-knot nematode in okra	**Approved with following suggestion(s):** 1. Record yield (kg/plot) 2. Add observations of germination count 3. Remove observations of 45 DAS *[Action: Asstt. Prof., (Nema.), CPCA, SDAU, Sardarkrushinagar]*

JUNAGADH AGRICULTURAL UNIVERSITY

21.3.3.55	Effect of different sequence based biopesticides sprays against *Helicoverpa armigera* (Hub.) and *Spodoptera litura* (Fab.) in groundnut	**Suggestion: Approved** *(Action: Professor & Head, Department of Entomology, JAU, Junagadh)*
21.3.3.56	Effect of different sequence based natural input sprays against leaf eating caterpillar, *Spodoptera litura* (Fab.) infesting soybean	**Approved with following suggestion(s):** 1. Keep 10% dose for all the treatments 2. Add observations of leaf damage (%)

		(Action: Professor & Head, Department of Entomology, JAU, Junagadh)
21.3.3.57	Bio-efficacy of different insecticides against *Spodoptera litura* (Fab.) in soybean	**Approved with following suggestion(s):** 1. Record ancillary observations of other pests *(Action: Research Scientist (G'nut), Main Oilseeds Research Station, JAU, Junagadh)*
21.3.3.58	Bio-efficacy of ready-mix insecticides against pod borer, *Helicoverpa armigera* (Hub.) in chickpea	**Suggestion: Approved** *(Action: Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh)*
21.3.3.59	Effect of different biostimulants and biopesticides against garlic thrips	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of different biostimulants and biopesticides against garlic thrips' 2. Record ancillary observations of diseases, if observed any *(Action: Research Scientist (G&O), Vegetable Research Station, JAU, Junagadh)*
21.3.3.60	Effect of different biostimulants and biopesticides against onion thrips	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of different biostimulants and biopesticides against onion thrips' 2. Record ancillary observations of diseases, if observed any *(Action: Research Scientist (G&O), Vegetable Research Station, JAU, Junagadh)*
21.3.3.61	Management of insect-pest complex of pearl millet through seed treatment and foliar applications of bio-pesticides	**Approved with following suggestion(s):** 1. Delete T_8 2. Add observations of dead heart (%) *(Action: Research Scientist (Pearl Millet), Pearl Millet Research Station, JAU, Jamnagar)*
21.3.3.62	Efficacy of different insecticides against stem borer, *Chilo partellus* (Swinhoe) infesting fodder sorghum	**Approved with following suggestion(s):** 1. Delete no. of larva per plant from observations. *(Action: Associate Research Scientist, Grassland Research Station, JAU, Dhari)*
21.3.3.63	Management of grey mildew disease in cotton	**Suggestion: Approved** *(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)*
21.3.3.64	Study the epidemiology and yield loss assessment of blast disease of Pearl millet under natural condition	**Suggestion: Noted as AICRP trial** *(Action: Research Scientist (Pearl Millet), Pearl Millet Research Station, JAU, Jamnagar)*

21.3.3.65	Efficacy of different fungicides against anthracnose of mango	**Suggestion: Approved** *(Action: Research Scientist (FC), Agril. Research Station, JAU, Mahuva)*
21.3.3.66	Efficacy of different fungicides against powdery mildew of mango	**Approved with following suggestion(s):** 1. Replace T_4 with Penconazole *(Action: Research Scientist (FC), Agril. Research Station, JAU, Mahuva)*
21.3.3.67	Management of foliar fungal diseases of soybean	**Approved with following suggestion(s):** 1. Remove T_1 to T_5 treatments 2. Add treatment: carbendazim + mancozeb *(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)*
21.3.3.68	Impact of biochar on *Fusarium* wilt of cumin	**Approved with following suggestion(s):** 1. Add *Trichoderma viride* 5 kg per 500 kg FYM *(Action: Professor & Head, Department of Plant Pathology, JAU, Junagadh)*

ANAND AGRICULTURAL UNIVERSITY

Sr. No.	Title	Suggestion/s and Action
21.3.3.69	Impact of adjuvants on efficacy of *Metarhizium anisopliae* 2% WP against sucking insect-pests of okra	**Approved with following suggestion(s):** 1. Revise title as 'Impact of stickers on efficacy of *Metarhizium anisopliae* 2% WP against sucking insect-pests of okra' *(Action: Professor and Head, Dept. of Entomology, BACA, AAU, Anand)*
21.3.3.70	Evaluation of *Metarhizium anisopliae* 2% WP against sucking insect-pests of okra	**Approved with following suggestion(s):** 1. Dose of T_3 will be 60 g per 10 L water 2. Add concentration in each treatment *(Action: Principal Research Scientist, Biological Control Research Laboratory, AAU, Anand)*
21.3.3.71	Effect of adjuvants on efficacy of biopesticide *Metarhizium anisopliae* 2% WP against mango hopper	**Suggestion: Approved** *(Action: Principal Research Scientist, Biological Control Research Laboratory, AAU, Anand)*
21.3.3.72	Evaluation of *Metarhizium anisopliae* 2% WP against sucking insect-pests of cotton	**Approved with following suggestion(s):** 1. Take popular BG-II hybrid *(Action: Principal Research Scientist, Biological Control Research Laboratory, AAU, Anand)*

21.3.3.73	Evaluation of different modules against aphids infesting coriander	**Approved with following suggestion(s):** 1. Mention *Lecanicillium leccani* instead of *Verticillium leccani* 2. Remove seed treatment and NPK biofertilizers from module-II 3. Replace Indian mustard with white mustard *(Action: Assistant Professor and Head, Dept. of Plant Protection, CoH, AAU, Anand)*
21.3.3.74	Evaluation of bird attractants on predation of pod borer damaging chickpea	**Approved with following suggestion(s):** 1. Revise T_4: Bird perches (50 per ha.) *(Action: Ornithologist & Head, AINP VPM: Agril. Ornithology, AAU, Anand)*
21.3.3.75	Residue and persistence of propiconazole, difenoconazole and pydiflumetofen in blackgram	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.76	Residue and persistence of spinosad, indoxacarb and cybenzoxasulfyl in cabbage	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.77	Residue and persistence of emamectin benzoate, flonicamid, spinosad, indoxacarb, pyraziflumid, pyraclostrobin and cybenzoxasulfyl in chilli	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.78	Residue and persistence of metalaxyl-M, chlorothalonil and oxathiapiprolin in Kagzi lime	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.79	Residue and persistence of flonicamid, spinosad, emamectin benzoate, spirotetramat, lambda cyhalothrin, pydiflumetofen and propiconazole in cotton	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*

21.3.3.80	Residue and persistence of fipronil, flonicamid, pydiflumetofen and difenoconazole in cumin	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.81	Residue and persistence of isoprothiolane, picoxystrobin, azoxystrobin and benzovindiflupyr in paddy	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.82	Residue and persistence of propiconazole, difenoconazole, pydiflumetofen, chlorantraniliprole and acetamiprid in soybean	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule **(***Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.83	Residue and persistence of fipronil, flonicamid, pyraziflumid and pyraclostrobin in okra	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.84	Residue and persistence of oxathiapiprolin, azoxystrobin, spinosad, indoxacarb and cybenzoxasulfyl in tomato	**Approved with following suggestion(s):** 1. Remove second objective 2. Add sampling schedule *(Action: Residue Analyst, Pesticide Residue Laboratory, AAU, Anand)*
21.3.3.85	Evaluation of application techniques of insecticides against sucking pests in *Bt* cotton	**Approved with following suggestion(s):** 1. First spray should be done after 60 days of sowing 2. Take observation of shedding of square balls *(Action: Assistant Research Scientist (Ento.)/ Research Scientist & Nodal Officer (Seed), RRS, AAU, Anand)*
21.3.3.86	Evaluation of natural farming inputs against hairy caterpillar infesting urdbean	**Suggestion: Approved** *(Action: Assistant Research Scientist (Ento.)/ Research Scientist & Nodal Officer (Seed), RRS, AAU, Anand)*
21.3.3.87	Evaluation of natural farming inputs against leaf eating caterpillar infesting groundnut	**Suggestion: Approved** *(Action: Assistant Professor/ Principal, SMC olytechnic in Agriculture, AAU Anand)*

21.3.3.88	Impact of farmscaping on sucking pests complex infesting soybean and their associated natural enemies	**Suggestion: Not approved, Take a filler trial** *(Action: Assistant Professor & Head, Dept. of Entomology/ Principal, CoA, AAU, Jabugam)*
21.3.3.89	Evaluation of application techniques of pesticides against insect-pests and disease in rice	**Suggestion: Approved** *(Action: Assistant Research Scientist (Ento.)/ Research Scientist (Rice), MRRS, AAU, Nawagam)*
21.3.3.90	Evaluation of natural farming inputs against pest complex in maize	**Approved with following suggestion(s):** 1. Delete T_1 and T_4 2. Add NSKE 5% 3. Add tobacco decoction 2% 4. Revise title as 'Evaluation of natural farming inputs against insect-pests in maize' *(Action: Assistant Research Scientist (Ento.)/ Unit Head, MMRS, AAU, Godhra)*
21.3.3.91	Bio-efficacy of insecticides against gram pod borer, *Helicoverpa armigera* (Hubner) in chickpea	**Suggestion: Approved** *(Action: Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Derol)*
21.3.3.92	Evaluation of natural farming inputs against gram pod borer in chickpea	**Suggestion: Approved** *(Action: Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Derol)*
21.3.3.93	Evaluation of insecticides against major sucking pests of castor	**Approved with following suggestion(s):** 1. Keep need based sprays (maximum three) *(Action: Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Sansoli)*
21.3.3.94	Quantification and hyperspectral analysis of betasatellites associated with enation leaf curl disease in okra	**Approved with following suggestion(s):** 1. Add 300 diseased samples of okra in methodology *(Action: Professor and Head, Department of Plant Pathology, BACA, AAU, Anand)*
21.3.3.95	Evaluation of nematicides for the management of root-knot nematodes in okra	**Approved with following suggestion(s):** 1. Remove nematicides from the objective *(Action: Professor and Head, Department of Nematology, BACA, AAU, Anand)*
21.3.3.96	Efficacy of mycorrhizal fungi for management of root-knot nematodes, Meloidogyne spp. and root-rot disease complex in mungbean	**Approved with following suggestion(s):** 1. Record root rot incidence at flowering and harvesting stage *(Action: Professor and Head, Department of Nematology, BACA, AAU, Anand)*

21.3.3.97	Efficacy of bio-agents against root-knot nematodes, Meloidogyne spp. in bitter gourd	Suggestion: Approved *(Action: Professor and Head, Department of Nematology, BACA, AAU, Anand)*
21.3.3.98	Bioefficacy of Agniastra against root-knot nematode, *Meloidogyne incognita* under *in-vitro* condition	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of natural inputs against root-knot nematode, *Meloidogyne incognita* under *in-vitro* condition' 2. Revise all treatments as under: T_1: Agniastra 10% (Treated check) T_2: Agniastra without tobacco dust T_3: Agniastra without Neem leaves T_4: Agnistra without Green chilli T_5: Agnistra without Garlic T_6: Tap water (Untreated check) *(Action: Professor and Head, Department of Nematology, BACA, AAU, Anand)*
21.3.3.99	Evaluation of natural farming inputs against purple blotch and thrips in onion	**Approved with following suggestion(s):** 1. Add concentration in T_1, T_2, T_5, T_6 and T_8 *(Action: Asstt. Professor & Head, Department of Plant Protection, CoH, AAU, Anand)*
21.3.3.100	Management of tomato leaf curl disease and its vector through natural farming inputs in tomato	**Suggestion: Approved** *(Action: Associate Research Scientist (Ento.)/ Research Scientist (Veg.), MVRS, AAU, Anand)*
21.3.3.101	Evaluation of efficacy of nematode antagonists enriched vermicompost against root-knot nematodes in bidi tobacco under nursery and field conditions	**Approved with following suggestion(s):** 1. Correct cfu counts in treatments. *(Action: Associate Research Scientist (Nema.)/ Unit Officer, BTRS, AAU, Anand)*
21.3.3.102	Evaluation of efficacy of fungicides against Panama wilt in banana	**Approved with following suggestion(s):** 1. Add observation of per cent wilt disease incidence. 2. Revise title as 'Evaluation of fungicides against Panama wilt in banana'. *(Action: Asstt. Professor and Head, Department of Plant Pathology/ Principal, CoA, AAU, Jabugam)*

21.3.3.103	Evaluation of natural farming inputs against powdery mildew disease and aphid in Indian mustard	**Approved with following suggestion(s):** 1. Add concentration in all treatments 2. T_3: Cow urine 15% instead of 20% 3. Verify doses of all treatments *(Action: Asstt. Professor and Head, Department of Plant Pathology/ Principal, CoA, AAU, Vaso)*
21.3.3.104	Management of gray mold disease of castor using fungicides	**Approved with following suggestion(s):** 1. Revise title as 'Evaluation of fungicides against gray mold disease of castor'. *(Action: Assistant Research Scientist (Ento.)/ Unit Head, ARS, AAU, Sansoli)*
21.3.3.105	Evaluation of *Jeevamrit* against major diseases, insect-pests and yield of rice by using drone	**Suggestion: Not approved.** *(Action: Associate Research Scientist (Pl. Path.)/ Research Scientist (Rice), MRRS, AAU, Nawagam)*

21.4 HORTICULTURE & FORESTRY

Date & Venue: 12-14 May 2025 at NAU, Navsari

Chairman	Dr. Z.P. Patel, Hon'ble Vice Chancellor, NAU, Navsari
Co-Chairman	1. Dr. T. R. Ahlawat, Director of Research and Dean PGS, NAU, Navsari
	2. Dr. D. K. Varu, Principal and Dean, CoH, JAU, Junagadh
Rapporteurs	1. Dr. D. R. Bhanderi, NAU, Navsari
	2. Dr. M. J. Patel, AAU, Anand
	3. Dr. Manish Patel, SDAU, Sardarkrushinagar
	4. Prof. H. J. Senjaliya, JAU, Junagadh
Statistician	Dr. Yogesh Garade, NAU, Navsari

Summary

Name of University	No. of Recommendations				New Technical Programs	
	Farmers/Entrepreneurs / Industry		Scientific			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
NAU (Hort)	14	14	---	---	20	18
JAU	7+1*	6+1*	1	1	7+1*	6+1*
AAU	9	9	---	---	3	3
SDAU	12	12	---	---	7	6
NAU Forestry)	3	2	2	2	19	18
Total	**45 + 1***	**43 + 1***	**3**	**3**	**56+1***	**51+1***

*** Only for confirmation**

21.4.1 RECOMMENDATIONS FOR FARMING COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI (HORTICULTURE)

SN	Recommendations for Farmers Community
21.4.1.1	**Title: Effect of growing media on germination, growth and nutrient uptake of papaya seedlings raised in plug tray**
	Recommendation for farming community: The farmers/nurserymen are recommended to raise papaya seedling in plug tray having media of cocopeat + vermicompost + vermiculite + perlite (1:1:1:1 v/v) under naturally ventilated polyhouse to get more survival of plants. **Note:** • Plug tray having 40 cell, cell diameter: 5.5 cm and depth: 6.5 cm • Sow seed 1 to 2 cm deep in plug tray, apply light water and covered the plug tray with black plastic for 7 days and then re-open the plug tray. • After germination (17-18 days) drenching of Ridomil (Metalaxyl 4% + Manconzeb 64%) 2 g/1litre of water. • Plug tray should be dip in 0.25% nutrient solution (19:19:19 at 3rd and 5th week and 0:52:34 at 4th and 6th week) for 5 seconds. **ખેડૂત ઉપયોગી ભલામણ:** ખેડૂત/નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે પ્લગ ટ્રેમાં પપૈયાના છોડને તૈયાર કરવા કોકોપીટ + વર્મીકંમ્પોસ્ટ + વર્મીકયુલાઈટ + પરલાઈટ (૧:૧:૧:૧ કદના આધારે)ના મીડીયામાં કુદરતી હવા ઉજાસવાળા પોલીહાઉસમાં ઉછેરવાથી વધુ જીવંત છોડ મેળવી શકાય છે.

	નોંધ : • પ્લગ ટ્રે ૪૦ સેલવાળી,૫.૫ સે. મી. ઘેરાવો અને ૬.૫ સે. મી. ઉંડાઈવાળી લેવી. • બીજને પ્લગ ટ્રેમાં ૧ થી ૨ સે. મી. ઉંડે વાવી હળવું પિયત આપ્યા બાદ પ્લગ ટ્રેને કાળા પ્લાસ્ટિક વડે ૭ દિવસ સુધી ઢાંકી રાખી અને ત્યારબાદ ટ્રેને ખુલ્લી કરવી. • ઉગાવો મળ્યા બાદ (૧૭-૧૮ માં દિવસે) રીડોમીલ (મેટાલેક્ષિલ ૪% + મેન્કોઝેબ ૬૪%) ૨ ગ્રામ/લિ .પ્રમાણે ડ્રેન્ચીંગ કરવું. • પ્લગ ટ્રેને ૦.૨૫ %પોષક તત્વોના દ્રાવણમાં (૧૯:૧૯:૧૯ ની ત્રીજા અને પાંચમાં અને ૦:૫૨:૩૪ ની ચોથા અને છઠ્ઠા અઠવાડિયે) ૫ સેકન્ડ ડુબાડીને માવજત આપવી. **Recommendation approved as such** *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.1.2	**Title: Effect of fruit bagging and pre harvest chemical spray on fruit quality and shelf life of mango cv. Kesar under HDP**
	Recommendation for farming community: The farmers of Gujarat having HDP Kesar mango orchard are recommended to bag fruits at egg stage with butter paper bag (30 x 15 cm) and remove bag after 50 - 55 days then spray 2 % $CaCl_2$ (20 g/L) for increasing shelf life and getting good quality of fruits. **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં કેસર આંબાની ઘનિષ્ઠ વાવેતર વાડી ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ફળો ઈંડા જેવડા કદના થાય ત્યારે ફળ પર બટર પેપર બેગ (૩૦ x ૧૫ સે. મી.) ચડાવવી, ત્યાર બાદ ૫૦- ૫૫ દિવસે બેગ કાઢી ૨% કેલ્શિયમ ક્લોરાઈડ (૨૦ ગ્રામ/લી) નો છંટકાવ કરવાથી સારી ગુણવત્તા અને વધુ ટકાવ શક્તિવાળા ફળો મેળવી શકાય છે. **Recommendation is approved with following suggestions** 1. Table 1 should be written without statistical analysis *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.1.3	**Title: Intercropping of cole crops in banana cv. Grand Naine**
	Recommendation for farming community: The farmers of Gujarat cultivating banana crop after monsoon are recommended to take cauliflower as an intercrop for realising higher net income. Two rows of cauliflower (60 cm x 30 cm) should be planted in between two rows of banana by leaving 90 cm from both the sides of banana crop (2.4 m x 1.2 m.) This intercropping system increases the land use efficiency. **Note:** Banana crop should be planted in the first week of November and cauliflower as intercrop transplanted one month after banana plantation. Apply the recommended dose of fertilizer for banana (300:90:200 NPK g/plant) and for cauliflower (100:100:50 NPK kg/ha). **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં ચોમસા પછી કેળ પાકની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે આંતરપાક તરીકે ફુલેવર કરવાથી વધારે ચોખ્ખો નફો મળે છે. કેળ પાકની (૨.૪ મી. x ૧.૨ મી.) બે હાર વચ્ચે બંને બાજુથી ૯૦ સે.મી. જગ્યા છોડી ફુલેવરની (૬૦ સે.મી. x ૩૦ સે.મી.) રોપણી કરવી. આ આંતરપાક પધ્ધતિથી જમીનનો કાર્યક્ષમ ઉપયોગ વધે છે. **નોંધ :** કેળ પાકની રોપણી નવેમ્બરના પહેલા અઠવાડિયામાં અને ફુલેવર આંતરપાકની ફેર

	રોપણી કેળા રોપ્યાના એક મહિના પછી કરવી. ભલામણ કરેલ ખાતરનો જથ્થો કેળમાં (૩૦૦:૯૦:૨૦૦ ના.ફો.પો. ગ્રામ/છોડ) અને ફુલેવરમાં (૧૦૦:૧૦૦:૫૦ ના.ફો.પો. કિ.ગ્રા./હે.) આપવો. **Recommendation approved as such** *(Action: Principal, HP, NAU, Paria)*
21.4.1.4	**Title :Response of greenhouse cucumber to regulated irrigation and mulching**
	Recommendation for farming community: The farmers of Gujarat growing cucumber during summer season under naturally ventilated polyhouse are recommended to apply irrigation at 0.8 PEF level (18 to 20 min daily) with silver black polyethylene mulch (30 μ) for getting higher yield. Drip details for cucumber: Lateral spacing: 2.40 m; Dripper spacing: 0.60 m Dripper discharge: 4 lph; Operating pressure: 1.2 kg cm^{-2} **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં ઉનાળાની ઋતુમાં કાકડીની ખેતી કરતા ખેડુતોને કુદરતી હવા ઉજાસવાળા પોલીહાઉસમાં પાકની વધુ ઉપજ મેળવવા માટે ૦.૮ પીઇએફના (૧૮ થી ૨૦ મિનિટ રોજ) પ્રમાણમાં પિયત સાથે સિલ્વર-બ્લેક પોલિઇથિલીનનું (૩૦ μ) આવરણ કરવાની ભલામણમાં કરવામાં આવે છે. કાકડી પાક માટે ટપક વિગતો: લેટરલ: ૨.૪૦ મી ડ્રીપર અંતર: ૦.૬૦ મી ડ્રીપર દર: ૪ લી/ કલાક ચલાવવાનું દબાણ: ૧.૨ કિગ્રા/સેમી^{૨} **Recommendation approved as such** *(Action: Professor & Head, Vegetable Science, ACH, NAU, Navsari)*
21.4.1.5	**Title: Performance of yard long bean [*Vigna unguiculata* (L.) Walp. subspp. sesquipedalis (L.) Verdc.] in varying levels of plant density under NVPH**
	Recommendation for farming community: The farmers of Gujarat growing yard long bean during *kharif* season under naturally ventilated polyhouse are recommended to grow 1 plant per hill with spacing of 50 cm × 10 cm to get higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં ચોમાસાની ઋતુમાં લાંબી ચોળીની (યાર્ડલોંગ બીન) ખેતી કરતા ખેડૂતોને કુદરતી હવા ઉજાસવાળા પોલીહાઉસમાં વધુ ઉપજ અને ચોખ્ખુ વળતર મેળવવા માટે ખામણા દીઠ એક છોડ, ૫૦ સેમી × ૧૦ સેમીના અંતરે વાવવાની ભલામણ કરવામાં આવે છે. **Recommendation approved as such** *(Action: Professor & Head, Vegetable Science, ACH, NAU, Navsari)*
21.4.1.6	**Title: Effect of different sowing dates on growth, yield and quality of Kale under sub-humid tropics of south Gujarat**
	Recommendation for farming community: The farmers of South Gujarat are recommended to sow Kale (cv. Pusa Kale 64) seed in the third week of October in nursery and transplant at 25 to 30 day old seedling for getting higher yield and net income. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતના ખેડૂતોને ભલામણ કરવામાં આવે છે કેલ (પૂસા કેલ -૬૪

	જાત)ના બીજની વાવણી નર્સરીમાં ઓક્ટોબરના ત્રીજા અઠવાડિયામાં કરવી અને ૨૫ થી ૩૦ દિવસ ના છોડની ફેરરોપણી કરવાથી વધુ ઉત્પાદન તેમજ ચોખ્ખો નફો મળે છે. **Recommendation approved as such** *(Action: Principal, HP, NAU, Navsari)*
21.4.1.7	**Title: Effect of different type of mulches on growth, flowering and yield of cucumber var. Pusa Sanyog**
	Recommendation for farming community: The farmers of South Gujarat, growing cucumber during September/October month are recommended to mulch with 50µm silver polyethylene (covered with 70% area) before seed sowing along with recommended dose of fertilizers (100:60:60 NPK kg /ha) and stalking the vines for getting higher yield and net realization. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતમાં સપ્ટેમ્બર/ઓક્ટોબર મહિનામાં કાકડી ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, બીજની રોપણી પહેલા ૫૦ માઇક્રોન સિલ્વરપ્લાસ્ટીક (૭૦% વિસ્તારથી ઢંકાયેલ) નું આવરણ કરવું અને ભલામણ કરેલ ખાતર (૧૦૦:૬૦:૬૦ ના:ફો:પો કિ.ગ્રા./હે.) નો જથ્થો આપવા સાથે વેલાને ટેકા આપવથી વધુ ઉપજ અને ચોખ્ખો નફો મળે છે. **Recommendation approved as such** *(Action: Principal, HP, NAU, Paria)*
21.4.1.8	**Title: Effect of organic nutrition on growth and fruiting of brinjal on terrace garden**
	Recommendation for farming community: Terrace gardeners in urban and peri urban areas are recommended to spray of Novel organic liquid nutrients (1%) + Humic acid (1%) + Vermiwash (5%) at an interval of 15 days after one week of planting till the final harvest for higher yield in brinjal. **ખેડૂત ઉપયોગી ભલામણ:** ટેરેસ ગાર્ડનીંગ કરતા શહેરીજનોને રીંગણમાં વધુ ઉત્પાદન મેળવવા માટે રોપણીનાં અઠવાડિયા બાદ રોપણીથી અંતિમ વીણી સુધી નોવેલ ઓર્ગેનિક લીકવીડ ન્યુટ્રિયન્ટસ (૧%) + હ્યુમીક એસીડ (૧%) + વર્મીવોશ (૫%)નાં દ્રાવણને દર પંદર દિવસે છોડ ઉપર છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Recommendation approved as such** *(Action: Sr. Scientist & Head, KVK, Tapi)*
21.4.1.9	**Title: Optimization of micronutrient doses for aster**
	Recommendation for farming community: Farmers of Gujarat growing China aster are recommended to apply micronutrients *viz.,* Zn (2.5 kg/ha) + Mn (2.5 kg/ha) + B (1 kg/ha) + Fe (1.25 kg/ha) in soil at the time of planting along with FYM @ 20 t/ha + 180:120:60 kg NPK/ha as RDF and 200 kg of neem cake enriched with 1 kg of *Trichoderma harzianum* to get higher yield and net realization. Moreover, full dose of P and K should be applied as basal dose while N in three equal splits *viz.*, first dose as basal, second dose at pinching and third dose at one month after pinching. **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં ચાઈના એસ્ટરની ખેતી કરતા ખેડુતોને ભલામણ કરવામા આવે છે કે રોપણી સમયે જમીનમાં સુક્ષ્મતત્વો જેવા કે ઝીંક (૨.૫ કિ.ગ્રા./હે) + મેંગેનીઝ (૨.૫ કિ.ગ્રા./હે) + બોરોન (૧ કિ.ગ્રા./હે) + આયર્ન (૧.૨૫ કિ.ગ્રા./હે) આપવા સાથે ભલામણ

	કરેલ ખાતરમાં છાણીયું ખાતર @ ૨૦ટન/ હે. + ૧૮૦ :૧૨૦ : ૬૦ કિ.ગ્રા. ના.ફો.પો./હે. અને ૧ કિ.ગ્રા. ટ્રાયકોડર્મા હર્ઝીએનમથી ફળદ્રુપ કરેલ ૨૦૦ કિ.ગ્રા. લીંબોળીનો ખોળ આપવાથી ફૂલોનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે. વધુમાં ફોસ્ફરસ અને પોટાશનો પૂરો જથ્થો પાયાના ખાતર તરીકે અને નાઈટ્રોજન ને ત્રણ સરખા ભાગમાં જેમ કે પહેલો ભાગ પાયામાં, બીજો ભાગ અગ્રકલિકા ચૂંટાય ત્યારે અને ત્રીજો ભાગ અગ્રકલિકા ચૂંટણીના એક મહિના પછી આપવો. **Recommendation approved as such** *(Action: Professor & Head, FLA, ACH, NAU, Navsari)*
21.4.1.10	**Title: Standardization of planting time and geometry on growth and flowering of gaillardia (*Gaillardia pulchella* Foug.)**
	Recommendation for farming community: Farmers of South Gujarat are recommended to plant gaillardia at 45 cm x 45 cm spacing in the 1st week of January for getting higher production of flowers as well net realization. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતના ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ગેલાર્ડીયાને ૪૫ સે. મી. X ૪૫ સે. મી. અંતરે જાન્યુઆરી મહિનાના પહેલા અઠવાડિયામાં ફેરરોપણી કરવાથી ફૂલોનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Recommendation approved as such** *(Action: Professor & Head, FLA, ACH, NAU, Navsari)*
21.4.1.11	**Title: Effect of plant growth retardants on growth and flowering in pot Kalanchoe**
	Recommendation for farming community: Nurserymen and garden amateur are recommended to apply Cycocel at 750 ppm (750 mg/L) as foliar application on kalanchoe at 30 and 45 days after pot planting for obtaining compact plant growth, profuse flowers and better visual appearance. **Note:** Plastic pot size: 17 cm-top diameter, ht 13 cm Potting media: Cocopeat: sand: vermicomopost (7:2:1 v/v) Fertilizer application: NPK 19:19:19 @50 mg/L of 100 ml/pot (once in 15 days) NPK 13:0:45 @50 mg/L of 100 ml/pot (once in 15 days) **ખેડૂત ઉપયોગી ભલામણ:** નર્સરી અને બાગ બગીચાની સાથે સંકળાયેલાઓને ભલામણ કરવામાં આવે છે કે, કેલેનચોને કુંડામાં રોપણી કર્યાના ૩૦ અને ૪૫ દિવસે ૭૫૦ પી. પી. એમ.(૭૫૦ મી.ગ્રા./લી) સાયકોસીલ નો છંટકાવ કરવાથી છોડના ઘનિષ્ટ વિકાસ સાથે વધારે ફૂલો અને આકર્ષક છોડ ઉછેરી શકાય છે. **નોંધ:** કુંડાનું કદ : ૧૭ સે.મી. ટોચનો વ્યાસ અને ૧૩ સે.મી. ઉંચાઈ કુંડાનું માધ્યમ: કોકોપીટ : રેતી : વર્મીકમ્પોસ્ટ (૭: ૨: ૧ કદના આધારે) ખાતર: ૫૦ મી.ગ્રા. ૧૯:૧૯:૧૯ ના. ફો. પો. / લી ખાતર યુક્ત ૧૦૦ મીલી પાણી પ્રત્યેક છોડ દીઠ ૧૫ દિવસમાં એક વાર આપવું તથા ૫૦ મી.ગ્રા. ૧૩:૦૦:૪૫ ના. ફો. પો. /લી ખાતર યુક્ત ૧૦૦ મીલી પાણી પ્રત્યેક છોડ દીઠ ૧૫ દિવસમાં એક વાર આપવું. **Recommendation approved as such** *(Action: Professor & Head, FLA, ACH, NAU, Navsari)*

21.4.1.12	**Title: Standardization of N and K doses under fertigation in rose under NVPH**
	Recommendation for farming community: Farmers of Gujarat growing cut rose under naturally ventilated polyhouse are recommended to apply 300:100:100 mg/m^2/week NPK through fertigation to obtain higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં કુદરતી હવા ઉજાશ વાળા પોલી હાઉસમાં દાંડીવાળા ગુલાબ ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ગુલાબને દર અઠવાડિયે ૩૦૦:૧૦૦:૧૦૦ (ના:ફો:પો) મીલીગ્રામ પ્રતિ ચોરસ મીટર ખાતર ફર્ટીગેશન દ્વારા આપવાથી વધુ ફૂલોનું ઉત્પાદન અને વધુ ચોખ્ખો નફો મેળવી શકાય છે. **Recommendation approved as such** *(Action: Professor & Head, FLA, ACH, NAU, Navsari)*
21.4.1.13	**Title:Effect of different potting media on gerbera cultivation in NV polyhouse**
	Recommendation for farming community: Farmers of Gujarat growing gerbera under naturally ventilated polyhouse are recommended to use local black soil + leaf mold + rice husk + sand (2:2:1:1 v/v) as growing media for pot culture to obtain higher yield and better quality. **Note:** • Drenching 19:19:19 NPK-50 mg/l of 100 ml/pot (Monday every week) • Drenching 13:0:45 NPK-50mg/l of 100 ml/pot (Thursday every week) • Size of Pot : Height – 13 cm, Diameter – 19 cm **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં કુદરતી હવા ઉજાશ વાળા પોલી હાઉસમાં જર્બેરા ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, જર્બેરાને સ્થાનિક કાળી માટી + પાંદડાનું ખાતર + ડાંગરની કુશકી + રેતી (૨:૨:૧:૧ કદના આધારે) વાળા માધ્યમમાં કુંડામાં ઉગાડવાથી સારી ગુણવત્તા વાળા વધુ ફૂલોનું ઉત્પાદન મેળવી શકાય છે. **નોંધ:** • ૧૯:૧૯:૧૯ ના:ફો:પો - દર અઠવાડિયે સોમવારે ૫૦ મિલીગ્રામ/લિ સાંદ્રતાવાળું પાણી ૧૦૦ મિલી/કુંડા દીઠ આપવું. • ૧૩:૦૦:૪૫ ના:ફો:પો -દર અઠવાડિયે ગુરુવારે ૫૦ મિલીગ્રામ/લિ સાંદ્રતાવાળું પાણી ૧૦૦ મિલી/કુંડા દીઠ આપવું. • કુંડાની ઉંચાઈ – ૧૩ સેમી, કુંડાનો વ્યાસ – ૧૯ સેમી. **Recommendation approved as such** *(Action: Professor & Head, FLA, ACH, NAU, Navsari)*
21.4.1.14	**Title: Standardization of processing technology for dried *Kothimbda /Kachri* (*Cucumis callosus* (Rottl.) Cogn**
	Recommendation for farming community: Farmers, processors and entrepreneurs are recommended that *Kothimbda* fruit cutting into two halves and mixed with 14 per cent salt for 18 hrs followed by dipping it into buttermilk for 24 hrs then dried up to 4.5 ±0.3 per cent moisture in tray dryer at 65 ^{0}C for getting higher recovery. Dried *kachari* packed in HDPE bags of 400 gauges can be stored up to six months. **ખેડૂત ઉપયોગી ભલામણ:** ખેડૂતો, પ્રોસેસરો અને ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે, કોઠિમડાને બે ભાગ માં કાપી તેને ૧૪ ટકા મીઠાં માં ૨૪ કલાક ભેળવ્યા પછી તેને ૧૮ કલાક છાસમાં

	ડુબાડી રાખ્યા બાદ ટ્રે ડ્રાયરમાં ૬૫° સેલ્સિયસે ૪.૫ ± ૦.૩ ટકા ભેજ રહે ત્યા સુધી સુકવવાંથી વધારે રીકવરી મળે છે. સુક્વેલી કાચરીને ૪૦૦ ગેજ ની એચ.ડી.પી.ઈ. બેગ માં ૬ મહિના સુધી સંગ્રહ કરી શકાય છે. **Recommendation approved as such** *(Action: Professor & Head (Hort.), CoA, NAU, Bharuch)*

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21.4.1.15	**Title: Effect of different chemicals on flowering, yield and quality in mango (*Mangifera indica* L.) cv. Kesar**
	Recommendation for farmer community: The farmers of South Saurashtra Agro-Climatic Zone growing mango under high-density planting are recommended to spray salicylic acid 1500 ppm (1.5 g/l of water) at flowering stage and at two weeks after fruit set for obtaining higher yield and net profit. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્રના ખેત આબોહવાકીય વિસ્તારનાં ઘનિષ્ઠ વાવેતર પદ્ધતીથી આંબાનું વાવેતર કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ફૂલ અવસ્થાના શરૂઆતના તબક્કામા તેમજ ફળનુ બંધારણ થયાના બે અઠવાડીયા બાદ સેલિસીલીક એસીડ ૧૫૦૦ પી.પી.એમ. (૧.૫ ગ્રામ/લી. પાણી) નો છંટકાવ કરવાથી વધુ ઉપજ અને ચોખ્ખો નફો મળે છે. **Recommendation is approved with following suggestions:** 1. Check the fertilizer dose in Appendix-1 and calculate cost accordingly *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*
21.4.1.16	**Title: Effect of sarcotesta and time of sowing on seed germination and seedling growth of papaya (*Carica papaya*) cv. GJP 1**
	Recommendation for farmers community/ nurserymen: The farmers of Gujarat raising seedlings of papaya are recommended to soak the seeds for 24 hours in water followed by removal of sarcostesta (thin transparent layer) by gentle hand rubbing before sowing during the 1st week of June for getting higher germination and survival percentage of seedlings with net return. **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં પપૈયાના ધરું ઉછેર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ધરું તૈયાર કરવા માટે બીજને ૨૪ કલાક પાણીમાં પલાળી તેના પરના સરકોટેસ્ટાને (પાતળું પારદર્શક આવરણ) હળવા હાથે ઘસી દૂર કરી જૂન માસના પ્રથમ અઠવાડિયામાં વાવેતર કરવાથી વધુ ઉગાવો, વધારે જીવીત ધરું અને નફો મેળવી શકાય છે. **Recommendation approved as such** *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*
21.5.4.17	**Title: Effect of various locations on Green Dwarf and D x T coconut variety in Saurashtra region**
	Recommendation for farmers: The farmers of South Saurashtra Agro-Climatic Zone growing coconut cv. Green Dwarf and D x T are recommended to establish coconut orchard only in coastal region where average relative humidity is pertaining more than 70 %.

