PROCEEDING OF THE TWENTIETH MEETING OF COMBINED AGRESCO OF SAUs OF GUJARAT

ORGANIZED BY

NAVSARI AGRICULTURAL UNIVERSITY

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DIRECTORATE OF RESEARCH

NAVSARI AGRICULTURAL UNIVERSITY

NAVSARI 396 480

CONTENT

20.1 CROP IMPROVEMENT

DATE: May 10-13, 2024

Chairman	Dr. V. P. Chovatia, Honorable Vice-Chancellor, JAU, Junagadh
Co-Chairmen	1) Dr. S. D. Solanki, Principal and Dean (Agri.), CPCS, SDAU, Sardarkrushinagar 2) Dr. M. C. Patel, Research Scientist (Cotton), MCRS, NAU, Surat
Rapporteurs	1) Dr. P. B. Patel, Associate Research Scientist, MRRC, NAU, Navsari 2) Dr. M. G. Valu, Research Scientist (Cotton), JAU, Junagadh 3) Dr. D. A. Patel, Associate Professor, Dept. of Agri. Biotech., AAU, Anand 4) Dr. N. B. Patel, Associate Professor, Dept. of GPB, SDAU, SKNagar
Statistician	Dr. D. J. Parmar, Associate Professor, AAU, Anand

The 20th Combined AGRESCO online meeting of four SAUs for Crop Improvement Sub-committee for release proposals / recommendations and new technical programmes was held during 10-13 May, 2024 hosted by NAU, Navsari. At the outset, Dr. V. P. Chovatia, Chairman of the Combined AGRESCO of Crop Improvement Sub-committee meeting and Hon'ble Vice Chancellor, JAU, Junagadh welcomed all the Co-Chairmen, Conveners and scientists of crop improvement sub-committee. In his welcome speech, he appreciated the research activities carried out for releasing new varieties/recommendations by different scientists.

Presentation of release proposal, recommendations and new technical programmes by Conveners of SAUs

Sr.	Name	Designation & University
1	Dr. R. R. Acharya	Research Scientist (Veg.), MVRS, AAU, Anand
2	Dr. R. M. Javia	Associate Research Scientist, PRS, JAU, Junagadh
3	Dr. D. K. Davda	Research Scientist (Sorghum), MSRS, NAU, Surat
4	Dr. P. J. Patel	Research Scientist (Spices), SRS, SDAU, Jagudan

Summary of the Release Proposals and Recommendations

Name of University	Proposed				Approved			
	Crop Varieties	Farmer Reco.	Scientific Reco.	NTPs	Crop Varieties	Farmer Reco.	Scientific Reco.	NTPs
AAU	7	-	1	7	6	-	1	5+1[$]
JAU	5	1	-	1	5	-	1*	1**
NAU	13	1	-	-	11	1	-	-
SDAU	3	1	-	1	1	1+1[#]	-	1
Total	28	3	1	9	23	3	2	8

[$] NTP of AAU shifted to Horticulture Subcommittee

* Farmer Reco. of JAU is considered as a scientific information instead of farmer

** NTP of JAU shifted to Basic Science Subcommittee

[#] Fig variety of SDAU, Considered as Farmers recommendation

20.1.1 Release proposals of varieties/ hybrids for farming community

ANAND AGRICULTURAL UNIVERSITY, ANAND

20.1.1.1	**Maize: Gujarat Maize Hybrid 5 (GMH 5: Panam Gold)**
	The farmers of maize growing areas of Gujarat are recommended to grow Gujarat Maize Hybrid 5 (GMH 5: Panam Gold) during *kharif* season. This hybrid gave 7094 kg/ha average kernel yield and it was 44.7 and 3.5% higher yield than checks GAYMH 1 and Bio-605, respectively. It is medium maturing and having orange flint kernels with higher test weight (367 g). It contains 69.45% starch, 12.55% protein, 4.85% oil, 0.59% tryptophan and 2.67 % lysine in protein. This hybrid is moderately resistant against *Maydis* Leaf Blight, *Turcicum* Leaf Blight and *Fusarium* stalk rot disease.
	ગુજરાતમાં મકાઇ પાકનુ વાવેતર કરતા ખેડુતોને ખરીફ ઋતુમાં ગુજરાત મકાઇ હાઇબ્રીડ ૫ (જીએમએચ ૫ : પાનમ ગોલ્ડ) નુ વાવતેર કરવા માટે ભલામણ કરવામાં આવે છે. આ સાંકર જાત સરેરાશ ૭૦૯૪ કી.ગ્રા/હેકટર દાણાનુ ઉત્પાદન આપે છે. જે અંકુશ જાતો ગુજરાત આણાંદ પીળી મકાઇ હાઇબ્રીડ ૧ (જીએવાયએમએચ ૧) અને બાયો-૬૦૫ કરતાં અનુક્રમે ૪૪.૭ અને ૩.૫% વધારે ઉત્પાદન આપે છે. આ જાત મધ્યમ પાકતી તથા