	ખેડૂત ઉપયોગી ભલામણ દક્ષિણ સૌરાષ્ટ્ર ખેત-આબોહવાકીય વિસ્તારના ખેડૂતોને ભલામણ કરવામાં આવે છે કે માત્ર દરિયા કાંઠાના વિસ્તાર કે જ્યાં સમગ્ર વર્ષ દરમ્યાન ભેજનું પ્રમાણ ૭૦ ટકા કરતા વધુ હોય ત્યાં જ નાળીયેરની ગ્રીન ડવાર્ફ અને ડી x ટી જાતની ખેતી કરવી. **Recommendation is approved with following suggestions:** 1. Use word "relation" instead of "correlation" in title of table no.9 *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*
21.5.4.18	**Title: Effect of various locations on D X T coconut variety in Saurashtra region**
	<u>Suggestions:</u> This recommendation is merged with 21.5.1.17 *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*
21.5.4.19	**Title: Effect of different growing media on growth and yield of cucumber under polyhouse condition**
	Recommendation for farmers community: The farmers of Gujarat growing parthenocarpic cucumber under naturally ventilated poly house are recommended to use grow bag with base media Soil + Vermicompost (1:1 v/v) to obtain higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** નેચરલી વેન્ટીલેટેડ પોલીહાઉસમાં પાર્થેનોકાર્પિક કાકડીની ખેતી કરતા ગુજરાતના ખેડુતોને ભલામણ કરવામાં આવે છે કે કાકડી ને માટી + વર્મિકમ્પોસ્ટ ખાતર (૧:૧ કદના આધારે) ના પ્રમાણ મૂજબ ગ્રો બેગમાં વાવેતર કરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Recommendation is approved with following suggestion:** 1. Check the yield data *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*
21.5.4.20	**Title: Effect of Biofertilizers on seedling growth of coconut (*Cocos nucifera* L.)**
	Recommendation for farming community: The farmers of Saurashtra region growing coconut seedlings are recommended to treat the coconut seeds with Azotobacter (minimum 1×10^8 cfu/gm) 100 ml + PSM (minimum 1×10^8 cfu/gm) 100 ml + Arbuscular Mycorrhiza (3000 IP/gm) 100 g per 10 liters of water for 24 hours before sowing and drenching in third and fifth month after sowing in 100 m^2 area to get good quality seedling and economical production. **ખેડૂત ઉપયોગી ભલામણ:** સૌરાષ્ટ્ર વિસ્તારના નાળીયેરીના રોપાઓ ઉછેરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે નાળીયેરીના બીજને એઝોટોબેક્ટર (ન્યુનત્તમ ૧×૧૦^{૮} સી.એફ.યુ./ગ્રામ) ૧૦૦ મિલી + પીએસએમ (ન્યુનત્તમ ૧×૧૦^{૮} સી.એફ.યુ./ગ્રામ) ૧૦૦ મિલી + અર્બસ્ક્યુલર માયકોરાઈઝા (૩૦૦૦ આઈ.પી. /ગ્રામ) ૧૦૦ ગ્રામ પ્રતિ ૧૦ લીટર પાણીમાં વાવ્યા પહેલા ૨૪ કલાક પલાળીને અને વાવ્યા બાદ ત્રીજા અને પાંચમાં મહિને ૧૦૦ મી^{૨}. વિસ્તારમાં ભીંજવીને માવજત આપવાથી સારી ગુણવત્તા અને અર્થક્ષમ ઉત્પાદન મળે છે. **Recommendation is approved with following suggestions** 1. Remove word: "biochemical changes" from title and recast the title 2. Correct economics 3. Remove biochemical observation *(Action: Research Scientist (Hort), ARS, JAU, Mahuva)*

21.4.1.21	**Title: Effect of pre-sowing treatment on seedling growth of coconut (*Coconut nucifera* L.) cv. T x D hybrid**
	Recommendation for Farmers: The farmers of South Saurashtra Agro-Climatic Zone growing coconut var. T X D are recommended to make a hole of 1.5 cm diameter at top part upto shell followed by water soaking for 10 days to get early germination. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્રના ખેત આબોહવાકીય વિસ્તારના હાઇબ્રીડ નાળીયેર (ટી x ડી)ની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે નાળીયેરીના રોપાનો વહેલો ઉગાવો મેળવવા માટે નાળીયેરમાં ઉપરના ભાગથી કાચલી સુધી ૧.૫ સેમીના વ્યાસનું કાણું પાડી ૧૦ દિવસ સુધી પાણીમાં ડુબાડી રાખવાની માવજત આપવી. **Recommendation approved as such** *(Action: Assistant Research Scientist, FRS, JAU, Mangrol)*
****	**Title: Study on preparation, packaging and storage of passion fruit (*Passiflora edulis* f flavicarpa Deg.) Nectar beverages**
	Recommendation for farming community (food entrepreneurs):- Farmers/ food processing entrepreneurs are recommended to store passion fruit nectar (17 ^{o}Brix) at ambient temperature by filling in PVC bottle can be kept safely up to three months with good quality. **ખેડૂત/ ફૂડ પ્રોસેસિંગ ઉદ્યોગ સાહસિકોને ભલામણ:** ખેડૂતો/ ફૂડ પ્રોસેસિંગ ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે, પેસન ફ્રુટના (જ્યુસ/પીણુ) નેક્ટર (૧૭ ^{0}બ્રિક્સ) ને પીવીસી બોટલમા ભરી સામાન્ય (રૂમ) તાપમાને સારી ગુણવત્તા સાથે ત્રણ માસ સુધી સલામતી પુર્વક સંગ્રહ કરી શકાય છે. **<u>Suggestions:</u>** 1. Presented for information of this house only *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*

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21.4.1.22	**Title: Effect of spacing on growth and yield of banana cv. Anand Vaaman**
	Recommendation for farming community: The farmers of Gujarat growing banana cv. Anand Vaaman are recommended to adopt either 1.8 m x 1.2 m (4630 plants/ ha) or 1.5 m x 1.5 m (4444 plants/ ha) spacing for getting higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** ગુજરાતમાં કેળની જાત આણંદ વામનની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન તથા આવક મેળવવા માટે ૧.૮ મી. X ૧.૨ મી. (૪૬૩૦ છોડ/હે.) અથવા ૧.૫ મી. X ૧.૫ મી. (૪૪૪૪ છોડ/હે.) અંતરે રોપણી કરવાની ભલામણ કરવામાં આવે છે. **Recommendation approved as such** *(Action: Assistant Research Scientist, ARS, COA, AAU, Jabugam)*

21.4.1.23	**Title: Effect of nitrogen, phosphorus and potash on growth and yield of brinjal cv. Anand Raj**
	Recommendation for farming community: The farmers of middle Gujarat agro-climatic zone growing brinjal cv. Anand Raj are recommended to apply 20 t/ha FYM as basal and 100:25:25 NPK kg/ha, of which 50 kg N, 25 kg P_2O_5 and 25 kg K_2O/ha as basal, while remaining 50 kg N applied in two equal splits at 21 DATP and at blooming stage for getting higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં આણંદ રાજ જાતના રીંગણની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે પ્રતિ હેકટરે પાયામાં ૨૦ ટન છાણીયું ખાતર તથા ૧૦૦:૨૫:૨૫ ના:ફો:પો આપવો, જે પૈકી ૫૦ કિ.ગ્રા. નાઈટ્રોજન, ૨૫ કિ.ગ્રા. ફોસ્ફરસ અને ૨૫ કિ.ગ્રા. પોટાશ/હે. પાયામાં આપવો જયારે બાકીનો ૫૦ કિ.ગ્રા. નાઈટ્રોજન/હે ફેરરોપણીના ૨૧ દિવસે તથા ફૂલ બેસવાની અવસ્થાએ બે સરખા હપ્તામાં આપવાની ભલામણ કરવામાં આવે છે. **Recommendation is approved with following suggestions** 1. Check the whether "diameter" or "girth" 2. Check economics table (Table 3-9) *(Action: Assistant Research Scientist, ARS, COA, AAU, Jabugam)*
21.4.1.24	**Title: Assessment of N, P, K and S requirement in garlic**
	Recommendation for farming community: The farmers of middle Gujarat agro-climatic zone growing garlic are recommended to apply 75:50:50:40 NPKS kg/ha. Among them, 25% N, 100% P_2O_5, 50% K_2O and 100% S/ha should be applied as basal and remaining 75% N applied in three equal splits at 25, 50 & 75 DAS and 50% K_2O kg/ha at 50 DAS for getting higher yield and net returns. Moreover, incorporate 5 t FYM/ha and 1 lit/ ha bio NPK during land preparation. **ખેડૂત ઉપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં લસણની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ૭૫:૫૦:૫૦:૪૦ ના.ફો.પો.સ. પ્રતિ હેક્ટરે આપવો. જે પૈકી પાયામાં ૨૫% નાઇટ્રોજન, ૧૦૦% ફોસ્ફોરસ, ૫૦% પોટાશ અને ૧૦૦% સલ્ફર પ્રતિ હેક્ટરે આપવો અને બાકીનો ૭૫% નાઇટ્રોજન વાવણી પછી ૨૫, ૫૦ અને ૭૫ દિવસે ત્રણ સરખા ભાગે અને ૫૦% પોટાશ ૫૦ દિવસ બાદ આપવાની ભલામણ કરવામાં આવે છે. વધુમાં રોપણી સમયે ૫ ટન છાણિયું ખાતર તથા ૧ લીટર પ્રતિ હેક્ટર બાયો એન.પી.કે જમીન તૈયાર કરતી વખતે આપવું. **Recommendation approved as such** *(Action: Asso. Res. Sci., Agricultural Research Station, AAU, Dahod)*

21.4.1.25	**Title: Feasibility of different vegetable crops as intercrop in sandalwood**
	Recommendation for farming community: The farmers of middle Gujarat Agro-climatic zone interested to grow Indian sandalwood plantation at 5.0 x 5.0 m distance are recommended to grow pigeon pea as vegetable intercrop at 90 x 60 cm distance (four lines between two lines of sandalwood) for better growth of sandalwood. **Note:** When field is vacant green manuring with sunhemp should be done. **ખેડૂત ઉપયોગી ભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચંદનની ૫.૦ x ૫.૦ મીટરના અંતરે ખેતી કરવા ઇચ્છતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ચંદનના વાવેતરમાં શાકભાજી તુવેરનું આંતરપાક તરીકે ૯૦ x ૬૦ સે.મી.ના અંતરે (ચંદનની બે હાર વચ્ચે ચાર લાઇન) લેવાથી ચંદનના ઝાડની વૃધ્ધિ સારી થાય છે. **નોંધ** : જ્યારે આંતરપાક ન હોય ત્યારે શણનો લીલો પડવાશ કરવો. **Recommendation is approved with following suggestion** 1. Remove sandal wood yield from Table no.7 2. Remove sandalwood crop equivalent yield of intercrop from Table 8 3. Remove Table no. 9 4. Recalculate the economics *(Action: Professor & Head, Department Horticulture, BACA, AAU, Anand)*
21.4.1.26	**Title: Effect of different growing media on crop sequence of broccoli - brinjal under terrace vegetable cultivation**
	Recommendation for farming community: People practicing kitchen gardening (terrace gardening) are recommended to grow broccoli (in winter) and brinjal (in summer) under 50% green shade net in green colour HDP grow bag of 12 x 12-inches using sandy loam soil + vermicompost + cocopeat (1:1:2 v/v) media for higher production. **Note:** • Drenching of 19-19-19 NPK (5 g/litre water) every 10 days • Drenching of 0.4% humic acid at 20 and 30 DAT in broccoli & brinjal • Drenching of 00-00-50 NPK (5 g/litre water) after curd initiation of broccoli. **ખેડૂત ઉપયોગી ભલામણ:** કિચન ગાર્ડન (ટેરેસ ગાર્ડન) માં શાકભાજી ઉગાડતા વ્યક્તિઓ ને ભલામણ કરવામાં આવે છે કે બ્રોકોલી (શિયાળામાં) અને રીંગણ (ઉનાળામાં) ૫૦% ગ્રીન શેડ નેટ માં ૧૨ x ૧૨ ઇંચની ગ્રીન કલર એચ.ડી.પી. ગ્રો બેગમાં ગોરાડુ માટી + વર્મીકમ્પોસ્ટ + કોકોપીટ (૧:૧:૨ કદના આધારે) માધ્યમમાં ઉગાડવાથી વધુ ઉત્પાદન મળે છે. **નોંધ:** • ૧૯ -૧૯-૧૯ ના-ફો-પો (૫ ગ્રામ / લિટર પાણી) દર ૧૦ દિવસે આપવું • ૦.૪ ટકા હુમિક એસિડ બ્રોકોલી અને રીંગણની ફેરરોપણીના ૨૦ અને ૩૦ દિવસે આપવું • ૦૦-૦૦-૫૦ ના-ફો-પો (૫ ગ્રામ/લિટર પાણી) બ્રોકોલીમાં દડા બેસવાની અવસ્થાએ આપવું.

	Recommendation is approved with following suggestions 1. Use word sandy loam soil instead of goradu soil 2. Correct the price of broccoli (Rs.100/kg/) and brinjal (30 Rs./kg) 3. Check data of plant height and number of branches *(Action: Principal, Seth D.M. Polytechnic in Horticulture, Vadodara, AAU)*
21.4.1.27	**Title: Effect of different growing media and fertilizer on palak on terrace vegetable cultivation**
	Recommendation for farming community: People practicing kitchen gardening (terrace gardening) are recommended to grow palak in winter season and use 18 x 6-inch grow bag with sandy loam soil + vermicompost + cocopeat (1:2:1 v/v) media. Then apply 19:19: 19NPK (5 g/bag) or Bio-NPK consortia (10 ml/bag) at the time of sowing, 15 days after sowing and then after every cutting for higher production. **ખેડૂત ઉપયોગી ભલામણ:** કિચન ગાર્ડન કરતા વ્યક્તિઓ ને ભલામણ કરવામાં આવે છે કે શિયાળાની ઋતુમાં પાલક ઉગાડવા માટે ૧૮ x ૬ ઈંચની ગ્રો બેગમાં માધ્યમ તરીકે ગોરાડુ માટી + વર્મીકમ્પોસ્ટ + કોકોપીટ (૧:૨:૧ કદના આધારે). ત્યારબાદ ખાતર તરીકે ૧૯:૧૯:૧૯ ના-ફો-પો (૫ ગ્રામ/ બેગ) અથવા બાયો એન.પી.કે કોન્સોર્ટીયા(૧૦ મિલી/ બેગ) ને વાવણી સમયે, વાવણી બાદ ૧૫ દિવસે અને ત્યાર બાદ દરેક કાપણી વખતે આપવાથી વધુ ઉત્પાદન મળે છે. **Recommendation approved as such** *(Action: Principal, Seth D.M. Polytechnic in Horticulture, Vadodara, AAU)*
21.4.1.28	**Title: Effect of different growing media and fertilizer on fenugreek on terrace vegetable cultivation**
	Recommendation for farming community: People practicing kitchen gardening (terrace gardening) are recommended to grow fenugreek in winter season and use 18 x 6-inch grow bag with sandy loam soil + vermicompost + cocopeat (1:1:2 v/v) media. Then apply 19:19:19 NPK (5 g/bag) or Rhizobium Bio-NP (10 ml/bag) at the time of sowing and 15 days after sowing for higher production **ખેડૂત ઉપયોગી ભલામણ:** કિચન ગાર્ડન(ટેરેસ ગાર્ડન) કરતા વ્યક્તિઓ ને ભલામણ કરવામાં આવે છે કે શિયાળાની ઋતુમાં મેથી ઉગાડવા માટે ૧૮ x ૬ ઈંચ ગ્રો બેગમાં માધ્યમ તરીકે ગોરાડુ માટી + વર્મીકમ્પોસ્ટ + કોકોપીટ (૧:૧:૨ કદના આધારે) વાપરવું. ત્યારબાદ ૧૯:૧૯:૧૯ ના-ફો-પો (૫ ગ્રામ/ બેગ) અથવા રાઈઝોબીયમ બાયો એનપી (૧૦ મિલી/ બેગ) ને વાવણી સમયે અને વાવણીનાં ૧૫ દિવસ પછી આપવાથી વધુ ઉત્પાદન મળે છે. **Recommendation approved as such** *(Action: Principal, Seth D.M. Polytechnic in Horticulture, Vadodara, AAU)*

21.4.1.29 **Title: Effect of integrated nutrient management on growth, yield and quality of onion**

Recommendation for farming community:

The farmers of middle Gujarat agro climatic zone cultivating onion in *rabi* season are recommended to apply recommended dose of fertilizer 75:60:50 NPK kg/ha, out of which, 25 % nitrogen (18.75 kg/ha) through vermicompost (Approx. 1.5 t) along with 100 % P_2O_5, 100 % K_2O and 40 kg/ha sulphur as a basal and remaining 75 % nitrogen (56.25 kg/ha) through chemical fertilizer at 30 days after transplanting.

ખેડૂત ઉપયોગી ભલામણ:

મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળુ ડુંગળીની ખેતી કરતા ખેડૂતોને વધારે ઉપ્તાદન મેળવવા ભલામણ કરેલ ખાતર ૭૫:૬૦:૫૦ ના. ફો. પો. કિ.ગ્રા./હે નો ૨૫% નાઈટ્રોજન (૧૮.૭૫ કિ.ગ્રા./હે.) અળસિયાનાં ખાતર દ્વારા (અંદાજીત ૧.૫ ટન) તથા ૧૦૦% ફોસ્ફરસ, ૧૦૦% પોટાશ તથા ૪૦ કિ.ગ્રા./ હે. સલ્ફર પાયાના ખાતર તરીકે અને બાકીનો ૭૫% નાઈટ્રોજન (૫૬.૨૫ કિ.ગ્રા./હે.) રાસાયણીક ખાતર દ્વારા રોપણીના ૩૦ દિવસ પછી આપવો.

Recommendation approved as such

(Action: Department of Veg. Sci., College of Horticulture, AAU, Anand)

21.4.1.30 **Title: Assessment of nutrient management modules in okra + cowpea - cabbage + fenugreek intercropping system**

Recommendation for farming community:

The farmers of middle Gujarat agro-climatic zone practicing intercropping system *i.e.* okra + cowpea (2:1) in *kharif* and cabbage + fenugreek (1:2) in *rabi* season are recommended to adopt any one of the following nutrient management module for obtaining higher yield, net returns ,good quality vegetables with improving soil health in terms of physicochemical and biological properties. Further, it also improves nutrients content and uptake by crops.

- Low cost Natural Farming Module *i.e.* Seed treatment with *Bijamrut; Ghan Jivamrut* 250 kg/ha + 250 kg FYM/ha soil application at sowing + *Jivamrut* 500 L/ha with irrigation at sowing and then after at monthly interval; *Achhadan* with wheat straw 5 t/ha

OR

- Integrated crop management module *i.e.* Seed treatment with *Trichoderma (20g/kg seeds)*; NPK 50% of RDF (50:25:25 kg NPK/ha for Okra, 10:20:00 kg NPK/ha for Cowpea, 100:50:25 kg NPK/ha for Cabbage, 20:10:00 kg NPK/ha for fenugreek) + 25% N through FYM as soil application at sowing + Bio NPK 1 L/ha with irrigation at sowing and at 30 DAS.

Details of Nutrient content:

Sr. No.	Crop	Recommended Dose of Fertilizer NPK (kg/ha)	50% of RDF NPK (kg/ha)	25% RDN through FYM (t/ha) (Approx.)	Rate and time of application NPK (kg/ha)
1	Okra	100-50-50	50-25-25	3.6	• 25 kg N, 25 kg P_2O_5 and 25 kg K_2O as basal • 25 kg N at 30 DAS

2	Cowpea	20-40-00	10-20-00	0.7	• 5 kg N and 10 kg P_2O_5 as basal • 5 kg N at 30 DAS
3	Cabbage	200-100-50	100-50-25	7.1	• 50 kg N, 50 kg P_2O_5 and 25 kg K_2O as basal • 50 kg N at 30 DAS
4	Fenugreek	40-20-00	20-10-00	1.4	• 10 kg N and 10 kg P_2O_5 as basal • 10 kg N at 30 DAS

ખેડૂત ઉપયોગી ભલામણ:

મધ્ય ગુજરાત ખેત-આબોહવાકીય વિસ્તારમાં આંતરપાક પદ્ધતિ શાકભાજીની ખેતી કરતા ખેડૂતોને ચોમાસામાં ભીંડા + ચોળી (૨:૧) અને શિયાળામાં કોબીજ + મેથી (૧:૨) દ્વારા વધુ ઉપજ, ચોખ્ખો નફો અને સારી ગુણવત્તાવાળા શાકભાજી મેળવવા તથા પાક દ્વારા પોષક તત્વોનું પ્રમાણ અને શોષણ સુધારવાં તેમજ ભૌતિક-રાસાયણિક અને જૈવિક ગુણધર્મોની દ્રષ્ટિએ જમીનના સ્વાસ્થ્યમાં સુધારો કરવા માટે નીચેનામાંથી કોઈપણ એક પદ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે.

- પ્રાકૃતિક ખેતી [બીજામૃત ૩૦૦ મિલી/૧ કિગ્રા બીજ સાથે બીજ માવજત; ઘન જીવામૃત ૨૫૦ કિગ્રા/હેક્ટર + વાવણી વખતે ૨૫૦ કિગ્રા છાણીયૂ ખાતર/હેક્ટર + જીવામૃત ૫૦૦ લિટર/હેક્ટર વાવણી વખતે પિયત સાથે અને પછી માસિક અંતરાલ ૫૨ + ૫ ટન/હેક્ટર ઘઉંના ભૂસાથી આચ્છાદન]

અથવા

- સંકલિત પાક વ્યવસ્થાપન [ટ્રાઇકોડર્માથી બીજ માવજત ૨૦ ગ્રા/કિલો બીજ; ના.ફો.પો.૫૦% આર.ડી.એફ. (૫૦:૨૫:૨૫ ના.ફો.પો. કિલો/હેક્ટર ભીંડા માટે, ૧૦:૨૦:૦૦ ના.ફો.પો. કિલો/હેક્ટર ચોળી માટે, ૧૦૦:૫૦:૨૫ ના.ફો.પો. કિલો/હેક્ટર કોબીચ માટે, ૨૦:૧૦:૦૦ ના.ફો.પો. કિલો/હેક્ટર મેથી માટે) + ૨૫% નાઇટ્રોજન છાણિયા ખાતર દ્વારા વાવણી સમયે + પિયત સાથે બાયો એન. પી. કે. ૧ લિટર/હેક્ટર વાવણી સમયે અને વાવણી પછી ૩૦ દિવસે]

પોષક તત્વોની વિગત:

અ.નં.	પાક	ભલામણ કરેલ ખાતરનુ પ્રમાણ ના. ફો.પો. (કિલો/હેક્ટર)	ભલામણ કરેલ ખાતરના પ્રમાણમાથી ૫૦ % ના.ફો.પો.	ભલામણ કરેલ ખાતરના પ્રમાણમાથી ૨૫% નાઇટ્રોજન છાંણિયા ખાતર	ખાતર આપવાનો જથ્થો અને સમય ના. ફો.પો. (કિલો /હેક્ટર)

			(કિલો/હેક્ટર)	દ્વારા (ટન /હેક્ટર) (અંદાજીત)	
૧	ભીંડા	૧૦૦-૫૦-૫૦	૫૦-૨૫-૨૫	૩.૬	• ૨૫ કિલો નાઇટ્રોજન, ૨૫ કિલો ફોસ્ફરસ અને ૨૫ કિલો પોટાશ પાયામાં • ૨૫ કિલો નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૨	ચોળી	૨૦-૪૦-૦૦	૧૦-૨૦-૦૦	૦.૭	• ૫ કિલો નાઇટ્રોજન, ૧૦ કિલો ફોસ્ફરસ પાયામાં • ૫ કિલો નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૩	કોબીજ	૨૦૦-૧૦૦-૫૦	૧૦૦-૫૦-૨૫	૭.૧	• ૫૦ કિલો નાઇટ્રોજન, ૫૦ કિલો ફોસ્ફરસ અને ૨૫ કિલો પોટાશ પાયામાં • ૫૦ કિલો નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ
૪	મેથી	૪૦-૨૦-૦૦	૨૦-૧૦-૦૦	૧.૪	• ૧૦ કિલો નાઇટ્રોજન, ૧૦ કિલો ફોસ્ફરસ પાયામાં • ૧૦ કિલો નાઇટ્રોજન વાવણીનાં ૩૦ દિવસ બાદ

Recommendation approved as such

(Action: College of Horticulture, AAU, Anand)

21.4.1.31 **Title: Effect of different spacing on growth, yield and quality of phalsa (*Grewia asiatica* L.)**

Recommendation for farming community:

The farmers of North Gujarat Agro climatic Zone IV cultivating phalsa are recommended to plant at 2 m x 1 m spacing for getting higher yield and net return.

ખેડૂત ઉપયોગી ભલામણ:

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪ ના ફાલસાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ૨ મી. x ૧ મી. ના અંતરે રોપણી કરવાથી વધુ ઉત્પાદન અને નફો મળે છે.

Recommendation approved as such

(Action: Prof. & Head, Dept. of Horti.,CPCA, Sardarkrushinagar)

21.4.1.32 **Title: Effect of growth regulators on germination and growth of acid lime (*Citrus aurantifolia* Swingle.) seedlings**

Recommendation for farming community:

The nurserymen are recommended to soak acidlime seeds in water before sowing in August month to get higher germination. Usage of GA_3 and NAA do not give any additional benefit in germination.

ખેડૂત ઉપયોગી ભલામણ:

નર્સરીધારકોને ભલામણ કરવામાં આવે છે કે લીંબુના બીજમાં વધુ અંકુરણ માટે ઓગષ્ટ માસમાં વાવણી પહેલા બીજને પાણીમાં પલાળી રાખવા. જીબ્રેલીક એસિડ અને નેપ્થેલીક એસિટીક એસિડના વપરાશથી અંકુરણમાં કોઇ વિષેશ વધારો થતો નથી.

Recommendation approved with following suggestions

1. Add data of 50 % germination for the year 2020-21 in table no.5

(Action: Prof. & Head, Dept. of Horti.,CPCA, Sardarkrushinagar)

21.4.1.33 **Title: Effect of fertigation on growth, yield and quality of acid lime (*Citrus aurantifolia* Swingle)**

Recommendation for farming community:

The farmers of North Gujarat Agro climatic Zone IV having acid lime orchard are recommended to apply recommended dose of FYM (50 kg/tree) and chemical fertilizer (900-750-500 g N-P_2O_5-K_2O/tree) as per schedule in five splits at an interval of one month starting from the second week of October in form of urea, water soluble fertilizer (12:61:00) and muriate of potash through fertigation for getting higher fruit yield, quality and net return.

Fertigation schedule

Stage	Quantity of fertilizers applied through drip at each stage (g/tree)		
	N (Urea)	P_2O_5 (12:61:00)	K_2O (MOP)
1. Second week of October	180.00 (310)	187.50 (310)	075.00 (125)
2. Second week of November	180.00 (310)	187.50 (310)	100.00 (170)
3. Second week of December	180.00 (310)	150.00 (250)	100.00 (170)
4. Second week of January	180.00 (310)	150.00 (250)	100.00 (170)
5. Second week of February	180.00 (310)	075.00 (120)	125.00 (200)
Total	900.00 (1550)	750.00 (1240)	500.00 (835)

ખેડૂત ઉપયોગી ભલામણ:

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪ ના લીંબુની વાડી ધરાવતા ખેડૂતોને

ભલામણ કરવામાં આવે છે કે લીંબુના પાકમાં ભલામણ કરેલ છાણીયું ખાતર (૫૦ કિ.ગ્રા/ઝાડ) અને રાસાયણિક ખાતરનો જથ્થો (૯૦૦-૭૫૦-૫૦૦ ગ્રામ ના:ફો:પો/ઝાડ) સમય પત્રક મુજબ ઓક્ટોબર માસના બીજા અઠવાડીયાથી શરુ કરી એક મહિનાના અંતરે પાંચ હપ્તામાં યુરિયા, પાણીમાં દ્રાવ્ય ખાતર (૧૨:૬૧:૦૦) અને મ્યુરેટ ઓફ પોટાશના રૂપમાં ફર્ટિગેશન દ્વારા આપવાથી વધુ ઉત્પાદન, સારી ગુણવત્તાવાળા ફળો અને નફો મળે છે.

ફર્ટિગેશન સમયપત્રક

ખાતર આપવાનો તબકકો	દરેક તબક્કે ટપક દ્વારા પ્રતિ ઝાડ આપવાના ખાતરોની માત્રા (ગ્રામ/ઝાડ)		
	નાઈટ્રોજન (યુરિયા)	ફોસ્ફરસ (૧૨:૬૧:૦૦)	પોટાશ (એમ.ઓ.પી.)
૧. ઓક્ટોબર માસનું બીજુ અઠવાડિયું	૧૮૦.૦૦ (૩૧૦.૦૦)	૧૮૭.૫૦ (૩૧૦.૦૦)	૭૫.૦૦ (૧૨૫.૦૦)
૨. નવેમ્બર માસનું બીજુ અઠવાડિયું	૧૮૦.૦૦ (૩૧૦.૦૦)	૧૮૭.૫૦ (૩૧૦.૦૦)	૧૦૦.૦૦ (૧૭૦.૦૦)
૩. ડિસેમ્બર માસનું બીજુ અઠવાડિયું	૧૮૦.૦૦ (૩૧૦.૦૦)	૧૫૦.૦૦ (૨૫૦.૦૦)	૧૦૦.૦૦ (૧૭૦.૦૦)
૪. જાન્યુઆરી માસનું બીજુ અઠવાડિયું	૧૮૦.૦૦ (૩૧૦.૦૦)	૧૫૦.૦૦ (૨૫૦.૦૦)	૧૦૦.૦૦ (૧૭૦.૦૦)
૫. ફેબ્રુઆરી માસનું બીજુ અઠવાડિયું	૧૮૦.૦૦ (૩૧૦.૦૦)	૭૫.૦૦ (૧૨૦.૦૦)	૧૨૫.૦૦ (૨૦૦.૦૦)
કુલ	૯૦૦.૦૦ (૧૫૫૦.૦૦)	૭૫૦.૦૦ (૧૨૪૦.૦૦)	૫૦૦.૦૦ (૮૩૫.૦૦)

Recommendation approved with following suggestions

1. Check S.Em± values in table 1 and 2
2. Write initial soil status data
3. Mention the details of drip system in methodology

(Action: Prof. & Head, Dept. of Horti., CPCA, Sardarkrushinagar)

21.4.1.34 **Title: Study of fertigation in mango under north Gujarat conditions**

Recommendation for farming community:

The farmers of North Gujarat Agro climatic Zone IV having mango orchard are recommended to apply recommended dose of FYM (100 kg/tree) and chemical fertilizer (750-160-750 g N-P_2O_5-K_2O/tree) in four equal splits in the first week of October, February, March and April months in form of urea, water soluble fertilizer (12:61:00) and muriate of potash through fertigation for getting higher fruit yield, quality and net return.

Stage	Quantity of fertilizers applied through fertigation at each stage (g/tree)		
	N (Urea)	P_2O_5 (12:61:00)	K_2O (MOP)

1. First week of October	187.50 (390)	40.00 (65)	187.50 (310)
2. First week of February	187.50 (390)	40.00 (65)	187.50 (310)
3. First week of March	187.50 (390)	40.00 (65)	187.50 (310)
4. First week of April	187.50 (390)	40.00 (65)	187.50 (310)
Total	750.00 (1560)	160.00 (260)	750.00 (1240)

ખેડૂત ઉપયોગી ભલામણ:

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪ ના આંબાની વાડી ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે આંબાના પાકમાં ભલામણ કરેલ છાણીયું ખાતર (૧૦૦ કિ.ગ્રા/ઝાડ) અને રાસાયણિક ખાતરનો જથ્થો (૭૫૦-૧૬૦-૭૫૦ ગ્રામ ના:ફો:પો/ઝાડ) ચાર સરખા હપ્તામાં ઓક્ટોબર, ફેબ્રુઆરી, માર્ચ અને એપ્રિલ માસના પ્રથમ અઠવાડિયામાં યુરિયા, પાણીમાં દ્રાવ્ય ખાતર (૧૨:૬૧:૦૦) અને મ્યુરેટ ઓફ પોટાશના રૂપમાં ફર્ટિગેશન દ્વારા આપવાથી વધુ ઉત્પાદન, સારી ગુણવત્તાવાળા ફળો અને નફો મળે છે.

ખાતર આપવાનો તબકકો	દરેકતબ્બકેફર્ટિગેશનદ્વારાપ્રતિઝાડઆપવાના રાસાયણિકખાતરોનુંપ્રમાણ (ગ્રામ/ઝાડ)		
	નાઈટ્રોજન (યુરિયા)	ફોસ્ફરસ (૧૨:૬૧:૦૦)	પોટાશ (એમ.ઓ.પી.)
૧. ઓક્ટોબર માસનું પહેલું અઠવાડિયું	૧૮૭.૫૦ (૩૯૦.૦૦)	૪૦.૦૦ (૬૫.૦૦)	૧૮૭.૫૦ (૩૧૦.૦૦)
૨. ફેબ્રુઆરી માસનું પહેલું અઠવાડિયું	૧૮૭.૫૦ (૩૯૦.૦૦)	૪૦.૦૦ (૬૫.૦૦)	૧૮૭.૫૦ (૩૧૦.૦૦)
૩. માર્ચ માસનું પહેલું અઠવાડિયું	૧૮૭.૫૦ (૩૯૦.૦૦)	૪૦.૦૦ (૬૫.૦૦)	૧૮૭.૫૦ (૩૧૦.૦૦)
૪. એપ્રિલ માસનું પહેલું અઠવાડિયું	૧૮૭.૫૦ (૩૯૦.૦૦)	૪૦.૦૦ (૬૫.૦૦)	૧૮૭.૫૦ (૩૧૦.૦૦)
કુલ	૭૫૦.૦૦ (૧૫૬૦.૦૦)	(૧૬૦.૦૦) (૨૬૦.૦૦)	(૭૫૦.૦૦) (૧૨૪૦.૦૦)

Recommendation approved with following suggestions

1. Add one more table on "Number of fruits per plant"
2. Mention the details of drip system in methodology

(Action: Prof. & Head, Dept. of Horti., CPCA, Sardarkrushinagar)

21.4.1.35 **Title: Effect of water dipping and time of planting on propagation of dwarf *tagar* (*Tabernaemontana divaricata*)**

Recommendation for farming community:

Farmers and nurserymen propagating dwarf tagar through hard/semi hardwood stem cutting under fan-pad polyhouse are recommended to dip the lower half end of defoliated cuttings in water for 20 days (change water twice a week) in the first week of July and then plant it in polybags to get better growth and a higher survival rate.

	ખેડૂત ઉપયોગી ભલામણ: ફેન-પેડ પોલીહાઉસમાં ડવાર્ફ ટગરનું કટકાથી પ્રસર્જન કરતા ખેડૂતો અને નર્સરી ધારકોને ભલામણ કરવામાં આવેછે કે, જુલાઇ મહિનાના પ્રથમ અઠવાડિયામાં ડવાર્ફ ટગરના કાષ્ઠમય/ અર્ધકાષ્ઠમય પાન દૂર કરેલા કટકાઓના નીચેના અર્ધા ભાગને વીસ દિવસ માટે પાણીમાં ડૂબોળ્યા બાદ (અઠવાડિયામાં બે વખત પાણી બદલવું) પોલીબેગમાં રોપવાથી સારી વૃદ્ધિવાળી મહત્તમ સફળ કલમો મળે છે. **Recommendation approved with following suggestions** 1. Write time of planting instead of cutting in title *(Action: Prof. & Head, Dept. of Horti., CPCA, Sardarkrushinagar)*
21.4.1.36	**Title: Effect of water dipping and time of planting on propagation of *hamelia* (*Hamelia patens*)**
	Recommendation for farming community: Farmers and nurserymen propagating hamelia through hard /semi hardwood stem cutting under fan-pad polyhouse, are recommended to immerse the lower half end of cuttings in water for 20 days (change water twice a week), in the first week of July, and then plant it in polybags to get better growth and a higher survival rate. **ખેડૂત ઉપયોગી ભલામણ:** ફેન-પેડ પોલીહાઉસમાં હેમેલિયાનું કટકાથી સંવર્ધન કરતા ખેડૂતો અને નર્સરી ધારકોને ભલામણ કરવામાં આવેછે કે, જુલાઇ મહિનાના પ્રથમ અઠવાડિયામાં હેમેલિયાના કાષ્ઠમય/ અર્ધકાષ્ઠમય પાન દૂર કરેલા કટકાઓના નીચેના અર્ધા ભાગને વીસ દિવસ માટે પાણીમાં ડૂબોળ્યા બાદ (અઠવાડિયામાં બે વખત પાણી બદલવું) પોલીબેગમાં રોપવાથી સારી વૃદ્ધિવાળી મહત્તમ સફળ કલમો મળે છે. **Recommendation approved with following suggestions** 1. Write time of planting instead of cutting in title *(Action: Prof. & Head, Dept. of Horti., CPCA, Sardarkrushinagar)*
21.4.1.37	**Title: High Density Planting in organic guava**
	Recommendation for farming community: The farmers of North Gujarat Agro climatic Zone IV growing organic guava cv. L 49 are recommended to plant guava grafts at spacing of 6 m x 3 m under high-density for higher yield and net profit. **ખેડૂત ઉપયોગી ભલામણ:** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૪માં જામફળની એલ ૪૯ જાતની સજીવ ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, જામફળને ઘનિષ્ટ ખેતીમાં ૬ મીટર x ૩ મીટરના અંતરે કલમો વાવવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Recommendation approved with following suggestions** 1. Mention the bahar treatment in note *(Action: Assistant Res. Scientist, FRS, Dehgam)*
21.4.1.38	**Title: Effect of different methods of grafting and hardening on muskmelon seedling production**
	Recommendation for farming community: Muskmelon growing farmers and nurserymen are recommended to adopt one day hardening of scion in shade net followed by grafting with slant cut method at 1 to 2 true leaf stage on bottle gourd rootstock in fan pad polyhouse for getting early sprouting and higher survival of graft.

	ખેડૂત ઉપયોગી ભલામણ: શક્કરટેટી ઉગાડતા ખેડૂતો અને નર્સરીધારકોને ભલામણ કરવામાં આવે છે કે, ઉપરોપને એક દિવસ માટે શેડનેટમાં હાર્ડનીંગ કર્યા બાદ ફેન પેડ પોલીહાઉસમાં ૧ થી ૨ ખરા પાન અવસ્થાએ દુધીના મૂળકાંડ ઉપર સ્લાન્ટ (ત્રાંસુ) કટ પદ્ધતિ દ્વારા કલમ કરવાથી વહેલી ફૂટ થાય છે અને વધુ જીવંત રોપા મળે છે. **Recommendation approved with following suggestions** 1. Add scion and rootstock variety name used in grafting *(Action: Pri. Sci. &Head, KVK, Banaskantha I, Deesa)*
21.4.1.39	**Title: Effect of different methods of grafting and hardening on watermelon seedling production**
	Recommendation for farming community: Watermelon growing farmers and nurserymen are recommended to adopt one day hardening of scion in shade net followed by grafting with slant cut method at 1 to 2 true leaf stage on bottle gourd rootstock in fan pad polyhouse for getting early sprouting and higher survival of graft. **ખેડૂત ઉપયોગી ભલામણ:** તડબૂચ ઉગાડતા ખેડૂતો અને નર્સરીધારકોને ભલામણ કરવામાં આવે છે કે, ઉપરોપને એક દિવસ માટે શેડનેટમાં હાર્ડનીંગ કર્યા બાદ ફેન પેડ પોલીહાઉસમાં ૧ થી ૨ ખરા પાન અવસ્થાએ દુધીના મૂળકાંડ ઉપર સ્લાન્ટ (ત્રાંસુ) કટ પદ્ધતિ દ્વારા કલમ કરવાથી વહેલી ફૂટ થાય છે અને વધુ જીવંત રોપા મળે છે. **Recommendation approved with following suggestions** 1. Add scion and rootstock variety name used in grafting *(Action: Pri. Sci. &Head, KVK, Banaskantha I, Deesa)*
21.5.1.40	**Title: Effect of different natural/organic substances and time of seed soaking on germination, survivability and growth of papaya seedling**
	Recommendation for farming community: Farmers and nurserymen's are recommended to soak papaya seed in Beejamrut (100%) solution for 12 hours and grow in plug tray under green shade net (50 %) for successful seedling production. **ખેડૂત ઉપયોગી ભલામણ:** ખેડૂતો તેમજ નર્સરીધારકોને ભલામણ કરવામાં આવે છે કે પપૈયાના બીજ ને બીજામૃત (૧૦૦%)ના દ્રાવણમાં ૧૨ કલાક સુધી પલાળ્યા બાદ લીલા રંગની શેડનેટ (૫૦%)ની અંદર પ્લગ ટ્રેમાં વાવીને સફળતાપૂર્વક ધરું ઉછેર કરી શકાય છે. **Recommendation approved with following suggestions** 1. Replace word organic with natural/organic in title of experiment *(Action: Pri. Sci. &Head, KVK, Banaskantha II, Deesa)*
21.4.1.41	**Title: Effect of different media on growth, yield and quality of microgreens**
	Recommendation for farming community: The people interested in microgreens are recommended to grow seeds of radish and palak in tray with growing media of cocopeat + vermiculite + perlite + vermicompost (3:2:1:1 v/v) for getting quality production of microgreens under ambient condition. **Note:** Use non treated seeds for sowing

	ખેડૂત ઉપયોગી ભલામણ: માઈક્રોગ્રીન્સ ઉગાડવામાં રસ ધરાવતાં લોકોને ભલામણ કરવામાં આવે છે કે, માઇક્રોગ્રીન્સનું ગુણવત્તાસભર વધુ મેળવવા માટે મૂળા અને પાલકના બીજને ટ્રેમાં કોકોપીટ+ વર્મીકયુલાઈટ+ પર્લાઈટ+ અળસિયા ખાતર (૩:૨:૧:૧ કદના આધારે)ના માધ્યમનો ઉપયોગ કરીને ઘરના સામાન્ય વાતાવરણમાં ઉગાડી શકાય છે. નોધ: વાવવા માટે માવજત વગરના બીજનો ઉપયોગ કરવો. **Recommendation approved as such** *(Action: Principal, College of Horticulture, SDAU, Jagudan)*
21.4.1.42	**Title: Intercropping study in African marigold with green onion**
	Recommendation for farming community: The African marigold cultivating farmers of North Gujarat Agroclimatic Zone-IV are recommended to intercrop 3 lines of onion at 15 cm apart as a green vegetable into the 60 cm row spacing of African marigold for obtaining higher African marigold yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** ઉત્તર ગુજરાત ખેતઆબોહવાકીય વિભાગ - ૪ ના હજારીગલની ખેતી કરતા ખેડૂતોને વધુ સમકક્ષ ઉત્પાદન અને વળતર મેળવવા હજારીગલની બે હાર વચ્ચેના ૬૦ સેંટીમીટરના ગાળામાં આંતરપાક તરીકે ડુંગળીની ત્રણ હાર ૧૫ સેંટીમીટરના અંતરે લીલા શાકભાજી તરીકે રોપણી કરવાની ભલામણ કરવામાં આવે છે. **Recommendation approved as such** *(Action: Principal, College of Horticulture, SDAU, Jagudan)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI (FORESTRY)

21.4.1.43	**Title: Development of volumetric equation for Bangali baval (*Acacia auriculiformis* A. Cunn. ex Benth.)**
	Recommendation for farmer community: The farmers, foresters and wood merchants of Gujarat can use volumetric equations: V= [0.000559 x D2.050] (R2 = 0.861 and RMSE = 0.244) (where V= Volume, m3 and D= DBH -Diameter at Breast Height, cm) for estimating volume of Bangali baval (*Acacia auriculiformis*) using tree diameter from 10 to 80 cm. The following local volume and carbon tables developed using equation V= [-0.143+ (0.001 x D x H) + (0.0000113 x D2 x H) + (0.0000092 x D x H2)] (R2 = 0.956 and RMSE = 0.149) (V=Volume, m3, D= DBH, cm and H=Height, m) can directly be used to find out stem volume and carbon content of Bangali baval standing trees. **Local volume table of Bangali Baval (*Acacia auriculiformis*) for South Gujarat condition**

			Tree Height (m)									
		Height Range	5-8 m	8-11 m	11-14 m	14-17 m	17-20 m	20-23 m	23-26 m	26-29 m	29-32 m	32-35 m
	DBH range	Mean Height/ Mean DBH	6.5 m	9.5 m	12.5 m	15.5 m	18.5 m	21.5 m	24.5 m	27.5 m	30.5 m	33.5 m
DBH (cm)	10-15 cm	12.5 cm		0.003	0.053	0.106	0.160	0.217				
	15-20 cm	17.5 cm		0.071	0.144	0.221	0.300	0.382	0.467			
	20-25 cm	22.5 cm	0.049	0.144	0.242	0.344	0.450	0.559	0.673	Volume in cubic meter (m^3)		
	25-30 cm	27.5 cm	0.102	0.222	0.347	0.476	0.610	0.749	0.892			
	30-35 cm	32.5 cm		0.306	0.459	0.618	0.781	0.951	1.125			
	35-40 cm	37.5 cm		0.395	0.578	0.767	0.963	1.164	1.372			
	40-45 cm	42.5 cm			0.704	0.926	1.155	1.390	1.633	1.883	2.140	2.403
	45-50 cm	47.5 cm			0.838	1.093	1.357	1.628	1.908	2.195	2.490	2.793
	50-55 cm	52.5 cm				1.270	1.570	1.879	2.196	2.523	2.858	3.201
	55-60 cm	57.5 cm				1.454	1.793	2.141	2.499	2.866	3.242	3.629
	60-65 cm	62.5 cm				1.648	2.027	2.416	2.815	3.224	3.644	4.075
	65-70 cm	67.5 cm					2.271	2.702	3.145	3.599	4.064	4.540
	70-75 cm	72.5 cm					2.525	3.001	3.489	3.989	4.500	5.024
	75-80 cm	77.5 cm						3.312	3.847	4.394	4.954	5.527

Note: Volume table was constructed using the formula
$V = a+bDH+cD^2H+dDH^2$; where a=-0.143, b=+0.001, c=0.0000113 and d=0.0000092

Local volume table of Bangali Baval (*Acacia auriculiformis*) for South Gujarat condition

			Tree Height (m)									
		Height Range	5-8 m	8-11 m	11-14 m	14-17 m	17-20 m	20-23 m	23-26 m	26-29 m	29-32 m	32-35 m
	DBH range	Mean Height/ Mean DBH	6.5 m	9.5 m	12.5 m	15.5 m	18.5 m	21.5 m	24.5 m	27.5 m	30.5 m	33.5 m
DBH (cm)	10-15 cm	12.5 cm		0.10	1.88	3.73	5.66	7.66				
	15-20 cm	17.5 cm		2.50	5.09	7.79	10.59	13.49	16.50			
	20-25 cm	22.5 cm	1.74	5.08	8.55	12.15	15.89	19.76	23.75	Volume in cubic feet (ft^3)		
	25-30 cm	27.5 cm	3.60	7.85	12.26	16.83	21.56	26.45	31.50			
	30-35 cm	32.5 cm		10.81	16.22	21.81	27.59	33.57	39.73			
	35-40 cm	37.5 cm		13.96	20.42	27.10	34.00	41.12	48.46			
	40-45 cm	42.5 cm			24.88	32.70	40.78	49.10	57.67	66.49	75.56	84.87
	45-50 cm	47.5 cm			29.58	38.61	47.92	57.51	67.37	77.51	87.93	98.63
	50-55 cm	52.5 cm				44.83	55.44	66.34	77.56	89.08	100.91	113.05
	55-60 cm	57.5 cm				51.36	63.32	75.61	88.24	101.20	114.50	128.14
	60-65 cm	62.5 cm				58.20	71.57	85.31	99.41	113.87	128.70	143.90
	65-70 cm	67.5 cm					80.19	95.43	111.06	127.09	143.51	160.33
	70-75 cm	72.5 cm					89.18	105.98	123.21	140.85	158.93	177.42
	75-80 cm	77.5 cm						116.96	135.84	155.17	174.95	195.19

Note: Volume table was constructed using the formula
$V = a + bDH + cD^2H + dDH^2$**;** where a=-0.143, b=0.001, c=0.0000113 and d=0.0000092

Carbon table of Bangali Baval (*Acacia auriculiformis*) for South Gujarat condition

			Tree Height (m)									
		Height Range	5-8 m	8-11 m	11-14 m	14-17 m	17-20 m	20-23 m	23-26 m	26-29 m	29-32 m	32-35 m
	DBH range	Mean Height/ Mean DBH	6.5 m	9.5 m	12.5 m	15.5 m	18.5 m	21.5 m	24.5 m	27.5 m	30.5 m	33.5 m
DBH (cm)	10-15 cm	12.5 cm		0.75	13.75	27.28	41.35	55.96				
	15-20 cm	17.5 cm		18.23	37.20	56.91	77.37	98.58	120.54			
	20-25 cm	22.5 cm	12.69	37.10	62.47	88.80	116.09	144.34	173.56			
	25-30 cm	27.5 cm	26.31	57.35	89.56	122.94	157.50	193.23	230.14	Carbon content (kg per tree)		
	30-35 cm	32.5 cm		78.98	118.47	159.35	201.61	245.26	290.30			
	35-40 cm	37.5 cm		102.01	149.21	198.01	248.42	300.43	354.04			
	40-45 cm	42.5 cm			181.77	238.93	297.92	358.72	421.34	485.77	552.02	620.09
	45-50 cm	47.5 cm			216.15	282.12	350.12	420.15	492.21	566.31	642.43	720.58
	50-55 cm	52.5 cm				327.56	405.02	484.72	566.66	650.85	737.28	825.95
	55-60 cm	57.5 cm				375.26	462.61	552.42	644.68	739.40	836.57	936.21
	60-65 cm	62.5 cm				425.23	522.90	623.25	726.27	831.96	940.32	1051.35
	65-70 cm	67.5 cm					585.89	697.22	811.43	928.53	1048.51	1171.37
	70-75 cm	72.5 cm					651.58	774.32	900.16	1029.10	1161.14	1296.28
	75-80 cm	77.5 cm						854.56	992.47	1133.69	1278.22	1426.07

ખેડૂત ઉપયોગી ભલામણ:

ગુજરાતના ખેડૂતો, વનપાલો અને લાકડાના વેપારીઓને ૧૦-૮૦ સેમી ધરાવતા બંગાળી બાવળના ઉભા વૃક્ષો ના કદના અંદાજ માટે કદદર્શક સમીકરણ: V = [૦.૦૦૦૫૫૯ x $D^{૨.૦૫૦}$] ($R^{૨}$ = ૦.૮૬૧ અને RMSE = ૦.૨૪૪) કરી શકે છે. સમીકરણ V=

[-૦.૧૪૩ + (૦.૦૦૧ x D x H) + (૦.૦૦૦૦૧૧૩ x $D^{૨}$ x H) + (૦.૦૦૦૦૦૯૨ x D x $H^{૨}$)] ($R^{૨}$ = ૦.૯૫૬ and RMSE = ૦.૧૪૯), દ્વારા ત્યાર કરેલા નીચે આપેલ સ્થાનિક કદદર્શક અને કાર્બનનું પ્રમાણ જાણવા માટે કોષ્ટક નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. જ્યાં V= કદ, ઘનમીટરમાં, D= ડી.બી.એચ., (ડાયામીટર એટ બ્રેસ્ટ હાઈટ, સેન્ટીમીટરમાં) અને H= ઊંચાઈ, મીટરમાં.

કોષ્ટક: દક્ષિણ ગુજરાત પરિસ્થિતિમાં ઉગાડવામાં આવેલ બંગાળી બાવળ ના વૃક્ષો માટે સ્થાનિક કદ-દર્શક કોષ્ટક

		વૃક્ષ ની ઊંચાઈ (મી)										
		ઊંચાઈની શ્રેણી	૫-૮ મી	૮-૧૧ મી	૧૧-૧૪ મી	૧૪-૧૭ મી	૧૭-૨૦ મી	૨૦-૨૩ મી	૨૩-૨૬ મી	૨૬-૨૯ મી	૨૯-૩૨ મી	૩૨-૩૫ મી
	ઘેરાવાની શ્રેણી	સરેરાશ ઊંચાઈ/ સરેરાશ ઘેરાવો	૬.૫ મી	૯.૫ મી	૧૨.૫ મી	૧૫.૫ મી	૧૮.૫ મી	૨૧.૫ મી	૨૪.૫ મી	૨૭.૫ મી	૩૦.૫ મી	૩૩.૫ મી
ઘેરાવાની શ્રેણી (સેમી)	૧૦-૧૫ સેમી.	૧૨.૫ સેમી.		૦.૦૦૩	૦.૦૫૩	૦.૧૦૬	૦.૧૬૦	૦.૨૧૭				
	૧૫-૨૦ સેમી.	૧૭.૫ સેમી.		૦.૦૭૧	૦.૧૪૪	૦.૨૨૧	૦.૩૦૦	૦.૩૮૨	૦.૪૬૭			
	૨૦-૨૫ સેમી.	૨૨.૫ સેમી.	૦.૦૪૯	૦.૧૪૪	૦.૨૪૨	૦.૩૪૪	૦.૪૫૦	૦.૫૫૯	૦.૬૭૩	ઘન મી. પ્રતિ વૃક્ષ દર્શાવામાં આવેલ છે		
	૨૫-૩૦ સેમી.	૨૭.૫ સેમી.	૦.૧૦૨	૦.૨૨૨	૦.૩૪૭	૦.૪૭૬	૦.૬૧૦	૦.૭૪૯	૦.૮૯૨			
	૩૦-૩૫ સેમી.	૩૨.૫ સેમી.		૦.૩૦૬	૦.૪૫૯	૦.૬૧૮	૦.૭૮૧	૦.૯૫૧	૧.૧૨૫			
	૩૫-૪૦ સેમી.	૩૭.૫ સેમી.		૦.૩૯૫	૦.૫૭૮	૦.૭૬૭	૦.૯૬૩	૧.૧૬૪	૧.૩૭૨			
	૪૦-૪૫ સેમી.	૪૨.૫ સેમી.			૦.૭૦૪	૦.૯૨૬	૧.૧૫૫	૧.૩૯૦	૧.૬૩૩	૧.૮૮૩	૨.૧૪૦	૨.૪૦૩
	૪૫-૫૦ સેમી.	૪૭.૫ સેમી.			૦.૮૩૮	૧.૦૯૩	૧.૩૫૭	૧.૬૨૮	૧.૯૦૮	૨.૧૯૫	૨.૪૯૦	૨.૭૯૩
	૫૦-૫૫ સેમી.	૫૨.૫ સેમી.				૧.૨૭૦	૧.૫૭૦	૧.૮૭૯	૨.૧૯૬	૨.૫૨૩	૨.૮૫૮	૩.૨૦૧
	૫૫-૬૦ સેમી.	૫૭.૫ સેમી.				૧.૪૫૪	૧.૭૯૩	૨.૧૪૧	૨.૪૯૯	૨.૮૬૬	૨.૯૬૬	૩.૬૨૯
	૬૦-૬૫ સેમી.	૬૨.૫ સેમી.				૧.૬૪૮	૨.૦૨૭	૨.૪૧૬	૨.૮૧૫	૩.૨૨૪	૩.૬૪૪	૪.૦૭૫
	૬૫-૭૦ સેમી.	૬૭.૫ સેમી.					૨.૨૭૧	૨.૭૦૨	૩.૧૪૫	૩.૫૯૯	૪.૦૬૪	૪.૫૪૦
	૭૦-૭૫ સેમી.	૭૨.૫ સેમી.					૨.૫૨૫	૩.૦૦૧	૩.૪૮૯	૩.૯૮૯	૪.૫૦૦	૫.૦૨૪
	૭૫-૮૦ સેમી.	૭૭.૫ સેમી.						૩.૩૧૨	૩.૮૪૭	૪.૩૯૪	૪.૯૫૪	૫.૫૨૭

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		વૃક્ષ ની ઊંચાઈ (મી)										
		ઊંચાઈની શ્રેણી	૫-૮ મી	૮-૧૧ મી	૧૧-૧૪ મી	૧૪-૧૭ મી	૧૭-૨૦ મી	૨૦-૨૩ મી	૨૩-૨૬ મી	૨૬-૨૯ મી	૨૯-૩૨ મી	૩૨-૩૫ મી
	ઘેરાવાની શ્રેણી	સરેરાશ ઊંચાઈ / સરેરાશ ઘેરાવો	૬.૫ મી	૯.૫ મી	૧૨.૫ મી	૧૫.૫ મી	૧૮.૫ મી	૨૧.૫ મી	૨૪.૫ મી	૨૭.૫ મી	૩૦.૫ મી	૩૩.૫ મી
ઘેરાવાની શ્રેણી (સેમી)	૧૦-૧૫ સેમી.	૧૨.૫ સેમી.		૦.૧૦	૧.૮૮	૩.૭૩	૫.૬૬	૭.૬૬				
	૧૫-૨૦ સેમી.	૧૭.૫ સેમી.		૨.૫૦	૫.૦૯	૭.૭૯	૧૦.૫૯	૧૩.૪૯	૧૬.૫૦			
	૨૦-૨૫ સેમી.	૨૨.૫ સેમી.	૧.૭૪	૫.૦૮	૮.૫૫	૧૨.૧૫	૧૫.૮૯	૧૯.૭૬	૨૩.૭૫	ઘન ફૂટ પ્રતિ વૃક્ષ		
	૨૫-૩૦ સેમી.	૨૭.૫ સેમી.	૩.૬૦	૭.૮૫	૧૨.૨૬	૧૬.૮૩	૨૧.૫૬	૨૬.૪૫	૩૧.૫૦			
	૩૦-૩૫ સેમી.	૩૨.૫ સેમી.		૧૦.૮૧	૧૬.૨૨	૨૧.૮૧	૨૭.૫૯	૩૩.૫૭	૩૯.૭૩			
	૩૫-૪૦ સેમી.	૩૭.૫ સેમી.		૧૩.૬૬	૨૦.૪૨	૨૭.૧૦	૩૪.૦૦	૪૧.૧૨	૪૮.૪૬			
	૪૦-૪૫ સેમી.	૪૨.૫ સેમી.			૨૪.૮૮	૩૨.૭૦	૪૦.૭૮	૪૯.૧૦	૫૭.૬૭	૬૬.૪૯	૭૫.૫૬	૮૪.૮૭
	૪૫-૫૦ સેમી.	૪૭.૫ સેમી.			૨૯.૫૮	૩૮.૬૧	૪૭.૬૨	૫૭.૫૧	૬૭.૩૭	૭૭.૫૧	૮૭.૬૩	૯૮.૬૩
	૫૦-૫૫ સેમી.	૫૨.૫ સેમી.				૪૪.૮૩	૫૫.૪૪	૬૬.૩૪	૭૭.૫૬	૮૯.૦૮	૧૦૦.૯૧	૧૧૩.૦૫
	૫૫-૬૦ સેમી.	૫૭.૫ સેમી.				૫૧.૩૬	૬૩.૩૨	૭૫.૬૧	૮૮.૨૪	૧૦૧.૨૦	૧૧૪.૫૦	૧૨૮.૧૪
	૬૦-૬૫ સેમી.	૬૨.૫ સેમી.				૫૮.૨૦	૭૧.૫૭	૮૫.૩૧	૯૯.૪૧	૧૧૩.૮૭	૧૨૮.૭૦	૧૪૩.૯૦
	૬૫-૭૦ સેમી.	૬૭.૫ સેમી.					૮૦.૧૯	૯૫.૪૩	૧૧૧.૦૬	૧૨૭.૦૯	૧૪૩.૫૧	૧૬૦.૩૩
	૭૦-૭૫ સેમી.	૭૨.૫ સેમી.					૮૯.૧૮	૧૦૫.૯૮	૧૨૩.૨૧	૧૪૦.૮૫	૧૫૮.૬૩	૧૭૭.૪૨
	૭૫-૮૦ સેમી.	૭૭.૫ સેમી.						૧૧૬.૯૬	૧૩૫.૮૪	૧૫૫.૧૭	૧૭૪.૯૫	૧૯૫.૧૯

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		વૃક્ષ ની ઊંચાઈ (મી)									
		ઊંચાઈની શ્રેણી	૫-૮ મી	૮-૧૧ મી	૧૧-૧૪ મી	૧૪-૧૭ મી	૧૭-૨૦ મી	૨૦-૨૩ મી	૨૩-૨૬ મી	૨૬-૨૯ મી	૨૯-૩૨ મી	૩૨-૩૫ મી
	ઘેરાવાની શ્રેણી	સરેરાશ ઊંચાઈ/ સરેરાશ ઘેરાવો	૬.૫ મી	૯.૫ મી	૧૨.૫ મી	૧૫.૫ મી	૧૮.૫ મી	૨૧.૫ મી	૨૪.૫ મી	૨૭.૫ મી	૩૦.૫ મી	૩૩.૫ મી
ઘેરાવાની શ્રેણી (સેમી)	૧૦-૧૫ સેમી.	૧૨.૫ સેમી.		૦.૭૫	૧૩.૭૫	૨૭.૨૮	૪૧.૩૫	૫૫.૬૬				
	૧૫-૨૦ સેમી.	૧૭.૫ સેમી.		૧૮.૨૩	૩૭.૨૦	૫૬.૬૧	૭૭.૩૭	૯૮.૫૮	૧૨૦.૫૪			
	૨૦-૨૫ સેમી.	૨૨.૫ સેમી.	૧૨.૬૯	૩૭.૧૦	૬૨.૪૭	૮૮.૮૦	૧૧૬.૦૯	૧૪૪.૩૪	૧૭૩.૫૬	કાર્બન કિલોગ્રામ પ્રતિ વૃક્ષ		
	૨૫-૩૦ સેમી.	૨૭.૫ સેમી.	૨૬.૩૧	૫૭.૩૫	૮૯.૫૬	૧૨૨.૯૪	૧૫૭.૫૦	૧૯૩.૨૩	૨૩૦.૧૪			
	૩૦-૩૫ સેમી.	૩૨.૫ સેમી.		૭૮.૯૮	૧૧૮.૪૭	૧૫૯.૩૫	૨૦૧.૬૧	૨૪૫.૨૬	૨૯૦.૩૦			
	૩૫-૪૦ સેમી.	૩૭.૫ સેમી.		૧૦૨.૦૧	૧૪૯.૨૧	૧૯૮.૦૧	૨૪૮.૪૨	૩૦૦.૪૩	૩૫૪.૦૪			
	૪૦-૪૫ સેમી.	૪૨.૫ સેમી.			૧૮૧.૭૭	૨૩૮.૬૩	૨૯૭.૬૨	૩૫૮.૭૨	૪૨૧.૩૪	૪૮૫.૭૭	૫૫૨.૦૨	૬૨૦.૦૯
	૪૫-૫૦ સેમી.	૪૭.૫ સેમી.			૨૧૬.૧૫	૨૮૨.૧૨	૩૫૦.૧૨	૪૨૦.૧૫	૪૯૨.૨૧	૫૬૬.૩૧	૬૪૨.૪૩	૭૨૦.૫૮
	૫૦-૫૫ સેમી.	૫૨.૫ સેમી.				૩૨૭.૫૬	૪૦૫.૦૨	૪૮૪.૭૨	૫૬૬.૬૬	૬૫૦.૮૫	૭૭૭.૨૮	૮૨૫.૯૫
	૫૫-૬૦ સેમી.	૫૭.૫ સેમી.				૩૭૫.૨૬	૪૬૨.૬૧	૫૫૨.૪૨	૬૪૪.૬૮	૭૩૯.૪૦	૮૩૬.૫૭	૯૩૬.૨૧
	૬૦-૬૫ સેમી.	૬૨.૫ સેમી.				૪૨૫.૨૩	૫૨૨.૯૦	૬૨૩.૨૫	૭૨૬.૨૭	૮૩૧.૯૬	૯૪૦.૩૨	૧૦૫૧.૩૫
	૬૫-૭૦ સેમી.	૬૭.૫ સેમી.					૫૮૫.૯૯	૬૯૭.૨૨	૮૧૧.૪૩	૯૨૮.૫૩	૧૦૪૮.૫૧	૧૧૭૧.૩૭
	૭૦-૭૫ સેમી.	૭૨.૫ સેમી.					૬૫૧.૫૮	૭૭૪.૩૨	૯૦૦.૧૬	૧૦૨૯.૧૦	૧૧૬૧.૧૪	૧૨૯૬.૨૮
	૭૫-૮૦ સેમી.	૭૭.૫ સેમી.						૮૫૪.૫૬	૯૯૨.૪૭	૧૧૩૩.૬૯	૧૨૭૮.૨૨	૧૪૨૬.૦૭

Recommendation approved as such

(Action: PI and HoD, SAF, CoF, NAU, Navsari)

21.4.1.44 **Title: Influence of pre-sowing treatments on germination and growth of seedlings of Biyo (*Pterocarpus marsupium* Roxb.)**

Recommendation for farmers community:

Farmers, foresters and nursery men are recommended to soak biyo fruits in GA_3 at 0.75 g/liter for 12 hrs before sowing for achieving higher seed germination and

	seedling growth in Biyo (*Pterocarpus marsupium*). **ખેડૂત ઉપયોગી ભલામણ:** ખેડૂતો, વનપાલો અને નર્સરીમાં રોપા ઉછેરનારાઓને ભલામણ કરવામાં આવે છે કે વાવેતર પહેલા બિયોના ફળો ને ૦.૭૫ ગ્રામ/લિટર જીબ્રેલિક એસિડના દ્રાવણમાં ૧૨ કલાક સુધી ડુબાળી રાખવાથી વધારે બીજ-અંકુરણ મળે છે તેમજ રોપાઓનો ઝડપી વિકાસ થાય છે. **Recommendation approved as such** *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.1.45	**Title: Radiation use efficiency of turmeric varieties under Ailanthus alley system in saline soils**
	Suggestion: The recommendation is not accepted and experiment is concluded. *(Action: PI and HoD, NRM, CoF, NAU, Navsari)*

21.4.2 SCIENTIFIC INFORMATION

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.4.2.1	**Title: Effect of different storage temperature on pollen viability of coconut cv. Green Dwarf**
	Scientific Information: The pollen grains of coconut var. Green Dwarf can be stored up to 303 days with good viability at -40 ^{o}C temperature, 272 days with good viability at -20 ^{o}C temperature, 226 days with good viability at 50 % RH in Desiccators at room temperature 194 days with good viability at -4 ^{o}C temperature and 135 days with good viability at room temperature. **Scientific information approved as such** *(Action: Principal & Dean, CoH, J.A.U., Junagadh)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI (FORESTRY)

21.4.2.2	**Title: Study of natural regeneration and stand structure of Khati chamol (*Bauhinia malabarica* Roxb.)**
	Scientific Information: In Vyara forest of south Gujarat, *Bauhinia malabarica* trees are closely associated with *Tectona grandis, Terminalia tomentosa, Miliusa tomentosa* and *Madhuca indica* with average density of 2.06 ha-1, basal area of 27.94 m^2 ha^{-1} and Importance value index of 34.65; however, the natural regeneration of *B. malabarica* was very poor. **Scientific information approved as such** *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.2.3	**Title: Studies on physico-anatomical and chemical properties of Candidate Plus Trees (CPTs) of *Melia dubia* Cav. for pulp and paper quality from South Gujarat**
	Scientific Information: CPTs (Candidate Plus Trees) of *Melia dubia*, CPT-21, CPT-18 and CPT-19 were found with higher basic density desirable for furniture purpose. CPT-18, CPT-30, CPT-1 and CPT-4 were found suitable for pulp and paper quality **Scientific information approved as such** *(Action: PI and HoD, FPU, CoF, NAU, Navsari)*

21.4.3 NEW TECHNICAL PROGRAMMES

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI (HORTICULTURE)

SN	Title	Suggestion/s
21.4.3.1	Effect of season on phenological and biochemical variation in mango	**Approved as such** *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.2	Effect of pollen suspension on fruit set and quality of dragon fruit	**Approved with following suggestions:** 1. Remove two factor *i.e* P_1 and P_3 from factor B 2. Add two more pollen varieties *i.e* Red flesh x White flesh and White flesh x Red flesh in factor A. *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.3	Effect of plant growth regulators on lateral shoot initiation in papaya	**Approved with following suggestions:** 1. Use variety GJP 1 as root stock and variety Red lady as scion *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.4	Study on comparative performance of natural and organic farming modules in Guava under different spacing	**Approved with following suggestions:** 1. Remove FYM from module -1. 2. Recast the different modules. *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.5	Bio-fortification in mango using Fe and Zn	**Approved with following suggestions:** 1. Remove treatment T_6. *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.6	Study on effect of diurnal temperature on mango production using RS and GIS	**Approved as such** *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.7	Canopy architecture of sapota orchard	**Approved with following suggestions:** 1. Modify the title as "Effect of pruning intensity on growth and yield of sapota". 2. Remove P_2 from Factor-2. 3. Light penetration should be taken at weekly interval. 4. Add one more quality parameter *i.e* Total sugar (%) *(Action: Assoc. Research Scientist, FRS, NAU, Gandevi)*
21.4.3.8	Forcing of flowering in mango through different chemicals	**Approved as such** *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.3.9	Effect of moisture stress and tillage on flowering and yield of mango	**Suggestion:** This experiment merged with experiment No. **21.5.3.10.** *(Action: Research Scientist, RHRS, ACH, NAU, Navsari)*
21.4.10	Soil moisture stress management in mango	**Approved with following suggestions:** 1. Add one more treatment *i.e* T_6 – Irrigation in October month at Navsari and Paria location. *(Action: Research Scientist, AES, NAU, Paria)*
21.4.3.11	Evaluation of medicinal plants as intercrop under cashewnut plantation	**Approved with following suggestions**: 1. Change variety of Isabgol *(Action: Professor & Head, PSMA, ACH, NAU, Navsari)*
21.4.3.12	Evaluation of medicinal plants as intercrop under coconut plantation	**Approved with following suggestions**: 1. Change variety of Isabgol *(Action: Professor & Head, PSMA, ACH, NAU, Navsari)*

21.4.3.13	Feasibility of arecanut as intercrop under coconut plantation	**Approved with following suggestions:** 1. Remove first objectives. 2. Take observations for coconut. *(Action: Professor & Head, PSMA, ACH, NAU, Navsari)*
21.4.3.14	Response of different organic sources on turmeric grown as intercrop under coconut garden	**Approved with following suggestions**: 1. Remove observations on length of leaves and breadth of leaves. *(Action: Professor & Head, PSMA, ACH, NAU, Navsari)*
21.4.3.15	Impact of growth substances and mulching on tomato during summer season under grow cover	**Approved with following suggestions**: 1. Write Total yield (t/ha) instead of Total yield (kg/ha). 2. Conduct at Location -Horticulture Polytechnic, Paria. 3. Add two names of scientist of Horticulture Polytechnic, Paria. *(Action: Professor & Head, Veg. Sci., ACH, NAU, Navsari)*
21.4.3.16	Effect of chemical4substances on seedling4growth and surviva4 of brinjal rootstok (*Solanum torvum*)	**Approved as such** *(Action: Professor & Head, Veg. Sci., ACH, NAU, Navsari)*
21.4.3.17	Multilayer planting of different vegetable crops under naturally ventilated polyhouse in south Gujarat conditions	**Approved with following suggestions:** 1. Clarify the yield observations. *(Action: Professor & Head, Veg. Sci., ACH, NAU, Navsari)*
21.4.3.18	Genotype screening of amaranthus for iron and ascorbic acid	**Approved with following suggestions:** 1. Replace with word Ascorbic acid with Vitamin-A in title. 2. Change the objective as "To evaluate the genotypes for Fe and Vit. A status of Amaranthus leaf vegetable" *(Action: Professor & Head, Veg. Sci., ACH, NAU, Navsari)*
21.4.3.19	Low-cost storage for gladiolus corms using different media	**Approved as such** *(Action: Professor & Head, FLA, ACH, NAU, Navsari)*
21.4.3.20	Effect of saline irrigation water on growth and yield of heliconia	**Not approved** *(Action: Professor & Head, Hort., NMCA, NAU, Navsari)*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

SN	Title	Suggestion/s
21.4.3.21	Evaluation of different varieties of mango under HDP condition	**Approved with following suggestions**: 1. Change fertilizer dose 750:160:750 g NPK/tree (10 x 10 M) 2. Convert the fertilizer dose as per spacing. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
21.4.3.22	Effect of girdling and paclobutrazol on induction of flowering in mango cv. Kesar	**Not approved** *(Action: Principal & Dean, CoH, JAU, Junagadh)*
21.4.3.23	Effect of mutagenic treatment in papaya	**Approved as such** *(Action: Principal & Dean, CoH, JAU, Junagadh)*
21.4.3.24	Effect of different growing media on	**Approved with following suggestions**:

	growth and yield of tomato under poly house condition	1. Remove observation on number of branches. 2. Remove treatment T_8. 3. Mention number of bags per treatment. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
21.4.3.25	Effect of INM and training on growth, yield and quality of tomato (*Solanum lycopersicon*) under protected cultivation	**Approved with following suggestions:** 1. Mention spacing as per paired row. 2. Shoot height should be mentioned in methodology *(Action: Principal & Dean, CoH, JAU, Junagadh)*
21.4.3.26	Effect of different type of mulches on growth, yield and quality of okra	**Approved with following suggestions**: 1. Use spacing- 45 x 30 cm 2. Use seed rate- 12-15 kg/ha. 3. Use NPK- 100-50-50 kg/ha 4. Remove observation on marketable fruit diameter and marketable fruit length. 5. Add one more observation - number of pickings. 6. Use variety- Anand Kranti. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
21.4.3.27	Optimizing banana macro propagation: A comparative study of natural inputs and artificial hormonal treatments	**Approved with following suggestions**: 1. Use saw dust as media instead of cocopeat. *(Action: Professor & Head, CoA, JAU, Junagadh)*
****	Development and evaluation of sapota pulp enriched *rabri*	**Approved with following suggestions**: 1. Write "addition of sugar as per treatment" instead of addition of sugar in flow chart. *(Action: Principal & Dean, CoH, JAU, Junagadh)*

ANAND AGRICULTURAL UNIVERSITY, ANAND

SN	Title	Suggestion/s
21.4.3.28	Nutrient management in guava cv. Lal bahadur	**Approved with following suggestions**: 1. Remove treatment N_3: 900 g/plant. 2. Add treatment P_1: 250 g/plant and P_2: 350 g/plant. 3. Add treatment K_1: 250 g/plant and K_2: 350 g/plant. *(Action: Professor & Head (Horti.), BACA, AAU, Anand)*
21.4.3.29	Effect of transplanting time and geometry on growth, flowering and yield of annual chrysanthemum cv. Local	**Approved with following suggestions:** 1. Growth parameters should be taken at last picking. 2. Treatment in Factor-A should be i. 1st week of October. ii. 3rd Week of October. iii. 1st week of November. 3. Delete "Note" from treatment details. *(Action: Professor & Head (Horti.), BACA, AAU, Anand)*
21.4.3.30	Effect of potting media on growth and flowering of orchid cv. Sonia 17 under naturally ventilated polyhouse	**Approved with following suggestions:** 1. Keep 10 plants per treatment. *(Action: Principal, College of Horticulture, A.A.U., Anand)*

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

SN	Title	Suggestion/s
21.4.3.31	Effect of pre-sowing treatments on germination of Borsali (*Mimusops elengi* L.)	**Not Approved** *(Action: Prof. & Head, Dept. of Horti., CPCA, SDAU)*
21.4.3.32	Intercropping of turmeric in mango	**Approved with following suggestions**: 1. Mentioned the age of tree. 2. Mention planting of plantlet in May month in methodology. *(Action: Assistant Res, Scientist, FRS, Dehgam)*
21.4.3.33	Effect of natural faming inputs and biochar on growth, yield and quality of Sapota	**Approved with following suggestions:** 1. Take Ghanjivamrut @ 40 kg/tree and 60 kg/tree in treatments. 2. Take biochar @ 5 kg/tree and biochar @ 10 kg/tree in treatments. 3. Use RBD design. 4. Biochar should be enriched with jivamrut. *(Action: Assistant Res, Scientist, FRS, Dehgam)*
21.4.3.34	Study of hybridization in date palm (*Phoenix dactylifera*)	**Approved as such** *(Action: Asso. Res. Sci., DPRS, Mundra)*
21.4.3.35	Evaluation of date palm pollen extraction methods	**Approved as such** *(Action: Asso. Res. Sci., DPRS, Mundra)*
21.4.3.36	Varietal trial of Lasoda	**Approved as such** *(Action: Res. Sci., Agroforestry Res. Station, SDAU)*
21.4.3.37	Natural farming in pomegranate in hast bahar	**Approved as such** *(Action: Res. Sci., Agroforestry Res. Station, SDAU)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI (FORESTRY)

Sr. No.	Title	Suggestion/s and Action
21.4.3.38	Development of volumetric equation for Mango (*Mangifera indica* L.) trees from orchards	**Approved as such** *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.3.39	Development of volumetric equation for Subabul (*Leucaena leucocephala* (Lam.) de Wit)	**Approved as such** *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.3.40	Influence of pre-sowing treatments on seed germination and early growth in seedlings of Patla [*Stereospermum chelonoides* (L.f.) DC.]	**Approved with following suggestions:** 1. Remove monthly observations. 2. Seedling growth and vigour parameters should be taken after 6 months of transplanting. 3. Use word "transplanting in polybag". *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*

21.4.3.41	Study of growth, biomass and volume productivity of *Melia dubia* Cav. under different spatial geometries in South Gujarat	**Approved with following suggestions:** 1. Delete second objectives on "Economics". 2. Correct spacing treatment in report. *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.3.42	Endozoochorous plant diversity in goat faeces from pens of South Gujarat	**Approved with following suggestions:** 1. Add descriptive statistical tool. *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.3.43	Effect of plant geometry and mulching on dwarf banana under *Ailanthus excelsa* based agroforestry system	**Proposed NTP withdrawn because Hon. VC, NAU, Navsari has suggested** Dean, College of Forestry to remove *Ailanthus* spp. plantation with other suitable agroforestry species. *(Action: PI and HoD, SAF, CoF, NAU, Navsari)*
21.4.3.44	Tree selection and progeny evaluation of Khati Chamol (*Bauhinia malabarica* Roxb.) at Nursery stage	**Approved with following suggestions**: 1. Remove monthly observations. 2. Seedling growth and vigour parameters should be taken after 6 months of transplanting. 3. Use word "transplanting in polybag" *(Action: PI and HoD, FBTI, CoF, NAU, Navsari)*
21.4.3.45	Clonal variation for wood mechanical strength properties in selected hybrid *Casuarina* clones	**Approved as such** *(Action: PI and HoD, FBTI, CoF, NAU, Navsari)*
21.4.3.46	Assessment of physical and biochemical properties of different floral honey	**Approved with following suggestions**: 1. Add one more treatment *i.e* Forest *(Action:PI and HoD, FPU, CoF, NAU, Navsari)*
21.4.3.47	Comparative evaluation of different analytical methods for the quantitative analysis of micronutrients in honey	**Approved as such** *(Action: PI and HoD, FPU, CoF, NAU, Navsari)*
21.4.3.48	Assessment of physical and mechanical properties of different bamboo species	**Approved as such** *(Action: PI and HoD, FPU, CoF, NAU, Navsari)*
21.4.3.49	Transforming lignocellulosic forest/agroforest waste material into valuable fuel through developing quality biomass briquettes	**Approved as such** *(Action: PI and HoD, FPU, CoF, NAU, Navsari)*
21.4.3.50	Turning lignocellulosic forest / agroforest waste	**Approved as such**

	into high-quality charcoal briquettes	*(Action: PI and HoD, FPU, CoF, NAU, Navsari)*
21.4.3.51	Effect of different salinity levels of irrigation water on Karanj [*Pongamia pinnata* (L.) Pierre] seedlings	**Approved with following suggestions**: 1. Change T_1 as Available water. 2. Observation should be taken at 6 months interval instead of monthly observations. 3. Remove word soil before EC and pH. 4. Write available NPK instead of available nutrients in observation *(Action: PI and HoD, NRM, CoF, NAU, Navsari)*
21.4.3.52	Assessment seasonal dynamics of vegetation phenology and soil moisture in the Dangs Forest using remote sensing	**Approved with following suggestion:** 1. Mention the number of soil samples should be taken. *(Action: PI and HoD, NRM, CoF, NAU, Navsari)*
21.4.3.53	Spatio-temporal pattern of land use land cover and its effects on land surface temperature using RS and GIS techniques in Navsari district of Gujarat, India	**Approved as such** *(Action: PI and HoD, NRM, CoF, NAU, Navsari)*
21.4.3.54	Remote Sensing-Based Mapping of Forest Canopy Height in The Dangs District of Gujarat, India	**Approved as such** *(Action: PI and HoD, NRM, CoF, NAU, Navsari)*
21.4.3.55	Monitoring resident and migratory avifauna in the wetlands of Navsari	**Approved as such** *(Action: PI and HoD, WLS, CoF, NAU, Navsari)*
21.4.3.56	Status and crop damage by wild ungulates in South Gujarat	**Approved as such** *(Action: PI and HoD, WLS, CoF, NAU, Navsari)*

21.5 AGRIL. ENGINEERING/FPT/PHT/AIT/FOOD TECH. & BIO ENERGY

Date & Venue: 12-14/05/2025, JAU, Junagadh

Chairman	Dr. V.P. Chovatia, Hon'ble Vice Chancellor, Junagadh Agricultural University Junagadh
Co-Chairmen	(1) Dr. R. Subbaiah, Dean (Agril. Engg.), CAET, AAU, Godhra (2) Dr. J. J. Dhaduk, Dean (Food Technology), SDAU, Sardarkrushinagar
Rapporteurs	(1) Dr. S.H. Sengar, Professor, NAU, Navsari (2) Dr. G.V. Prajapati, Professor, JAU, Junagadh (3) Dr. S.H. Akbari, Professor, AAU, Anand (4) Er. Umesh Dobariya, Assistant Professor, SDAU, Sardarkrushinagar
Statistician	Dr. Mayur Sitap, Assistant Professor, JAU, Junagadh

SUMMARY

Name of University	No. of Recommendations				New Technical Programmes	
	Farmers/Entrepreneurs / Industry		Scientific			
	Presented	Approved	Presented	Approved	Presented	Approved
AAU	06	06	05	05	18	13*
JAU	08	08	01	01	14	12**
NAU	05	04	02	02	15	14***
SDAU	04	04	00	0	00	00
Total	23	22	08	08	47	39

*01 merged, 02 dropped and 02 considered as filler trails;
**02 AICRP/filler trails;
*** 01 Differed

21.5.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY

21.5.1.1	**Design and development of solar powered pellet machine for biogas slurry** **Recommendation:** Pellet machine manufactures are recommended to develop and minimum 2HP capacity solar pumping system holders are also recommended to use the solar powered pellet machine developed by Anand Agricultural University for fertilizer purpose. The developed machine performs pelleting operation using 10 mm die diameter with feed mixture of 60 % biogas slurry, 25 % loamy soil and 15 % biochar powder for fertilizer purpose and can be saved about 50 % cost for pelleting operation as compared to existing pellet machine. **ભલામણ:** પેલેટ મશીન ઉત્પાદકોને અને ઓછામાં ઓછા 2HP ક્ષમતાના સોલાર પમ્પિંગ સિસ્ટમ વાપરતા ધારકોને પણ આણંદ કૃષિ યુનિવર્સિટી દ્વારા ખાતરના હેતુ માટે વિકસાવવામાં આવેલ સૌર ઉર્જા સંચાલિત પેલેટ મશીનનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. વિકસાવવામાં આવેલ પેલેટ મશીનને ૧૦ એમ. એમ.