	નારંગી રંગના અને વધારે વજન વાળા દાણા (૩૬૭ ગ્રામ/૧૦૦૦ દાણા) ધરાવે છે જેમાં ૬૯.૪૫% સ્ટાર્ચ, ૧૨.૫૫% પ્રોટીન, ૪.૮૫% તેલ, ૦.૫૯% ટ્રીપ્ટોફેન અને ૨.૬૭% પ્રોટીનમાં લાયસીન જોવા મળેલ છે. આ જાત પાનનો સુકારો અને થડના કોહવારા સામે મધ્યમ પ્રતીકારક શક્તી ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Mention the mean value of proposed hybrid for per cent increase over check (Bio 605) for respective locations in Table No. 2b. **2.** Check morphological characters in Table 5.
	Action*:* Research Scientist, MMRS, AAU, Godhra
20.1.1.2	**Cluster bean: Gujarat Guar 4 (GG 4: Pancham)**
	The farmers of middle Gujarat are recommended to grow gum guar variety, Gujarat Guar 4 (GG 4) during *kharif* and summer seasons. The proposed gum guar variety exhibited 1473 kg/ha average seed yield across seasons under middle Gujarat condition which was 35.26 and 21.13% higher than the checks GG 1 and GG 2, respectively. In the *kharif* season, it gave 1724 kg/ha seed yield which was 17.92 and 26.67% higher over checks GG 1 and GG 2, respectively in middle Gujarat 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 in middle Gujarat. The proposed genotype has medium maturity, erect in nature and generally nonbranching growth habit. Seeds of this genotype have 27.94% gum content and 8.88% TSS which is comparable with checks. It has comparable prevalence of powdery mildew and bacterial leaf blight disease and lower population of white fly and jassids as compared to checks GG 1 and GG 2.
	મધ્ય ગુજરાતમાં, ગમ ગુવારની ખેતી કરતા ખેડુતોને ગુજરાત ગુવાર ૪ જાત **(જીજી ૪: પંચમ)** ની ચોમાસું અને ઉનાળુ ઋતુમાં વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ગમ ગુવારની આ જાત મધ્ય ગુજરાતમાં સરેરાશ બીજ ઉત્પાદન ૧૪૭૩ કિગ્રા./હે. આપે છે, જે અંકુશ જાતો જીજી ૧ અને જીજી ૨ કરતા અનુક્રમે ૩૫.૨૬ અને ૨૧.૧૩% વધારે મળેલ છે. મધ્ય ગુજરાતમાં આ જાત ચોમાસું ઋતુમાં ૧૭૨૪ કિગ્રા./હે. બીજ ઉત્પાદન આપે છે જે અંકુશ જાતો જીજી ૧ અને જીજી ૨ કરતા અનુક્રમે ૧૭.૯૨ અને ૨૬.૬૭% વધારે મળેલ 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 મળેલ છે. આ મધ્યમ પાકતી અને ઉભડી પ્રકારની જાત છે તથા છોડ સામાન્ય રીતે બિન શાખા વાળો હોય છે. આ જાતના બીજમાં ૨૭.૯૪% ગમ અને ૮.૮૮% કુલ દ્રાવ્ય શર્કરા છે જે અંકુશ જાતના સપ્રમાણમાં જોવા મળેલ છે. આ જાતમાં ભુકીછારો અને જીવાણુથી થતાં પાનના સુકારાના રોગનું પ્રમાણ અંકુશ જાતો જીજી ૧ અને જીજી ૨ જેટલું તેમજ સફેદ માખી અને તડતડીયાનું પ્રમાણ સદર અંકુશ જાતો કરતા ઓછું જોવા મળેલ છે.
	This proposal thoroughly discussed and deferred by the house with following suggestions: 1. Generate one more year multi location state trial data
	Action: Associate Research Scientist ARS, AAU, Derol
20.1.1.3	**Cotton: Gujarat Desi Cotton 5 (GDC 5: Anand Kanchan)**
	Farmers of Gujarat growing rainfed desi cotton are recommended to grow high yielding and long linted variety Gujarat Desi Cotton 5 (GDC 5: Anand Kanchan). This variety gave 1375 kg/ha seed cotton yield which was higher by 5.8, 20.3 and 24.8% over check varieties *viz.*, G Cot 21, GADC 2 and GADC 4, respectively over its mean. It has recorded 34.2 *per cent* ginning out turn, 27.3 mm upper half mean length, 4.2 micronaire value and 26.6 g/tex tenacity in HVI mode.
	બિનપિયત દેશીકપાસ ની ખેતી કરતા ગુજરાતના ખેડૂતોને વધુ ઉત્પાદન અને રૂની સારી ગુણવત્તા ધરાવતી જાત ગુજરાત દેશી કપાસ ૫ (જીડીસી ૫: આણંદ કંચન) ની ભલામણ કરવામાં આવે છે. આ નવી જાતની કપાસની ઉત્પાદકતા ૧૩૭૫ કિ.ગ્રા./હેક્ટર છે જે અંકુશ જાતો જી.કોટ.૨૧, જીએડીસી ૨ અને જીએડીસી ૪ કરતા અનુક્રમે ૫.૮, ૨૦.૩ અને ૨૪.૮% વધુ આપે છે. જીડીસી ૫ જાતની રૂની ટકાવારી ૩૪.૨, તારની લંબાઇ ૨૭.૩ મિ.મી., માઈક્રોનીયર ૪.૨ એમ.વી. અને ટેનાસીટી ૨૬.૬ ગ્રામ/ટેક્ષ ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Add disease incidence data of AICRP trial
	Action: Associate Research Scientist, RCRS, AAU, Viramgam

20.1.1.4	**Chilli: Gujarat Vegetable Chilli Hybrid 2 (GVCH 2: Anand Surya)**
	The farmers of green chilli growing area of Gujarat are recommended to grow Gujarat Vegetable Chilli Hybrid 2 (GVCH 2: Anand Surya) during *kharif-rabi* season. The proposed hybrid gave 198.96 q/ha average green fruit yield in Gujarat which exhibited 22.64 and 52.78 *per cent* higher over the checks GAVCH 1 and GAVC 112, respectively. Fruits of this hybrid have light green colour at unripe stage and medium sinuation of pericarp, slightly rough texture with strong glossiness. The hybrid contains 0.160% total antioxidant activity, 0.195% capsaicin, 2.80% total soluble sugars and 0.059% flavonoid. Under natural field condition, this hybrid has less affect of chilli leaf curl disease incidence as well as fruit borer and thrips infestation comparable to the check GAVCH 1.
	ગુજરાતમાં લીલા મરચાંની ખેતી કરતાં ખેડૂતો ને ખરીફ-રવી ઋતુ દરમ્યાન ગુજરાત શાકભાજી સંકર મરચી ૨ (જીવીસીએચ ૨: આણંદ સુર્યા) નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ સંકર જાતમાં લીલા મરચાંનુ સરેરાશ ઉત્પાદન ૧૯૮.૯૬ કિવ./હે. જોવા મળેલ છે જે અંકુશ જાત જીએવીસીએચ ૧ અને જીએવીસી ૧૧૨ કરતા અનુક્રમે ૨૨.૬૪ અને ૫૨.૭૮% વધારે માલુમ પડેલ છે. આ જાતના મરચાં પાકતા પહેલા આછા લીલા રંગના તથા તેની છાલ મધ્યમ કરચલીવાળી, મધ્યમ ખરબચડી સપાટી ધરાવતી તેમજ વધુ ચળકાટ ધરાવે છે. આ જાતમાં ૦.૧૬૦% કુલ એન્ટીઓક્સિડેન્ટ એક્ટીવીટી, ૦.૧૯૫% કેપ્સીસીન, ૨.૮૦% કુલ દ્રાવ્ય શર્કરા અને ૦.૦૫૯% ફ્લેવેનોઈડ માલુમ પડેલ છે. આ જાત સામાન્ય પરિસ્થિતિમાં અંકુશ જાત જીએવીસીએચ ૧ ની સરખામણીમાં પાનનાં કોકડવાનો રોગ અને ફળ કોરી ખાનાર ઇયળથી થતું નુકસાન તેમજ થ્રીપ્સનો ઉપદ્રવ તુલનાત્મક જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestions: 1. Keep data upto two decimal in Table No. 6 2. Remove table 9 of trader's opinion
	Action: Research Scientist (Veg), MVRS, AAU, Anand
20.1.1.5	**Sponge Gourd: Gujarat Sponge Gourd 3 (GSG 3: Anand Mrudula)**

	The farmers of Gujarat are recommended to grow sponge gourd variety Gujarat Sponge Gourd 3 (GSG 3: Anand Mrudula) during *kharif* season. The proposed genotype recorded average fruit yield 126.72 q/ha which was 33.88, 19.53 and 13.69% higher over checks GSG 1, GJSG 2 and Pusa Chikni, respectively in Gujarat. The genotype has medium size fruits having dark green skin with white flesh colour. The proposed genotype contains 2.18% total soluble sugar, 9.36 mg/100gm ascorbic acid and 0.97% crude protein. This genotype has comparable prevalence of CMV, powdery mildew and downy mildew disease as well as less leaf miner and fruit fly infestation as compared to the check Pusa Chikni and GJSG 2.
	ગુજરાતમાં ચોમાસું ઋતુમાં ગલકાની ખેતી કરતા ખેડૂતોને ગુજરાત ગલકા ૩ (જીએસજી ૩: આણંદ મૃદુલા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ગુજરાતમાં આ જાતનું સરેરાશ ઉત્પાદન ૧૨૬.૭૨ કિવ./ હે જોવા મળેલ છે, જે અંકુશ જાત જીએસજી ૧, જીજેએસજી ૨ અને પુસા ચીકણી કરતા અનુક્રમે ૩૩.૮૮, ૧૯.૫૩ અને ૧૩.૬૯% વધારે મળેલ છે. આ જાતના ફળ મધ્યમ લાંબા, ઘાટા લીલા રંગના તેમજ સફેદ માવો ધરાવે છે. આ જાતમાં ૨.૧૮% કુલ દ્રાવ્ય શર્કરા, ૯.૩૬ મિગ્રા/૧૦૦ ગ્રામ એસ્કોર્બીક એસીડ અને ૦.૯૭% ક્રુડ પ્રોટીન જોવા મળેલ છે. આ જાતમાં અંકુશ જાત પુસા ચીકણી અને જીજેએસજી ૨ ની સરખામણીમાં પંચરંગીયો, ભૂકીછારો અને તળછારાનો રોગનું નુકશાન સપ્રમાણ તેમજ પાનકોરીયુ અને ફળમાખીનું નુકશાન ઓછુ જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestion: 1. Remove table 9 of trader's opinion
	Action: Research Scientist (Veg), MVRS, AAU, Anand
20.1.1.6	**Chilli: Gujarat Vegetable Non Pungent Chilli 132 (GVNPC 132: Anand Saumya)**
	The farmers of green chilli growing area of Gujarat are recommended to grow chilli variety, Gujarat Vegetable Non Pungent Chilli 132 (GVNPC 132: Anand Saumya) during *kharif-rabi* season. The proposed genotype gave 195.26 q/ha average green fruit yield in Gujarat which exhibited 69.23 *per cent* higher green fruit yield over the check AVNPC 131. Fruits of this genotype have medium intensity of green colour, big in size and non pungent at unripe stage with smooth texture and strong

	glossiness. The genotype contains higher antioxidant activity (0.112%) as well as total soluble sugars (3.00%) and lower content of capsaicin (0.088%) as compared to the check AVNPC 131. This genotype has lower or comparable level of chilli leaf curl disease, fruit damage by fruit borer and thrips infestation as compared to the check AVNPC 131.
	ગુજરાતમાં ખરીફ-રવી ઋતુ દરમ્યાન લીલા મરચાંની ખેતી કરતાં ખેડૂતોને ગુજરાત શાકભાજી મોળા મરચાં ૧૩૨ (જીવીએનપીસી ૧૩૨: આણંદ સૌમ્યા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૧૯૫.૨૬ ક્વિ./હે. જોવા મળેલ છે જે અંકુશ જાત એવીએનપીસી ૧૩૧ કરતા ૬૯.૨૩% વધારે માલુમ પડેલ છે. આ જાતના મરચાં મધ્યમ લીલા રંગના અને મોટા, સ્વાદે મોળા, લીસી સપાટીવાળા તથા વધુ ચળકાટ ધરાવતા માલૂમ પડેલ છે. આ જાતમાં કુલ એન્ટીઓક્સિડેન્ટ એક્ટીવીટી (૦.૧૧૨%) તેમજ કુલ દ્રાવ્ય શર્કરા (3.00%) વધારે પ્રમાણમાં અને કેપ્સીસીન (૦.૦૮૮%) નું પ્રમાણ અંકુશ જાત એવીએનપીસી ૧૩૧ કરતાં ઓછું ધરાવતા માલૂમ પડેલ છે. આ જાતમાં પાનનાં કોકડવાનો રોગ, ફળ કોરીખાનાર ઈયળ તથા થ્રીપ્સથી થતું નુકશાન અંકુશ જાત એવીએનપીસી ૧૩૧ જેટલું અથવા તેના કરતાં ઓછા પ્રમાણમાં જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestion: 1. Add pedigree flow chart in proposal 2. Remove table 9 of trader's opinion
	Action: Research Scientist (Veg), MVRS, AAU, Anand
20.1.1.7	**Okra: Gujarat Okra 9 (GO 9: Anand Anamika)**