	વ્યાસવાળા બીબામાં ૬૦% બાયોગેસ રબડી (સ્લરી), ૨૫% ગોરાડુ માટી અને ૧૫% બાયોચારના મિશ્રણ દ્વારા બનેલ પેલેટનો ખાતર માટે ઉપયોગ કરી શકાય તેમજ બજારમાં મળતા પેલેટ મશીનની સરખામણીએ ૫૦% ખર્ચની બચત કરી શકાય છે. **House approved the recommendation with following suggestions** 1) Recast the text of recommendation. 2) Mention the diameter of the die in the recommendation text. *[Action: PI & HOD, Dept. of REE, CAET, AAU, Godhra]*
21.5.1.2	**Production technology of ready to eat extruded snack from Aonla pomace powder** **Recommendation**: The entrepreneurs and processors interested in production of ready to eat extruded product by utilization of Aonla pomace are recommended to use the technology developed by Anand Agricultural University. This technology involved dehydration of pomace at 70° C and extrusion of with 5 % aonla pomace with 80 % corn flour and maintaining 15 % moisture at a screw speed of 325 rpm and 115 °C barrel temperature. The prepared product can be stored upto 90 days at ambient conditions in aluminum laminates / LDPE (50-micron thickness) at 30 °C. **ભલામણ**: આમળા કુચા (પોમેસ) નો ઉપયોગ કરીને રેડી-ટૂ-ઈટ ઉત્પાદનોના ઉત્પાદનમાં રસ ધરાવતા ઉદ્યોગકારો અને પ્રોસેસરોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસિત ટેક્નોલોજીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે .આ ટેક્નોલોજીમાં કુચા (પોમેસ)ને ૭૦° સે. તાપમાને ડિહાઇડ્રેશન કરી અને તેમાંથી ૫% પોમેસને ૮૦% મકાઈના લોટ અને ૧૫% ભેજ સાથે મિશ્રિત કરી ૧૧૫° સે. બેરલ તાપમાને ૩૨૫ આરપીએમની સ્ક્રુ ગતિએ તેને એક્સટ્રુઝન કરવામાં આવે છે. તૈયાર કરેલ ઉત્પાદનને એલ્યુમિનિયમ લેમિનેટ/એલ.ડી.પી.ઈ. (૫૦ માઈક્રોન જાડાઈ) માં ૩૦° સે. તાપમાને ૯૦ દિવસ સુધી સંગ્રહિત કરી શકાય છે. **House approved the recommendation with following suggestions** 1) Check the statistical analysis and change Anova table 2) Recast the recommendation and show the proportion of ingredients in form of table 3) Write "ઉદ્યોગકારો અને પ્રોસેસરો" in Gujarati recommendation *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.1.3	**Development of reduced sugar aonla beverage utilizing stevia** **Recommendation:** The entrepreneurs and processors interested in the production of aonla beverage using sugar and stevia are advised to adopt processing technology developed for the purpose by the Anand Agricultural University, Anand. The

	technology involves the water blanching of aonla fruits at 95°C for 4 min and formulation of the beverage at 20 % aonla juice, 20 % sugar and 0.75 % stevia extract followed by thermal processing at 90 °C for 1 min. The developed beverage can be stored safely upto 60 days at the ambient condition. **ભલામણ:** આમળા રસ આધારીત ખાંડ અને સ્ટેવિયા મિશ્રિત પીણાનાં ઉત્પાદનમાં રસ ધરાવતા ઉદ્યોગકારો અને પ્રોસેસરો ને આણંદ કૃષિ વિશ્વવિદ્યાલય, આણંદ ધ્વારા વિકસાવવામાં આવેલ તાંત્રિકતાનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ તાંત્રિકતામાં આમલા ફળને પાણીમાં ૯૫ ૦સે. તાપમાને ૪ મિનીટ બ્લાન્ચીંગ કરી પીણું બનાવવા માટે ૨૦ ટકા આમળાનો રસ, ૨૦ ટકા ખાંડ અને ૦.૭૫ ટકા સ્ટેવિયા એક્ષટ્રેકટ મિશ્રિત કરી ૯૦ ૦સે. તાપમાને ૧ મિનીટ પ્રક્રિયા કરી તૈયાર કરવામાં આવે છે. આ રીતે તૈયાર થયેલ પીણાને ૬૦ દિવસ સુધી સામાન્ય તાપમાને સંગ્રહી શકાય છે. **House approved the recommendation with the following suggestion** 1) Write entrepreneur and processor in English paragraph and "ઉદ્યોગકારો અને પ્રોસેસરો" in Gujarati recommendation text *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.1.4	**Standardization of drying technology for bael leaves powder** **Recommendation:** The entrepreneurs and processors interested in the production of bael leaves powder are recommended to use the technology developed by Anand Agricultural University, Anand. The bael leaves dried using the green house dryer having temperature range 45-50 °C and at 40 % RH produces dried bael leaves powder with higher content of phenol, flavanoid and antioxidant activity as compared to product obtained by tray dryer and fluidized bed dryer at the 50, 60, 70 °C temperature. The bael leaves powder packed in aluminum laminated bags can be stored for 180 days in ambient temperature. **ભલામણ:** બીલાના પાનનો પાવડર બનાવવા માટે રસ ધરાવતા ઉધોગકારો અને પ્રોસેસરોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવવામાં આવેલ તાંત્રિકતાનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. ૫૦,૬૦ અને ૭૦ °સે. તાપમાને ટ્રે ડ્રાયર અને ફ્લૂડાઈઝડ બેડ ડ્રાયરમાં બનાવેલ પાઉડર કરતા ૪૦ થી ૫૦ °સે. તાપમાન અને ૪૦% સાપેક્ષ ભેજ ધરાવતા ગ્રીનહાઉસ ડ્રાયરમા બનાવેલ

	બીલા પાનનો પાઉડરમાં ફીનોલ, ફ્લેવેનોઈડ અને એન્ટીઓક્સિડન્ટ એકટીવીટી વધારે પ્રમાણમાં માલુમ પડેલ છે. આ પાઉડરને એલ્યુમિનિયમ લેમીનેટેડ બેગમાં રૂમ તાપમાને ૧૮૦ દિવસ સુધી સંગ્રહ કરી શકાય છે. **House approved the recommendation with the following suggetions** 1) Write entrepreneur and processor in English paragraph and "ઉદ્યોગકારો અને પ્રોસેસરો" in Gujarati paragraph 2) Replace the word "રૂમ તાપમાન" instead of "વાતાવરણ" *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.1.5	**Supercritical fluid extraction of cumin seed essential oil** **Recommendation:** Entrepreneurs and agro-processing units involved in the production of superior quality of cumin seed extract are advised to use the supercritical fluid extraction technology developed by Anand Agricultural University, Anand. The technology involves liquid nitrogen cryogenic grinding of cumin seeds to sieve size 0.8 mm, followed by super critical fluid extraction using carbon dioxide, keeping pressure 325 bar, temperature 40 °C and dynamic time of 120 min which yielded 11.52% cumin seed extract. The cryoground cumin seed extract had 48.84 mg gamma terpinene and 155.09 mg cumin aldehyde per 100 g. **ભલામણ:** જીરુના ઉત્કૃષ્ટ ગુણવત્તા ધરાવતા અર્કના ઉત્પાદન સાથે સંકળાયેલા ઉદ્યોગ-સાહસિકો અને કૃષિ-પ્રક્રિયા એકમોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ સુપરક્રીટિકલ નિષ્કર્ષણ પદ્ધતિનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે .પ્રવાહી નાઇટ્રોજન કાયોજેનિક ગ્રાઇન્ડીંગ પદ્ધતિ દ્વારા જીરુનો પાવડર ૦.૮ મીમી ચાળણી દ્વારા ચાળી, સુપરક્રીટિકલ કાર્બન ડાયોક્સાઈડ નિષ્કર્ષણ વડે ૩૨૫ બારના દબાણે, ૪૦ °સે. તાપમાને અને ૧૨૦ મિનટના ડાયનેમિક સમય પર રાખવાથી ૧૧.૫૨ %અર્કનું નિષ્કર્ષણ કરી શકાય છે. આ પ્રક્રિયાથી મળેલ ૧૦૦ ગ્રામ અર્કમાં ૪૮.૮૪ મિલિગ્રામ ગામા ટર્પિનીન અને ૧૫૫.૦૯ મિલિગ્રામ ક્યુમીનલડીહાઇડ હોય છે. **House approved the recommendation** *[Action: PI & HOD, Dept. of FSQA, CFPTBE, AAU, Anand]*
21.5.1.6	**Development of Nutri bar using popped kodo and finger millet** **Recommendation:** The entrepreneurs and food processors interested in production of popped millet nutri bar are recommended to use the technology developed by the Anand Agricultural University. The technology involves mixing of popped kodo millet (10% conditioned), popped finger millet (10% conditioned), date syrup, peanut butter and whey protein concentrate (80% protein) and molding. Developed nutri bar contain 1.25% ash, 17.32% protein, 5.09% total fibre, 5.74% fat, 212.10 mg/ml total phenol and 37.64% (mg/100g) total antioxidant activity and can be stored for 90 days in laminated aluminium pouch at ambient temperature.

Ingredients	Amount, (g)
Popped Kodo millet	30
Popped finger millet	10
Date syrup	30
Peanut butter	10
Whey protein concentrate (80% protein)	20

ભલામણ:

ન્યુટ્રીબાર બનાવવા ઇચ્છતા ઉદ્યોગસાહસિકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ તાંત્રિકતાનો ઉપયોગ કરવા ભલામણ કરવામાં આવે છે. આ તાંત્રિકતામાં કોદરીની ધાણી (૧૦% ભેજ), રાગીની ધાણી (૧૦% ભેજ), ખજૂરનું સીરપ, પીનટ બટર અને વ્હે પ્રોટીન કોન્સન્ટ્રેટ (૮૦% પ્રોટીન) ને મિક્ષ કરી, મોલ્ડમાં આકાર આપવો. આ ન્યુટ્રીબાર ૧.૨૫% એશ, ૧૭.૩૨% પ્રોટીન, ૫.૦૯% રેસા, ૫.૭૪% ફેટ, ૨૧૨.૧૦ મી.ગ્રા./મી.લી. ટોટલ ફીનોલ અને ૩૭.૬૪ મિગ્રા/૧૦૦ ગ્રામ ટોટલ એન્ટીઓક્ષીડન્ટ એક્ટીવિટી ધરાવે છે. જેને એલ્યુમીનીયમ લેમીનેટેડ પાઉચમાં પેક કરી રૂમ તાપમાને ૯૦ દિવસ સંગ્રહિત કરી શકાય છે.

સામગ્રી	પ્રમાણ, (ગ્રામ)
કોદરીની ધાણી	૩૦
રાગીની ધાણી	૧૦
ખજૂરનું સીરપ	૩૦
પીનટ બટર	૧૦
વ્હે પ્રોટીન કોન્સન્ટ્રેટ (૮૦% પ્રોટીન)	૨૦

House approved the recommendation with the following suggestions

1) Write the word "ધાણી" in place of "પોપ કોદરી" the recommendation text
2) Recast the recommendation and show the proportion of ingredients in form of table

[Action: PI & Principal, PFSHE, CFPTBE, AAU, Anand]

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21.5.1.7 **Performance of broccoli under different cultivation methods.**

Recommendation:

The farmers of South Saurashtra Agro Climatic Zone are recommended to adopt raised bed (bed size: top width :50 cm, bottom width: 70 cm, height: 10 cm and spacing between two bed:90cm) land configuration with silver black plastic mulch (25 micron) and drip irrigation (16 mm lateral spaced at 90 cm,

	dripper of 2 lph discharge spaced at 40 cm) for broccoli cultivation during the *rabi* season to obtain higher yield,water use efficiency and net return. **<u>ખેડૂતઉપયોગી ભલામણ:</u>** આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને ભલામણ કરવામાં આવે છે કે, શિયાળુ ઋતુમાં બ્રોકોલીનું વાવેતર ગાદી ક્યારા (ગાદીની ઉપરની પહોળાઈ:૫૦ સેમી, નીચેની પહોળાઈ: ૭૦ સેમી, ઉંચાઈ: ૧૦ સેમી અને બે ગાદી વચ્ચે ૯૦ સેમીનું અંતર) બનાવી સિલ્વર બ્લેક પ્લાસ્ટિક મલ્ચ (૨૫ માઈક્રોન) સાથે ટપક સિંચાઈ પધ્ધતિ (૯૦ સેમી અંતરે ૧૬ મીમી લેટરલ, ડ્રીપર પ્રવાહ દર: ૨ લી/કલાક અને ૪૦ સેમી અંતરે ડ્રીપર)અપનાવવાથી વધુ ઉત્પાદન, કાર્યક્ષમ પાણી વપરાશ અને ચોખ્ખું વળતર મેળવી શકાય છે. **House approved the recommendation with following suggestion** 1) Add drip lateral spacing in the recommendation text *[Action: HoD, REE, CAET, JAU, JUNAGADH]*
21.5.1.8	**Extraction of Peanut Protein Isolate from partially defatted peanut flour by Modifying Iso-electric Precipitation Method.** **Recommendation:** Industrialists are recommended to adopt a process technology developed by Junagadh Agricultural University for the production of protein isolate from partially defatted peanut flour. In this technique, peanut protein isolate is obtained by mixing the partially defatted peanut flour with water and enzyme at specific alkaline extraction pH and sonicated followed by incubation at specific condition. Then acid precipitation using HCl was done followed by freeze drying. With this, isolate recovery, protein yield and protein content are obtained as 59.17%, 89.99% and 91.25 %, respectively. **ભલામણ :** **આંશિક ડીફેટેડ પીનટ ફ્લોરમાંથી પ્રોટીન આઇસોલેટ બનાવવાની મોડીફાઈડ આઈસો-ઇલેક્ટ્રિક પ્રેસીપીટેશન પદ્ધતિ** ઉદ્યોગકારોને જુનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ આંશિક ડીફેટેડ પીનટ ફ્લોરમાંથી પ્રોટીન આઇસોલેટ બનાવવાની તકનીકને ઉપયોગમાં લેવા ભલામણ કરવામાં છે. આ તકનીકમાં આંશિક ડીફેટેડ પીનટ ફ્લોરને પાણીના મિશ્રણમાં ઉત્સેચકને ઉમેરી નિયત સાંદ્રતામાં અલ્કાલાઈન પીએચ પર નિયત તાપમાન અને સમય માટે સોનીકેટ કરી ઇન્ક્યુંબેટ કર્યા બાદ હાઇડ્રોક્લોરિક એસીડ દ્વારા પ્રોટીન અવક્ષેપન કરી ફ્રીઝ ડ્રાઇંગ કરવામાં આવે છે. આ તકનીક દ્વારા આઈસોલેટ પ્રાપ્તિ, પ્રોટીનની ઉપજ અને પ્રોટીનની માત્રા અનુક્રમે ૫૯.૧૭%, ૮૯.૯૯% અને ૯૧.૨૫ % મળે છે. **House approved the recommendation with following suggestion** 1) Recast the recommendation *[Action: HoD, PFE, CAET, JAU, JUNAGADH]*

21.5.1.9	**Extraction of Peanut Protein Isolate from partially defatted peanut flour Iso-electric Precipitation Method using organic acids.** **Recommendation:** Industrialists are recommended to adopt a process technology developed by Junagadh Agricultural University for the production of protein isolate from partially defatted peanut flour. In this technique, peanut protein isolate is obtained by mixing the partially defatted peanut flour with water and enzyme at specific alkaline extraction pH and sonicated followed by incubation at specific condition and precipitated using organic acid. The precipitation using citric acid resulted in isolate recovery, protein yield and protein content as 55.71%, 86.56% and 93.14% respectively. The precipitation using ascorbic acid resulted in isolate recovery, protein yield and protein content as 55.71%, 82.89% and 89.80%, respectively. The precipitation using acetic acid resulted in isolate recovery, protein yield and protein content 52.48%, 73.17% and 82.48%, respectively. **ભલામણ :** **આંશિક ડીફેટેડ પીનટ ફ્લોરમાંથી પ્રોટીન આઇસોલેટ બનાવવાની જૈવિક એસીડ આધારિત મોડીફાઈડ આઈસો-ઇલેક્ટ્રિક પ્રેસીપીટેશન પદ્ધતિ** ઉદ્યોગકારોને જુનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ આંશિક ડીફેટેડ પીનટ ફ્લોરમાંથી પ્રોટીન આઇસોલેટ બનાવવાની તકનીકને ઉપયોગમાં લેવા ભલામણ કરવામાં છે. આ તકનીકમાં આંશિક ડીફેટેડ પીનટ ફ્લોર અને પાણીના મિશ્રણમાં ઉત્સેચકને નિયત સાંદ્રતામાં ઉમેરી અલ્કાલાઈન પીએચ પર નિયત તાપમાન અને સમય માટે સોનીકેટ કરી ઇન્ક્યુંબેટ કર્યા બાદ અલગ અલગ જૈવિક એસીડ દ્વારા પ્રોટીન અવક્ષેપન કરી ફ્રીઝ ડ્રાઇંગ કરવામાં આવે છે આ પદ્ધતિમાં સાઇટ્રીક એસીડ અવક્ષેપન દ્વારા આઈસોલેટ પ્રાપ્તિ, પ્રોટીનની ઉપજ અને પ્રોટીનની માત્રા અનુક્રમે ૫૫.૭૧%, ૮૬.૫૬% અને ૯૩.૧૪ %; એસ્કોર્બિક એસીડ અવક્ષેપન દ્વારા આઈસોલેટ પ્રાપ્તિ, પ્રોટીનની ઉપજ અને પ્રોટીનની માત્રા અનુક્રમે ૫૫.૭૧%, ૮૨.૮૯% અને ૮૯.૮૦%; તેમજ એસિટીક એસીડ અવક્ષેપન દ્વારા આઈસોલેટ પ્રાપ્તિ, પ્રોટીનની ઉપજ અને પ્રોટીનની માત્રા અનુક્રમે ૫૨.૪૮%, ૭૩.૧૭% અને ૮૨.૪૮% મળે છે. **House approved the recommendation** *[Action: HoD, PFE, CAET, JAU, JUNAGADH]*
21.5.1.10	**Study on preparation, packaging and storage of Passion fruit (*Passifloraedulis f. flavicarpa Deg.*) nectar beverages.** **Recommendation:** Farmers/ food processing entrepreneurs are recommended to store passion fruit nectar (17 ^{o}Brix) at ambient temperature by filling in PET bottle which can be kept safely up to one month.

	ખેડૂત/ ફૂડ પ્રોસેસિંગ ઉદ્યોગ સાહસિકોને ભલામણ: આથી ખેડૂતો/ ફૂડ પ્રોસેસિંગ ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે, પેસન ફ્રુટના (જ્યુસ/પીણુ) નેક્ટર (૧૭ °બ્રિક્સ) ને પીવીસી બોટલમા ભરી તેને સામાન્ય (રૂમ) તાપમાને એક માસ સુધી સલામતી પુર્વક સંગ્રહ કરી શકાય છે. **House approved the recommendation with following suggestions** 1) Check the standard for microbial counts as per the FSSAI standards 2) Remove preservative in nectar 3) Write "One month" in place of "Three months" in recommendation text *[Action: Principal & Dean, College of Horticulture, JAU, Junagadh]*
21.5.1.11	**Modification of the existing onion planter for pelleted seeds.** **Recommendation** Farmers growing onion crop are recommended to use the tractor mounted onion planter developed by Junagadh Agricultural University for sowing onion crop by direct seeding method. The direct seeding method saves about 98.09 percent time and 77.99 percent cost involved in sowing onion crop as compared to the transplanting method. **ભલામણ:** ડુંગળી વાવતા ખેડૂતોને જૂનાગઢ કૃષિ યુનીવર્સિટી દ્વારા વિકસાવવામાં આવેલ ટ્રેકટર સંચાલીત ઓનિયન પ્લાન્ટરથી સીધા ડુંગળીનાં બી વાવીને ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પ્લાન્ટરનો ઉપયોગ કરવાથી ડુંગળી ચોપીને વાવવાની સરખામણીએ ૯૮.૦૯ ટકા સમયમાં તેમજ ૭૭.૯૯ ટકા ખર્ચમાં બચત કરી શકાય છે. **House approved the recommendation with following suggestion.** 1) Include suggestions of Joint AGRESCO and verify tables *[Action: HoD, FMPE, CAET, JAU, JUNAGADH]*
21.5.1.12	**Development of semiautomatic channel for border irrigation** **Recommendation** Farmers are recommended to use metallic or PVC border irrigation channels developed by Junagadh Agricultural University instead of kachha channels to reduce seepage loss up to 87% compared to kachha channels. Adoption of border irrigation channels can increase the additional crop area by 200 sq.m per hectare. With a system lifespan of five years, the annual cost was found Rs. 1,029 and Rs. 440 per meter of channel length for metallic and PVC channels, respectively. With automation, the annual cost was Rs. 1,232 and Rs. 643 per meter of channel length for metallic and PVC channels, respectively.

	ભલામણ: ખેડૂતો ક્યારાથી પીયત આપવા માટે કાચી ચેનલને બદલે જુનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસિત મેટાલિક અથવા પીવીસી બોર્ડર સિંચાઈ ચેનલોનો ઉપયોગ કરવા ભલામણ કરવામાં આવે છે, જેથી જમણ માં થતો વ્યય માં ૮૭ % સુધી ઘટાડો થઈ શકે .આ બોર્ડર સિંચાઈ ચેનલ અપનાવવાથી પ્રતિ હેક્ટર ૨૦૦ ચોરસ મીટર વધારે વિસ્તારમાં પાક થઈ શકે છે .આ પદ્ધતિની ૫ વર્ષની આયુષ્ય ધ્યાનમાં લેતા, મેટાલિક અને પીવીસી ચેનલોની વાર્ષિક કિંમત અનુક્રમે રૂ. ૧૦૨૯ અને રૂ. ૪૪૦ પ્રતિ મીટર ચેનલ લંબાઈના દરે આવે છે .ઓટોમેશન સાથે, મેટાલિક અને પીવીસી ચેનલની વાર્ષિક કિંમત અનુક્રમે રૂ. ૧૨૩૨ અને રૂ. ૬૪૩ પ્રતિ મીટર ચેનલની લંબાઈ એ થાય છે. **House approved the recommendation** *[Action: HoD, IDE, CAET, JAU, JUNAGADH]*
21.5.1.13	**Response of tillage and in situ moisture conservation on alteration of soil in cotton crop.** **Recommendation** The farmers of North Saurashtra Agro-climatic Zone growing cotton under rainfed condition are recommended to incorporate cotton stalk into the soil with tillage practices of rotavator one month after harvest and primary tillage with cultivator for getting higher crop production and net return with maxim rain water infiltration and rain water use efficiency. **ભલામણ :** ઉતર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના સુકી ખેતીની પરિસ્થિતિમાં કપાસનું વાવેતર કરતા ખેડૂતોને જમીનમાં વધુ પાણી ઉતારવા અને વરસાદના પાણીની મહતમ કાર્યક્ષમતા સાથે વધારે પાક ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે કપાસની અંતિમ વીણીના એક મહિના બાદ કપાસની સાઠીને રોટાવેટરથી જમીનમાં ભેળવી ને કલ્ટીવેટરથી પ્રાથમિક ખેડ કરવાની ભલામણ કરવામાં આવે છે. **House approved the recommendation** *[Action: Research Scientist (Dry Farming), MDFRS, JAU, TARGHADIYA]*
21.5.1.14	**Study on dehulling characteristics of different sesame cultivars** **Recommendation** The sesame processing industries and entrepreneurs are recommended to adopt the dehulling process developed by Junagadh Agricultural University to

	dehull the sesame variety G.Til 3. This process suggested to soak the sesame seed in 50°C hot water for 74 minutes and 30 seconds followed by dehulling for 7 minutes using indigenous sesame dehuller developed by Junagadh Agricultural University to improve the dehulling efficiency of sesame seed. This dehulling process protocol achieved a dehulling efficiency of 83.92%, a hullability of 70.11%, a yield loss of 1.61%, an embryo recovery of 83.97%, and an extraction rate of 91.06%. **ભલામણ:** તલના પ્રોસેસિંગ ઉદ્યોગો અને ઉદ્યોગ સાહસિકોને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા તલ ગુ. તલ 3 જાત ની ફોતરી કાઢવા માટે વિકસાવવામાં આવેલી ડિહલિંગ પ્રક્રિયા (ફોતરી કાઢવાની પ્રક્રિયા) અપનાવવાની ભલામણ કરવામાં આવે છે. ભલામણ કરેલી આ પધ્ધતિમાં પ્રથમ તલના બીજને ૫૦ ડિગ્રી સેલ્સિયસ ગરમ પાણીમાં ૭૪ મિનિટ અને ૩૦ સેકન્ડ માટે પલાળી અને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા બનાવવામાં આવેલ તલની ફોતરી કાઢવાના યંત્રમાં ૭ મિનીટ માટે તલની ફોતરી દુર કરવાની પ્રક્રીયા કરવાથી ફોતરી કાઢવાની કાર્યક્ષામતા વધારી શકાઈ છે. આ વિકસાવવામાં આવેલી ડિહલિંગ પ્રક્રિયાથી ૮૩.૯૨ % જેટલી ડિહલિંગ કાર્યક્ષામતા, ૭૦.૧૧ % ફોતરી કાઢવાની ક્ષમતા, ૧.૬૧% ઉપજ નુકશાન, ૮૩.૯૭% આખા દાણાની પ્રાપ્તિ અને ૯૧.૦૬ % નિષ્કર્ષણ દર મળે છે. **House approved the recommendation with following suggestion** 1) Recast the recommendation *[Action: Research Scientist (Pl. Br.), ARS, JAU, Amreli]*

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21.5.1.15	**Title: Design and development of suitable furrow opener for clay loam soil condition for South Gujarat.** **House differed to the recommendation with the following suggetions** 1) House suggested to present the experiment next year by incorporating fuel consumption, draft and other parameters as suggested IS codes. *[Action Taken by: Principal, CAET, NAU, Dediapada]*

21.5.1.16	**Title: Drying of Mahua (*Madhuca Longifolia*) flower for powder.** **Recommendation:** Farmers, processors and entrepreneurs are recommended to prepare dried *mahua* flower powder using method developed by Navsari Agricultural University. The method involves drying of fresh *mahua* flower in single layer (6.25 kg/m^2), bed thickness 15 ± 5 mm at 60 °C in hot air tray dryer for 7 hour to attain a final moisture content 16 ± 1 %. Dried *mahua* flower powder packed in 100 micron HDPE bags can be stored safely for the period of 180 days. **ભલામણ:** ખેડૂતો, પ્રોસેસર્સ અને ઉદ્યોગ સાહસિકોને મહુડાના ફૂલનો પાવડર બનાવવા માટે નવસારી કૃષિ વિશ્વવિદ્યાલય દ્વારા વિકસિત પધ્ધતિનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં તાજા મહુડાના ફૂલને (૬.૨૫ કિગ્રા/મી^{૨}), ૧૫ ± ૫ મીમી બેડ જાડાઈમાં ૬૦°C પર ગરમ હવા વાળા ટ્રેડ્રાયર માં ૭ કલાક સુધી સૂકવીને સૂકા મહુડાના ફૂલનો પાવડર તૈયાર કરે જેથી અંતિમ ભેજનું પ્રમાણ ૧૬ ± ૧% થાય. સૂકા મહુડાના ફૂલનો પાવડર ૧૦૦ માઇક્રોનની HDPE બેગમાં પેક કરી ૧૮૦ દિવસ સુધી સુરક્ષિત રીતે સંગ્રહિત કરી શકાય છે. **House approved the recommendation with the following suggetion** 1) Recast the recommendations by spelling full name of NAU 2) Divide the recommendation in Part A for the farmers and Part B to the scientific community 3) Specify the bed thickness in the recommendation text *[Action Taken by: Principal, CAET, NAU, Dediapada]*
21.5.1.17	**Title: Studies of Mahua (*MadhucaLongifolia*) flower powder based value added biscuit.** **Recommendation:** Farmers, processors and entrepreneurs are recommended to prepare *mahua* flower powder based value added biscuit product using method developed by Navsari Agricultural University. The method involves blending of 50 % *maida*, 15 % ragi flour, 15 % soybean flour and 20 % *mahua* flower powder followed by molding and baking in oven at 180 ºC temperatures for 11 minutes to attain moisture content 3.25 ± 0.25 %. Developed *mahua* flower powder based value added biscuit product packed in 100 micron HDPE bags can be stored safely for the period of 180 days.

	ભલામણ: ખેડૂતો, પ્રોસેસર્સ અને ઉદ્યોગ સાહસિકોને મહુડા ફૂલના પાવડર આધારિત મૂલ્યવર્ધિત બિસ્કિટ ઉત્પાદન તૈયાર કરવા માટે નવસારી કૃષિ વિશ્વવિદ્યાલય દ્વારા વિકસિત પધ્ધતિનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં ૫૦ % મેંદો, ૧૫ % રાગીનો લોટ, ૧૫ % સોયાબીનનો લોટ અને ૨૦ % મહુડાના ફૂલનો પાવડર ભેળવ્યા બાદ બીબા પાડી ૧૮૦° સે. તાપમાને ઓવનમાં ૧૧ મિનિટ માટે બેકિંગ કરવું જેથી ભેજનું પ્રમાણ ૩.૨૫ ± ૦.૨૫ % સુધી પહોંચે. વિકસિત મહુડાના ફૂલના પાવડર આધારિત મૂલ્ય વર્ધિત બિસ્કિટ ઉત્પાદનને ૧૦૦ માઇક્રોન HDPE બેગમાં પેક કરી ૧૮૦ દિવસ સુધી સુરક્ષિત રીતે સંગ્રહિત કરી શકાય છે. **House approved the recommendation with the following suggetions** 1) Recast the text of recommendation 2) Incorporate the name of NAU in reccommendation text 3) Remove “thick” word from the english recommendation *[Action Taken by: Principal, CAET, NAU, Dediapada]*
21.5.1.18	**Title: Standardization of processing technology for dried Broccoli (*Brassica oleraceavar.*)** **Recommendation:** The processors and entrepreneurs are recommended to use broccoli (*Brassica oleracea*var. italica) florets drying technology developed by Navsari Agricultural University for better quality dried broccoli florets. The technology involves blanching of fresh broccoli florets in hot water at 80°C for 2 minutes, followed by dipping in solution of 1000 ppm of Potassium Meta bisulphite and 500 ppm of citric acid for 10 minutes followed by placing in tray drier with 1.5 kg/m^2 tray load at 50°C drying temperature for 11 hours 15 minutes up to 2.5% final moisture content. Dehydrated broccoli florets should be packed in 100 micron Aluminum laminate foil and stored up to 180 days with better quality attributes. **ભલામણ:** પ્રોસેસર્સ અને ઉદ્યોગ સાહસિકોને બ્રોકોલી (બ્રસ્સિકા ઓલેરાસિયવર. ઇટાલિક) ફ્લોરેટસ ની સુકવણી કરવા માટે નવસારી કૃષિ વિશ્વવિદ્યાલય દ્વારા વિકસાવેલ પધ્ધતિનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં તાજા બ્રોકોલી ફ્લોરેટસ ને ૮૦ °સે. તાપમાને ૨ મિનિટ માટે ગરમ પાણીમાં બ્લાન્ચિંગ કર્યા બાદ, ૧૦

	મિનિટ માટે ૧૦૦૦ પીપીએમ પોટાસીયમ મેટા બાઇ-સલ્ફેટ અને ૫૦૦ પીપીએમ સાઇટ્રિકએસિડના દ્રાવણમાં બોળ્યા પછી ૧.૫ કિલો/મી^{૨} ટ્રેલોડ સાથે ટ્રે ડ્રાયરમાં મુકી ૫૦° સે. તાપમાને ૧૧ કલાક ૧૫ મિનટ માટે ૨.૫ % ભેજનું પ્રમાણ આવે ત્યાં સુધી સુકવણી કરવી. સુકાવેલ બ્રોકોલી ફ્લોરેટને ૧૦૦ માઈક્રોન એલ્યુમિનિયમ લેમિનેટ ફોઇલમાં બંધ કરવાથી વધુ સારી ગુણવત્તા સાથે સામાન્ય તાપમાને ૧૮૦ દિવસો સુધી સંગ્રહિત કરી શકાય છે. **House approved the recommendations with following suggestions** 1) Recast the text of recommendation by incorporating the name of NAU 2) Modify the recommendation text in tune to the stastical and economical analysis 3) Mention the storage period in days and show duration wise process chart *[Action Taken by: Principal, ACH, NAU, Navsari]*
21.5.1.19	**Title: Standardize storage parameters for *Sonpari* mango to extend shelf life.** **Recommendation:** Farmers, traders and exporters are recommended to use method developed by Navsari Agricultural University for long duration storage of Sonpari mango fruits. The method involves; cleaning, sorting, washing, and hot water treatment of Sonpari mango fruits in 50 °C hot water for 10 minutes and pre-cooling at 5 °C until the fruit core temperature reaches at 6 °C followed by storage at 6 °C temperature and 90 ± 5 % RH in cold room up to 45 days with good quality. **ભલામણ:** ખેડૂતો, વ્યાપારીઓ, અને નિકાસકારોને સોનપરી કેરી ફળ ને લાંબા સમય માટે સંગ્રહ કરવા નવસારી કૃષિ વિશ્વવિદ્યાલય દ્વારા વિકસાવેલ પધ્ધતિ નો ઉપયોગ કરવો. આ પધ્ધતિમાં સોનપરી કેરી ફળ ની સફાઈ , વીણી કરી, ધોયા બાદ, ૫૦° સે. ઉષ્ણતામાને ૧૦ મિનિટ સુધી ગરમ પાણીની માવજત આપી, ફળના ગરના મધ્યનું ઉષ્ણતામાન ૬° સે. આવે ત્યાં સુધી ૫ °સે.તાપમાને પ્રિ-કૂલિંગ કર્યા બાદ, ૬°સે. તાપમાને અને ૯૦ ± ૫ % ભેજ વાળા શીતાગાર ઓરડામાં રાખવાથી ૪૫ દિવસ સુધી સારી ગુણવાતા સાથે સંગ્રહ કરી શકાય છે. **House approved the recommendation with following suggestions** 1) Recast the text of recommendation incorporating the name of NAU 2) Storage period be restricted upto 45 days based on the economic analysis *[Action Taken by: Principal, ACH, NAU, Navsari]*

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

21.5.1.20

Enhancing water productivity of summer pearl millet through water management practices

Recommendation:

The Farmers of North Gujarat Agro climatic Zone-IV irrigating summer pearl millet through drip irrigation as per specifications given below are recommended to apply mustard straw mulch (4 t/ha) at 20 DAS and irrigate crop at 0.8 IW/ET_c as per the detail given below to attain higher yield and net realization.

Details of drip irrigation system	Drip irrigation timing
Lateral spacing: 90 cm (in line at alternate row) Dripper spacing: 40 cm Dripper discharge: 4 lph Operating pressure: 1.2 kg/cm^2	At every third day during a. March: 40 min b. April: 60 min c. May: 80 min d. June: 50 min (If needed) First irrigation of 50 mm depth (270 min.) be applied at the time of sowing

ભલામણ:

ઉતર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪માં ઉનાળું બાજરીના પાકમાં નીચે મુજબની ટપક પદ્ધતિથી પિયત કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે બાજરીનું વધારે ઉત્પાદન અને આવક મેળવવા માટે વાવણી ના ૨૦ દિવસ બાદ રાયડાના ભુસાનું (૪ ટન/ હેકટર) આવરણ કરી નીચે જણાવ્યા મુજબ ૦.૮ પાક બાષ્પિભવન ગુણાંકે પિયત આપવું.

ટપક પદ્ધતિ અંગેની વિગત	ડ્રીપ ચલાવવાનો સમય
ડ્રીપ લેટરલનું અંતર : ૯૦ સે. મી. (ઇન-લાઇન એકાંતરા હારમાં ગોઠવવી) ડ્રીપરનું અંતર : ૪૦ સે. મી. ડ્રીપરનો પ્રવાહ : ૪ લી/કલાક ટપક સિસ્ટમનું દબાણ : ૧.૨ કિલોગ્રામ/સેમી^{2}	દર ત્રીજા દિવસે નીચે મુજબનું પિયત આપવું. અ. માર્ચ : ૪૦ મિનીટ બ. એપ્રિલ : ૬૦ મિનીટ ક. મે : ૮૦ મિનીટ ડ. જુન : ૫૦ મિનીટ (જરૂરિયાત મુજબ) વાવણી બાદ પ્રથમ પિયત ૫૦ એમએમ.(૨૭૦ મિનીટ) આપવું.

House approved the recommendation with following sugestion

1. Recast the recommendation

[Action: RS, CNRM,SDAU,Sardarkrushinagar]

21.5.1.21

Fertigation scheduling for muskmelon

Recommendation:

The farmers of North Gujarat Agro climatic zone-IV growing muskmelon crop in paired row (90 cm-30 cm × 60 cm) with plastic mulch (25 micron) and irrigating through drip irrigation as per specifications given below are recommended to apply the following drip fertigation schedule at 0.8 PEF for getting higher yield, net return as well as saving of 20 per cent water.

System details			Irrigation Schedule (alternate day)		Fertigation Schedule
			Crop Stage	Time (Hr: Min)	
Lateral spacing	:	120 cm	Crop establishment stage (1-10 days)	01: 00	20:50:10 kg/h $N:P_2O_5:K_2O$ as basal and four equal splits (20:10 kg/h N : K_2O in each split) at 15 days interval after sowing
Dripper spacing	:	40 cm	Vegetative stage (11-40 days)	01: 15	
Dripper discharge	:	4 lph	Flower initiation to first picking (41-70 days)	01: 30	
Operating pressure	:	1.2 kg/cm^2	Harvesting stage	0: 45	
Sources of fertilizer: N (Urea), P_2O_5 (Sigle Super Phosphate), K_2O (Muriate of potash)					

ભલામણ :

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪માં ટેટીના પાકનું જોડીયા હાર (૯૦સેમી -૩૦સેમી × ૬૦ સેમી) માં પ્લાસ્ટિકના આવરણ (૨૫ માઈક્રોન) સાથે વાવેતર કરતાં અને નીચે મુજબની ટપક પદ્ધતિથી પિયત કરતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા તેમજ ૨૦ ટકા પાણીની બચત માટે નીચે મુજબ ૦.૮ બાષ્પીભવન ગુણાંકે પિયત અને ખાતર આપવાની ભલામણ કરવામાં આવે છે.

ટપક પધ્ધતિની વિગત	પિયત સમય (એકાંતરે દિવસે)		ખાતરનું સમયપત્રક
	પાકની અવસ્થા	સમય (મિનિટ:કલાક)	

ડ્રીપ લેટરલનું અંતર	:	૧૨૦ સે. મી. (ઇન-લાઇન)	પાકની શરૂઆતની અવસ્થા (૧-૧૦ દિવસ)	૦૧:૦૦	૨૦:૫૦:૧૦ કિ.ગ્રા/હે નાઇટ્રોજન:ફૉસ્ફરસ:પોટાશ પાયામાં અને ચાર સરખા હપ્તામાં (૨૦:૧૦ કિ.ગ્રા/હે. નાઇટ્રોજન:પોટાશ દરેક હપ્તામા) વાવણી પછી ૧૫ દિવસના સમયાંતરે.
ડ્રીપરનું અંતર	:	૪૦ સે. મી.	વાનસ્પતિક અવસ્થા (૧૦-૪૦ દિવસ)	૦૧:૧૫	
ડ્રીપરનો પ્રવાહ	:	૪ લિ/કલાક	ફૂલની શઆતથી પ્રથમ વીણીની અવસ્થા (૪૧-૭૦ દિવસ)	૦૧:૩૦	
ટપક સિસ્ટમનું દબાણ	:	૧.૨ કિલોગ્રામ/સેમી^{૨}	વીણીની અવસ્થા	૦૦:૪૫	
ખાતરનો સ્ત્રોત: નાઇટ્રોજન (યુરિયા), ફૉસ્ફરસ (સિંગલ સુપર ફોસ્ફેટ), પોટાશ(મ્યુરેટ ઓફ પોટાશ)					

House approved the recommendation with following sugestions

1) Recast the recommendation
2) Include thickness plastic mulch in the report and recommendation text

[Action: RS,CNRM,SDAU, Sardarkrushinagar]

21.5.1.22 **Standardization of the protocol for the preparation of RTS drinks from fennel.**

Recommendation:

Farmers/entrepreneurs are recommended to adopt the technology developed by Sardarkrushinagar Dantiwada Agricultural University for fennel extraction and process of making fennel Ready to Serve (RTS) drink. In this method, fennel extract is obtained by squeezing soaked fennel in muslin cloth after soaking fennel and water in the ratio of 1:4 for four hours. The fennel RTS can be prepared by adding 85 per cent fennel extract, 12 per cent 60° Brix sugar syrup and other ingredients like black salt 0.5 per cent, black pepper 0.25 per cent, ginger 0.25 per cent, lemon juice 2 per cent. The fennel RTS prepared can

	be safely stored in PET bottles at ambient temperature up to six months by adding sodium benzoate @ 80 ppm. **ભલામણ :** ખેડૂતો / ઉદ્યોગ સાહસિકોને સરદાર કૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ વરિયાળીનો અર્ક કાઢવાની પ્રક્રિયા અને પીરસવા માટે તૈયાર વરિયાળી પીણુ (RTS) બનાવવાની તજજ્ઞતા અપનાવવા ભલામણ કરવામાં આવે છે. આ પદ્ધતિમાં , વરિયાળી અને પાણીને ૧ : ૪ના પ્રમાણમાં ચાર કલાક પલાળી રાખ્યા પછી મલમલના કપડામાં પલાળેલી વરિયાળીને નિચોવીને વરિયાળીનો અર્ક કાઢવામાં આવે છે.વરિયાળી નો આ અર્ક ૮૫ ટકા, ખાંડની ૬૦° બ્રિક્સ વાળી ચાસણી ૧૨ ટકા તેમજ અન્ય ઘટકો કાળું મીઠું ૦.૫ ટકા, કાળા મરી ૦.૨૫ ટકા, આદુ ૦.૨૫ ટકા, લીંબુનો રસ ૨ ટકા ઉમેરીને પીરસવા માટે તૈયાર વરિયાળીનું પીણું બનાવી શકાય છે. આ રીતે તૈયાર કરેલ વરિયાળીનું પીણું PET બોટલમાં સોડિયમ બેન્ઝોએટ ૮૦ પીપીએમ પ્રમાણે ઉમેરીને છ મહિના સુધી સુરક્ષિત રીતે રાખી શકાય છે. **House approved the recommendation with following sugestions** 1) Use the word "extract" instead of "Juice" in the recommendation 2) Remove the "પોલીથીલીન" word from Gujarati recommendation *[Action: Principal, COH, SDAU, Jagudan]*
21.5.1.23	**Standardization of the recipe for the preparation of Ready -to-Serve drinks from rose.** **Recommendation:** Farmers/entrepreneurs are recommended to adopt the process of preparing rose (*Rosa Chinensis*) petal extract and the expertise of making rose Ready to Serve (RTS) drink developed by Sardarkrushinagar Dantiwada Agricultural University. In this method, after soaking rose petals in water in the ratio of 1:2 for twelve hours and mash it to get extract. The rose RTS drink can be prepared by adding 20 per cent rose petal extract, 10 per cent sugar, 0.1 per cent citric acid and 69.9 per cent water. The rose drink prepared can be safely stored in PET bottles up to six months.