	The farmers of Gujarat are recommended to grow Gujarat Okra 9 (GO 9: Anand Anamika) during *kharif* and summer seasons. It recorded 137.86 q/ha average fruit yield in Gujarat which manifested 22.33, 25.84, 33.04 and 17.20 *per cent* higher fruit yield over the checks GAO 5, GO 6, Pusa Sawani and GAO 8, respectively in *kharif* season. It produced 111.31 q/ha average fruit yield in summer season, which was 22.31, 29.66, 34.25 and 12.48% higher than checks GAO 5, GO 6, Pusa Sawani and GAO 8, respectively. The genotype has short plant stature with short internodes, long leaf blade length and broad width with deep depth of lobbing. Fruits of this genotype are dark green colour, tender, smooth, medium long having acute shape of apex. The genotype contains 2.715% total soluble sugars, 0.112% phenol, 0.207% antioxidant activity and 14.47 g/kg mucilage which found comparable with checks GAO 5, GO 6, Pusa Sawani and GAO 8. Under natural field condition, this genotype has less prevalence of yellow vein mosaic virus disease and enation leaf curl virus disease. It has lower jassids and whitefly population as well as shoot and fruit damage as compared to the checks GAO 5, GO 6, Pusa Sawani, GAO 8 and susceptible check (ELCv) AOL 23-01.
	ગુજરાત રાજ્યમાં ચોમાસુ અને ઉનાળુ ઋતુમાં ભીંડાની ખેતી કરતા ખેડૂતોને ગુજરાત ભીંડા ૯ (જીઓ ૯ : આણંદ અનામિકા) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ગુજરાતમાં આ જાતનું ચોમાસું ઋતુમાં સરેરાશ ઉત્પાદન ૧૩૭.૮૬ કિવ./હે. જોવા મળેલ છે, જે અંકુશ જાતો જીએઓ ૫, જીઓ ૬, પુસા સાવની અને જીએઓ ૮ કરતા અનુક્રમે ૨૨.૩૩, ૨૫.૮૪, ૩૩.૦૪ અને ૧૭.૨૦% વધારે છે. આ જાતનું ઉનાળુ ઋતુમાં સરેરાશ ઉત્પાદન ૧૧૧.૩૧ કિવ./હે. જોવા મળેલ છે, જે અંકુશ જાતો જીએઓ ૫, જીઓ ૬, પુસા સાવની અને જીએઓ ૮ કરતા અનુક્રમે ૨૨.૩૧, ૨૯.૬૬, ૩૪.૨૫ અને ૧૨.૪૮% વધારે છે. ઓછી ઉચાઈ ધરાવતા આ જાતના છોડમાં બે ગાંઠો વચ્ચેનુ ઓછુ અંતર, પાંદડા લાંબા અને પહોળા ઉંડા ખાંચાવાળા હોય છે. આ જાતની શીંગો ઘાટા લીલા રંગની, કુણી, મધ્યમ લંબાઈની અને પાતળી ટોચ ધરાવતી હોય છે. આ જાતમાં ૨.૭૧૫% કુલ દ્રાવ્ય શર્કરા, ૦.૧૧૨% ફીનોલ, ૦.૨૦૭% એન્ટીઓકસીડન્ટ એકટીવીટી અને ૧૪.૪૭ ગ્રામ/કિ. મ્યુસીલેજ નું પ્રમાણ માલૂમ પડેલ છે જે અંકુશ જાતો સાથે તુલનાત્મક છે. આ

	જાતમાં પીળી નસનો પચરંગીયો, એનેસન પાનનો કોકડવા રોગ, લીલા તડતડીયા, સફેદ માખી તથા ડુંખ અને ફળ કોરી ખાનાર ઈયળનો ઉપદ્રવ અંકુશ જાતો જીએઓ ૫, જીઓ ૬, પુસા સાવની, જીએઓ ૮ અને રોગ ગ્રાહ્ય જાત (એનેસન પાનનો કોકડવા રોગ) એઓએલ ૨૩-૦૧ કરતાં ઓછો જોવા મળે છે.
	Release proposal was accepted by the house with following suggestion: 1. Remove table 9 of trader's opinion
	Action: Research Scientist (Veg), MVRS, AAU, Anand

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20.1.1.8	**GROUNDNUT: GUJARAT GROUNDNUT 101 (GG 101: SORATH KESHAV)**
	The farmers of Gujarat state growing groundnut during *kharif* season are recommended to grow high yielding Spanish bunch groundnut variety Gujarat Groundnut 101 (GG 101: Sorath Keshav). This variety has recorded mean pod yield of 2860 kg/ha, which was 33.96 and 24.26 per cent higher than the check varieties, GJG 9 (2135 kg/ha) and TG 37A (2301 kg/ha), respectively. This variety has also recorded higher kernel yield than the check varieties. This variety was found comparable to the checks against late leaf spot, rust, stem rot, collar rot incidence and damage due to leaf defoliator.
	ગુજરાત રાજ્યમાં ચોમાસું ઋતુમાં મગફળી ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન આપતી ઉભડી પ્રકારની મગફળીની જાત ગુજરાત મગફળી ૧૦૧ (જીજી ૧૦૧: સોરઠ કેશવ) નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ડોડવાનું સરેરાશ ઉત્પાદન ૨૮૬૦ કિગ્રા/હે મળેલ છે, જે અંકુશ જાતો જીજેજી ૯ (૨૧૩૫ કિગ્રા/હે) અને ટીજી ૩૭ એ (૨૩૦૧ કિગ્રા/હે) કરતા અનુક્રમે ૩૩.૯૬ અને ૨૪.૨૬ ટકા વધારે માલુમ પડેલ છે. અંકુશ જાતોની સરખામણીએ આ જાતમાં દાણાનું ઉત્પાદન પણ વધારે મળેલ છે. આ જાતમાં પાનના ટપકા, ગેરૂ, થડનો સુકારો, ઉગસુકના રોગોનું પ્રમાણ અને પાન ખાનાર ઈયળથી થતું નુકસાન અંકુશ જાતો જેટલું જોવા મળે છે.

	Release proposal was accepted by the house with following suggestion: 1. In point no. 5C, write only pedigree method of selection
	Action: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh
20.1.1.9	**GROUNDNUT: GUJARAT GROUNDNUT 24 (GG 24: SORATH URJA)**
	The farmers of Gujarat state growing groundnut during *kharif* season are recommended to grow Virginia bunch groundnut variety Gujarat Groundnut 24 (GG 24: Sorath Urja). This variety has recorded mean pod yield of 2555 kg/ha, which was 20.37, 21.97 and 56.42 per cent higher over the check varieties, GJG 22 (2122 kg/ha), GG 20 (2095 kg/ha) and Kaushal (1633 kg/ha), respectively. This variety has also recorded higher kernel yield, oil yield, number of pods per plant and oil content over the check varieties. This variety was found comparable to the check varieties against late leaf spot, rust, stem rot, collar rot diseases and damage due to leaf defoliator.
	ગુજરાત રાજ્યમાં ચોમાસું ઋતુમાં મગફળી ઉગાડતા ખેડૂતોને અર્ધ વેલડી પ્રકારની મગફળીની જાત ગુજરાત મગફળી ૨૪ (જીજી ૨૪: સોરઠ ઉર્જા) નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ડોડવાનું સરેરાસ ઉત્પાદન ૨૫૫૫ કિ.ગ્રા. પ્રતિ હેક્ટર મળેલ છે, જે અંકુશ જાત જીજેજી ૨૨ (૨૧૨૨ કિ.ગ્રા./હે), જીજી ૨૦ (૨૦૯૫ કિ.ગ્રા./હે) અને કૌશલ (૧૬૩૩ કિ.ગ્રા./હે) કરતા અનુક્રમે ૨૦.૩૭, ૨૧.૯૭ અને ૫૬.૪૨ ટકા વધારે માલુમ પડેલ છે. અંકુશ જાતોની સરખામણીએ આ જાતમાં દાણાનું ઉત્પાદન, તેલનું ઉત્પાદન અને તેલની ટકાવારી પણ વધારે મળેલ છે. આ જાતમાં પાનના ટપકા, ગેરૂ, થડના સુકારો, ઉગસુકના રોગોનું પ્રમાણ અને પાન ખાનારી ઈયળથી થતું નુકસાન અંકુશ જાતો જેટલું જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestions: 1. In point no. 5C, write only pedigree method of selection 2. In Table No.5, point No. 10 check the observation and correct it, if required 3. In Table No. 1 & 2a, check the data of K-2021 Kodinar centre and remove if below state average 4. Point no. 7(b), remove ‘comparable’ word from point no. 4.
	Action: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU,

	Junagadh
20.1.1.10	**GROUNDNUT: GUJARAT GROUNDNUT 42 (GG 42: SORATH SHAAN)**
	The farmers of Gujarat state growing groundnut during *kharif* season are recommended to grow Virginia runner groundnut variety Gujarat Groundnut 42 (GG 42: Sorath Shaan). This variety has recorded mean pod yield of 2393 kg/ha, which was 12.51, 27.14 and 50.98 per cent higher over the check varieties, GG 41 (2127 kg/ha), GJG 17 (1883 kg/ha) and Somnath (1585 kg/ha), respectively. This variety has also recorded higher kernel yield, oil yield, number of pods per plant and shelling per cent over the check varieties. This variety was found comparable to the check varieties against late leaf spot, rust, stem rot, collar rot diseases and damage due to leaf defoliator.
	ગુજરાત રાજ્યમાં ચોમાસું ઋતુમાં મગફળી ઉગાડતા ખેડૂતોને વેલડી પ્રકારની મગફળીની જાત ગુજરાત મગફળી ૪૨ (જીજી ૪૨: સોરઠ શાન) નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. આ જાતના ડોડવાનું સરેરાશ ઉત્પાદન ૨૩૯૩ કિ.ગ્રા. / હેક્ટર મળેલ છે, જે અંકુશ જાત જીજી ૪૧ (૨૧૨૭ કિ.ગ્રા./હે), જીજેજી ૧૭ (૧૮૮૩ કિ.ગ્રા./હે) અને સોમનાથ (૧૫૮૫ કિ.ગ્રા./હે) કરતા અનુક્રમે ૧૨.૫૧, ૨૭.૧૪ અને ૫૦.૯૮ ટકા વધારે માલુમ પડેલ છે. અંકુશ જાતોની સરખામણીએ આ જાતના દાણાનું ઉત્પાદન, તેલનું ઉત્પાદન, છોડ દીઠ ડોડવાની સંખ્યા અને દાણાનો ઉતારો પણ વધારે જોવા મળેલ છે. આ જાતમાં પાનના ટપકા, ગેરૂ, થડનો સુકારો, ઉગસુકના રોગોનું પ્રમાણ અને પાન ખાનાર ઈયળથી થતું નુકસાન અંકુશ જાતો જેટલું જોવા મળે છે.
	Release proposal was accepted by the house with following suggestion: 1. In point no. 5C, write only pedigree method of selection
	Action: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh
20.1.1.11	**PIGEONPEA: GUJARAT TUR 111 (GT 111: SORATH RATAN)**
	Farmers of Gujarat state growing pigeonpea are recommended to grow medium maturing (177 days) variety Gujarat Tur 111 (GT 111: Sorath Ratan). It recorded 2197 kg/ha average seed yield, which was 6.6, 18.3, 14.5 and 15.9 per cent higher over check varieties GJP 1, AGT 2, BDN 2 and GT 104, respectively. Seeds of this variety are of cream colour and large in size (12.88 g/100 seeds). This

	variety is moderately resistant against wilt, resistant against SMD and phytophthora blight diseases, with low pod borer and seed damage due to pod fly.
	ગુજરાત રાજ્યના તુવેર ઉગાડતા ખેડૂતોને મધ્યમ પાકતી (૧૭૭ દિવસ) ગુજરાત તુવેર ૧૧૧ (જીટી ૧૧૧: સોરઠ રતન) જાત નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતમા દાણાનું સરેરાસ ઉત્પાદન ૨૧૯૭ કિ.ગ્રા./હે. મળેલ છે, જે અંકુશ જાતો જીજેપી ૧, એજીટી ૨, બીડીએન ૨ અને જીટી ૧૦૪ કરતાં ૬.૬, ૧૮.૩, ૧૪.૫ અને ૧૫.૯ ટકા વધુ છે. આ જાતના દાણા ક્રીમ કલરના અને મોટા કદના (૧૨.૮૮ ગ્રામ/૧૦૦ દાણા) છે. આ જાતમા સુકારા સામે મધ્યમ પ્રતિકારકતા; વંધ્યત્વ અને થડ ના સડા સામે પ્રતિકારકતા તેમજ શીંગ કોરી ખાનાર ઈયળ અને શીંગ માખી ને કારણે ઓછુ નુકસાન જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestions: 1. In point no. 5C, write only pedigree method of selection 2. Write "c" instead of "ch" in Table No. 4 & 5 3. In table 5, check pod colour of GT 104.
	Action: Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh
20.1.1.12	**PEARL MILLET HYBRID: GHB 1294 (*MARU MOTI*) (ENDORSEMENT)**
	The *kharif* pearl millet growing farmers of Gujarat state are recommended to grow early maturing hybrid GHB 1294 (*Maru Moti*). This hybrid recorded average 2717 kg/ha grain yield which was 20.0% higher than check hybrid GHB-538. It has also recorded average 7306 kg/ha dry fodder yield which was 46.8% higher than check hybrid GHB-538. The proposed hybrid is resistant against diseases like downy mildew, blast and rust and tolerant against pest like shoot fly, stem borer and *heliothis* larvae.
	ગુજરાત રાજયમાં ખરીફ ઋતુમાં બાજરાનું વાવેતર કરતાં ખેડુતોને વહેલી પાકતી સંકર જાત જીએચબી ૧૨૯૪ (મરૂ મોતી) નું વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ જાતના દાણાનું સરેરાશ ઉત્પાદન ૨૭૧૭ કિ.ગ્રા/હે મળેલ છે, જે અંકુશ સંકર જાત જીએચબી-૫૩૮ કરતા ૨૦.૦ ટકા વધારે છે. તેમજ સુકાચારાનું સરેરાશ ઉત્પાદન ૭૩૦૬