	ભલામણ : ખેડૂતો /ઉદ્યોગ સાહસીકોને સરદાર કૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ દેશી ગુલાબનો અર્ક કાઢવાની પ્રક્રિયા અને (RTS) બનાવવાની તજજ્ઞતા અપનાવવા ભલામણ કરવામાં આવે છે. આ પદ્ધતિમાં ગુલાબની પાંદડીને ૧ : ૨ ના ગુણોત્તર પ્રમાણે બાર કલાક માટે પાણીમાં પલાળ્યા બાદ તેને પીસીને અર્ક કાઢવામાં આવે છે. ગુલાબનો અર્ક ૨૦ ટકા, ખાંડ ૧૦ ટકા તેમજ અન્ય સામાન્ય ઘટકો સાઇટ્રિક એસિડ ૦.૧ ટકા, પાણી ૬૯.૯ ટકા ઉમેરીને તૈયાર ગુલાબનું પીણું બનાવી શકાય છે.આ રીતે તૈયાર કરેલ ગુલાબનું પીણું રૂમ તાપમાને છ માસ સુધી સુરક્ષિત રીતે PET બોટલમાં સાચવી શકાય છે. **House approved the recommendation with following sugestions** 1) Recast the recommendation 2) Add "extract" word in place of "juice" in English recommendation and "અર્ક" in Gujarati recommendation. *[Action: Principal, COH, SDAU, Jagudan]*

21.5.2 SCIENTIFIC INFORMATION
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21.5.2.1 **Estimation of wheat yield at different stage using ensemble regression machine learning approach for Anand/Kheda district**

The scientists are informed to use following machine learning models for different stage for better prediction of wheat yield for Anand/Kheda district.

Stage	Feature (Independent Variable)	Model	Average Percentage Error, (%)
Tillering stage	MinT47, EP49, EP1, BSS46, BSS49, BSS1, RH146, RH147, RH150, RH11	Bagging M5P	20.48
Flowering stage	MinT47, EP49, EP1, EP3, BSS46, BSS49, BSS1, BSS5, RH146, RH147, RH150, RH11, RH14, RH15	Bagging M5P	21.15
Grain flowering	MinT47, MinT7, EP47, EP49, EP1, BSS49, BSS1, BSS5, RH146, RH150, RH11, RH14, RH15	stacking Random Forest+M5P	21.23

House approved the recommendation with the following suggetions

1) Add validation table in the report
2) Percentage error should be shown in paragraph
3) Include adjusted R^2 instead of R^2
4) Recast the recommendation paragraph in tabulated form

[Action: Head, Dept. of Agril. Science, CAIT, AAU, Anand]

21.5.2.2	**Development of Artificial Intelligence-based plant diseases and pests (Okra) advisory for the farmers** **Information for Scientific Community:** The scientists can use the developed CNN Architecture based Models (RESNET100V2, DENSENET201 and XCEPTION) for Diseases Classification of Okra. The RESNET100V2, DENSENET201 and XCEPTION based model have accuracy of 99.45%, 98.63% and 98.63% respectively and precision of 99.63%, 99.08% and 99.03% respectively. The classifiers are developed with following parameters. ▪ No. of Hidden Layers: Four ▪ Dropout: 0.20 ▪ Activation Function: ReLU, Softmax ▪ No. Of Epoch: 20 ▪ Batch size: 64 ▪ Optimizer: Adam [Learning Rate: 0.001, decay rate(beta1):0.9 decay rate(beta 2):0.999, epsilon: 10e-8] ▪ Data Augmentation: [RandomFlip: Horizontal and Vertical RandomRotation: 0.1, RandomZoom: 0.1, RandomContrast: 0.1] ▪ Rescaling: 1.0/255 ▪ Loss Function: Sparse Categorical Cross Entropy **House approved the recommendation** *[Action: Head, Dept. of AIT, CAIT, AAU, Anand]*
21.5.2.3	**Effect of microwave on aflatoxin content of deoiled peanut cake** **Information for Scientific Community:** Deoiled peanut cake (10.83 % moisture content) when treated with microwave power of 0.9 kWh for 8 min was found to be effective to reduce the Aflatoxin B1 and Aflatoxin B2 by 11.29 % and 40.11 respectively. **House approved the recommendation with the following suggetions** 1) Power, duration, quantity and moisture content should be spelled in the recommendation text 2) Check the statistical analysis and revise the tables *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.2.4	**Bio-chemical characterization of Insulin plant** **Information for Scientific Community:** The mature insulin plant (*Costus igneus*) leaves contain good amount of minerals like, Potassium (315.64 mg/100g), Calcium (150.01 mg/100g) and Magnesium (76.43 mg/100g) and have shown good α amylase inhibition activity (70.4925 %). The super critical fluid extraction method extracts more bioactive compounds compared to traditional solvent extraction method. All the three seasons shown non-significant effect on fat, fiber and antioxidant property. **House approved the recommendation with the following suggetions** 1) Mention the unit in the table: 6 in the report 2) Write scientific name of the plant in the table and recommendation *[Action: PI & HOD, Dept. of FSQA, CFPTBE, AAU, Anand]*

21.5.2.5	**Devising food exchange list for foods prepared using cereals and millets** **Information for Scientific Community:** Food exchange list for cereal and millets food items (viz. roti and its alternatives, Snacks and its alternatives, Rice and its alternatives, Breakfast items, Dessert, Bakery products, and fast-food items), is developed by Anand Agricultural University can be utilized by academician, dietician, students and common people who are interested to manage their calorie intake in daily life. **House approved the recommendation.** *[Action: PI & Principal, PFSHE, CFPTBE, AAU, Anand]*

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21.5.2.6	**Study on dehulling characteristics of different sesame cultivars.** **Information for Scientific Community:** The scientific community is informed to adopt the Peleg model ($Mt = M_o \pm (t/[K_1+K_2t])$ for effectively described the hydration behaviour of sesame seed varieties at soaking temperatures of 35, 45, and 55 °C. The hydration temperature showed a significant impact on the hydration kinetics of sesame seeds. Sesame seeds exhibited a higher absorption rate at the initial soaking stage, followed by a slower, steady absorption phase. The Peleg capacity constants, K1 and K2, decreased with increasing hydration temperature, indicating enhanced water absorption rates and capacities with an increase in the temperature. The activation energy (Ea), were determined as 38.74, 33.37, 30.68, 37.85, and 33.23 kJ/mol, for G.Til 3, G.Til 4, GJT 5, G.Til 6 and TKG 22 sesame varieties respectively. The similar entropy data and negative enthalpy values for all sesame varieties indicate the hydration process is exothermic and energetically favourable for diffusion. **House approved the recommendation.** *[Action: Research Scientist (Pl. Br.), ARS, JAU, Amreli]*

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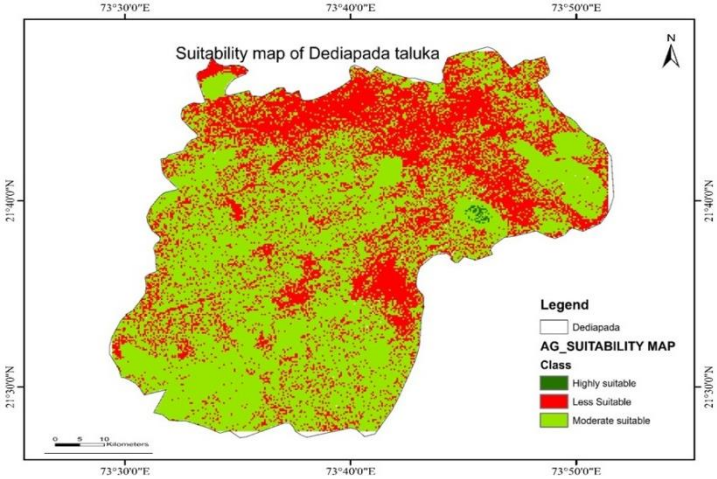
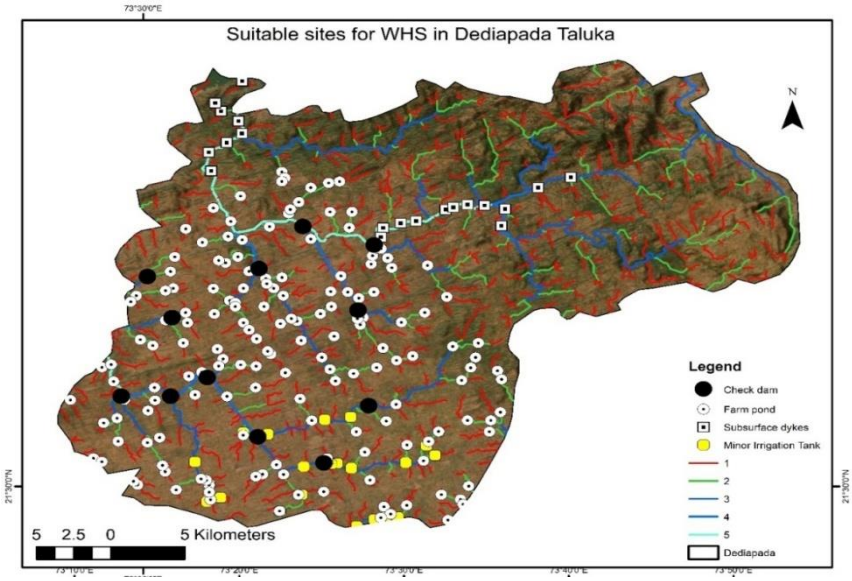
21.5.2.7	**Identification of suitable sites for rainwater harvesting in Dediapada taluka of Narmada (Gujarat).** Scientists and engineers are informed to use following information generated based on remote sensing and GIS techniques with AHP method to identify suitable zones for water harvesting and groundwater recharge in Dediapada *Taluka*; • In Dediapada *taluka*, about 349.46 (34.51%) km^2, 661.81 km^2 (65.35 %) and 1.35 km^2 (0.133%) were found; less suitable, moderate suitable and highly suitable, respectively for groundwater recharge and water harvesting structures as shown in map • In Dediapada *taluka*, about 12 check dam sites, 125 farm pond construction sites, 20 Subsurface dykes sites, 22 Minor irrigation tanks sites, along with

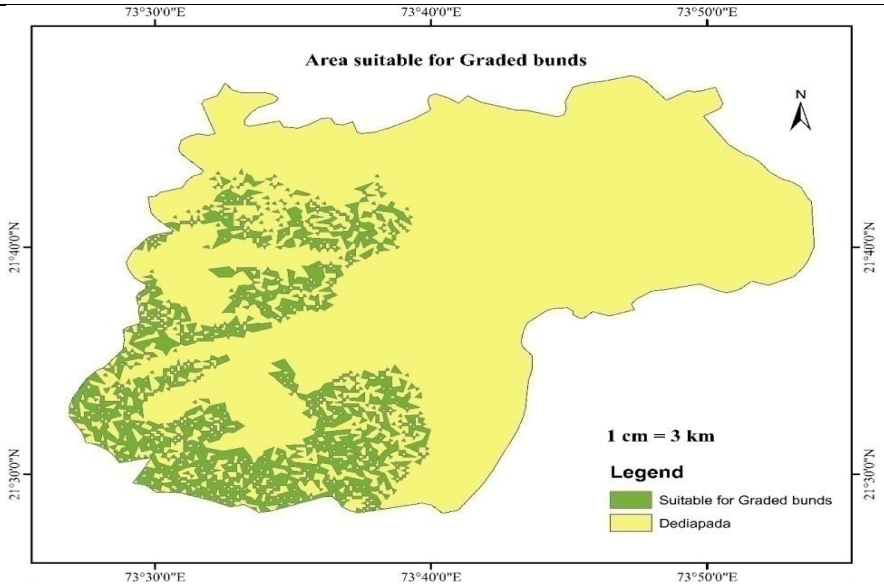
185.25 (22.42%) km^2 area for Terracing (Staggered) and 152.86 km^2 (14.94%) for graded bund construction may demarcated as per the given map.



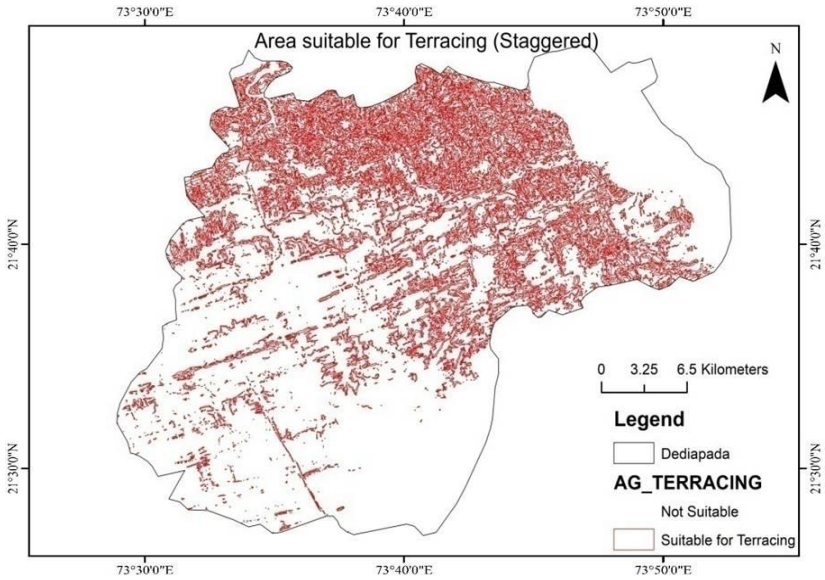
Potential zones for water harvesting and groundwater recharge in Dediapada *Taluka*



Suitable sites for water harvesting structures in Dediapada *Taluka*



Area suitable for construction of graded bunds in Dediapada *Taluka*



Area suitable for construction of terracing (Staggered) in Dediapada *Taluka*

House approved the recommendation with following suggestions

1) Recast the text of recommendation
2) Put the map of potential zones of groundwater recharge
3) Put the map of water conservation structures suggested
4) Put the map demarcating the area under graded bunds and terracing

[Action tkaen by: Principal, CAET, NAU, Dediapada]

21.5.2.8	**Title: Drying of Mahua (Madhuca Longifolia) flower for powder.**
	Scientist are informed to use Midilli model (y=1.0621x-0.0733) for drying kinetics validation of fresh mahua flower which gives good agreement between the observed and predicted moisture ratio with correlation coefficient (R^2 :0.9999)and root mean square error (RMSE: 0.0038) under 60 ºC in double layer (6.25 kg/m^2) hot air tray drying. **House approved the recommendation with following suggestions**

	The paragraph is shifted from farmers recommendation 21.7.1.16 as scientific information *[Action taken by: Principal, CAET, NAU, Dediapada]*

21.5.3 NEW TECHNICAL PROGRAMMES

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21.5.3.1	Development of Artificial Intelligence based Breeder Tool for Distinctiveness, Uniformity and Stability of Germplasm (Brinjal) **House approved the NTP with following suggestion** **1)** Revise the title as "Development of Artificial Intelligence based Breeder Tool for Distinctiveness, Uniformity and Stability of Brinjal Germplasm" *[Action: PI & HOD, BEAS Dept., CAET, GODHRA]*
21.5.3.2	Impact assessment of Vertically mounted Agri-voltaic (Vertical Agri-voltaic) with bifacial PV modules in agriculture **House approved the NTP with following suggestion** 1) Modify the language of the objectives *[Action: PI & HOD, REE Dept., CAET, GODHRA]*
21.5.3.3	Conjugate assessment of irrigation regimes and frequency on productivity and water use efficiency of turmeric (*Curcuma linga L*) under biodegradable organic mulched subsurface drip irrigated natural farming **House approved the NTP with following suggestions** 1) Remove the word "Water Use Efficiency" from title 2) Take doses as per recommendation 3) Check the nutrient status of the soil before and after the experiment 4) Add one scientist each from Soil Science & Agricultural Chemistry and Agronomy 5) Take irrigation regimes as IW/ET_c 6) Include observations on uniformity coefficient to determine clogging *[Action: PI & HOD, IDE Dept., CAET, GODHRA]*
21.5.3.4	Design and Development of Pig detection and repelling system using Deep Learning and IoT system **House approved the NTP with following suggestions** 1) Use CCTV camera for surveillance of 120 degree at 50 m interval for video/image processing 2) Calculate the cost/ha for the designed system 3) Efforts to be made to reduce cost of the system *[Action: Head, Dept. of Agril. Science, CAIT, AAU, Anand]*
21.5.3.5	Machine Learning Modelling on Area, Production and Productivity of Cereal Crops in Middle Gujarat **House approved the NTP with following suggestions** 1) Revise the title as "Time series modeling of area, production and productivity for cereal & cash crops using machine learning for middle Gujarat 2) Modify the objectives as per title

	3) Spell model selection criteria 4) Merge experiment "Machine Learning Modelling on Area, Production and Productivity of Cereal Crops in Middle Gujarat" and "Machine Learning Modelling on Area, Production and Productivity of Cash Crops in Middle Gujarat" into one 5) Keep all four scientists in the merged experiment *[Action: PI and Director, IT, AAU, Anand]*
21.5.3.6	Machine Learning Modelling on Area, Production and Productivity of Cash Crops in Middle Gujarat **House suggested to merge this experiment with experiment no. 21.7.3.5.** *[Action: PI and Director, IT, AAU, Anand]*
21.5.3.7	Development of machine learning algorithm for identification of selected rice varieties using NIR spectroscopy **House suggested to take the experiment on filler trial basis** *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.3.8	Standardization of Fluidized bed Drying Technology for Jamun leaves Powder **House approved the NTP with following suggestions** 1) Storage period should be of 180 days with observation frequency of one month 2) Analyse the seasonal variation of leaves on qualitative output of the powder 3) Consult statistician for design and replications *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.3.9	Processing technology for the production of Aonla – Aloevera - Ginger appetizer **House approved the NTP with following suggestions** 1) Remove objective number 3 2) Use PET bottles of 250 ml for storage study *[Action: PI & HOD, Dept. of FPT, CFPTBE, AAU, Anand]*
21.5.3.10	Study of moisture sorption isotherm for optimal storage conditions of black gram (GAU-4) **House differed with the experiment** *[Action: PI & HOD, Dept. of FPE, CFPTBE, AAU, Anand]*
21.5.3.11	Electrical energy assessment in selected food processing plants **House differed with the experiment** *[Action: PI & HOD, Dept. of FPE, CFPTBE, AAU, Anand]*
21.5.3.12	Design and development of acoustic setup non-destructive ripeness classification of muskmelon **House suggested to take the experiment as filler trial with muskmelon** *[Action: PI & HOD, Dept. of FPE, CFPTBE, AAU, Anand]*
21.5.3.13	Extraction of pigments and pectin from red dragon fruit peel **House approved the NTP with following suggestions** 1) Resin method should be preferred for pectin extraction 2) Experiment may be modified accordingly *[Action: PI & HOD, Dept. of FSQA, CFPTBE, AAU, Anand]*

21.5.3.14	Evaluation of adulteration in groundnut oil **House approved the NTP with following suggestion** 1) Replace mineral oil with solvent extracted oil *[Action: PI & HOD, Dept. of FSQA, CFPTBE, AAU, Anand]*
21.5.3.15	Development of mushroom based synbiotic bar **House approved the NTP with following suggestions** 1) Give RSM treatment combinations 2) Fructooligosaccharides content should comply with FSSAI regulations of daily intake of prebiotic (FOS) *[Action: PI & HOD, Dept. of FSQA, CFPTBE, AAU, Anand]*
21.5.3.16	Development of mushroom soup premix **House approved the NTP with following suggestion** 1) Use word consistency instead of textural characteristics in the observations. *[Action: PI & Principal, PFSHE, CFPTBE, AAU, Anand]*
21.5.3.17	Development of millet base instant premix for Farali cake **House approved the NTP with following suggestions** 1) Mention unit for ingredients 2) Correct 20% in backing soda as 2% *[Action: PI & Principal, PFSHE, CFPTBE, AAU, Anand]*
21.5.3.18	Devising food exchange list for foods prepared using pulses, fruits, vegetables and dairy products **House approved the NTP** *[Action: PI & Principal, PFSHE, CFPTBE, AAU, Anand]*

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21.5.3.19	Optimization of the effect of spray characteristic of drone on the spray deposition in cotton crop **House approved NTP with following suggestions.** 1) Revise the title as "Performance evaluation of drone spraying pattern in cotton crop" 2) Cost/hr & Cost /ha to be estimated **3)** Mention operational height with respect to the top of the crop 4) Take observation of nozzle pressure, swath width, time of operation, coefficient of uniformity with wind drift *[Action: HoD, FMPE, CAET, JAU, Junagadh]*
21.5.3.20	Optimization of the effect of spray characteristic of drone on the spray deposition in groundnut crop **House approved NTP with following suggestions.** 1) Revise the title as "Performance evaluation of drone spraying pattern in groundnut crop" 2) Cost/hr & Cost /ha to be estimated

	3) Mention operational height with respect to the top of the crop 4) Take observation of nozzle pressure, swath width, time of operation, coefficient of uniformity with wind drift *[Action: HoD, FMPE, CAET, JAU, Junagadh]*
21.5.3.21	Design and development of a mini tractor (below 25 hp) operated air assisted sprayer (cannon type) for mango orchard (AICRP on FIM) **House approved NTP with following suggestions.** 1) Change the year of commencement 2) Remove the word below 25 hp form the experiment title 3) show conceptual drawing in the report 4) Sprayer evaluation in line with BIS code to be undertaken *[Action: HoD, FMPE, CAET, JAU, Junagadh]*
21.5.3.22	Assessment of spatial variability of runoff potential in Gujarat State. (AICRP on IWM) **House approved NTP with following suggestion.** 1) House suggested to continue this project as AICRP trail only *[Action: HoD, IDE, CAET, JAU, Junagadh]*
21.5.3.23	Cost-effective time-based smart irrigation controller using internet of things (IoT). (AICRP on IWM) **House approved NTP with following suggestion.** 1) Restrict number of scientists up to four *[Action: HoD, IDE, CAET, JAU, Junagadh]*
21.5.3.24	Crop Stress Identification using Remote Sensing and GIS through Images of Drone and Satellite **House approved NTP with following suggestions.** 1) Write "Crop water stress" word in the title 2) Remove name of Dr. H. D. Rank as investigator 3) Take ground truth readings using both NDVI meter and drone *[Action: HoD, SWCE, CAET, JAU, Junagadh]*
21.5.3.25	Development of Kesar mango leather using refractance window dryer, its packaging and storage **House approved NTP with following suggestions.** 1) Revise the title as "Development of Kesar mango leather using refractive window dryer" 2) Cost of product be estimated in terms of cost/kg & cost/hr *[Action: HoD, PFE, CAET, JAU, Junagadh]*
21.5.3.26	Development of jamun leather using refractance window dryer, its packaging and storage. (AICRP on PHET) **House approved NTP with following suggestions.** 1) Revise the title as "Development of Jamun leather using refractance window dryer 2) Carryout the analysis on Dry basis

	3) Cost of product be estimated in terms of cost/kg & cost/hr *[Action: HoD, PFE, CAET, JAU, Junagadh]*
21.5.3.27	Protein extraction from deoiled castor seeds cake through microbial intervention **(AICRP on PHET)** **House approved NTP with following suggestion** 1) House suggested to continue this project as filler trail. *[Action: HoD, PFE, CAET, JAU, Junagadh]*
21.5.3.28	Development and storage of protein enriched Ready-to-Eat extruded product ideal for fasting by supplementing defatted peanut flour. (AICRP on PHET) **House approved NTP with following suggestions.** 1) Revise the title as "Development of *farali* extruded product 2) Extend the storage period up to 180 days with observation frequency of one month *[Action: HoD, PFE, CAET, JAU, Junagadh]*
21.5.3.29	Development and evaluation of sapota pulp enriched rabri **House approved NTP with following suggestions.** 1) Replace the word "enriched" with "added" in the experiment title 2) Add storage study, microbial analysis, calorific value and cost analysis *[Action: HoD, PFE, CAET, JAU, Junagadh]*
21.5.3.30	Study on storability of dehulled sesame seed. (AICRP on Sesame) **House approved NTP with following suggestion.** 1) Revise the objectives and keep up to two *[Action: Research Scientist (Pl. Br.), ARS, JAU, Amreli]*
21.5.3.31	Design and Development of Slow Pyrolysis Reactor **House approved NTP with following suggestions.** 1) Revise the title as "Design and development of reactor for slow pyrolysis" 2) Add conceptual drawing 3) Rearrange the objectives *[Action: HoD, REE, CAET, JAU, Junagadh]*
21.5.3.32	Development of a dynamic multi-sensor Data logger using ESP8266. **House approved NTP with following suggestion.** 1) Testing of this logger is to be done with the data emanated from 21.7.3.23 *[Action: Director, IT Cell, JAU, Junagadh]*

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21.5.3.33	Effect of shifting cultivation and land use practices on errosion status of Dediapada region. **House approved the NTP with following suggestions.** 1) Revised the title as "Effect of shifting cultivation and land use practices on errosion status of Dediapada region" 2) Revise the objectives as per the title of the experiment [*Action: Principal, CAET, NAU, Dediapada]*

21.5.3.34	Optimization of existing solar powered water pumping system for village level operations **House differed with the experiment.** *[Action: Principal, CAET, NAU, Dediapada]*
21.5.3.35	Development of ragi-soya-maida based pasta using Bathua *(Chemopodium Album L.)* **House approved the NTP with following suggestions.** 1) Complete the experiment in one year 2) Revise the title as "Development of ragi-soya-maida based pasta incorporating *Bathua* paste (*Chemopodium Album L.)* *[Action: Principal, CAET, NAU, Dediapada]*
21.5.3.36	Drying of green pea (*Pisum Sativam* L.) Puree using reflectance window (RW) dryer for powder production **House approved the NTP with following suggestions.** 1) Include comparative analysis of dried pea and puree drying 2) Economic analysis to be done in terms of both Rs/kg and Rs/hr. 3) Qualitative analysis of powder derived from both direct pea and puree drying need to be shown *[Action: Principal, CAET, NAU, Dediapada]*
21.5.3.37	Paper making from banana pseudostem fibers with other agricultural wastes **House approved the NTP.** *[Action Taken by: Research Scientist, SWMRU, NAU, Navsari]*
21.5.3.38	Preparation of hard boiled candy from banana pseudostem center core **House approved the NTP with following suggestion.** 1) Include one process engineer in the experiment 2) Storage study to be done upto 180 days with observation frequency of one month *[Action: Research Scientist, SWMRU, NAU, Navsari]*
21.5.3.39	Formulation of banana pseudostem center core powder and finger millet cookies **House approved the NTP with following suggestions.** 1) Include one process engineer in the experiment 2) Change the statistical design as CRD with four replications 3) Keep baking temperature as 120 °C, 130 °C and 140 °C and duration as 15 min, 20 min and 25min. *[Action: Research Scientist, SWMRU, NAU, Navsari]*
21.5.3.40	Development and storage of sweet sorghum based *halwa* premix **House approved the NTP with following suggestions.** 1) Complete the experiment in one year 2) Revise objectives in tune to decided treatments 3) Add pH, acidity and rancidity in the observation 4) Finalize statistical design and replications by consulting statistician 5) Include one process engineer in the experiment *[Action: Principal, ACH, NAU, Navsari]*

21.5.3.41	Drying and storage study of sweet sorghum tender grain **House approved the NTP.** *[Action: Principal, ACH, NAU, Navsari]*
21.5.3.42	Development and storage study of mixed variety mango RTS **House approved the NTP with following suggestion.** 1) Check statistical design *[Action: Principal, ACH, NAU, Navsari]*
21.5.3.43	Development of dehydrated Oka pod snacks **House approved the NTP with following suggestion.** 1) Revise the title as "Development of dehydrated Oka pod snacks" 2) Revise the treatments & statistical design accordingly *[Action: Principal, ACH, NAU, Navsari]*
21.5.3.44	Development of SPV operated seed pelleting machine for small farmers **House approved the NTP with following suggestions.** 1) Replace the word "Coating" in place of "Pelleting" in title 2) Remove statistician and Dr. V. T. Shinde 3) Add Dr. S. H. Sengar in the experiment 4) Add Percent of water 5) Statistical design should be CRD factorial instead of CRD *[Action: Principal, NMCA, NAU, Navsari]*
21.5.3.45	Effect of deficit irrigation and biochar amendment on the growth, yield and quality of brinjal **House approved the NTP with following suggestions.** 1) Include vegetable scientist in place of Dr. V.T. Shinde 2) Take irrigation regimes as 60%, 80% and 100% of IW/ET_C 3) Biochar dose may be decided after consulting vegetable scientist *[Action: Principal, NMCA, NAU, Navsari]*
21.5.3.46	Influence of bed planting and irrigation scheduling on growth and productivity of mango zinger crop in black soil of South Gujarat. **House approved the NTP with following suggestions.** 1) Take strip plot design and modify the treatments layout 2) Include vegetable scientist in place of Dr. V.T. Shinde *[Action: Principal, NMCA, NAU, Navsari]*
21.5.3.47	Optimization of drone spraying parameters for sugarcane crop under South Gujarat conditions. **House approved the NTP with following suggetions.** 1) Revise the title as "Performance evaluation of drone spraying pattern in sugarcan crop under South Gujarat conditions" 2) Take observation of nozzle pressure, swath width, time of operation, coefficient of uniformity with wind drift 3) Remove the name of statistician as investigator 4) Comparative performance evaluation with existing spraying methods to be undertaken 5) Cost economics of conventional method and drone spraying technology to be undertaken *[Action: Principal, NMCA, NAU, Navsari]*

21.6 BASIC SCIENCE & HUMANITIES (PLANT PHYSIOLOGY, BIO-CHEMISTRY & BIOTECHNOLOGY)

Date & Venue: 12-14 May 2025 & SDAU, Sardarkrushinagar

Chairman	Dr. R. M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar
Co-Chairman-1	Dr. Sanjay Mohan Jha, Principal (ASPEE Shakilam Biotechnology Institute), NAU, Navsari
Co-Chairman-2	Dr. J. J. Dhruv, Professor and Head, (Department of Biochemistry, BACA), AAU, Anand
Rapporteurs	1. Dr. Ajay Narwade, NAU, Navsari 2. Dr. H. P. Gajera, JAU, Junagadh 3. Dr. Sushil Kumar, AAU, Anand 4. Dr. Yogesh Patel, SDAU, Sardarkrushinagar
Statistician	Dr. G. K. Chaudhari, Prof. & Head, SDAU, Sardarkrushinagar

The 21st Combined AGRESCO Meeting of Basic Science & Humanities (Plant Physiology, Bio-Chemistry and Biotechnology) sub-committee was held at Sardar Smruti Kendra, SDAU, Sardarkrushinagar during 12-14, May, 2025. At the beginning, Dr. H. S. Bhadauria, Convener, Basic Science sub-committee, SDAU welcomed Chairman Dr. R. M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar; Co-Chairmen - Dr. Sanjay Mohan Jha, Principal (ASPEE Shakilam Biotechnology Institute), NAU, Navsari, and Dr. J. J. Dhruv, Professor and Head, (Department of Biochemistry, BACA), AAU, Anand, Statistician, Conveners, Rapporteurs and all the members from SAUs.

Chairman, Dr. R. M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar, expressed his satisfaction with the efforts made by the scientists of all four State Agricultural Universities to strengthen Agriculture through Basic Science research. He also mentioned that Basic Science research contributes to long-term food security and environmental sustainability by equipping researchers and farmers with the tools to adapt to changing climatic conditions and resource limitations. The cconveners of the Basic Science & Humanities sub- committees of SAUs presented recommendations and new technical programmes of their respective Universities.

Presentation of recommendations and new technical programmes by Conveners of SAUs

Sr. No.	Name	Designation & University
1	Dr. Amar Sakure	Assistant Research Scientist, Department of Agricultural Biotechnology, AAU, Anand
2	Dr. M. V. Parakhiya	Associate Professor, Department of Biotechnology and Biochemistry, JAU, Junagadh
3	Dr. Vipulkumar Patel	Associate Professor, Forest Biotechnology Laboratory, College of Forestry, NAU, Navsari
4	Dr. H. S. Bhadauria	Principal and Dean, College of Basic Science and Humanities, SDAU, Sardarkrushinagar

Summary

Name of University	No. of Recommendations				New Technical Programs	
	Farmers/Entrepreneurs/ Industry		Scientific			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	--	--	05	05	02	02
JAU	01	01	01	01	09	08
NAU	--	--	08	7+1*	07	07
SDAU	05	05	09	09	04	04
Total	**06**	**06**	**23**	**22**	**22**	**21**

* Extended for one more year

21.6.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

	Nil

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.6.1.1	**Effect of growth regulators on growth and yield of chickpea** Farmers in North Saurashtra Agro-climatic Zone cultivating chickpeaduring the *Rabi* season are recommendedto spray salicylic acid @ 20 ppm (0.2 gram/10 litre) at flower initiation stage for achieving higher yield and net returns through enhanced growth parameters. ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં રવિ ઋતુમાં ચણાનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ચણાના પાકમાં ફૂલ બેસવાના સમયે ૨૦ પી.પી.એમ.(૦.૨ ગ્રામ/૧૦ લિટર) સેલીસીલિક એસીડનો છંટકાવ કરવાથી વૃદ્ધિને લગતા પરિબળોનો વધારો થવાથી વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવી શકાય છ **Approved** *[Action: Research Scientist, Main Dry Farming Research Station, JAU, Targhadia]*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

	Nil

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

21.6.1.2	**Evaluation of microbial population in jeevamrut prepared with cow, buffalo and horse dung** The farmers are recommended to use Jeevamrut prepared from Kankrej cow dung on 10th day after preparation, as it contains higher bacterial and fungal counts compared to the Jeevamrut prepared from the dung of Kankrej bull, Gir cow, HF cow, Mahesani buffalo, Banni buffalo and Horse. Among three seasons, maximum bacterial and fungal counts are observed in the Jeevamrut prepared in the monsoon.

	ખેડુતોને કાંકરેજ ગાયના છાણમાંથી બનાવેલ જીવામૃત દસમા દિવસે વાપરવાની ભલામણ કરવામાં આવે છે કારણ કે તે કાંકરેજ આખલો, ગીર ગાય, એચ એફ ગાય, મહેસાણી ભેંસ, બન્ની ભેંસ અને ઘોડાના છાણમાંથી બનાવેલ જીવામૃત કરતા બેક્ટેરિયા અને ફૂગની સૌથી વધુ સંખ્યા ધરાવે છે. ત્રણ ઋતુઓ પૈકી, ચોમાસામાં બનાવેલ જીવામૃતમાં બેક્ટેરિયા અને ફૂગની મહત્તમ સંખ્યા જોવા મળેલ છે. **Approved with following suggestions** 1. Prepare scientific information with microbial count data from this recommendation *[Action: Dean, CBSH, SDAU, Sardarkrushinagar]*
21.6.1.3	**Enumeration and comparison of total viable microbial count from cow dung** Farmers are recommended to utilize the dung of Gir lactating cow, as it contains higher bacterial and fungal counts compared to the dung of Kankrej lactating cow, heifer, female calf, male calf, breeding bull, bullock, Gir heifer as well as that of HF lactating cow, heifer and female calf. Among three seasons, Gir lactating cow dung showed the highest bacterial and fungal counts in the monsoon and winter, respectively. ખેડુતોને દુધાળી ગીર ગાયનું છાણ વાપરવાની ભલામણ કરવામાં આવે છે કારણ કે તે કાંકરેજ દુધાળી ગાય, વોડકી, વાછરડી, વાછરડા,આખલા, બળદ, ગીર વોડકી તેમજ એચ એફ દુધાળી ગાય, વોડકી અને વાછરડીના છાણ કરતા બેક્ટેરિયા અને ફૂગની સૌથી વધુ સંખ્યા ધરાવે છે. ત્રણ ઋતુઓ પૈકી, દુધાળી ગીર ગાયના છાણમાં બેક્ટેરિયા અને ફૂગની મહત્તમ સંખ્યા અનુક્રમે ચોમાસા અને શિયાળાની ઋતુમાં જોવા મળેલ છે. **Approved with following suggestions** 1. Recast recommendation paragraph in English and Gujarat after removing breed repetition. 2. Replace the word “use” with “utilize” in the recommendation text. 3. Prepare scientific information with microbial count data from this recommendation *[Action: Dean, CBSH, SDAU, Sardarkrushinagar]*
21.6.1.4	**Determination of total viable bacterial population in the dung of sheep and goat** Farmers are recommended to use the dung of Marwari female sheep, as it contains higher bacterial count compared to the dung of Marwari male sheep, Mehsani female goat, male goat and goat kid. Among three seasons, Marwari female sheep dung showed the highest bacterial count in the summer. ખેડુતોને મારવાડી ઘેટીની લીંડી વાપરવાની ભલામણ કરવામાં આવે છે કારણ કે તે મારવાડી ઘેટા, મહેસાણી બકરી, બકરા અને લવારાની લીંડી કરતા બેક્ટેરીયાની સૌથી વધુ સંખ્યા ધરાવે છે. ત્રણ ઋતુઓ પૈકી, મારવાડી ઘેટીની લીંડીમાં બેક્ટેરીયાની મહત્તમ સંખ્યા ઉનાળાની

	ઋતુમાં જોવા મળેલ છે. **Approved with following suggestion** 1. Recast recommendation paragraph in English and Gujarat after removing breed repetition. 2. Prepare scientific information with bacterial count data from this recommendation *[Action: Dean, CPCA, SDAU, Sardarkrushinagar]*
21.6.1.5	**Enumeration and comparison of total viable microbial count from buffalo dung** Farmers are recommended to use the dung of Mehsani buffalo heifer, as it contains higher bacterial count compared to the dung of Mehsani lactating buffalo, breeding bull, male calf, female calf, as well as that of Banni lactating buffalo, bull, heifer and female calf. Among three seasons, Mehsani heifer dung showed the higher bacterial count in the summer whereas Mehsani male calf showed higher fungal count in winter. ખેડુતોને મહેસાણી ભેંસની વોડકીનુ છાણ વાપરવાની ભલામણ કરવામાં આવે છે કારણ કે તે મહેસાણી દુધાળી ભેંસ, સાંઢ, પાડા, પાડી તેમજ બન્ની દુધાળી ભેંસ, સાંઢ, વોડકી અને પાડીના છાણ કરતા બેક્ટેરિયાની સૌથી વધુ સંખ્યા ધરાવે છે. ત્રણ ઋતુઓ પૈકી, મહેસાણી ભેંસની વોડકીના છાણમાં બેક્ટેરિયાની સંખ્યા ઉનાળાની ઋતુમાં જ્યારે મહેસાણી પાડાના છાણમાં ફૂગની મહત્તમ સંખ્યા શિયાળાની ઋતુમાં જોવા મળેલ છે. **Approved with following suggestion** 1. Recast recommendation paragraph in English and Gujarat after removing breed repetition. 2. Prepare scientific information with microbial count data from this recommendation *[Action: Dean, CPCA, SDAU, Sardarkrushinagar]*
21.6.1.6	**Screening of promising mustard genotypes for salt tolerance in field condition on Adiya Farm** Farmers of the North Gujarat cultivating mustard in salt affected soil are recommended to sow Gujarat Mustard 3 for getting higher seed yield. ઉત્તર ગુજરાતની ખારાશવાળી જમીનમાં રાઇની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન મેળવવા માટે ગુજરાત રાઇ ૩ જાતની વાવણી કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion** 1. Use 'salt affected soil' instead of 'saline soil' in all table. *[Action: Unit Head, COR, SDAU, Sardarkrushinagar]*

21.6.2 INFORMATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.6.2.1 Identification of linked markers associated with shelf life and lycopene content in tomato

In tomato, SSR markers namely, TGS127 and TGS740 located on LG2 and LG3 found linked with lycopene content and it can be used for the development/identification of high lycopene content variety/germplasm through breeding program and also used for screening of the germplasm at seedlings stage. The details of linked markers are given in below table:

Sr. No	Marker name	Primer sequence (5'-3')	Product size (bp)		Lycopene content (mg/100g)	
			P1	P2	P1	P2
1	TGS-127	F:GTCAATGAACGTGCTGAATTCTT R:CATTGTGTATCTTCACAACTTCCA	230	200	8.37	18.46
2	TGS-740	F:GCTTCATACCAAACACGCCCT R: TGTCCAGCACACTAAAAGCG	230	230 and 240		

P1: LA-4440, P2: ATL-10-7

Approved with following suggestions

1. Replace slash symbol (/) in table with "and" (230 and 240).
2. Add value of lycopene content of parents in table.
3. Write full name of LYC in table.