	કિ.ગ્રા/હે મળેલ છે, જે અંકુશ સંકર જાત જીએચબી-૫૩૮ કરતા ૪૬.૮ ટકા વધારે છે. આ સંકર જાત રોગો જેવાકે કુતુલ, પાનના ટપકાં, ગેરુ સામે પ્રતિકારકતા તેમજ જીવાતો જેવીકે સાંઠાની માખી, ગાભમારાની ઇયળ અને ડુંડા કોરી ખાનાર ઈયળ સામે સહનશીલતા ધરાવે છે.
	Release proposal was accepted by the house.
	Action: Research Scientist (Pearl Millet), Pearl Millet Research Station, JAU, Jamnagar
20.1.1.13	**RECOMMENDATION FOR FARMERS:** **HEAT STRESS MITIGATION THROUGH SEED PRIMING IN WHEAT**
	The farmers of South Saurashtra Agro-climatic Zone growing wheat are recommended to grow variety GW 366 in late sowing condition with seed priming of salicylic acid 50 ppm (Hormonal Priming)(50ml/l) for 14 hours followed by shade drying recorded the highest grain and biological yield per plant to mitigate heat stress.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના ઘઉંનુ વાવેતર કરતા ખેડૂતોને મોડી વાવણીની સ્થિતિમાં જીડબ્લ્યુ ૩૬૬ જાતના બીજ ને સેલિસિલિક એસિડ ૫૦ પીપીએમ (હોર્મોનલ પ્રાઈમિંગ) (૫૦ મિલી./લી.) માં ૧૪ કલાક પલાળીને છાયામાં સુકવ્યા બાદ વાવણી કરવાની ભલામણ કરવામાં આવે છે, જેથી ઘઉં ને ઊંચા તાપમાન સામે રક્ષણ મળવાથી છોડ દીઠ સૌથી વધુ દાણા અને જૈવિક ઉપજ મળે છે.
	Recommendation was accepted by the house with following suggestions: 1. Recommendation is considered as a scientific information instead of farmer recommendation 2. Analysis of laboratory observations should be done as per RBD design 3. Add temperature data of experimental period
	Action: Professor & Head, Dept. of Seed Science and Technology, JAU, Junagadh

20.1.1.14	**SORGHUM: GUAJRAT JOWAR-103 (GJ-103 : *Surati Ponk-1)***
	The farmers of Gujarat state are recommended to grow *ponk* sorghum variety GJ-103 (*Surati Ponk-1*) during *rabi* season. The proposed genotype recorded average grain yield 1544 kg/ha, dry fodder yield 9174 kg/ha and tender grain yield 2465 kg/ha with grain yield increment of 19.6% and 60.0%, dry fodder yield increment of 11.6% and 21.4% and tender grain yield increment of 19.9% and 45.1%, over checks *Wani local* and Phule Madhur, respectively. The proposed variety having good tender grain qualities like higher protein content, brix value and desirable organoleptic properties *viz*., dark green colour, soft texture and sweet *ponk* taste. It exhibited moderately resistance reaction against Anthracnose, Leaf blight and sugary diseases and low incidence of stem borer and shoot fly.
	ગુજરાત રાજ્યમાં પોંકની જુવાર પકવતા ખેડુતોને શિયાળુ ઋતુમાં જુવારની જાત જી. જે. ૧૦૩ (સુરતી પોંક-૧) નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. પોંકની આ સુચિત જાતમાં શિયાળુ ઋતુમાં સરેરાશ ૧૫૪૪ કિ./હે દાણા, ૯૧૭૪ કિ./હે. સુકા ઘાસચારા અને ૨૪૬૫ કિ./હે. પોંક માટેના દાણા નુ ઉત્પાદન મળેલ છે. જે અંકુશ જાતો વાની લોકલ અને ફુલે મધુર કરતા અનુક્રમે દાણાના ઉત્પાદનમાં ૧૯.૬% અને ૬૦.૦%, સુકા ઘાસચારાના ઉત્પાદનમાં ૧૧.૬% અને ૨૧.૪% તથા પોંકના દાણાના ઉત્પાદનમાં ૧૯.૯% અને ૪૫.૧%, પરિપકવ વધુ છે. આ જાતના પોંક માટેના દાણામાં અંકુશ જાતો કરતા વધારે પ્રોટીન છે તથા દાણા પોચા, આકર્ષક ઘટ્ટ લીલા રંગના અને મીઠા છે. જુવારની આ જાતમાં ગાભમારાની ઈયળ અને સાંઠાની માખીનો ઓછો ઉપદ્રવ તથા રાતડો, પાનનો સુકારો અને ગુંદરીયો રોગો સામે મધ્યમ પ્રતિકારકતા જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestions: 1. In Table 6 &7, delete the word “pooled” from heading and give range data. 2. Write “NC” instead of “C” for Phule Madhuri check in all the tables. 3. In place of MLT, write SSVT/LSVT in table 1(a,b,c) . 4. Separate table for organoleptic taste from Table 5a. 5. Correct the sequence in pedigree flow chart.
	Action: Research Scientist, MSRS, NAU, Surat

20.1.1.15	**BARNYARD MILLET: GUJARAT BARNYARD MILLET-2 (GB-2 : *Sabari*)**
	The barnyard millet variety 'GB-2' (SABARI) is recommended for Barnyard millet growing region of Gujarat in *kharif* season. The barnyard millet variety 'GB-2' (1957 kg/ha) was performed well with 18.75 % and 23.21% increase over local check 'GB-1' and Phule Banti while, 14.76% and 13.07% grain yield superiority over national check varieties VL-172 and VL-207, respectively in Gujarat. It has higher amount of protein (8.45 g/100g), iron (8.26 mg/100g), Zn (2.89 mg/100g) and Ca (22.3 mg/100g) in comparison to the checks. The variety is having attractive bold grain size, uniform maturing, non shattering and having non-lodging plant type. It is moderately resistant to leaf and neck blast as well as grain and head smut disease and resistant to shoot fly.
	ગુજરાતમાં બંટીની ખેતી કરતા વિસ્તારમાં ચોમાસા ઋતુમાં બંટીની જાત જી. બી.-૨ (સબરી) ની વાવેતર માટે ભલામણ કરવામાં આવે છે. બંટીની જાત જી.બી.-૨ (શબરી) માં દાણાનું સરેરાશ ઉત્પાદન ૧૯૫૭ કિ.ગ્રા./હેકટર આવે છે, જે એકંદરે સ્થાનિક જાત જી. બી.-૧ અને કુલે બંટી કરતાં અનુક્રમે ૧૮.૭૫%, ૨૩.૨૧% તથા રાષ્ટ્રીય કક્ષાની જાત વી.એલ.-૧૭૨ અને વી.એલ.- ૨૦૭ કરતા અનુક્રમે ૧૪.૭૬%, ૧૩.૦૭ % વધારે ઉત્પાદન આપે છે. આ જાતમાં પ્રોટીન (૮.૪૫ ગ્રામ /૧૦૦ ગ્રામ), લોહતત્વ (૮.૨૬ મી.ગ્રા./૧૦૦ ગ્રામ), ઝીંક (૨.૮૯ મી .ગ્રા./૧૦૦ ગ્રામ) અને કેલ્શિયમ (૨૨.૩ મી.ગ્રા./૧૦૦ ગ્રામ) નું પ્રમાણ અંકુશ જાતો કરતાં વધારે નોંધાયેલ છે. આ જાત આકર્ષક મોટા ભરાવદાર દાણાવાળી, એકસરખી પરીપક્વતા ધરાવતી, દાણા ખરી જવા તેમજ ઢળી પડવા સામે પ્રતિકારકતા ધરાવતી હોવાથી વધુ ઉત્પાદન આપે છે. આ જાત પર્ણ અને ગાંઠના કરમોડીના રોગ તેમજ દાણા તથા કણસલાના આંજિયાના રોગ સામે મધ્યમ પ્રતિકારક્તા અને સાંઠાની માખી સામે પ્રતિકારક્તા ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Check mean data as well as per cent increase over in table 2(a). 2. Give range in bracket along with mean of proposed variety and checks in Table 4. 3. Give range instead of average in Table 7 & 8.