[Action: Research Scientist, Department of Agril. Biotechnology, AAU, Anand]

21.6.2.2 Development of Micropropagation protocol for large scale multiplication in Orchid (*Dendrobium* spp.)

Micropropagation protocol for Orchid via callus induction has been optimized. Among the three different explants tested (capsule, leaf and petiole), only capsule explants responded for callus formation. The standardized protocol involves utilization of Capsule explants for establishment on half strength Murashige and Skoog (MS) basal media supplemented with 1 mgL^{-1} 6-Benzylaminopurine (BAP) + 2 mgL^{-1} Naphthaleneacetic acid (NAA) providing the best callus induction (70 %). Multiple shoot induction for large scale multiplication of cultures was successfully achieved on MS medium supplemented with 0.1 mgL^{-1} BAP with highest number of multiple shoots (10.33 ± 0.33 cm). The rooting of the *in vitro* shoots can be achieved on ½ MS medium supplemented with 4.0 mgL^{-1} Indole-3-butyric acid (IBA) with highest rooting percentage (100%). *In vitro* regenerated orchid plantlets have acclimatized well and developed new shoots and roots after four weeks of transfer in paper pot containing substrate Pindstrup® during primary hardening. Under secondary hardening, these plantlets reported highest percentages of survival (93%).

Approved with following suggestions

1. Mention full name of BAP, MS, IBA etc. in recommendation paragraph

where it appear first.

2. In recommendation paragraph, replace 'technology' word by 'protocol'.
3. Mention unit of shoot length.
4. Remove "with least mortality" words from last sentence.

[Action: Associate Research Scientist, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]

21.6.2.3 Comparative structural analysis of functional protein associated with nematode resistance in tomato

The *Mi* gene-specific primers outlined below can be employed to sequence the *Mi* locus, facilitating the identification of both resistant and susceptible tomato genotypes, along with their closely related wild relatives (*S. peruvianum, S. pimpinellifolium* and *S. hirsutum*). These primers are also capable of detecting various alleles of the *Mi* gene (such as *Mi*-1, *Mi-1.1*, and *Mi-1C*) across studied Solanum species, providing valuable insights into the genetic diversity and variations of this gene within cultivated tomatoes and their wild relatives.

List of the *Mi* locus specific DNA sequencing primers

Sr. No.	Primer name	Sequence	Amplicon Size (bp)
1	Mi1_1F	TGGGCACGTGTTCTAGATGT	670
2	Mi1_1R	CCATGCAAAGCCACTTCCTT	
3	Mi1_2F	CCACATCACCTCAAGCCATG	358
4	Mi1_2R	CAAAGTGCTCCTCCTCCTCA	

Approved with following suggestions

1. Add amplicon size in recommendation table.
2. Replace "a range of" in recommendation text with "studied".
3. Mention importance or selection criteria of 12 species study in the experiment.

[Action: Assistant Professor, Department of GPB, BACA, AAU, Anand]

21.6.2.4 Comparative nutritional assessment of safed musli under different drying conditions (CI/M&APRS/2021/02)

The blanched fasciculated roots of *safed musli* (*Chlorophytum borivilianum*) treated with a 70% sucrose solution at 30°C for 7 hours, followed by vacuum drying (40°C) effectively retained the quality of the dried roots. The vacuum drying preserved a higher saponin content (2.72%), an important bioactive compound known for its medicinal benefits. Additionally, the colour characteristics of the roots were optimized, with a lightness (L) of 85.58, indicating predominately white appearance, minimal redness (a = 0.02), slight yellowish tint (b = 10.15). The result demonstrated that this process preserves both the chemical integrity and aesthetic appeal of the roots, making them more desirable for both medicinal and commercial purpose.

Drying methods	Drying time (hrs.)	Recovery rate (%)	Saponin (%)	Colour (L-whiteness)	Overall suitability
Sun drying	12.17	33.38	2.17	72.51	Not preferred due to lower recovery, less quality
Shade drying	18.83 (Slowest, $p<0.05$)	37.58	2.18	73.29	Drying rate is too slow
Tray drying	12.67	34.63	2.32	74.02	Moderate
Microwave	5.67 (Fastest, $p<0.05$)	35.69	2.46	67.60	Very Fast but lower colour and recovery rate
Vacuum drying	10.83	35.90 (Highest, $p<0.05$)	2.59 (Highest, $p<0.05$)	76.65 (Best colour, $p<0.05$)	Best for quality with moderate drying time

Approved with following suggestions

1. Add last table after recommendation text.
2. Add temperature for vacuum drying in text.
3. Add specifications of microwave drying.
4. Add word "retain" in text.
5. Correct spelling "resilt" and "bot".

[Action: Assistant Research Scientist, MAPR, AAU, Anand]

21.6.2.5 **Influence of foliar sprays of nano-fertilizers and PGRs on lucerne forage quality and seed yield (CI/MFRS Anand /2021/01)**

Three foliar applications of Nano Nitrogen Phosphate (NP) @ 1000 ppm and gibberellic acid @ 40 ppm at 20 DAS, 50 DAS and at flowering stage after second cut, result in the improvement of the quality of lucerne in terms of crude protein content (23.84%), green forage yield (345.95 q/ha), dry matter yield (71.29 q/ha), total phenol content (2.03%), total soluble sugars (11.16%), and seed yield (449.14kg/ha).

Approved with following suggestions

1. Add full form of NP in recommendation text.
2. Remove protein yield from text.
3. Write observations values in brackets for observations mention in the recommendation text.

[Action: Research Scientist, MFRS, AAU, Anand]

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.6.2.6 **Optimization of regeneration protocol using different plant growth regulator in pomegranate (*Punica granatum* L.) Cv.'Bhagwa' cultivar**

A regeneration protocol was successfully developed from using nodal explant for pomegranate (*Punica granatum* L.) cv. 'Bhagwa,' highlighting the following key findings:

- Surface sterilization with Carbendazim-50% @ 10 min + Cefotaxime @ 7 min + Kanamycin @ 5 min + Ketokenazol @ 10 min + 0.1% $HgCl_2$ @ 3 min was effectively prevented contamination in nodal explant.
- Transfer of explants every 24 hours reduces 90% polyphenol accumulation.
- Shoot initiation was achieved using MS +0.2 mg/L BAP + 0.1 mg/L NAA.
- The highest number of multiple shoots was observed using MS + 0.2 mg/L BAP + 0.1 mg/L KIN.
- Root induction was optimal with MS + 0.3 mg/L IBA using WPM media for root development.
- Hardening was most effective when plantlets were acclimatized in a 3:1 soil- to cocopeat ratio, with a 94% survival rate.

Approved with following suggestions

1. Recast entire recommendation.
2. In recommendation paragraph mention basal media in all stages.
3. Add polyphenol observation in recommendation.
4. Add maximum survival percent data.
5. Remove "primary" word from fifth point of the recommendation text.

[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

21.6.2.7 **Micropropagation of Malabar neem (*Melia dubia*)**

Optimized micropropagation protocol for *Melia dubia* plant using node as an explant is as follows:

Stage No.	Stages	Treatment
Stage 0	Sterilization treatment	70% alcohol for 60 seconds+ 4% (v/v) sodium hypochlorite for 12 mins + 0.1% (w/v) $HgCl_2$ for 12 mins
Stage 1	Culture establishment / Bud break	MS + 0.5mg/L BAP
Stage 2	Shoot multiplication	MS + 0.5 mg/L BAP + 2.5 mg/L GA_3 + 30 mg/L Adenine sulphate
Stage 3	*In vitro* rooting	½ MS + 6.0 mg/L IBA
Stage 4 and Stage 5	Acclimatization (Primary and Secondary Hardening)	Soil: Cocopeat: Vermicompost (1:2:1)

	Approved with following suggestions 1. In stage 3 column write ½ MS instead of MS. 2. In stage 2 column write "MS + 0.5 mg/L BAP + 2.5 mg/L GA3 + 30 mg/L Adenine sulphate" instead of "MS + 0.5 mg/L BAP ,2.5 mg/L GA3 and 30 mg/L Adenine sulphate". 3. Write transform value outside the bracket in the report tables. 4. Reframe the sentence mention in the treatment column of stage 0. *[Principal, ASBI, NAU, Surat]*
21.6.2.8	**Study of multifunctional characters of endophytic bacteria isolated from wild cotton plant, *Gossypium aridum*** The endophytic bacterial strains *Priestia aryabhattai* NAU-GA-PR-3R and *Bacillus cereus* NAU-GA-PR-2R isolated from wild cotton species, *Gossypium aridum* was profound with multifaceted plant growth promoting, protecting and salt tolerance ability. The *Priestia aryabhattai* NAU-GA-PR-3R showed solubilization of zinc, potash and phosphate; produced GA_3, cellulase, chitinase, protease, HCN and siderophore; showed inhibition of 60.23 %, 38.59 % and 34.61 % of phytopathogenic fungi against *Sclerotium rolfsii*, *Corynespora cassiicola* and *Fusarium oxysporum,* respectively and can tolerate up to 800 mM of salt concentration. The *Bacillus cereus* NAU-GA-PR-2R produced phytohormones IAA and GA_3; produced cellulase, chitinase and protease, siderophore and HCN; showed inhibition of phytopathogenic fungi 55.73%, 40.58 % and 29.98 % against *Sclerotium rolfsii*, *Corynespora cassiicola* and *Fusarium oxysporum*, respectively and can tolerate up to 800 mM of salt concentration. **Approved with following suggestions** 1. Mention the names of crop in the recommendation text. 2. Mention inhibition of *Fusarium oxysporum* in the recommendation text. 3. Mention the salt tolerance level in the recommendation text. *[Research Scientist (Cotton), MCRS, NAU, Surat]*
21.6.2.9	**Screening of cotton genotype under saline environment** Scientist working on cotton for saline soil ($EC_{1:2.5}$ 4 dSm^{-1}) are informed to use genotypes GISV-260, GISV-130, GN Cot 26, GISV-263 and G Cot 16 as they are high yielding among the screened genotypes for further study. **Approved with following suggestions** 1. Write capital "S" in dsm in the recommendation text. 2. Mention unit in all observation of the report tables. 3. Replace word "in" with "on" in the recommendation text. *[Research Scientist (Cotton), MCRS, NAU, Surat]*
21.6.2.10	**Development of tissue culture protocol for Chrysanthemum Novel Mutants** Developed tissue culture protocol for Chrysanthemum using flower petal as explant and details of protocol are as below,

Stage No.	Stages	Treatment
1	Explant sterilization treatment (Stage 0)	Mancozeb (0.2%) + Carbendazim (0.2%) for 3 hrs followed by surface sterilization with $HgCl_2$ (0.1%) for 4 minute
2	Callus initiation (Stage 1) (9 to 14 days)	Murashige and Skoog (MS) + Benzylaminopurine (BAP) (4 mg/l) + Naphthalene Acetic Acid (NAA) (1 mg/l)
3	Shoot regeneration (Stage 2)	MS + BAP (4 mg/l) + NAA (0.1 mg/l)
4	Shoot multiplication (Stage 3)	MS + BAP (5 mg/l) + NAA (0.1 mg/l) + Gibberellic acid (GA3) (0.2 mg/l)
5	Root initiation (Stage 4)	Half MS + NAA (0.50 mg/l)
6	Hardening (Stage 5) (primary hardening)	Coco peat
7	Hardening (Stage 6) (secondary hardening)	Soil + Sand + Vermicompost (1:1:1)

Approved with following suggestions

1. Add full name of ingredients and plant growth regulators.
2. Mention duration in callus initiation in recommendation paragraph (state 1).

[HOD, Department of Plant Physiology, NMCA, NAU, Navsari]

21.6.2.11 **Application of CSM-CERES-Rice model for assessment of plant density and nitrogen management of transplanted rice for tropical environment**

Suggestions:

1. Extend and perform for one more year field experiment.
2. Mention Gurjari crop information/ history related to agronomy and breeding aspects in the introduction.
3. Run model again based on third year 2025 field data.
4. Resubmit in next AGRESCO after incorporating all the suggestions.

[HOD, Department of Plant Physiology, NMCA, NAU, Navsari]

21.6.2.12 **Exploring Actinomycetes for their cellulolytic and lignolytic activity**

Streptomyces sp. strain A33 and *Streptomyces* sp. strain A31 produce cellulase and lignin modifying enzymes (LMEs). Both these enzymes can able to degrade agrowaste and hence, both these isolates can be utilized for agrowaste management. Also both the isolate inhibit *Fusarium moniliforme* and *Macrophomina* and hence can be used for control of these two pathogens.

Approved

[Prof. & Head, FQTL, NMCA, NAU, Navsari]

21.6.2.13 **Isolation and characterization of chitinolytic microorganism**

Bacillus sp. C11 produced higher chitinase (19 U/ml) at pH 7 and 45 °C and inhibited growth of *Fusarium oxysporum* and *Sclerotium* sp.

Approved with following suggestions

1. Remove the line "Chitinase can able to break down the chitin present in fungal cell wall and thus can be utilize to control fungal plant pathogens" from the recommendation text.
2. Write "produced" instead of "produce" and "inhibited" instead of "inhibit" in the recommendation text.

[Prof. & Head, FQTL, NMCA, NAU, Navsari]

21.6.2.14 **Study of biochemical and mineral composition of different vegetable micro greens and their mature greens**

Amaranth, Coriander, Fenugreek, Lettuce and Spinach vegetable microgreens exhibited significantly higher levels of protein, ascorbic acid, phenolic compounds and antioxidant activity compared to their mature counterparts.

	Protein (%)	**Ascorbic Acid (mg/100g)**	**Total Phenol (%)**	**Total anti-oxidant activity (%)**
Amaranth	3.87	0.044	0.176	53.79
Coriander	2.73	0.040	0.181	60.10
Fenugreek	4.52	0.042	0.101	56.35
Lettuce	1.98	0.032	0.142	48.39
Spinach	4.33	0.051	0.123	63.10

Approved with following suggestions

1. Recheck the Table 4 of the experiment.
2. Write value for various parameters instead of writing higher values of protein, ascorbic acid, phenolic compounds and antioxidant activity in the recommendation text.

[Principal, COA, NAU, Bharuch]

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

21.6.2.15 **Analysis of nutritional properties of Pearl millet grown at different locations of North Gujarat**

Location affects the nutritional quality of pearl millet grains. Among selected locations, Sardarkrushinagar recorded the highest carbohydrate and protein content, Sihori had maximum phenol content and antioxidant activity, while Vijapur displayed the superior value of fat and crude fiber.

Approved with following suggestions

1. Mention Agro-climatic zone of the locations.
2. Check data for protein and moisture content.
3. Verify data from table specific for Fe & Zn content.
4. Include the soil testing analysis of all locations.

[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]

21.6.2.16

Characterization of Sesame (*Sesamum indicum*) genotypes for salinity stress tolerance

Sesame (*Sesamum indicum* L.) capsule number, shoot dry weight and plant height are positively correlated with seed yield, making them valuable selection traits for salt tolerance. Genotypes IC 0132337, VRI 2, and IC 129461 showed maximum seed yield at Sardarkrushinagar, Adiya and Kothara locations respectively.

Approved with following suggestions

1. Check the data for Na/K ratio in table 10.
2. In recommendation paragraph, replace word 'salinity tolerance' by 'salt tolerance' and recast accordingly.

[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]

21.6.2.17

Development of SSR marker panel for differentiation of castor hybrids released from Gujarat

Listed polymorphic markers representing all the 10 chromosomes of castor are useful for differentiation of castor hybrids released from Gujarat.

Marker Name	Chromosome	Forward	Reverse
Castor_SSR_33	1	CAGAGCCCATGGTGATTTCT	CCACAAAAAGCAGCCAAATC
Castor_SSR_299	2	CCTGGTTTCTGCTCGTCTTC	CCTCCTCTGTTCTTTTCCCC
Castor_SSR_293	3	TCCTTATGAACAAAGTGGAGAATG	CAGCTTGAGGGGGAGTGTTA
Castor_SSR_28	4	GGCTGCATTGCTTTTCAAAT	CAAGGTAACAGGTGACTTGCTG
Castor_SSR_138	5	GAAATCTGGTGCCCTCAATC	CGCATTTACCACAAGCAAAA
Castor_SSR_66	6	ATGGCTGGCTAGGAAATGTG	AGGCTTGCATGTAATGGCAC
Castor_SSR_44	7	CACTCACCCAGCACACTCAC	TCGTAGCTAGAGAGGCACATTG
Castor_SSR_43	8	GGTGCACCATACCTCAGGA	CCCTTTCCAGCACCAAACTA
Castor_SSR_263	9	CTTGCAAAGTCAGGCAAACA	GTTGGTTCTGGTTTGGTTGG
Castor_SSR_259	10	CATCTGAGCTGAGAGGAGCA	TGGCCATTTCACAAGTTTTTC

Approved with following suggestions

1. Delete second objective.
2. Modify the title and remove 'Flurosence labeled' word in the title.

[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]

21.6.2.18 **Dissipation study on Triazole fungicide residues in/on Cauliflower**

Triazole fungicides residues in cauliflower are maximum dissipated with ozonation @ 350 mg/hour for three and half hours.

Approved with following suggestions

1. Recast recommendation paragraph with addition of word 'Maximum' before dissipated.

[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]

21.6.2.19 **Effect of smoke water on biochemical and physiological attributes of green gram**

Cluster bean crop residue smoke water (1Kg/L) sprayed at 20, 40 and 60 days after sowing increases chlorophyll content upto 50 per cent and leaf area upto 18 per cent, as well as yeild increased numerically up to 31 per cent in green gram variety GM 4 in summer season.

Approved with following suggestions

1. Mention "yield increase" in the recommendation text.

[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]

21.6.2.20 **Evaluation of microbial population in jeevamrut prepared with cow, buffalo and horse dung**

The enumeration of total viable bacterial and fungal count from jeevamrut prepared from different animal fresh dungs across three seasons during the year 2022-24 revealed the highest bacterial and fungal count in jeevamrut prepared from Kankrej cow dung on 10th day in monsoon season after preparation. The pooled microbial population (cfu/ml) in different jeevamrut preparations was as follows:

Animals	Days	Bacterial count (x 10^{11} cfu/ml)			Fungal count (x 10^{4} cfu/ml)		
		Summer	Monsoon	Winter	Summer	Monsoon	Winter
Kankrej cow	0	0.82	0.16	0.03	6.50	0.03	4.59
	5	1.41	94.25	16.89	8.00	0.13	11.26
	10	32.27	1771.71	184.83	16.10	11.29	721.50
	15	10.04	5.11	7.22	29.30	8.51	112.89
	20	5.43	0.85	4.41	4.40	3.64	96.56
	25	2.63	0.22	0.29	2.00	1.13	69.83
	30	1.11	0.11	0.05	0.60	0.55	32.74
Kankrej bull	0	0.15	0.10	0.01	3.80	0.02	1.37
	5	0.16	6.97	16.31	2.20	0.07	4.51
	10	7.60	532.13	44.55	82.60	2.81	91.75
	15	2.57	4.10	3.89	46.80	1.73	65.91
	20	0.72	3.05	2.10	42.10	0.83	32.53
	25	0.74	0.06	0.15	3.90	0.85	18.70
	30	0.35	0.04	0.05	0.40	0.86	4.52
Gir cow	0	0.64	0.05	0.02	16.00	0.39	5.65
	5	0.53	4.31	17.20	3.00	0.03	12.88
	10	5.17	362.04	52.14	4.30	0.43	89.67
	15	4.03	0.88	7.12	38.90	0.33	70.10
	20	1.57	0.20	3.65	7.70	0.32	55.55
	25	1.36	0.12	0.26	5.10	0.21	32.29
	30	0.38	0.05	0.07	0.40	0.12	10.26
H.F.	0	0.41	0.04	0.01	16.70	0.07	5.85

cross breed cow	5	0.36	1.32	9.49	7.00	0.47	11.63
	10	1.12	167.40	18.56	98.50	0.00	12.59
	15	0.42	0.50	1.32	104.40	0.00	9.56
	20	0.47	0.33	1.29	9.40	0.00	4.51
	25	0.46	0.08	0.04	4.50	0.00	1.73
	30	0.05	0.04	0.01	0.50	0.00	1.01
Mahesani buffalo	0	0.12	0.04	0.04	6.50	0.07	4.48
	5	0.14	23.62	10.33	9.00	0.07	21.37
	10	12.22	253.57	63.45	12.00	3.78	140.00
	15	7.02	1.88	19.83	204.80	3.24	46.36
	20	3.95	2.30	3.06	44.20	0.87	39.62
	25	0.61	0.05	0.10	7.60	0.75	5.67
	30	0.41	0.02	0.07	1.30	0.65	1.73
Banni buffalo	0	0.79	0.09	0.05	5.10	0.08	5.61
	5	0.57	80.20	25.69	9.60	0.63	9.60
	10	34.19	973.74	150.05	13.40	4.33	178.68
	15	8.08	4.18	10.04	407.00	3.74	96.64
	20	1.71	5.59	1.63	21.50	4.23	61.46
	25	0.99	0.10	0.18	13.90	1.05	4.17
	30	0.64	0.06	0.07	0.80	0.52	7.42
Horse	0	0.10	0.03	0.08	40.30	0.01	1.23
	5	0.19	2.65	4.49	6.00	0.07	7.19
	10	3.61	219.20	10.62	9.10	0.01	69.15
	15	2.08	3.38	3.78	13.70	0.00	21.43
	20	0.59	0.76	0.63	5.20	0.00	7.09
	25	0.50	0.06	0.02	7.90	0.00	4.23
	30	0.12	0.04	0.01	0.60	0.00	1.91

Approved

[Action: Dean, CBSH, SDAU, Sardarkrushinagar]

21.6.2.21 Enumeration and comparison of total viable microbial count from cow dung

The enumeration of total viable bacterial and fungal count from fresh dung samples of cows across three seasons during the year 2022-24 revealed the highest bacterial and fungal count in the dung of Gir lactating cow in monsoon and winter season respectively. The pooled microbial population (cfu/g) in different cows' fresh dung was as follows:

Sr. No.	Animal type	Bacterial count (x 10^{10} cfu/g)			Fungal count (x 105 cfu/g)		
		Summer	Monsoon	Winter	Summer	Monsoon	Winter
1.	Kankrej lactating cow	3.04	13.20	0.84	0.47	2.58	13.40
2.	Gir lactating cow	1.97	16.50	1.01	0.74	1.86	26.10
3.	HF lactating cow	0.13	0.83	0.04	0.25	0.41	2.56
4.	Kankrej Heifer	0.38	1.74	0.12	0.75	1.45	8.93
5.	Gir Heifer	0.57	2.56	0.11	0.54	0.88	15.80
6.	HF Heifer	0.11	0.27	0.03	0.18	0.28	0.54
7.	Kankrej female calf	0.11	0.42	0.07	0.97	1.65	3.30
8.	HF female calf	0.03	0.06	0.03	0.25	0.25	0.29
9.	Kankrej male calf	0.35	1.16	0.26	0.45	0.87	3.38
10.	Kankrej breeding bull	0.27	2.52	0.11	0.88	1.37	7.45
11.	Kankrej bullock	0.15	1.86	0.15	0.48	2.79	4.94

Approved

[Action: Dean, CBSH, SDAU, Sardarkrushinagar]

21.6.2.22 **Determination of total viable bacterial population in the dung of sheep and goat**

The enumeration of total viable bacterial count from fresh dung samples of sheep and goat across three seasons during the year 2022-24 revealed the highest bacterial count in the dung of Marwari female sheep during summer season. The pooled microbial population (cfu/g) in different sheep and goat fresh dung was as follows:

Sr. No.	Animals	Bacterial count (x 10^9 cfu/g)		
		Summer	Monsoon	Winter
1.	Marwari Female sheep	1.92	1.46	1.16
2.	Marwari Male sheep	1.78	1.77	1.25
3.	Mehsani Female goat	1.51	1.36	1.17
4.	Mehsani Male goat)	1.36	1.19	0.984
5.	Mehsani Goat kid	1.33	1.04	0.897

Approved

[Action: Dean, CPCA, SDAU, Sardarkrushinagar]

21.6.2.23 **Enumeration and comparison of total viable microbial count from buffalo dung**

The enumeration of total viable bacterial and fungal count from fresh dung samples of buffaloes across three seasons during the year 2022-24 revealed the highest bacterial count in the dung of Mehsani buffalo heifer in summer season and maximum fungal count in the dung of Mehsani buffalo male calf in winter. The pooled microbial population (cfu/g) in different buffaleos' fresh dung was as follows:

Sr. No.	Animal type	Bacterial count (x 10^{10} cfu/g)			Fungal count (x 10^5 cfu/g)		
		Summer	Monsoon	Winter	Summer	Monsoon	Winter
1.	Mehsani buffalo male calf	9.89	7.40	4.21	4.50	5.71	10.10
2.	Mehsani buffalo breeding bull	13.80	11.00	12.10	3.24	6.76	5.96
3.	Mehsani buffalo female calf	8.37	6.65	3.99	6.40	8.46	7.97
4.	Mehsani buffalo heifer	21.70	9.51	5.22	4.78	6.46	9.61
5.	Lactating Mehsani buffalo	11.80	11.70	9.85	3.21	6.72	7.00
6.	Banni buffalo female calf	9.51	8.23	5.04	3.80	6.31	5.59
7.	Banni buffalo heifer	13.20	9.94	4.63	4.47	9.68	8.63
8.	Lactating Banni buffalo	11.10	8.46	4.54	3.89	5.98	6.05
9.	Banni buffalo bull	10.30	7.32	3.67	3.60	5.04	7.98

Approved

[Action: Dean, CPCA, SDAU, Sardarkrushinagar]

21.6.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action
21.6.3.1	Development of Microrhizomes technology for healthy planting material of Ginger (*Zingiber officinale* Roscoe)	**Approved with following suggestion** 1. Add word "development of " in title. *[Action: Associate Research Scientist, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]*
21.6.3.2	Synthesis of different concentration of Nano-nitrogen formulations and its bio efficacy for growth and yield parameter in wheat	**Approved with following suggestions** 1. Remove 8% nano treatments in table. 2. Perform field experiment for three years if two years data not consistent. 3. Add moisture and starch parameters in observation to be recorded. 4. Keep number of replications four. *[Action: Associate Research Scientist, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title	Suggestion/s and Action
21.6.3.3	Elixir Potential of Bitter gourd through metabolic and minerals profiling	**Approved with following suggestions** 1. Add observations for total phenol content and moisture content. 2. Take four repetitions in the experiment. *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.4	Metabolic and mineral profiling of edible wild *Reishi* mushroom	**Approved with following suggestions** 1. Correct all objective as 'to determine' replacing 's' 2. Add observations for total protein content. 3. Mention stage - mature ripen stage for sampling. 4. Delete observation -9 (Color characteristics). 5. Specify the pigments to be measured in the observations. 6. Mention CRD design in the experiment. *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.5	Phytochemicals and minerals decoding in different leaf tissues of plant species and its paste utilizing botanical pesticide	**Approved with following suggestions** 1. Recast the title after removing the "used as botanical pesticides in natural farming" words. 2. Merge this experiment with 21.6.3.7. 3. Remove "Dashparni" word from objectives. 4. Add observations of total phenol content and moisture

		percentage from leaf. 5. Remove 3rd objective from the experiment. *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.6	Cataloguing of Pollen morphology of Agriculturally important crops through Scanning Electron Microscopy	**Dropped** *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.7	Photochemical and minerals compounds detection in Individual powder used as botanical pesticides in natural farming	**Approved with following suggestions** 1. Merge this experiment with 21.6.3.5. 2. Replace word 'chutney' by 'paste'. *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.8	Molecular identification, antimicrobial properties and phytochemical profiling of endophytes isolated from Moringa (*Moringa oleifera*) leaves and Betel (*Piper betel*) leaves	**Approved with following suggestions** 1. Merge this experiment with 21.6.3.9 and recast the title and objectives. 2. Add PGPR/antagonism word in objective-1. *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.9	Molecular identification, antimicrobial properties and phytochemical profiling of endophytes isolated from Betel (*Piper betel*) leaves	**Approved with following suggestions** 1. Merge this experiment with 21.6.3.8. *[Action: Professor and Head, Department of Biotechnology, JAU, Junagadh]*
21.6.3.10	Direct-organogenesis in Banana cultivar Grand Naine and Elaichi	**Approved with following suggestions** Merge this experiment with 21.6.3.11 and modify title accordingly. 1. Include Clonal fidelity test in plantlet with available marker. 2. In methodology include root and shoot development as well as hardening procedure. 3. Add stage wise observations during entire experiment. *[Action: Prof. and Head, Dept. of Genetics and Pl. Breeding, CoA, JAU, Junagadh]*
21.6.3.11	Direct-organogenesis in Banana cultivar Elaichi	**Approved with following suggestions** 1. Merge this experiment with 21.6.3.10. *[Action: Prof. and Head, Dept. of Genetics and Pl. Breeding, CoA, JAU, Junagadh]*

Sr. No.	Title	Suggestion/s and Action
21.6.3.12	PEGylated chitosan nanoparticles as a sustainable fertilizer delivery system for enhanced cotton productivity	**Approved with following suggestions** 1. Write RDN instead of RDF in the observation. 2. Remove protein and proline content from observation. 3. Add absolute control treatment i.e, without Nano. 4. Write days of application instead of stage of application. 5. Mention recommendation dose of NPK in the experiment. 6. Mention statistical FCRD (two factor) with 1st level on nanoparticles and 2nd level days of application. *[Action: Principal, ASBI, NAU, Surat]*
21.6.3.13	Influence of green carbon dots on seed germination and early growth of Chilli (*Capsicum annuum* L.)	**Approved with following suggestions** 1. Remove word "Evaluating" in the title. 2. Replace capsicum with chili in title and keep *Capsicum annuum* in scientific name. 3. Remove 2, 3, 6, 7 and 8 mentioned biochemical parameters from the observation. 4. Mention rice straw as a source of carbon dot. 5. Add ascorbic acid and total antioxidant activity as s new parameters in the experiment. 6. Instead of "Growth parameter will be recorded after 15 to 20 days of seed priming" mention as "Growth parameter will be recorded 15 days of transplanting". 7. Remove enzymatic studies from parameters. *[Action: Principal, ASBI, NAU, Surat]*
21.6.3.14	*In-vitro* study on seed biopriming with wild cotton endophtyic bacteria and its effect on morphometric and biochemical profile of cotton seedling under soil salinity stress	**Approved with following suggestions** 1. Replace "Total carbohydrate content" with "Soluble sugar" in the observation. 2. Write "phytochemical profile" instead of "Plant biochemical profile" in the observation. 3. Do not use $HgCl_2$ for seed treatment in the experiment. *[Action: Research Scientist (Cotton), MCRS, NAU,Surat]*
21.6.3.15	Extraction and estimation of quercetin from onion waste	**Approved with following suggestion** 1. Check the antioxidant activity unit in the observation. *[Action: Professor and Head, Dept. of Soil Science, NMCA, NAU, Navsari]*
21.6.3.16	Development of fermented tea beverage: Kombucha	**Approved with following suggestions** 1. Mention the name of yeast used in the experiment. 2. Add phenolic content in the observations. *[Action: Principal, ACH, NAU, Navsari]*

21.6.3.17	Standardization of tissue culture protocol for pineapple	**Approved** *[Action: HOD, Plant Physiology, NMCA, NAU, Navsari]*
21.6.3.18	Effects of nutrient solution and substrate on growth and phytochemical composition of microgreens	**Approved with following suggestions** 1. In the title, instead of "fertilizer" word, write as "nutrient solution". 2. Remove crude fiber content from observation. 3. Write "ABTS scavenging activity" instead of "ABTS" in the observation. *[Action: Professor and Head, Dept. of Soil Science, NMCA, NAU, Navsari]*

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title	Suggestion/s and Action
21.6.3.19	Exploration of multi-trait plant growth promoting bacteria from Gir lactating cow dung	**Approved with following suggestions** 1. Replace word "Exploring" with "Exploration of" in the title. 2. Add haemolytic test in the observations to be recorded. 3. Change the third objective as "To check the efficacy of potential isolates on maize under pot trial". 4. Collect the dung sample from lactating Gir cow. 5. Add siderophore production as a parameter. *[Action: Dean, CBSH, SDAU, Sardarkrushinagar]*
21.6.3.20	Isolation and characterization of halotolerant P and K solubilizing bacteria from doob, congress grass and lantana rhizospheres	**Approved with following suggestions** 1. Use minimal media for P and K isolate screening. 2. Include objective on identification of halotolerant of P and K isolates using 16S rRNA sequencing. 3. Take observation at the time of flowering in the experiment. 4. Grow plant in Adiya location, SDAU. 5. Recast the title "Isolation and characterization of halotolerant P and K solubilizing bacteria from doob, congress grass and lantana rhizospheres ". *[Action: Dean, CPCA, SDAU, Sardarkrushinagar]*
21.6.3.21	Standardization and validation of method for the determination of pesticide residues from milk and milk products	**Approved with following suggestions** 1. Total 30 pesticides may be targeted. 2. Include 5 milk products for testing of pesticide residues. 3. Delete second objective.

		4. Split first objective as objective one for optimization and objective two for validation. 5. Modify the title of experiment as "Standardization and validation of method for the determination of pesticide residues from milk and milk products". *[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]*
21.6.3.22	Effect of ozonation on preservation of storage grain	**Approved with following suggestions** 1. Mention relevant references related to mode of action of ozonation on pests in the introduction part of experiment. 2. Take periodical observation of antioxidant activity at 30, 60, 90 and 120 days observations. 3. Add moisture content and phenol content as new observations in the experiment. *[Action: Unit Head, BSRC, SDAU, Sardarkrushinagar]*

21.7 SOCIAL SCIENCE

Date & Venue: 05-07 May 2025 at S. D. Agricultural University, Sardarkrushinagar

Chairman	:	Dr. R. M. Chauhan, Hon'ble VC, SDAU, Sardarkrushinagar
Co-Chairmen	:	Dr. N. B. Jadav, DEE, JAU, Junagadh
		Dr. J. K. Patel, DEE, AAU, Anand
Rapporteurs	:	Dr. B. Swaminathan, JAU, Junagadh
		Dr. Y. A. Lad, AAU, Anand
		Dr. Vishal Thorat, NAU, Navsari
		Dr. J. J. Mistry, SDAU, Sardarkrushinagar
Statistician	:	Dr. M. K. Chaudhary, Associate Professor, SDAU
Venue	:	SSK, SDAU, Sardarkrushinagar

Name of Conveners of SAUs

Sr. No.	Name	University
1.	Dr. S. M. Trivedi	JAU, Junagadh
2.	Dr. J. B. Patel	AAU, Anand
3.	Dr. O. P. Sharma	NAU, Navsari
4.	Dr. V. V. Prajapati	SDAU, Sardarkrushinagar

Summary

Name of University	Recommendations Presented						
	For Farming community			For Scientific community/ policy maker/Extension Functionaries			
	Proposed	Approved	Dropped	Proposed	Approved	Dropped	Withheld
AAU	3	3	-	21	09	01	11
JAU	1	1	-	10	07	01	02
NAU	-	-	-	05	05	-	-
SDAU	7	7	-	11	10	01	-
Total	**11**	**11**	**-**	**47**	**31**	**3**	**13**

Name of University	New Technical Programmes Presented		
	Proposed	Approved	Dropped
AAU	30	25	05
JAU	5	5+1*	-
NAU	6	6	-
SDAU	28	28	-
Total	**69**	**65**	**05**

Note: * One NTP bifurcated in two NTPs

The inaugural session of the 21st Combined AGRESCO Social Science Sub-Committee Meeting commenced from 9:00 hrs onwards at Sardar Smruti Kendra, S. D. Agricultural University, Sardarkrushinagar. Dr. R. M. Chauhan, Hon'ble Vice-Chancellor, SDAU, Sardarkrushinagar graced the occasion as the Chairman of the meeting. Dr. N. B. Jadav, DEE, JAU, Junagadh and Dr. J. K. Patel, DEE, AAU, Anand served as the Co-Chairmen. The rapporteurs were drawn from all the SAUs comprising Dr. B. Swaminathan (JAU); Dr. Y. A. Lad (AAU); Dr. Vishal Thorat (NAU), and Dr. J. J. Mistry (SDAU). Besides, Dr. M. K. Chaudhary (SDAU) facilitated as the statistician during the meeting.

At the outset, Dr. K. P. Thakar welcomed Dr. R. M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar, all Conveners, Rapporteurs and members of social science Sub-Committee.

In his presidential address, Dr. R. M. Chauhan, Hon'ble Vice-Chancellor, SDAU highly appreciated the researchers of all the four SAUs. He further added that the recognition of social science discipline is gaining currency in the present times more than ever. As the reach or impact of any technology or a policy measure is set to be assessed in both quantitative and qualitative aspects. Social science researchers should equip themselves with the latest analytical tools and techniques. The Co-Chairmans appreciated the efforts initiated by Dr. R. M. Chauhan Sir to reach at recommendations and finalizing interview schedule in combined AGRESCO Social Science Subcommittee meeting. The presentation of recommendations and new technical programmes were invited from the members.

In the plenary session Dr. R. M. Chauhan, Hon'ble Vice-Chancellor, S. D. Agricultural University congratulated all the scientists for the recommendations and new technical programmes of all the SAUs. The meeting was ended with vote of thanks by Dr. V. V. Prajapati, Convener, SSC, SDAU, Sardarkrushinagar.