	4. Write “NC” instead of “LC” for Phule Banti check in all the tables. 5. Remove BMV-641 from point no. 2.
	Action: Associate Research Scientist, HMRS, Waghai
20.1.1.16	**LITTLE MILLET: GUJARAT VARI-5 (GV-5 : *Mavli)***
	The little millet variety 'GV-5' (Mavli) is recommended for little millet growing region of Gujarat during *kharif* season. Little millet variety 'GV-5' (Mavli) performed well for grain yield (1748 kg/ha) with 31.35% and 10.55% increase over national check JK-8 and OLM-203 respectively while, on the basis of per day productivity, it gives 12.78 % increase over local check GV-4 while, 31.35% and 31.17% grain yield superiority over national check varieties JK-8 and OLM-203, respectively in Gujarat. It has higher amount of Ca (18.4 mg/100g), Zn (3.88 mg/100g) and crude fiber (8.36%) in comparison to the checks. The variety is early maturing, non shattering and having non-lodging plant type. It is moderately resistant to leaf and neck blast as well as grain smut disease and resistant to shoot fly.
	ગુજરાતમાં વરીની ખેતી કરતા વિસ્તારમાં ચોમાસું ઋતુમાં વરીની જાત જી. વી.-૫ (માવલી) ની વાવેતર માટે ભલામણ કરવામાં આવે છે. વરીની જાત જી. વી.-૫ (માવલી) માં દાણાનું સરેરાશ ઉત્પાદન ૧૭૪૮ કિ.ગ્રા./ હેક્ટર આવે છે જે એકંદરે રાષ્ટ્રીય કક્ષાની જાત જે. કે. -૮ અને ઓ. એલ. એમ.- ૨૦૩ કરતા અનુક્રમે ૩૧.૩૫% અને ૧૦.૫૫% વધારે છે તથા જે એકંદરે સ્થાનિક જાત જી. વી.-૪ કરતાં પ્રતિ દિવસ ઉત્પાદકતા મુજબ ૧૨.૭૮% અને રાષ્ટ્રીય કક્ષાની જાત જે. કે. -૮ અને ઓ. એલ. એમ.-૨૦૩ કરતા અનુક્રમે ૩૧.૩૫% અને ૩૧.૧૭% વધારે છે. આ જાતમાં કેલ્શિયમ (૧૮.૪ મી.ગ્રા./૧૦૦ ગ્રામ), ઝીંક (૩.૮૮ મી.ગ્રા./૧૦૦ ગ્રામ) અને ફૂડ ફાઇબર (૮.૩૬%) નું પ્રમાણ અંકુશ જાતો કરતાં વધારે નોંધાયેલ છે. આ જાત (જી.વી.-૫) વહેલી પાકતી, દાણા ખરી જવા તેમજ ઢળી પડવા સામે પ્રતિકારક્તા ધરાવે છે. આ જાત પર્ણ અને ગાંઠના કરમોડીના રોગ તેમજ આંજીયાના રોગ સામે મધ્યમ પ્રતિકારક્તા અને સાંઠાની માખી સામે પ્રતિકારક્તા ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Salient features should be précise.

	2. Mention only distinguish morphological features in point 9(b). 3. Give range in bracket along with mean of proposed variety and checks in Table 4. 4. Prepare separate table for per day productivity. **5.** Give range in Table No.7 & 8.
	Action: Associate Research Scientist, HMRS, Waghai
20.1.1.17	**PIGEON PEA: GUJARAT TUR 110 (GT 110: NAVTUR)**
	The Farmers of Gujarat Cultivating *kharif* Pigeon pea are recommended to grow Gujarat Tur 110 (NAVTUR) variety. The average yield of this variety was 2131 kg/ha. Overall yield advantage of this variety was 17.1, 8.7, 13.1, 7.6, 25.4 and 37.1 % over the checks GT-104, GT 108, BDN 716, GJP-1, BDN-2 and AGT-2 respectively. It matures within 170-180 days (Medium maturing group) with medium dwarf stature, spreading in nature, a green pod with 3-5 seeds per pod and cream seed colour. It has high yield potential and is moderately resistant to SMD and wilt.
	ગુજરાતનાં ચોમાસું તુવેરનું વાવેતર કરતાં ખેડૂતોને ગુજરાત તુવેર-૧૧૦ (નવતુર) જાતનું વાવેતર કરવા ભલામણ કરવામાં આવે છે. આ જાતનું ચોમાસામાં સરેરાશ ઉત્પાદન ૨૧૩૧ કિ.ગ્રા./હે. આવેલ છે. આ જાત અંકુશ જાત ગુજરાત તુવેર-૧૦૪, ગુજરાત તુવેર-૧૦૮, બીડીએન-૭૧૬, જીજેપી-૧, બીડીએન-૨ અને એજીટી-૨ કરતાં અનુક્રમે ૧૭.૧, ૮.૭, ૧૩.૧, ૭.૬, ૨૫.૪ અને ૩૭.૧ ટકા વધુ ઉત્પાદન આપેલ છે. આ જાત ૧૭૦-૧૮૦ દિવસમાં પાકતી (મધ્યમ મોડી પાકતી), મધ્યમ ઊચાઈ, વધુ ઘેરાવો ધરાવતી, લીલી શિંગોવાળી અને પ્રતિ શીંગ ૩-૫ સફેદ રંગના દાણા ધરાવે છે. આ જાત વધુ ઉત્પાદકતા તેમજ વંધ્યત્વ અને સુકારા સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Remove the data of zonal trial and add all checks in Table 1 and submit revised proposal to chairman before presenting in GSSSC. 2. In table 8(a,b,c,d), remove statistical analysis of pest data 3. Recheck biochemical data in Table 5.
	Action: Associate Research Scientist (Pulses), PCRS, NAU, Navsari
20.1.1.18	**GROUNDNUT: TROMBAY GUJARAT GROUNDNUT-90 (TGG-90 : *TAPI KIRAN)***