21.7.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.7.1.1	**Status of Nano urea usage in bidi tobacco in Middle Gujarat**
	Recommendation for farming community Farmers using Nano Urea are recommended to use it through spraying method for its efficient use. Nano urea also offers benefits like ease of transportation and storage along with year-round availability. નેનો યુરીયા આખું વર્ષ મળી રહે છે તથા તેનું વહન અને સંગ્રહ સરળતાથી કરી શકાય છે તેથી ખેડૂતોને તેનો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે . **House approved the recommendation for farming community.** ***[Action:** Principal & Dean, IABMI, AAU, Anand]*
21.7.1.2	**Awareness and utilization of PM Kisan Samman Nidhi Yojana among the farmers in Anand and Dahod districts of Middle Gujarat**
	Recommendation for farming community Most farmers are aware of benefit from the PM-Kisan Samman Nidhi Yojana for their agricultural needs. More farmers should take advantage of this scheme to purchase quality seeds, fertilizers, farm equipment, irrigation and other agri related activities which help them improve farming practices, boost productivity, and increase their income. મોટાભાગના ખેડુતો PM-કિસાન સન્માન નિધિ યોજના વિશે અવગત છે અને તેમની કૃષિ સંબંધિત જરૂરિયાતો માટે તેનો લાભ લે છે .વધુ ખેડુતો એ આ યોજનાનો લાભ લઇ ગુણવત્તાસભર બીજ, ખાતર, ખેતી સાધનો, સિંચાઈ અને અન્ય કૃષિ સંબંધિત પ્રવૃત્તિઓમાં આ યોજનામાંથી મળતી સહાય નો ઉપયોગ કરવો જોઈએ, જેનાથી તેઓ ખેતી પદ્ધતિઓમાં સુધારો કરી શકે, ઉત્પાદન ક્ષમતા વધારી શકે અને આવકમાં વધારો કરી શકે. **House approved the recommendation for farming community.** ***[Action:** Principal & Dean, IABMI, AAU, Anand]*
21.7.1.3	**Horizontal spread of Shyamal (GAU-4) among the urd bean growers**
	Recommendation for farming community Urad bean growing farmers are recommended to cultivate GAU-4 (Shyamal) variety, developed by Anand Agricultural University, Anand as it is resistant to YMV disease, gives 22 % higher yield than the average and is rated excellent to good by the farmers for its varietal characteristics. આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવેલ અડદની જીએયુ-૪ (શ્યામલ) જાત પીળા પચરંગીયા રોગ પ્રતિરોધક છે સરેરાશ ઉત્પાદન કરતાં ૨૨% વધુ ઉત્પાદન આપે છે, તથા તેની વિવિધ લાક્ષણિકતાઓ માટે ખેડૂતોના સરસ અને ઉત્કૃષ્ટ પ્રતિભાવો મળેલ છે, જેથી અડદની ખેતી કરતાં ખેડૂતોને જીએયુ-૪ (શ્યામલ) જાત વાવવાની ભલામણ કરવામાં આવે છે. **House approved the recommendation for farming community.** ***[Action**: Principal, College of Agriculture, AAU, Jabugam]*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

21.7.1.4	**Export cost estimation and mileage of major commodities of Saurashtra**
	Recommendation for farming community Exporters and farmers (including those aspiring to export) are recommended to utilize Junagadh Agricultural University "Online Export Cost estimation program". This tool assists in estimating the export expenses and mileage for major commodities, allowing users to anticipate and streamline their preparations before entering into the export process. આથી કૃષિ પેદાશોના નિકાસકર્તા અને નિકાસ માટે ઉત્સુક ખેડૂતોને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા બનાવેલ "ઓનલાઈન એક્સપોર્ટ કોસ્ટ કેલ્ક્યુલેશન પ્રોગ્રામ"નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પ્રોગ્રામ કૃષિ પેદાશોની નિકાસ માટે થનાર ખર્ચ અને માઇલેજનો અંદાજ કાઢવામાં મદદરૂપ છે, તેમજ નિકાસ પ્રક્રિયામાં જોડાતા પહેલા તેને પૂર્વનિર્ધારિત અને સરળ કરવાની સગવડ પૂરી પાડે છે. **House approved the recommendation for farming community.** ***[Action:*** *Principal, PGIABM, JAU, Junagadh]*

NAVASARI AGRICULTURAL UNIVERSITY, NAVASARI

-Nil-

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

21.7.1.5	**Awareness and utilization of agricultural application in mobile phone among farmers of Banaskantha district**
	Recommendation for farming community Farmers are recommended to increase the use of mobile application for farm machinery, irrigation, soil management, weed management, disease-pest control, fertilizer management and market price. ખેડૂતોને ફાર્મ મશીનરી, સિંચાઈ, જમીન વ્યવસ્થાપન, નીંદણ વ્યવસ્થાપન, રોગ જીવાત નિયંત્રણ, ખાતર વ્યવસ્થાપન, બજાર ભાવ જેવા વિષયો માટે મોબાઇલ એપ્લિકેશનનો ઉપયોગ વધારવા ભલામણ કરવામાં આવે છે. **House approved the recommendation for farming community.** ***[Action: -*** *Department of Agricultural Extension and Communication CPCA, SDAU, Sardarkrushinagar]*

21.7.1.6	**Factors influencing marketability of fresh dates in Kachchh district**
	Recommendation for farming community Date growers are recommended that, for improved marketability, fruits should be sweet, red in colour, and free from astringency. It is also recommended that the fruits should be preferably packed and sold in 1 kg net bags or punnets to enhance consumer demand and market value. ખારેકનું વાવેતર કરતાં ખેડૂતોને ખારેકની સારી વેચાણક્ષમતા માટે ખારેકના તાજા ફળ મીઠા, મોટા કદના, લાલ કલરના અને તૂરા ન હોય તેવા તેમજ ૧ કિગ્રા નેટ/પુનેટ્સના પેકિંગમાં તૈયાર કરી વેચાણ કરવા ભલામણ કરવામાં આવે છે. **House approved the recommendation for farming community.** ***[Action: -*** *Date Palm Research Station SDAU, Mundra, Kachchh]*
21.7.1.7	**Economics of Milk Production in Banaskantha District**
	Recommendation for farming community Dairy farmers are recommended to keep 9 or more buffaloes to reduce the cost of milk production and to achieve the higher net return per animal per day. દૂધ ઉત્પાદન ખર્ચ ઘટાડવા અને પ્રતિ દિવસ પશુ દીઠ ઊંચું ચોખ્ખું વળતર મેળવવા માટે પશુપાલકોને નવ કે તેથી વધુ ભેંસો રાખવાની ભલામણ કરવામાં આવે છે. **House approved the recommendation for farming community.** ***[Action: -*** *Dept. of Agril. Economics CPCA, SDAU, Sardarkrushinagar]*
21.7.1.8	**Impact of training programmes on knowledge gained by the dairy farmers in Banaskantha district**
	Recommendation for farming community Training programmes on scientific animal husbandry practices enhance knowledge of dairy farmers in dairy farming. Therefore, it is recommended to dairy farmers to take training on scientific animal husbandry practices to improve their knowledge of animal husbandry. પશુપાલન પધ્ધતિઓ પરના વૈજ્ઞાનિક તાલીમ કાર્યક્રમોથી પશુપાલકોના પશુપાલન અંગેના જ્ઞાનમાં વધારો થાય છે. આથી પશુપાલકોને તેમના પશુપાલન અંગેના જ્ઞાનમાં વધારો કરવા વૈજ્ઞાનિક પશુપાલન પધ્ધતિઓ પરની તાલીમ લેવાની ભલામણ કરવામાં આવે છે. **House approved the recommendation for farming community.** ***[Action: -*** *Krushi Vigyan Kendra, SDAU, Tharad]*

21.7.1.9	**Calf rearing practices adopted by farmers of Banaskantha district**
	Recommendation for farming community Dairy farmers are recommended to adopt scientific calf rearing practices like timely feeding of colostrum in required quantity, cutting of naval cord, vaccination, deworming, feeding of concentrate, green fodder and calf starter to reduce calf mortality. પશુપાલકોને ભલામણ કરવામાં આવે છે કે તેઓ વાછરડાં ઉછેર માટે વૈજ્ઞાનિક પદ્ધતિઓ જેવીકે ખીરૂ સમયસર અને જરૂરિયાત મુજબ આપવું, ડુંટો કાપવો, રસીકરણ કરાવવું, કૃમિનાશક દવાઓ આપવી, દાણ, લીલું ઘાસ અને કાફ સ્ટાર્ટર અપનાવવાથી વાછરડાંમાં મૃત્યુદર ઘટે છે. **House approved the recommendation for farming community.** ***[Action: -*** *Department of Animal Science, CPCA, SDAU, Sardarkrushinagar]*
21.7.1.10	**Knowledge and adoption of feeding and breeding practices followed by farmers in rearing Kankrej cattle**
	Recommendation for farming community Kankrej cow owners are recommended to adopt feeding practices such as use of silage, providing a balance ration and for breeding practices such as correct timing for breeding after heat detection, travis for safe breeding and maintaining proper breeding records to improve milk production and reproduction. કાંકરેજ ગાય ધરાવતા ખેડુતોને ભલામણ કરવામાં આવે છે કે ગાયના દૂધ ઉત્પાદન અને પ્રજનનમાં સુધારા માટે ખોરાકિય પદ્ધતિઓ જેવી કે સાઇલેજનો ઉપયોગ, સમતોલ પશુઆહાર આપવો અને પ્રજનન પદ્ધતિઓ જેવી કે પશુના ગરમીમાં આવ્યા પછી યોગ્ય સમયે ફેળવવું, સલામત પ્રજનન માટે ટ્રેવીસનો ઉપયોગ કરવો અને પ્રજનન અંગેના જરૂરી રેકોર્ડ્સની જાળવણી કરવી જોઈએ. **House approved the recommendation for farming community.** ***[Action: -*** *Krushi Vigyan Kendra, SDAU, Deesa]*
21.7.1.11	**Adoption of Plug tray seedling technology in watermelon**
	Recommendation for farming community Watermelon growers are recommended to adopt plug tray seedling for reducing the crop period, getting higher market price and income. તરબૂચ ની ખેતી કરતા ખેડૂતોને પ્લગ ટ્રેમાં તૈયાર કરેલ ધરું બનાવવાની આ પધ્ધતી અપનાવવાથી પાકનો સમયગાળો ઘટે છે અને ઊંચો બજાર ભાવ મળે છે જેથી આવકમાં વધારો થાય છે. **House approved the recommendation for farming community.** ***[Action: -*** *DEE, SDAU, Sardarkrushinagar]*

RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY/ POLICYMAKERS/ EXTENSION FUNCTIONARIES

ANAND AGRICULTURAL UNIVERSITY, ANAND

21.7.2.1	**Evaluation and development of yardstick of CV % for wheat crop experiments**
	Recommendation for scientific community The yard stick of CV% for accepting the results of the irrigated wheat crop experiment is recommended as 11.07 per cent and for restricted irrigated wheat as 11.41 per cent for yield character. **House approved the recommendation for scientific community.** ***[Action**: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand]***
21.7.2.2	**Forewarning of insects-pest incidence in rice crop based on weather variables using statistical methods**
	Recommendation for scientific community It is recommended that weather parameter namely maximum temperature, temperature difference, sunshine hours and relative humidity are most contributing predictors for insect-pest incidences of Dead Heart, Damage Leaf and White Backed Plant Hopper in rice crop. **House approved the recommendation for scientific community.** ***[Action**: Professor, Dept. of Agril. Statistics, BACA, AAU, Anand]***
21.7.2.3	**Machine Learning Approaches to irrigation water quality parameters prediction**
	Recommendation for scientific community Tree-based models like Light GBM and Gradient Boosting demonstrated superior predictive performance for EC, SAR and RSC, proving their reliability in groundwater assessment while effectively handling outliers. Having the strong influence of features such as Sodium (Na^+), Bicarbonate (HCO_3^-) and Total Hardness (TH) on predictions, Scientist and Stakeholder should prioritize these parameters in groundwater monitoring frameworks. **House suggested to resubmit the recommendation with following suggestions.** 1. The study is extended for the ensuing year. 2. Re-analyze and re-submit the selection criteria of the forecast models in tune with the suggestions given by the house next year. ***[Action**: Assistant Professor and Head, Dept. of Basic Science, College of Horticulture, AAU, Anand]***

21.7.2.4	**Development of scale to measure attitude of farmers towards use of Drone technology in farming**

Recommendation for scientific community

The scale is recommended for those researchers who want to measure the attitude of farmers towards use of drone technology in farming.

A. Final statements for scale to measure attitude of farmers towards use of Drone technology in farming

Sr. No.	Statement	SA	A	UD	DA	SDA
1	Drone technology is the future of farming (+) ડ્રોન ટેક્નોલોજી કૃષિનું ભવિષ્ય છે (+)	5	4	3	2	1
2	Drone technology saves resources (+) ડ્રોન ટેકનોલોજી થકી સંસાધનોની બચત થાય છે (+)	5	4	3	2	1
3	Application of drone technology in farming requires technical know-how (+) ખેતીમાં ડ્રોન ટેક્નોલોજીના ઉપયોગ માટે તાંત્રિક જ્ઞાન હોવું જરૂરી છે (+)	5	4	3	2	1
4	Adoption of drone technology in farming will lead to wage loss to labors (-) ખેતીમાં ડ્રોન ટેક્નોલોજી અપનાવવાથી શ્રમિકોને વેતનમાં નુકસાન થશે (-)	1	2	3	4	5
5	Drones used to gather data on crop health (+) ડ્રોનનો ઉપયોગ પાક સ્વાસ્થ્ય અંગેની માહિતી એકત્રિત કરવા થઈ શકે છે (+)	5	4	3	2	1
6	Use of drone technology in the agriculture sector in rural India is still in its early stages (-) ગ્રામીણ ભારતમાં કૃષિ ક્ષેત્રમાં ડ્રોન ટેકનોલોજીનો ઉપયોગ હજી પ્રારંભિક તબક્કામાં છે (-)	1	2	3	4	5
7	Drone function twice as quickly compared to human labour (+) ડ્રોન માનવ શ્રમ કરતા બમણી ઝડપે કામ કરે છે (+)	5	4	3	2	1
8	An average farmer struggle to understand drone functions (-) એક સામાન્ય ખેડૂતને ડ્રોનના કાર્યોને સમજવામાં મુશ્કેલી પડે છે (-)	1	2	3	4	5
9	Drones provide accurate data about every stage of crop growth and report any variations before they	5	4	3	2	1

	become a crisis (+) ડ્રોન થકી પાકની વૃદ્ધિના દરેક તબક્કા વિશે સચોટ જાણકારી મેળવી આવનાર કટોકટીની અવસ્થાને ટાળી શકાય છે (+)					
10	Drones is used to monitor and manage large herd size (+) ડ્રોનનો ઉપયોગ વિશાળ પશુધનની દેખરેખ અને તેના વ્યવસ્થાપન માટે થઈ શકે છે (+)	5	4	3	2	1
11	Simple agriculture drones don't fly too long (-) સાદા કૃષિ ડ્રોન ખૂબ લાંબા સમય સુધી ઉડી શકતા નથી (-)	1	2	3	4	5
12	Drones cause risks for air space (-) ડ્રોન અવકાશી ક્ષેત્રમાં જોખમ પેદા કરે છે (-)	1	2	3	4	5
13	Agriculture drones are more vulnerable to adverse weather conditions (-) કૃષિ ડ્રોન પ્રતિકૂળ હવામાન પરિસ્થિતિઓ પ્રત્યે વધુ સંવેદનશીલ છે (-)	1	2	3	4	5
14	Agriculture drones fails to monitor nocturnal pest (-) કૃષિ ડ્રોન નિશાચર જીવાતની દેખરેખ રાખવામાં નિષ્ફળ જાય છે (-)	1	2	3	4	5
15	Untrained pilot of drones fails to operate the drone correctly (-) અપ્રશિક્ષિત પાઇલોટ્સ ડ્રોનને યોગ્ય રીતે ચલાવવામાં નિષ્ફળ જાય છે (-)	1	2	3	4	5

SA-Strongly Agree, A - Agree, UD - Undecided, DA - Disagree, SDA -Strongly Disagree

House suggested to resubmit the recommendation with following suggestion.

1. Refined the statement number 5, 6, 8, 11, 15 and present the study next year with reliability and validity

***[Action**: Director, DEE, AAU, Anand]*

21.7.2.5	**Development of scale to measure attitude of farmers towards use of Nano fertilizer in farming**
	Recommendation for scientific community The scale is recommended for those researchers who want to measure the attitude of farmers towards use of Nano fertilizer in farming.

A. Final statements for scale to measure attitude of farmers towards use of Nano fertilizer in farming.

Sr. No.	Statement	SA	A	UD	DA	SDA
1	Use of nano fertilizer results in increasing crop production (+) નેનો ફર્ટિલાઇઝર ના ઉપયોગથી પાક ઉત્પાદન વધે છે (+)	5	4	3	2	1
2	Nano fertilizer fails meet the nutrient needs of entire plant (-) નેનોફર્ટિલાઇઝર સમગ્ર છોડની પોષક જરૂરિયાતોને પૂરી કરતા નથી (-)	1	2	3	4	5
3	Application of Nano fertilizer is more complex (-) નેનો ફર્ટિલાઇઝર નો ઉપયોગ કરવો ખૂબ જ જટિલ છે (-)	1	2	3	4	5
4	Other chemical fertilizers give more yield compared to nano fertilizer (-) અન્ય રાસાયણિક ખાતરો નેનોફર્ટિલાઇઝર ની સરખામણીમાં વધુ ઉત્પાદન આપે છે (-)	1	2	3	4	5
5	Nano fertilizer is a new way forward in agriculture (+) નેનો ફર્ટિલાઇઝર એ આવનાર કૃષિનું ભવિષ્ય છે (+)	5	4	3	2	1
6	One anticipates higher profits through productivity by improvement by the use of nano fertilizers (+) નેનોફર્ટિલાઇઝર્સના ઉપયોગથી પાકની ઉત્પાદકતામાં સુધારો થતાં સારો નફો મળે છે (+)	5	4	3	2	1
7	One of the primary advantages of nano fertilizer over synthetic fertilizer is their effective nutrient-release mechanism (+) અસરકારક પોષકતત્વો મુક્ત કરવાની પદ્ધતિ એ નેનોફર્ટિલાઇઝર નો અન્ય રાસાયણિક ખાતરની સરખામણીએ એક પ્રાથમિક ફાયદો છે (+)	5	4	3	2	1
8	Nano fertilizer reduce the environmental impact of other synthetic fertilizer by minimizing nutrient runoff (+) નેનોફર્ટિલાઇઝર પોષકતત્વોના ધોવાણને ઘટાડીને અન્ય રાસાયણિક ખાતરની સરખામણીમાં પર્યાવરણીય અસરને ઘટાડે છે (+)	5	4	3	2	1

9	Greenhouse gas emissions is reduced through the use of Nano fertilizer (+) નેનોફર્ટિલાઇઝર ના ઉપયોગ દ્વારા ગ્રીનહાઉસ ગેસનુ ઉત્સર્જન ઓછુ થાય છે (+)	5	4	3	2	1
10	The long-term environmental effects of nano-fertilizer use are not fully understood (-) નેનોફર્ટિલાઇઝર ના ઉપયોગથી થતી લાંબા ગાળાની પર્યાવરણીય અસરો સંપૂર્ણપણે સમજી શકાતી નથી (-)	1	2	3	4	5
11	Nano fertilizer give the best result for long-duration crops (+) નેનો ફર્ટિલાઇઝર લાંબા ગાળાના પાક માટે શ્રેષ્ઠ પરિણામ આપે છે (+)	5	4	3	2	1
12	Application of nano fertilizer is hazardous to human health (-) નેનોફર્ટિલાઇઝર નો ઉપયોગ માનવ સ્વાસ્થ્ય માટે જોખમી છે (-)	1	2	3	4	5

SA-Strongly Agree, A - Agree, UD - Undecided, DA - Disagree, SDA -Strongly Disagree

House approved the recommendation for the scientific community.

[***Action*: *Director, DEE, AAU, Anand***]

21.7.2.6 **An Economic Analysis of Natural farming of wheat in Anand and Kheda district of Middle Gujarat**

Recommendation for Extension functionaries

The study shows that there was not much difference observed in the net income earned by the farmers practicing natural farming compared to those using conventional method. The B:C ratio was higher for natural farming, despite lower gross income and yield, due to reduced input costs and the premium prices received by natural farmers. Therefore, more farmers may be encouraged to adopt natural farming practices.

House suggested to resubmit the recommendation with following suggestions.

1. Survey the 300 natural farming farmers by adding more districts of middle Gujarat and present the result next year.
2. Identify the farmers practicing all the five pillars of natural farming from the 300 farmers surveyed.
3. Present the tables 1 to 4 as per the proceedings of the 20th Combined AGRESCO meeting.
4. Conduct the study with the sample size of 300 respondents and present next year

[Action:** Professor & Head, Department of Agril. Econ., BACA, AAU, Anand**]

21.7.2.7	**Export Potential of Ready to Eat (RTE) Ready to Cook (RTC) and Ready to Serve (RTS) Products from India**
	Recommendation for scientific community and policy makers To strengthen India's market position, targeted trade policies are needed to increase the export of these commodities. For sustained growth, focus should be on stable and loyal markets like the USA, Canada and Australia in RTE category, Malaysia, USA and UK in RTC category, while USA, Netherland and Nepal in RTS category. **House approved the recommendation for scientific community and policy makers.** ***[Action:** Professor & Head, Department of Agril. Econ., BACA, AAU, Anand]*
21.7.2.8	**Crop diversification in Ahmedabad district**
	Recommendation for policy makers Farmers are shifting their cropping pattern to rice and castor replacing cotton, cumin, bajra, and wheat, as positive and significant growth for the area was found for summer rice, castor, and kharif rice with low instability whereas cotton, cumin, summer bajra, and wheat have significantly negative growth. **House suggested to resubmit the recommendation with following suggestion.** 1. Use Markov chain model for crop diversification and present the result in next year. ***[Action:** Assistant Professor & Head, Department of Basic Science, College of Horticulture, AAU, Anand]*
21.7.2.9	**Perception of farmers towards off season and seasonal cultivation of vegetables in North and South Gujarat**
	Recommendation for policymakers Seasonal cultivation provides an assured market, while off-season cultivation presents an additional opportunity to enhance income stability. With proper planning and market accessibility, off-season farming can complement seasonal practices and further strengthen farmers' income. સીઝન મુજબની ખેતી કરવાથી ખાતરીપૂર્વકનું બજાર મળી રહે છે, જ્યારે ઑફ-સીઝનની ખેતી, આવક વધારવા માટે વધારાની તક આપે છે. ખેડૂતોની આવક વધારવા યોગ્ય આયોજન અને બજારની સુલભતા થકી ઑફ-સીઝનની ખેતી, સીઝનની ખેતીને પૂરક બનાવી શકે છે. **The house approved the recommendation for policy makers.** ***[Action:** Principal & Dean, IABMI, AAU, Anand]*

21.7.2.10	**Attitude of UG students of Anand Agricultural University towards Agri-startup programmes**
	Recommendation for scientific community Considering the neutral to favourable attitude of UG students of AAU towards Agri- start up programs, difficulty to manage high initial cost to start Agri-start up program and to get permission from family faced, training should be organized for students for awareness and scope of Agri-startup programs along with the exposure visit to incubation centers, counselling sessions and special seminars, **House approved the recommendation for scientific community.** ***[Action:** Professor & Head, Dept. of Agril. Extn. &Com BACA, AAU, Anand]*
21.7.2.11	**Horizontal spread of Gujarat Anand Duram wheat-3 among the wheat growers in Bhal region**
	Recommendation for extension functionaries Feedback from the farmers about the varietal characteristics and technological traits are categorized as fair to excellent and its horizontal spread is higher in villages where FLD, OFT, Demonstrations and adaptive trials were given. Hence, more awareness programmes should be designed by the extension functionaries coupled with the seed production programme of GADW3 to increase the horizontal spread. ખેડૂતો દ્વારા ઘઉની જાત GADW3 અંગેની જાતીય અને તકનીકી લાક્ષણિકતાઓ વિશે આપવામાં આવેલ પ્રતિભાવોને વ્યાજબી થી ઉત્તમ તરીકે વર્ગીકૃત કરવામાં આવેલ છે અને જે ગામોમાં GADW3 ના પ્રથમ હરોળ નિદર્શનો, ખેડૂતના ખેતર પર અખતરા, પ્રદર્શનો તેમજ એડેપ્ટિવ ટ્રાયલ્સ આપવામાં આવ્યા હતા ત્યાં તેનો સમસ્તર ફેલાવો વધુ છે .તેથી, GADW3ના બીજ ઉત્પાદન કાર્યક્રમ સાથે વિસ્તરણ કાર્યકર્તાઓ દ્વારા તેનો ફેલાવો વધારવા માટે વધુ જાગૃતિ કાર્યક્રમો યોજવા જોઈએ . **House suggested to resubmit the recommendation with following suggestion.** 1. Reanalysis of horizontal spread and recast the recommendation and present next year ***[Action:** Professor & Head, Dept. of Agril. Extn. &Com BACA, AAU, Anand]*
21.7.2.12	**Adoption of climate resilient technologies among paddy growers in Kheda district**
	Recommendation for extension functionaries Farmers of Kheda district have medium adoption of Climate Resilience Technologies. Hence, the State Department of Agriculture, State Agricultural Universities and NGOs should make concerted efforts to increase the adoption of Climate Resilience Technologies.

	ખેડા જિલ્લાના ખેડૂતોએ આબોહવા બદલાવને લગતી તાંત્રિકતાઓ મધ્યમ પ્રમાણમાં અપનાવી છે. તેથી, રાજ્યના કૃષિ વિભાગ, રાજ્ય કૃષિ યુનિવર્સિટીઓ અને બિન સરકારી સંસ્થાઓએ ખેડૂતો આબોહવા બદલાવને લગતી તાંત્રિકતાઓ વધુ પ્રમાણમાં અપનાવે તે માટે ઘનિષ્ઠ પ્રયાસો કરવા જોઈએ. **House suggested to resubmit the recommendation with following suggestions.** 1. Recast the study by identifying climate resilient technologies only and present the same in next year. 2. Principle Investigator resigned from university; thus, Director of Research will assign the same to the other scientist. ***[Action:** Professor & Head, Dept. of Agril. Science,CAIT, AAU, Anand]*
21.7.2.13	**Awareness and utility perception about AAU among the farmers**
	Recommendation for extension functionaries Farmers have awareness about Anand Agricultural University due to its contributions in education, research, and extension. Through its research efforts, AAU enhances farming techniques and productivity by developing high-quality, pest and climate- resilient crop varieties and superior seeds for better yields. Additionally, AAU strengthens the agricultural community by providing specialized training programs that enhance farmers' skills and knowledge. આણંદ કૃષિ યુનિવર્સિટી ના શિક્ષણ, સંશોધન અને વિસ્તરણમાં યોગદાન થી ખેડૂતો જાગૃત છે. તેના સંશોધન પ્રયાસો દ્વારા, ખેતી તકનીકો અને ઉત્પાદકતામાં વધારો કરે છે. ઉચ્ચ-ગુણવત્તાવાળી, જીવાત અને વિષમ આબોહવા -પ્રતિકારક પાકની જાતો વિકસાવીને, ખેડૂતોને વધુ સારી ઉપજ માટે શ્રેષ્ઠ બીજ પૂરું પાડે છે .વધુમાં, આણંદ એગ્રીકલ્ચરલ યુનિવર્સિટી ખેડૂતોના કૌશલ્ય અને જ્ઞાનને વધારવા માટે વિશિષ્ટ તાલીમ કાર્યક્રમો યોજીને કૃષિ સમુદાયને મજબૂત બનાવે છે. **House approved the recommendation for extension functionaries.** ***[Action:** Associate Research Scientist, ARS, AAU, Derol]*
21.7.2.14	**Adoption of IPM technologies in castor crop in Panchmahals district**
	Recommendation for Extension Functionaries Majority of the castor growers had a low to medium level of adoption of Integrated Pest Management (IPM) technologies. They mainly used cultural and chemical practices, while other important IPM practices, like biological and mechanical practices, were often ignored. This may be due to a lack of awareness, knowledge or access to resources. To promote sustainable pest management and reduce dependence on chemical pesticides, it is important to educate farmers about the benefits and practical use of IPM through training programs, demonstrations and extension services.

	મોટાભાગના દિવેલા ઉત્પાદકોમાં સંકલિત જીવાત વ્યવસ્થાપન તકનીકોનો અમલ ઓછા થી મધ્યમ લેવલ નો છે .તેઓ મુખ્યત્વે કલ્ચરલ અને રાસાયણિક પદ્ધતિઓનો ઉપયોગ કરતા હતા, જ્યારે અન્ય મહત્વપૂર્ણ સંકલિત જીવાત વ્યવસ્થાપન પદ્ધતિઓ, જેમ કે જૈવિક અને યાંત્રિક પદ્ધતિઓ, ઘણીવાર અવગણવામાં આવતી હતી .તે જાગૃતિ, જ્ઞાન અથવા સંસાધનોની પહોંચના અભાવને કારણે હોઈ શકે છે .ટકાઉ જીવાત વ્યવસ્થાપનને પ્રોત્સાહન આપવા અને રાસાયણિક જંતુનાશકો પર નિર્ભરતા ઘટાડવા માટે ખેડૂતોને તાલીમ કાર્યક્રમો, પ્રદર્શનો અને વિસ્તરણ સેવાઓ દ્વારા સંકલિત જીવાત વ્યવસ્થાપનના ફાયદા અને વ્યવહારુ ઉપયોગ વિશે માહીતગાર કરવા જોઈએ. **House suggested to resubmit the recommendation with following suggestion.** 1. Recast the adoption categories and present next year ***[Action:** Research Scientist, Main Maize Research Station, AAU, Godhara]*
21.7.2.15	**Impact analysis of chick pea demonstration conducted by KVK, Ahmedabad**
	Recommendation for Extension Functionaries Area of the chickpea demonstrations should be increased to improve chickpea production, knowledge and adoption of recommended technology of chickpea growing farmers. ખેડૂતોમાં ચણાનું ઉત્પાદન, વૈજ્ઞાનિક પદ્ધતિ વિશેનું જ્ઞાન અને વૈજ્ઞાનિકો દ્વારા ભલામણ કરેલ ટેકનોલોજીનો સ્વીકાર વધારવા માટે ચણાના નિદર્શનનો વિસ્તાર વધારવો જોઈએ. **House suggested to resubmit the recommendation with following suggestion.** 1. Reanalysis the study by calculating two sample independent t-test and recast the recommendation accordingly and present next year. ***[Action:** Sr. Scientist and Head, KVK, AAU, Arnej]*
21.7.2.16	**Problematic soil reclamation practices adopted by the farmers of Anand district**
	Recommendation for extension functionaries Soil salinity is one of the major problems in Anand district. Various inputs like gypsum and organic fertilizer for reducing soil salinity need to be subsidized so more farmers get benefit from it and prevent further spread of soil salinity. જમીનની ખારાશ આણંદ જિલ્લાની જમીન માટે એક મહત્વની સમસ્યા છે. જમીનની ખારાશ ઘટાડવા માટે જીપ્સમ અને પ્રાકૃતિક ખાતર જેવા વિવિધ ઇનપુટ્સ પર સબસિડી આપવી જોઈએ જેથી વધુ ખેડૂતોને લાભ મળે અને જમીનની ખારાશને વધતી અટકાવી શકાય. **House suggested to resubmit the recommendation with following suggestion.** 1. Recalculate the mean score and recast the recommendation on the base of non-adopted practices and present next year ***[Action:** Sr. Scientist and Head, KVK, AAU, Devataj]*

21.7.2.17	**Impact analysis of animal husbandry training organized by KVK, Anand**
	Recommendation for extension functionaries Dairy farmers who had training in various animal husbandry practices have increased in knowledge, but adoption rate of housing practices is low, so need to give more focus for increasing the adoption of various animal husbandry practices. તાલીમ મેળવનાર પશુપાલકો ને પશુપાલન ક્ષેત્રે વિવિધ પદ્ધતિઓ વિશેના જ્ઞાનમાં વધારો થયો હતો પરંતુ રહેઠાણ અને ખોરાકની પદ્ધતિઓ અપનાવવાનો દર ધીમો છે, તેથી વિવિધ પશુપાલનની પદ્ધતિઓ વધુ જલ્દી અપનાવે તેના માટે વધુ ભાર આપવાની જરૂર છે. **The house approved the recommendation for extension functionaries.** ***[Action:** Sr. Scientist and Head, KVK, AAU, Devataj]*
21.7.2.18	**Attitude of farmers towards i-khedut portal in Kheda district**
	The House suggested to drop the project since KVK Dethali is not a member of AGRESCO committee. ***[Action:** Sr. Scientist and Head, KVK, (ICAR) Dethali-Kheda]*
21.7.2.19	**Impact analysis of Cluster Frontline Demonstration (CFLD) on chickpea growers**
	Recommendation for Extension Functionaries The knowledge and adoption levels of agricultural technology have clearly improved among beneficiary farmers due to CFLD. This highlights the importance of extension participation, mass media exposure, and psychological factors in enhancing adoption level among farmers. Therefore, extension functionary should prioritize strengthening these aspects through targeted training and extension activities. ક્લસ્ટર એફએલડી ના કારણે લાભાર્થી ખેડૂતોમાં કૃષિ તજજ્ઞતાઓના જ્ઞાન અને તેને અપનાવવાના સ્તરમા સ્પષ્ટ સુધારો થયો છે. તેમજ વિસ્તરણ કાર્યક્રમોમાં ભાગીદારી, સમૂહ સંપર્ક માધ્યમો અને મનોવૈજ્ઞાનિક પરિબળો લાભાર્થી ખેડૂતોમાં કૃષિ તજજ્ઞતાઓ અપનાવવાના સ્તર વધારવામાં મહત્વનો ફાળો પ્રકાશિત કરે છે. તેથી વિસ્તરણ કાર્યકર્તાઓએ ખાસ તાલીમ અને વિસ્તરણ પ્રવૃત્તિઓ દ્વારા આ પાસાઓને મજબૂત બનાવવા પ્રાથમિકતા આપવી જોઈએ. **House suggested to resubmit the recommendation with following suggestion.** 1. Apply one sample 't' test to compare the results 2. Reanalysis the study and recast the recommendation and present in next year. ***[Action:** Sr. Scientist and Head, KVK, AAU, Dahod]*
21.7.2.20	**Farm mechanization adopted by the farmers of Dahod district**
	Recommendation for policy makers Based on the study highlighting the challenges of farm mechanization adoption, especially for small and marginal farmers, policymakers should support rural farmers particularly from poor and tribal communities by providing technical and financial assistance. Simplifying the subsidy application, establishing custom

	hiring canters and encouraging public-private partnerships will improve access to modern equipment and promote entrepreneurship in farm mechanization. નાના અને સીમાંત ખેડૂતોના, યાંત્રિકરણ અપનાવવા ના પડકારો ઉપર ના અભ્યાસના તારણ ધ્યાને રાખી નીતિ ઘડવૈયાઓએ ખાસ કરીને નાના અને સીમાંત વર્ગ ના ગરીબ અને આદિજાતિ સમુદાયોના ગ્રામીણ યુવા ખેડૂતોને તકનીકી તેમજ આર્થિક સહાય પૂરી પાડીને ટેકો આપવો જોઈએ. સબસિડી પ્રણાલીને સરળ બનાવવાથી તેમજ કસ્ટમ હાયરિંગ સેન્ટરની સ્થાપના અને જાહેર-વ-ખાનગી ભાગીદારીને પ્રોત્સાહિત કરવાથી આધુનિક યંત્રોની ઉપલબ્ધીમાં વધારો થશે અને કૃષિ યાંત્રિકરણમાં ઉદ્યોગસાહસિકતા ને પ્રોત્સાહન મળશે. **House suggested to resubmit the recommendation with following suggestion.** 1. Reanalysis adoption of farm mechanization, present next year. ***[Action:** Head, TRTC & TFWTC, AAU, Devgadhbaria]*
21.7.2.21	**Effectiveness of training programme on cultivation practices of finger millet**
	Recommendation for extension functionaries Training programme related to cultivation practices of finger millet was found effective for the trainee farmers in terms of change in their knowledge, attitude and symbolic adoption behavior. Hence, it is advisable to conduct more planned training programmes with more practical oriented approaches and enhance numbers of training. Also, innovative and interested farmers should be motivated and encouraged to participate in training programme to enhance symbolic adoption behavior as well as attitudinal change towards cultivation practices of finger millet. નાગલીની ખેતી પદ્ધતિ સંબંધિત તાલીમ કાર્યક્રમ અંતર્ગત તાલીમાર્થી ખેડૂતોનું જ્ઞાન, વલણ અને સાંકેતિક અપનાવવાની વર્તણૂકમાં અસરકારક પરિવર્તન જોવા મળ્યુ હતુ .તેથી, વધુ પ્રાયોગિક અભિગમો સાથે તાલીમ કાર્યક્રમો હાથ ધરવા અને તાલીમોની સંખ્યા વધારવાની સલાહ છે. તદઉપરાંત, ઉત્સાહી અને રસ ધરાવતા ખેડૂતોનું નાગલીની ખેતી પદ્ધતિ પ્રત્યે વલણ તેમજ સાંકેતિક અપનાવવાની વર્તણૂકમાં ફેરફાર લાવવા માટે આવા તાલીમ કાર્યક્રમમાં ભાગ લેવા પ્રોત્સાહિત કરવા જોઈએ . **The house approved recommendation for extension functionaries.** ***[Action:** Head, TRTC, AAU, D' Baria]*

21.7.2.22	**Decomposition and supply response analysis of cotton production in major districts of Gujarat**
	Recommendation for policy makers It is recommended to policymakers that higher investments are required in cotton research, particularly in the development of high-yielding varieties and hybrids, to sustain Gujarat's advantage in cotton production. Besides, the institutional interventions, taking account of lagged area and targeting the yield parameter, are more crucial than any other price factors for sustaining both acreage and production of cotton in Gujarat as the desired acreage adjustment by farmers to any favourable or unfavourable price effect is estimated to take at least 3 to 4 years. **House suggested to resubmit the recommendation with following suggestions:** 1. Extend the study for one more year and present next year. 2. Categorize the study period into pre- and post-Bt cotton periods. 3. Estimate the growth and instability indices for the newer districts, without merging them with the older districts, as much as possible. ***[Action:** Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh]*
21.7.2.23	**Credit flow and its utilization behaviour among farmers in Saurashtra region, Gujarat**
	Recommendation for policy makers It is recommended to policymakers that the financial institutions should focus on improving the return on equity ratio, working capital ratio, and asset turnover ratio of the farmers to enhance their repayment capacity. Besides, farm income levels need to be given more weightage than income from other sources while risk rating the loan applications of farmers and making a priori distinction between potential defaulters and non-defaulters. **House approve the recommendation for policymakers.** ***[Action:** Professor & Head, Dept.of Agril. Economics, CoA, JAU, Junagadh**]***

21.7.2.24	**Resource use efficiency and demand-supply scenario analysis of fodder in the Saurashtra region, Gujarat**
	Recommendation for policy makers It is recommended to policymakers that the deficit of dry fodder and concentrates in the Saurashtra region need to be managed through their targeted procurement and distribution from the other net surplus regions. As fodder is found to be underutilized across all animal units and dairy farm types, awareness on balanced rations needs to be promoted on a large scale. It is also suggested to bring down the cost of per animal per day fodder and feed among medium and large dairy farmers through sensitization programmes on scientific feed management and alternate feed options. **House suggested to resubmit the recommendation with following suggestions:** 1. Extend the study for one another year and present next year. 2. Include fodder wastage as a variable in descriptive statistics. 3. Include both organized and unorganized categories among large dairy farmers. 4. Explore the scope of including the physical unit and value of household child labour while deriving the per day per animal maintenance cost. ***[Action**: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh]***
21.7.2.25	**Time series forecasting of area and production of vegetable crops in Gujarat**
	Recommendation for scientific community It is recommended to the scientific community that area and production of the selected vegetable crops viz., okra, tomato, potato, brinjal and onion can be precisely predicted using the following models using the following models with reasonable RMSE, MAE and MAPE.

Crop	Selected forecasting model	
	Area	**Production**
Okra	TDNN	TDNN
Tomato	5 YMA Cubic	TDNN
Potato	Hybrid	Hybrid
Brinjal	TDNN	TDNN
Onion	Hybrid	Hybrid

House approved the recommendation for scientific community.

[Action:** Professor & Head, Dept.of Agril. Statistics, CoA, JAU, Junagadh]

21.7.2.26	**Strengthening statistical analysis programmes using python machine learning and data visualization**
	Recommendation for scientific community The scientists/researchers of SAUs are recommended to use new computer programs developed by the Junagadh Agricultural University using the Python Machine Learning and Data Visualization techniques for the data analysis of three types of experiments conducted in Latin Square Design (LSD), Split Plot Design and Strip Plot Design which are requirement specific, unique, user friendly with the important features of descriptive auto conclusion and auto data visualization. **House approved the recommendation for scientific community.** ***[Action:*** *Professor & Head, Dept.of Agril. Statistics, CoA, JAU, Junagadh****]***
21.7.2.27	**Sensitization level of farmers about safe usage of pesticides in Junagadh district of Saurashtra region**
	Recommendation for extension functionaries To promote safe usage of pesticide among farmers, it is recommended that extension functionaries need to increase their knowledge on safe usage pattern of pesticides through trainings and by providing farm literature to select correct pesticide along with its dosage as well as safe handling and disposal techniques. **House approved the recommendation for extension functionaries.** ***[Action****: Professor & Head, Dept. of Agril. Ext. Edu., CoA, JAU, Junagadh****]***
21.7.2.28	**Adoption of natural farming in Saurashtra region**
	Recommendation for extension functionaries The adoption level of natural farming farmers was found to be medium to low. The farmers got low yield during initial period. Trainings are required regarding the natural farming practices and to organize method demonstrations for the preparation of different natural farming inputs. Besides, it is suggested to government institutions to enhance marketing facilities for farmers produce and provide subsidy to farmers in the initial period of natural farming adoption. **House approved the recommendation for extension functionaries.** ***[Action:*** *Professor & Head, Dept. of Agril. Ext. Edu., CoA, JAU, Junagadh****]***
21.7.2.29	**Export cost estimation and mileage of major commodities of Saurashtra**
	The recommendation for scientific community was dropped by the house. ***[Action:*** *Principal, PGIABM, JAU, Junagadh****]***

21.7.2.30	**Social media usage pattern of students of Junagadh Agricultural University**
	Recommendation for scientific community Junagadh Agricultural University should create educational videos and share on well-known video sharing platforms for informal learning. Furthermore, networking sites ought to be used to disseminate the most recent information about the university's accomplishments, job openings, and newly added facilities. Additionally, faculty members should also counsel and encourage students to restrict the number of social media accounts they have and the daily amount of time they spend on these platforms. In order to avoid distractions and enhance academic productivity, students should be motivated to monitor the purposes behind their social media usage. **House approved the recommendation for scientific community.** ***[Action:** Principal, PGIABM, JAU, Junagadh]*
21.7.2.31	**Impact of Krishi Vigyan Kendra's trainings on knowledge of farmers about the recommended cotton production technologies**
	Recommendation for extension functionaries It is advised that extension personnel organize effective training programs on recommended cotton production technologies. The trainees should be educated, innovative, and actively engaged with mass media. Trainings should be scheduled for one or two days, preferably before the onset of the monsoon, and conducted at both the village and KVK levels followed by demonstrations, lectures, and field visits. **House approved the recommendation for extension functionaries.** ***[Action:** Senior Scientist & Head, KVK, JAU, Amreli]*

NAVASARI AGRICULTURAL UNIVERSITY, NAVASARI

21.7.2.32	**Assessment of income inequality among agricultural households in Gujarat**
	Recommendation for policy makers Policymakers should form and implement region-specific and sector-specific policies that enhance income opportunities for low-income households and thereby reduce income inequality among agricultural households in Gujarat. In the South Eastern region, the focus should be on strengthening the crop sector, while in Plains Northern and Kachchh, priority should be given to the livestock sector through improved market linkages and financial support. Dry Areas should emphasize non-farm businesses by promoting rural entrepreneurship and small-scale industries. In Saurashtra, both wage employment and non-farm business sectors should be developed through rural job creation programs. **House approved the recommendation for policy makers.** *[**Action**: Principal, AABMI, NAU, Navsari]*

21.7.2.33	**Small and marginal member farmers' participation and their attitude towards Farmer Producer Organizations in South Gujarat**
	Recommendation for policy makers Farmers' participation in FPO can be enhanced by improving market access, expanding value-added services, and encouraging farmer participation in decision-making. FPOs' should focus on availing government schemes and mitigating farmers' production and marketing risk by aligning its activities in accordance to farmers' needs. **House approved the recommendation for policy makers** ***[Action:*** *Principal, AABMI, NAU, Navsari**]***
21.7.2.34	**Aspiration of farmers towards natural farming in the Dangs district of Gujarat**
	Recommendation for extension functionaries The Extension Personnel of the Dangs District should emphasize on factors like education, irrigation system, number of animals, risk orientation, economic orientation and scientific orientation in the training programme to increase the aspiration of farmers towards natural farming. **House approved the recommendation for extension functionaries.** ***[Action:*** *Senior Scientist & Head, KVK, NAU, Waghai**]***
21.7.2.35	**Assessing and interpreting the spatial distributions of insect populations in paddy crop in Navsari**
	Recommendation for Scientific community In summer paddy, stem borer, skipper and leaf roller follow a binomial distribution, as their variance was smaller than the mean, indicated a uniform distribution and more even spread in the field. The major insect pests reached their peak during 15th to 19th standard metrological weeks due to high evapotranspiration, minimum temperature and afternoon humidity, whereas 12th and 18th standard metrological weeks were the most suppressive to the major insect pests due to high morning humidity, strong wind velocity and increased sunshine. **House approved the recommendation for Scientific community.** ***[Action:*** *Professor & Head, Dept. of Agril. Statistics, NMCA, NAU, Navsari**]***
21.7.2.36	**Population dynamics and patterns of mango Hopper and fruit fly through the statistical models**
	Recommendation for Scientific community The Hoerl nonlinear growth model was the most accurate, explained 95.22 per cent of the mango hopper population and 92.10 per cent of the fruit fly population. The activity of mango hoppers was maximum between 7th to 13th standard metrological weeks while the activity of fruit fly was maximum between 22nd to 28th standard metrological weeks. Temperature and humidity had a positive and significant influencing factor on mango hoppers and fruit flies. Wind velocity had a negative correlation with hoppers but a positive correlation with fruit flies. **House approved the recommendation for Scientific community.** ***[Action:*** *Professor & Head, Dept. of Agril. Statistics, NMCA, NAU, Navsari]*

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

21.7.2.37	**Awareness and utilization of agricultural application in mobile phone among farmers of Banaskantha district**
	Recommendation for scientific community Mobile applications are used less by the farmers in case of machinery automation, irrigation management, soil and weed management. So, extension agency must put effort to encourage the farmers to use such applications. **The recommendation is included in farming community.** **[*Action:* *Department of Agricultural Extension and Communication CPCA, SDAU, Sardarkrushinagar*]**
21.7.2.38	**Perception of farmers about dairy farming in Mehsana and Kachchh Districts**
	Recommendation for scientific community Majority of farmers have medium to high perception about dairy farming and perceived regular contracts with extension and veterinary experts are essential for successful dairy business and reported high cost of feed and fodder as major constraint hence, extension agencies are advised to increase the contact with dairy farmers and disseminate timely information on precise use of feed and fodder to minimize the cost of feed and fodder. **House approved the recommendation for scientific community.** ***[Action:*** *Department of Agricultural Extension and Communication CPCA, SDAU, Sardarkrushinagar]*
21.7.2.39	**Assessment of anaemia prevalence among school going adolescent girls in Amiragadh Taluka**
	Recommendation for Policy Makers Nutritional awareness programmes and campaign at school level should be organised to improve dietary pattern and BMI of the adolescent girls. **House approved the recommendation for Policy Makers.** ***[Action: -*** *Department of Food Science and Nutrition, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar]*

21.7.2.40	**Opinion of farmers regarding bio-fungicide (*Trichoderma viride*)**
	Recommendation for extension functionaries Majority of groundnut growers have favourable opinion regarding bio fungicide (*Trichoderma viride*). Thus, extension functionaries should have more emphasis on organizing training programmes especially for farmers from younger age group and high level of formal education. **House approved the recommendation for extension functionaries.** ***[Action: -** DEE, SDAU, Sardarkrushinagar]*
21.7.2.41	**Attitude of polytechnic students towards agricultural occupations**
	Recommendation for Extension functionaries The Agricultural Polytechnic students preferred services in government sector and state agricultural university for future occupation. Majority of the polytechnic students has moderately favourable attitude towards agriculture as an occupation. So, there is need to arrange different skill-oriented training programmes as well as entrepreneurship development programmes for the students to promote self-employment and entrepreneurship. **House approved the recommendation for extension functionaries.** ***[Action: -** Krushi Vigyan Kendra, SDAU, Deesa]*
21.7.2.42	**Effect of nutrition counselling on Knowledge, Attitude and Practice of hypertensive subjects**
	Recommendation for policy makers Nutritional counselling is an effective tool for improving knowledge and practices for better life of hypertensive patients. **House approved the recommendation for policy makers.** ***[Action: -** Department of Food Science and Nutrition, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar]*
21.7.2.43	**Adoption of natural farming practices by farmers of Gandhinagar district**
	Recommendation for policy makers The knowledge and adoption level of the farmers about natural farming practices in Gandhinagar district was found to be medium to low. To increase knowledge and adoption of natural farming, it is suggested to extension functionaries to conduct more number of training programmes and method demonstrations for the preparation of different natural farming inputs. Besides, it is suggested to government institutions to enhance marketing facilities for farmers' produce. **House approved the recommendation policy makers.** ***[Action:** College of Horticulture, SDAU, Jagudan**]***

21.7.2.44	**Analysis of public and private investments in crop and dairy sectors in Gujarat**
	Recommendation for policy makers 1. Private capital investment in crop and dairy sector have exhibited a declining trend (-13.35%, -09.95 %,) and to reverse this trend, policies should be formulated to encourage private investment; such as providing easy access of term credit (long and medium) facilities with increased coverage and inclusion of interest subvention scheme. 2. The share of combined public investment (crop and dairy) in total agriculture reduced to more than half (i.e. 66.03% to 29.41%), with a slowdown in growth (from 11.07% to 1.41%) highlights the reduced focus. Hence policy realignment is essential to restore focus on these core sectors to maintain sustainable growth. **House approved the recommendations for policy makers.** ***[Action: -*** *College of Agri Business Management, SDAU Sardarkrushinagar]*
21.7.2.45	**Export performance of major seed spices from India**
	Recommendation for Exporters Exporters should focus on export of cumin to USA, China, UAE, Vietnam and Nepal and coriander to Malaysia and USA since these countries were the most loyal importers and fetched higher prices in these countries. **House approved the recommendation for exporters.** ***[Action: -*** *Dept. of Agril. Economics, CPCA, SDAU, Sardarkrushinagar]*
21.7.2.46	**Price behaviour and market integration of mustard in India**
	Recommendation for policymakers Mustard arrivals significantly influence prices, with arrivals concentrated from February to April and price peaks from October to December, indicating opportunities for timely market interventions. Instability in mustard area and production, especially in Gujarat, calls for policy support to stabilize cultivation. **House approved the recommendation for policy makers.** ***[Action:-*** *Regional Research Station, SDAU, Bhachau]*

21.7.2.47	**Comparison of different forecast models for predicting area, production and productivity of fennel in Banaskantha district**
	Recommendation for scientific community For prediction of productivity under fennel crop in Banaskantha district, quadratic model with three year moving average data approach is recommended as under: Model for productivity: =1.024** + 0.140** t – 0.004** t2 (R2 = 94.60%) In above mentioned polynomial models, Y corresponds to original value of productivity and t corresponds to time. **House approved the recommendation for scientific community.** ***[Action:-** Dept. of Agril. Statistics, CPCA, SDAU,Sardarkrushinagar]*

21.7.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action
21.7.3.1	Crop diversification in Gujarat	**The House suggested to drop the NTP.** *[Action: Professor & Head, Department of Agril. Econ., BACA, AAU, Anand]*
21.7.3.2	Export of major agricultural commodities from Gujarat	**The House approved the NTP with the following suggestions.** 1. Revised title as "Export performance of major agricultural commodities of Gujarat 2. Remove the commodities cumin and coriander in analysis. *[Action: Professor & Head, Department of Agril. Econ., BACA, AAU, Anand]*
21.7.3.3	Growth in area, production and productivity of millets in Gujarat	**The House approved the NTP with the following suggestion.** Ensure that the study period of at least 20 years is taken up for the analysis. *[Action: Assistant Professor & Head, Dept. of Social Science., College of Horti., AAU, Anand]*

21.7.3.4	Management of potato cold storage in Gujarat	**The House approved the NTP with the following suggestion.** Verify the number of cold storage and take the sample proportionately. *[Action: Principal & Dean, IABMI, AAU, Anand]*
21.7.3.5	Exploring placement and career transition issues among IABMI post graduates	**The House approved the NTP with the following suggestion.** 1. Remove words "gender specific" in all objectives 2. Develop questionnaire after conducting pilot survey. *[Action: Principal & Dean, IABMI, AAU, Anand]*
21.7.3.6	Marketing of tomato in middle Gujarat	**The House approved the NTP with the following suggestions.** 1. Revise objective 3 as "Factor influencing to identify the marketing channel" 2. Revise objective 4 as "To ascertain the channel wise marketing constraints" 3. Follow multistage random sampling technique. *[Action: Principal & Dean, IABMI, AAU, Anand]*
21.7.3.7	Role of FPOs in bridging the credit gap for farmers in tribal and non- tribal districts of middle Gujarat	**The House approved the NTP with the following suggestion.** Interchange the positions of first and second objectives. *[Action: Principal & Dean, IABMI, AAU, Anand]*
21.7.3.8	Light trap catches prediction using Fuzzy regression based on weather indices in rice crop	**The House approved the NTP with the following suggestion.** Change the title as "Prediction of light trap catches using Fuzzy regression based on weather indices in rice crop" *[Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand]*
21.7.3.9	Evaluation and development of yardstick of coefficient of variation for irrigated and non-irrigated cotton crop experiments	**The House approved the NTP.** *[Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand]*

21.7.3.10	Forecasting carbon footprint and greenhouse gas emissions in Indian agriculture: A pre and post-harvest perspective	**The House approved the NTP.** *[Action: Assistant Professor & Head, Department of Basic Science, College of Horticulture, AAU, Anand]*
21.7.3.11	Perception and adaptation strategies for climate variability in wheat farming for Bhal region	**The House approved the NTP with the following suggestions.** 1. Use the perception scale with modification. 2. Conduct the pilot survey before finalization of adoption strategies. *[Action: Professor & Head, Dept. of Agril. Extn. & Com, BACA, AAU, Anand]*
21.7.3.12	Participation of farm women in decision making in agricultural activities.	**The House approved the NTP with the following suggestion:** Mention the scoring procedure of participation of farm women in decision making in methodology. *[Action: Professor & Head, Dept. of Agril. Extn. & Com, BACA, AAU, Anand]*
21.7.3.13	Training need assessment of middle level extension functionary	**The House approved the NTP with the following suggestions.** 1. Change in word in title "functionary" with "professionals" 2. Change in objective as per title. 3. Add independent variables – carrier aspiration, motivation, achievement, gender, self-esteem, caste, *etc*. *[Action: Director, EEI, AAU, Anand]*
21.7.3.14	Attitude of farmers towards use of drone technology in farming	**The House suggested to drop the NTP.** *[Action: DEE, AAU, Anand]*
21.7.3.15	Utilization pattern of digital tools among the farmers	**The House approved the NTP with the following suggestion.** Use multistage random sampling design in methodology. *[Action: DEE, AAU, Anand]*
21.7.3.16	Utility perception of farmers towards new technologies advocated through FLDs under Sardar Sarovar Project in Narmada command area	**The House suggested to drop the NTP.** *[Action: Professor & Head, Department of Agricultural Science, CAIT, AAU, Anand]*

21.7.3.17	Utility perception of farmers towards new technologies advocated through FLDs under Narmada Irrigation Research Project in Narmada command area	**The House approved the NTP with the following suggestion.** In Objective no - 4, replace "towards" by "in adopting of" *[Action: Principal, College of Agriculture, AAU, Jabugam]*
21.7.3.18	Extent of utilization of various components of Natural farming among farmers	**The House approved the NTP with the following suggestion.** Add "in Kheda" in title. *[Action: Principal, Department of Agril. Extn. & Commu. College of Agriculture, AAU, Vaso]*
21.7.3.19	Indigenous practices followed by cattle and buffalo farmers for reproductive disorders in Vadodara district	**The House approved the NTP with the following suggestion.** 1. In objective no -2, replace word 'identify' by 'study' 2. Prepare common interview schedule with SDAU NTP 21.7.3.53 *[Action: Principal, Polytechnic in Horticulture, AAU, Vadodara]*
21.7.3.20	Development of scale to measure attitude of scientists towards use of AI (Artificial intelligence) technology in agriculture	**The House approved the NTP.** *[Action: Associate Research Scientist, ARS, AAU, Derol]*
21.7.3.21	Extent of utilization of Agricultural Apps among farmers in Panchmahals and Mahisagar districts	**The House approved the NTP with the following suggestion.** Select the respondents who have at least used one app. *[Action: Research Scientist, Main Maize Research Station, AAU, Godhara]*
21.7.3.22	Economics of irrigated, unirrigated and restricted irrigated wheat in Bhal region	**The House approved the NTP.** [Action: Sr. Scientist and Head, KVK, AAU, Arnej]
21.7.3.23	Awareness of dairy farmers about sexed sorted semen doses in Ahmedabad district	**The House approved the NTP with the following suggestion.** Add the purpose of selection of the talukas in methodology [Action: Sr. Scientist and Head, KVK, AAU, Arnej]

21.7.3.24	Knowledge of dairy farmers about transition period of dairy animals	**The House approved the NTP with the following suggestions.** 1. Include independent variables in the methodology and interview schedules. 2. Include additional statements regarding dairy farmers' knowledge of transition period management practices. *[Action: Sr. Scientist and Head, KVK, AAU, Devataj]*
21.7.3.25	Technological capabilities of the input dealers about agro-services in Chhotaudepur district of Gujarat	**The House suggested to drop the NTP.** *[Action: Sr. Scientist and Head, KVK, Mangalbharti, Vadodara-Chhotaudepur]*
21.7.3.26	Knowledge and attitude of the farmers towards ICT in Kheda district	**The House suggested to drop the NTP.** *[Action: Sr. Scientist and Head, KVK, GVP, Dethali-Kheda]*
21.7.3.27	Impact assessment of National Innovations on Climate Resilient Agriculture (NICRA) project on beneficiary farmers	**The House approved the NTP.** *[Action: Sr. Scientist and Head, KVK, AAU, Dahod]*
21.7.3.28	Livelihood security of tribal farmers in Dahod district	**The House approved the NTP with the following suggestion.** Delete the word 'system' from the second objective. *[Action: Sr. Scientist and Head, KVK, AAU, Dahod]*
21.7.3.29	Extent of utilization of i-khedut portal by the tribal farmers of Dahod district	**The House approved the NTP with the following suggestion.** Change the title as "Utilization of i-khedut portal by the tribal farmers of Dahod district" *[Action: Head, TRTC & TFWTC, AAU, Devgadhbaria]*
21. 7.3.30	Extent of utilization of various components of natural farming among farmers of Ahmedabad district	**The House approved the NTP with the following suggestion.** Change the title as "Utilization of various components of natural farming among farmers of Ahmedabad district" *[Action: Head, FTTC, ARS, AAU, Sansoli-Nenpur]*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title	Suggestion/s and Action
21.7.3.31	Input-use pattern and energy budgeting analysis of major crops in Gujarat	**The House approved the NTP.** *[Action: Professor & Head, Dept.of Agril. Economics, CoA, JAU, Junagadh]*
21.7.3.32	Development of computer programs using python machine learning and data visualization for the analysis of biometric techniques	**The House approved the NTP.** *[Action: Professor & Head, Dept.of Agril. Statistics, CoA, JAU, Junagadh]*
21.7.3.33	Impact assessment of certificate programmes offered by the School of Baking, Junagadh Agricultural University **New Title 01:** Knowledge Level of Trainees Regarding School of Baking, Junagadh Agricultural University	**The House approved the NTP with the following suggestions:** 1. Remove the word 'impact' from the title. 2. Bifurcate the NTP into two separate studies: the first one on knowledge level and the other on adoption and employment generation. 3. In the interview schedule, remove 'training received' and add 'job/work' & 'motive behind joining the course.' 4. In the interview schedule, rank the bakery items based on their sales. *[Action: Directorate of Extension Education, JAU, Junagadh]*
21.7.3.34	**New Title 02:** Adoption and Employment Generation through Certificate Course of School of Baking, Junagadh Agricultural University	**The House approved the NTP with the following suggestions:** 1. In the interview schedule, remove 'training received' and add 'job/work' & 'motive behind joining the course.' 2. In the interview schedule, rank the bakery items based on their sales. *[Action: Directorate of Extension Education, JAU, Junagadh]*
21.7.3.35	Adoption level of farmers towards castor production technologies recommended by JAU	**The House approved the NTP with the following suggestions:** 1. Drop the phrase 'of castor growers' from the third objective. 2. Revise the tables in the interview schedule as per the proceedings of the 20th Combined AGRESCO. 3. Make two categories under adoption. *[Action: Professor & Head, Dept. of Agril. Ext. Edu., CoA, JAU, Junagadh]*

21.7.3.36	Perception of farmers towards quality of seeds and services rendered by department of seed science & technology	**The House approved the NTP with the following suggestions:** 1. Revise the title to: 'Perception of farmers towards the Mega Seed Project of JAU.' 2. Modify the objectives and the methodology part in line with the revised title. 3. Study only those farmers who have purchased the seeds and used them on their farms. *[Action: Professor & Head, Dept.of Agril. Ext. Edu., CoA, JAU, Junagadh]*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title	Suggestion/s and Action
21.7.3.37	Knowledge and adoption of Novel-Organic Liquid Nutrients and Novel plus in okra and brinjal growers in Surat district	**The House approved the NTP with the following suggestions:** 1. Change the title as 'Knowledge and adoption of Novel-Organic Liquid Nutrients and Novel plus among vegetable growers in Surat district'. 2. Remove word 'personal' from first objective 3. Remove words 'in getting knowledge' from 4th objective 4. Taluka wise list of farmers who purchased Novel-OLN and Novel Pluse has to be collected. Three talukas will be selected. From each taluka 100 respondents will be selected to make the sample of 300 respondents. 5. Prepare separate interview schedule for knowledge and adoption 6. Add "Extension participation" and "innovativeness" in independent variables *[Action: Senior Scientist and Head, KVK, NAU, Surat]*

21.7.3.38	Decomposition Analysis and forecasting of milk production in South Gujarat	**The House approved the NTP with the following suggestions:** 1. Change the title as 'Decomposition Analysis and forecasting of milk production in Gujarat' 2. Change the objectives accordingly 3. Conduct zone wise analysis *[Action: Professor and Head, Dept. of Social Science, ACH, NAU, Navsari]*
21.7.3.39	Export performance of flowers in South Gujarat	**The House approved the NTP with the following suggestions:** 1. Change the title as 'Export performance of flowers from India' 2. Change the objectives accordingly 3. Consider export data up to 20 years *[Action: Assistant Professor (Ag.conomics), Polytechnic in Agriculture, NAU, Waghai]*
21.7.3.40	Banana yield prediction based on machine learning models	**The House approved the NTP with the following suggestions:** 1. Recast first objective as 'to fit machine learning models' 2. Recast second objective as 'to compare the machine learning models' 3. Include 'ridge model' along with other models. *[Action: Professor & Head, Dept. of Agril. Statistics, NMCA,NAU, Navsari]*
21.7.3.41	Identification of Superior Sorghum Genotypes based on MTSI and MGIDI indices	**The House approved the NTP with the following suggestions:** 1. Recast first objective as 'to estimate G×E interaction through different stability approaches' 2. Frame second objectives as 'to identity superior sorghum genotype using Muti-trait stability Index (MTSI) and Multi-Trait Genotype-Ideotype Distance Index (MGIDI)' 3. Duration of the study will be of 1 year. 4. This study should be presented in AGRESCO – Crop Improvement Sub-Committee before presenting recommendation in Social Science Sub-Committee. *[Action: Professor & Head, Dept. of Agril. Statistics, NMCA,NAU, Navsari]*

21.7.3.42	Evaluation and development of yardstick of CV% for yield parameter of sapota for South Gujarat region	**The House approved the NTP with the following suggestions:** 1. Recast the first objective as 'to study the yield variability (CV%) of sapota crop experiments conducted at South Gujarat region *[Action: Professor & Head, Dept. of Social Science, ACH, NAU, Navsari]*

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title	Suggestions
21.7.3.43	Causes of Lime decline and its management practices adopted in Mehsana district	**The House approved the NTP with the following suggestion.** 1. Add management practices in interview schedule Part III sr. No. 5, 6 and 7. *[Action:- College of Horticulture, SDAU, Jagudan]*
21.7.3.44	Total Factor Productivity and Structural Cost Dynamics of Castor Cultivation in North Gujarat	**The House approved the NTP with the following suggestion.** 1. Use structural break analysis (Chow test) for analysing structural change *[Action:- College of Agri Business Management, SDAU Sardarkrushinagar]*
21.7.3.45	Exploring Entrepreneurial Awareness, Attitudes, and Influencing Factors Among Students	**The House approved the NTP with the following suggestions.** 1. Replace the word "Attitudes" by "Attitude" in the title 2. Interview schedule Part III, The continuum of Attitude towards entrepreneurship will be " Most relevant, Relevant, Neutral, Not relevant and Most not relevant" *[Action:- Dept. of Home Sci. Extension & Comm. Mgt. ASPEE College of Nutrition and Community Science SDAU, Sardarkrushinagar]*
21.7.3.46	Utilization of social networking sites by rural women of adopted villages of SDAU	**The House approved the NTP with the following suggestions.** 1. Replace the words "socio economic characteristics" by "profile" in objectives 2. Add association of "utilization" in 4th objective *[Action:- Polytechnic in Nutrition and Community Science, SDAU, Sardarkrushinagar]*
21.7.3.47	Total Factor Productivity and structural cost dynamics of Cotton cultivation in Gujarat	**The House approved the NTP with the following suggestion.** 1. Use structural break analysis (Chow test) for analysing structural change *[Action:- Dept. of Agril. Economics, CPCA, SDAU, Sardarkrushinagar]*

21.7.3.48	Knowledge And Adoption of Red Palm Weevil Management Practices Among Date Palm Growers in Kachchh	**The House approved the NTP with the following suggestion.** 1. Add objective of "relationship with knowledge and adoption" *[Action:- Date Palm Research Station, SDAU, Mundra - Kachchh]*
21.7.3.49	An economic analysis of production and marketing of datepalm in Gujarat	**The House approved the NTP.** *[Action:- Regional Research Station, SDAU, Bhachau]*
21.7.3.50	Knowledge and adoption of weed management practices by the farmers	**The House approved the NTP.** *[Action:- Krushi Vigyan Kendra, SDAU, Khedbrahma]*
21.7.3.51	Attitude of potato growers towards contract farming	**The House approved the NTP.** *[Action:- Wheat Research Station, SDAU, Vijapur]*
21.7.3.52	Economic analysis of production and marketing of Cauliflower in North Gujarat	**The House approved the NTP with the following suggestion.** 1. Merge 3rd and 4th objective *[Action:-College of Horticulture, SDAU, Jagudan]*
21.7.3.53	Management practices during transition period of dairy animals adopted by dairy farmers	**The House approved the NTP with the following suggestion.** 1. Prepare common interview schedule with AAU NTP 21.7.3.19 *[Action:- Krushi Vigyan Kendra, SDAU, Tharad]*
21.7.3.54	Prevalence of Subclinical mastitis in dairy cattle of Banaskantha District	**The House approved the NTP.** [Action:- Krushi Vigyan Kendra, SDAU, Deesa]
21.7.3.55	Impact of adoption of Chilli-muskmelon intercropping practices in Banaskantha district	**The House approved the NTP.** *[Action:- Polytechnic in Agriculture, SDAU, Amirgadh]*
21.7.3.56	Adoption of Recommended package of Practices in Amaranthus	**The House approved the NTP.** *[Action:- DEE, SDAU, Sardarkrushinagar]*
21.7.3.57	Constraints faced by farmers in adoption of scientific summer groundnut production technologies	**The House approved the NTP with the following suggestion.** 1. Add 3rd objective of suggestions *[Action:- Department of Agricultural, Extension and Communication CPCA, SDAU, Sardarkrushinagar]*

21.7.3.58	Determinants of livelihood security among marginal and small farmers of Banaskantha district	**The House approved the NTP.** *[Action:- Department of Agricultural, Extension and Communication, CPCA, SDAU, Sardarkrushinagar]*
21.7.3.59	Identification of causes of pomegranate decline	**The House approved the NTP.** *[Action:- Assistant Registrar (Academic), Registrar Branch University Bhavan, SDAU, Sardarkrushinagar]*
21.7.3.60	Mapping Gaps in Natural Farming Adoption	**The House approved the NTP with the following suggestions.** 1. Replace the words "economic viability" by "economics" in 1st objective 2. Add the following objectives: • To study the profile of the farmers • To study the relationship between profile of the farmers and adoption of natural farming *[Action:- DEE, SDAU, Sardarkrushinagar]*
21.7.3.61	Awareness and attitude towards namo drone didi scheme among farmers of Banaskantha district	**The House approved the NTP.** *[Action:- Dept. of Home Sci. Extension & Comm. Mgt ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar]*
21.7.3.62	Assessment of ultra processed food consumption and awareness of its health consequences among professionals	**The House approved the NTP with the following suggestions.** 1. Change the title as "Assessment of ultra processed food consumption pattern and awareness of its health consequences among professionals" 2. Recast 2nd objective as "To study the consumption pattern of ultra processed food" 3. Recast 3rd objective as "To know the awareness about health consequences of ultra processed food consumption among the respondents." *[Action:- Department of Food & Nutrition, ASPEE College of Nutrition and Community Science SDAU, Sardarkrushinagar]*
21.7.3.63	Role of Information Technology in Agriculture: Effects on Productivity, Sustainability and Farmers' Decision-Making	**The House approved the NTP with the following suggestions.** 1. Change the title as "Role of Information Technology in Agriculture" 2. Replace the 3rd objective as "To study the perceived benefits of information technology in agriculture" *[Action:- Department of FRM, ASPEE College of Nutrition and Community Science SDAU, Sardarkrushinagar]*

21.7.3.64	Stress and coping techniques used by men	**The House approved the NTP with the following suggestion.** Change the title as "Stress and coping techniques used by male professionals" *[Action:- Dept. of Human Development, ASPEE College of Nutrition and Community Science SDAU, Sardarkrushinagar]*
21.7.3.65	Feeding and breeding practices of buffaloes adopted by dairy farmers of Banaskantha district	**The House approved the NTP.** *[Action:- Department of Animal Science, CPCA, SDAU, Sardarkrushinagar]*
21.7.3.66	Comparison of different forecast models for predicting area, production and productivity of Isabgul in Banaskantha district	**The House approved the NTP.** *[Action:- Dept. of Agril. Statistics, CPCA, SDAU, Sardarkrushinagar]*
21.7.3.67	Adoption of wheat production technology by the farmers	**The House approved the NTP with the following suggestion.** Add the objective of relationship *[Action:- Potato Research Station, SDAU, Deesa]*
21.7.3.68	Adoption of recommended production technologies of groundnut growers in Banaskantha district	**The House approved the NTP.** *[Action:- DEE, SDAU, Sardarkrushinagar]*
21.7.3.69	Study on emotional competence among students of SDAU	**The House approved the NTP.** *[Action:- Human Development, ASPEE College of Nutrition and Community Science SDAU, Sardarkrushinagar]*
21.7.3.70	Documentation of traditional foods in tribal culinary and awareness about their health and nutritional benefits	**The House approved the NTP with the following suggestion.** Replace the word "check" with "study" in the 3rd objective *[Action:-Food Science and Nutrition, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar]*

General suggestions:

1. Crop Improvement

1. The detail of pedigree should be mentioned separately in annexure
2. Write the name of proposed variety at the respective proper place in whole release proposal instead of proposed entry/genotype/strain/culture
3. Non-significant trial yield data should be considered in overall mean
4. Mention the sentence 'poor yield data' (On the basis of last five years yield data) as a footnote where state average data is not available for comparison
5. Mention the background information of variety in introduction where variety is to be released for specific trait/objectives, etc.
6. Mention the yield data in round figure in recommendation text
7. Delete consumer's preference table from proposal
8. Give DNA finger printing of proposed variety with checks and in the case of hybrid also include DNA finger printing of hybrid as well as parents and checks.
9. The scientists of SAUs of Gujarat should initiate breeding work in flower and ornamental crops. In this regards, technical committee meeting should be arranged under chairmanship of Dr. Nitin Shah, Principal & Dean, College of Horticulture, AAU, Anand and member secretary Dr. Alka Singh, NAU, Navsari along with concern scientists of 4 SAUs as members. The committee will submit the technical report within two months to Chairman, Combined AGRESCO CISC.

   (Action: All Director of Research of SAUs)
10. All crop research scientists will send soft copy of AGRESCO to concern state trial conducting centers.
11. All crop research scientists should arrange the technical meeting every year.
12. The Research Scientist of concern crop should arrange monitoring of state trials in coordination with scientists of other SAUs.
13. The quality parameters for variety release proposals of vegetable crops should be finalized by Research Scientist (Vegetable).
14. All the state trials entries of castor should be screened for wilt disease in wilt sick plot at three locations *viz*., Anand, Junagadh and S. K. Nagar. The Research Scientist (Castor) along with members of other SAUs will monitor wilt sick plot trials/entries during evaluation.

2. Crop Production

1. Results of the filler trials on Nano DAP/Urea will be considered as regular trial if results are consistent.
2. Soil analysis for heavy metals is to be done initial and at the end of experiment for all natural farming experiments.
3. Recommendation on nano urea proposed for farmer recommendation are sifted to scientific information.

3. Crop Protection

1. Many crops are not covered in the list of approved pesticides for use in agriculture by the Central Insecticide Board and Registration Committee (CIB&RC). These are important crops of different zones and many pests and diseases frequently reported causing enormous losses. In such circumstances, appropriate pesticides which are

though not listed for the use in crop against pests or diseases may be recommended as adhoc recommendation after thorough investigating and analyzing pesticides residue data.

2. All the approved adhoc recommendation should have a prescribed period. On addition of the crop and specific pests or disease in the list of CIB&RC, the same recommendation may be brought to the house to convert into a regular recommendation.
3. For the crops which are not edible, pesticides residue data are not mandatory. Further, for the crops where a particular pesticide has been recommended for use against specific pest or disease, pesticides residue data are not mandatory.
4. For control condition experiments recommendation minimum experiment duration of two cycles should be kept.
5. Mention approval number of technical programme of respective Combined AGRESCO in report as well as the time of presentation.
6. In plant protection experiments, it is important to first consider the efficacy of pesticide/s and then the net realization/ ICBR for recommendation.
7. There should be a standardized common format for all four SAUs for farmers' recommendations, information to the scientific community, and NTPs.
8. For multi locations trials, minimum two locations should be kept for the new/ invasive insect pests and diseases for two years.
9. There should be a uniformity in doses for biorational and biopesticide etc.
10. The modified AICRP trials should be presented in the Combined Agresco.
11. For biorational/ biopesticide trials, the spraying interval should be 10 days and observations should be taken before spray and after 5, 7 and 9 DAS. Take minimum three sprays for biorational/ biopesticide.
12. For chemical pesticide trials, the spraying interval should be 15 days and observations should be taken before spray and after 3, 7, 10 and 14 DAS. Total numbers of sprays for chemical pesticide need to be decided based on pest pressure/disease intensity.
13. New technical program on biology, population dynamics, short term survey work, seasonal incidence etc. should be avoided in AGRESCO. Such experiments can be allotted to PG research.
14. Take high quality photographs of research/ trial and it should be included in report and PPT.
15. Record the GPS coordinates during the investigation.
16. Mention SEm ±, CD at 5% and CV (%) in all the tables.
17. DNMRT should be used when treatment effects are significant (for unplanned experiment). Especially in the experiment of plant protection and weed control (crop production). When DNMRT is use, it is not only for pooled data, but individual year mean data should also be compared using DNMRT.
18. The statistical significance should be checked for the treatment to be recommended. Economics, Net realisation should be considered only for the treatment which are at par and also showing statistical significance. The character/characters on which basis recommendation is going to be framed shall be supported with economics table, if possible.
19. Year/Season and T x Y interaction must be showed in the table whether is significant or non-significant.
20. If Y and T x Y is found non-significant for two or more years then recommendation can be approved for farmers community.

21. Case / condition for interpretation of results

Condition	Year	Treatment	TxY Interaction	Remarks /decision (For 2 years experiment only) **
1.	Non significant	Significant	Non significant	Extended for one more year to check the evaluate the treatment in different environment /year
2.	Non significant	Significant	Significant	Extended for one more year to check the consistency of treatment in different environment /year
3.	Significant	Significant	Significant	Inconsistency of the treatment over the year /environments extended for more one year
4.	Significant	Significant	Non significant	Recommendation can be made

** Provided reoccurs are constrains or there is no feasibility in the 3rd year and there must be logic to recommendation based on 2 years. It should not be practised to recommended over all the experiment based on 2 years.

22. In the experiment is conducted in Kharif season, it is recommended to conducted experiment for 3 years keeping in view of high variability of the environmental factor and consequently in treatment, so advisable for 3 years.
23. In pooled analysis if the treatment effects are at par, then recommendation of the treatment should be taken on the basis of economics table.

4. Horticulture and Forestry: Nil

5. Agri Engg and Food Technology: Nil

6. Basic Science & Humanities (Plant Physiology, Bio-Chemistry and Biotech): Nil

7. Social Science

1. Restrict the number of Co-PIs up to three in NTPs.
2. Exclude the KVKs, scientific bodies, foundations and associations who are outside the ambit of SAUs of Gujarat from presenting their studies in the Combined AGRESCO.

Proceeding of Plenary Session of 21st Combined AGRESCO meeting of SAUs of Gujarat held at Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar on May 27, 2025; Time: 09:00 to 18:00 Hrs

Plenary Session

Chairman	Dr. R. M. Chauhan	Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar
Co-Chairmans	Dr. Z. P. Patel	Hon'ble Vice Chancellor, NAU, Navsari
	Dr. K. B. Kathiria	Hon'ble Vice Chancellor, AAU, Anand
	Dr. V. P. Chovatia	Hon'ble Vice Chancellor, JAU, Junagadh
Rapporteurs	Dr. S. N. Shah	ADR, AAU, Anand
	Dr. V. D. Tarpara	ADR, JAU, Junagadh
	Dr. V. R. Naik	ADR, NAU, Navsari
	Dr. R. A. Gami	Associate Research Scientist, SDAU, S.K.Nagar

Dr. C. M. Muralidharan, Director of Research and Dean P.G. Studies, SDAU, Sardarkrushinagar welcomed all the Hon. Vice Chancellors of SAUs of Gujarat along with Director of Research & Dean PGS, Director of Extension Education, Associate Director of Research, Chairman, Co-chairman, Convener, Rapporteurs of all the sub-committees and other participants. He expressed immense pleasure and great satisfaction over the successful organization of the Combined AGRESCO of all the SAUs of Gujarat, as well as meaningful discussions and deliberations on 32 new crop varieties, 165 recommendations for farmers, 161 for scientific/entrepreneurs/industry, and the formulation of 350 NTPs by all the sub-committees. He also highlighted and expressed his pleasure in sharing the experience of a new initiative that had been established, allowing committee members to physically convene at the venue of their respective chairmen's places, facilitating direct interaction and maximizing engagement among scientists. For this innovative approach, he extended his gratitude to the four Honourable Vice-Chancellors of the SAUs in Gujarat for their backing and contributions. He aspires to continue this initiative in the future. Also, he emphasized the significance of post-hoc discussions, clarity, mutual understanding, and collaborative enthusiasm, all of which are vital for fostering a healthy and thriving research environment. Nonetheless, while our four SAUs maintain distinct identities and research mandates, we are united by our shared mission to improve the productivity, sustainability, and profitability of agriculture in Gujarat. If we collaborate instead of operating in isolation, our collective research output can make a transformative difference for the farming community. It is also crucial to maintain a disciplined focus on productivity in implementing this endeavour. Consider this gathering not merely as a routine task but as a scientific assembly aimed at fostering a resilient, inclusive, and technology-driven future for agriculture.

Proceedings from all the subcommittees, presented by their respective conveners, were discussed, and recommendations and new technical programs from various subcommittees were approved.

Dr. R. A. Gami, Assoc. Res. Scientist (GPB), Crop Improvement, AGRESCO sub-committee, SDAU, Sardarkrushinagar, presented release proposals for varieties and recommendations from the Crop Improvement AGRESCO sub-committee. A total of 32 release proposals of improved crop varieties/hybrids, entailing 10, 6, 12 and 4 from AAU, JAU, NAU and SDAU, were approved. One recommendation for scientific and five new technical programmes were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. C. K. Patel, Convener, Crop Production sub-committee of SDAU, Sardarkrushinagar presented the proceedings of Crop Production sub-committee. 63 farming community recommendations, of which 11, 15, 19 and 18 from AAU, JAU, NAU and SDAU were approved. Furthermore, 47 scientific recommendations and 84 new technical programs, of which 2 NTP-approved filler trials of SAU's, were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. R. S. Jaiman, Convener of the Plant Protection AGRESCO sub-committee, SDAU, Sardarkrushinagar, presented the proceedings of the Plant Protection AGRESCO sub-committee. Twenty-six farming community/entrepreneurs/industry recommendations, of which 5, 2, 7 and 6 from AAU, JAU, NAU and SDAU, respectively, were approved. Forty-eight scientific information and 85 new technical programmes, entailing 21, 16, 13 and 35 from AAU, JAU, NAU and SDAU, respectively, were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. G. S. Patel, Convener, Horticulture AGRESCO sub-committee, SDAU, Sardarkrushinagar, presented the proceeding of the Horticulture and Agro-forestry AGRESCO sub-committee of SAUs. Forty-three farming community recommendations entailing 9, 6, 16 and 12 from AAU, JAU, NAU and SDAU, respectively, were approved. The house approved three scientific information and 51 new technical programs, entailing 3, 6, 36, and 6 from AAU, JAU, NAU, and SDAU, respectively.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. H.S. Bhaduaria, Convener, Basic Science AGRESCO sub-committee, SDAU, Sardarkrushinagar, presented the proceedings of the Basic Science AGRESCO sub-committee. Six recommendations for the farmers/entrepreneurs/industry, 23 scientific information entailing 5, 1, 8 and 9 from AAU, JAU, NAU and SDAU, respectively, were approved. Twenty-one new technical programmes entailing 2, 8, 7 and 4 from AAU, JAU, NAU and SDAU, respectively, were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. K.P. Thakar, Professor and Head (Eco.), Social Science AGRESCO sub-committee, SDAU, Sardarkrushinagar, presented the proceedings of the Social Science AGRESCO sub-committee. Eleven recommendations for the farming community, 31 scientific information entailing 9, 7, 5 and 10 from AAU, JAU, NAU and SDAU, respectively. A total of 65 new technical programmes, entailing 25, 6, 6, and 28 from AAU, JAU, NAU, and SDAU, respectively, were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. B.S. Parmar, Convener, Agricultural Engineering/FTP/PHT/AIT/Food Technology & Bioenergy, SDAU, Sardarkrushinagar, presented the proceedings of the Agricultural Engineering/FTP/PHT/AIT/Food Technology & Bioenergy AGRESCO sub-committee. Twenty-two recommendations for the farmers/Entrepreneurs/Industry, of which 6, 8, 4 and 4 from AAU, JAU, NAU and SDAU, respectively, were approved. Eight scientific information and 39 new technical programmes, entailing 13, 12, and 14 from AAU, JAU, and NAU, respectively, were also approved.

CONCLUDING REMARKS:

All the Hon. Vice Chancellors' of different SAU's congratulated scientists for the release of varieties, farmers' recommendations and scientific information. The Honourable Vice Chancellors of AAU, JAU, and NAU congratulated Dr. R. M. Chauhan, Hon. Vice Chancellor, SDAU and the SDAU Scientists' team for their work and positive research output on natural farming. They also released the book 'Natural Farming Microbial Study of Dung of Farm Animals and Jeevamrut by the team of the College of Basic Science and Humanities, SDAU, Sardarkrushinagar.

Dr. K. B. Kathiria, Hon. Vice Chancellor, AAU, Anand, emphasizes the enhancement of breeding efforts in horticultural crops. He commended Navsari Agriculture University for the release of new varieties of fruit and ornamental crops. He advised breeders and other scientists engaged in horticulture and forestry about conducting systematic breeding efforts with reliable outcomes.

Dr. Z. P. Patel, Hon'ble Vice Chancellor of NAU, Navsari, congratulated the scientists who were commended for their research contributions through a formal recommendation. He implores the scientific community to concentrate their research endeavours on issues pertinent to farmers. It is imperative to prioritize research focused on securing patents. He deliberated on

the significance of research pertaining to Biochar, which has the potential to revolutionize agriculture by enhancing carbon levels in the soil. Furthermore, he emphasized the need to introduce climate-resilient crops as a viable option for farmers. The Honourable Vice Chancellor encourages efforts aimed at augmenting the University's revenue.

Dr. V. P. Chovatia, Hon. Vice Chancellor of Junagadh Agricultural University (JAU), Junagadh, discussed and emphasized the importance of assessing the research impact of State Agricultural Universities (SAUs). He highlighted that evaluating the outcomes and effectiveness of research is crucial for ensuring relevance, accountability, and long-term benefits to the farming community. Dr. Chovatia also stressed the need for measurable indicators and periodic reviews to gauge real-world impact. Such assessments, he noted, can guide future research priorities and enhance the overall contribution of SAUs to agricultural development.

Dr. R. M. Chauhan, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar, thanked all the esteemed Vice Chancellors of the State Agricultural Universities (SAUs) in Gujarat for endorsing the proposal of a new initiative pattern for individual combined Agresco sub-committee meetings, which enables committee members to convene at the location of their respective chairman. He also stressed the importance of maintaining this practice in the future.

The session concluded with proposing Vote of Thanks by Dr. P. S. Patel, Director of Extension Education, SDAU, Sardarkrushinagar.

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