	The farmers of South Gujarat are recommended to grow bold seeded bunch type groundnut variety TGG- 90 (Tapi Kiran) during kharif and Summer season. The genotype recorded average pod yield of 2195 kg/ha, which was 15.7 % and 26.7 % superiority over the checks TG-37A and GJG-9, respectively in kharif season. This entry recorded 4253 kg/ha of pod yield with 50.9 %, 41.8 % and 5.6 % superiority over the checks TG 37A, GJG 31 and GG 34, respectively in summer season. Bold kernel variety is having 67.6 g of test weight and 68 % of shelling percent and 49.2 % oil. With respect to disease, the proposed strain is tolerant against early leaf spot.
	દક્ષિણ ગુજરાતમાં ઉનાળુ અને ચોમાસુ ઋતુમાં મગફળીનો પાક ઉગાડતા ખેડૂતોને મોટા દાણાવાળી જાત ટીજીજી ૯૦ (તાપી કિરણ) નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ચોમાસુ ઋતુમાં મગફળીની આ જાતનું સરેરાશ ઉત્પાદન ૨૧૯૫ કિ.ગ્રા. હેકટર છે, જે અંકુશ જાતો ટીજી ૩૭ એ અને જીજેજી ૯ કરતાં અનુક્રમે ૧૫.૭ અને ૨૬.૭ ટકા વધુ છે. ઉનાળુ ઋતુમાં આ જાતનું સરેરાશ ઉત્પાદન ૪૨૫૩ કિ.ગ્રા. હેકટર છે, જે અંકુશ જાતો ટીજી ૩૭ એ, જીજેજી ૩૧ અને જીજી ૩૪ કરતાં અનુક્રમે ૫૦.૯, ૪૧.૮ અને ૫.૬ ટકા વધુ છે. મોટા દાણાવાળી આ જાતનું ૧૦૦ દાણાનું વજન ૬૭.૬ ગ્રામ, દાણાનો ઉતારો ૬૮% અને ૪૯.૨% તેલનું પ્રમાણ ધરાવે છે. મગફળીની સુચિત જાત પર્ણના વહેલા ટપકા સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Release proposal was deferred by the house with following suggestions: 1. One more year testing in multi-location state trials in consultation with Research Scientist (Groundnut), JAU, Junagadh. **2.** Remove zonal trial data from table 1 & 2 while preparing the proposal.
	Action: Associate Research Scientist, RRRS, NAU, Vyara
20.1.1.19	**SUGARCANE: GUJARAT NAVSARI SUGARCANE-13 (GNS-13 :*MADHURI*)**
	The farmers of South Gujarat are recommended to grow sugarcane variety GNS-13 (*Madhuri*) during *rabi* season. Early maturing non lodging and late flowering sugarcane variety GNS-13 (125.19 t/ha) performed very well in south Gujarat, where it exhibits overall 16.03%, 40.90% and 18.24% cane yield superiority over the checks CoN 05071, Co 86032 and CoN 13072, respectively. This clone possess higher sugar yield. The proposed clones showed moderately resistant reaction against major diseases like wilt and red rot, while resistant reaction against

	whip smut. The proposed clone showed less susceptible reaction to major insect and it is a good ratooner.
	દક્ષિણ ગુજરાતમાં શેરડીની જાત કો.એન. ૧૮૦૭૧ (જીએનએસ-૧૩) (મધુરી) શિયાળુ ઋતુ માટે ભલામણ છે. વહેલી પાકતી, ઢળી ન પડે તથા મોડા ફુલો આવતી, સારો પ્રતિભાવ ધરાવતી (૧૨૫.૧૯ ટન/હે.), જે પ્રમાણભૂત જાતો કો.એન. ૦૫૦૭૧, કો. ૮૬૦૩૨ અને કો.એન. ૧૩૦૭૨ કરતા અનુક્રમે ૧૬.૦૩ %, ૪૦.૯૦ % અને ૧૮.૨૪ % વધુ ઉત્પાદન આપે છે. આ કલોન વેપારી ખાંડનું ઉત્પાદન પણ સારૂ આપે છે. આ કલોન શેરડીના મુખ્ય રોગો જેવા કે સુકારો અને રાતડો સામે મધ્યમ પ્રતિકારક જયારે ચાબુક આંજીયો સામે પ્રતિકારક છે. આ કલોન શેરડીની અગત્યની જીવાતો સામે ઓછી ગ્રાહય તથા લામ પાક માટે અનુકુળ છે.
	Release proposal was accepted by the house with following suggestions: 1. In Table No. 1, PET data should be added. 2. Mention the name of location in Table 1. 3. Write a,b,c etc. for significant test in table 1 to 4. 4. Add the data of all centers of AICRP in Table 2 & 4. 5. In Table 10 & 11, remove the pest and disease data of 2017-18 and add the data of year 2021-22 and 2022-23. 6. Remove word “Non lodging” from recommendation paragraph. 7. In point no. 7(a), remove para of Biennial workshop.
	Action: Research Scientist, MSRS, NAU, Navsari
20.1.1.20	**TURMERIC: GUJARAT NAVSARI TURMERIC -4 (GNT-4 :AMRUTA)**
	The farmers of South Gujarat are recommended to grow early maturing table purpose turmeric variety GNT-4 (*Amruta*) during kharif season. This genotype recorded 40.85 t/ha average fresh rhizome yield at 150 days after planting, which was 26.69%, 61.86% and 88.46% higher over Pragati (NC), GNT-3 (LC) and GNT-2 (LC), respectively. It possesses higher rhizome weight, rhizome length, rhizome width and number of mother as well as finger rhizomes per plant. It is also having higher curcumin content, essential oil content and other desired fresh rhizome quality traits suitable for table purpose. The turmeric variety GNT-4 is resistant to rhizome rot and moderately resistant to leaf blotch diseases.

	લીલી હળદર પકવતા દક્ષિણ ગુજરાતના ખેડૂતોને ચોમાસાની ઋતુ દરમ્યાન વાવણી કરવા માટે વહેલી પાકતી અને સલાડ માટે અનુકૂળ જી.એન.ટી.-૪ (અમૃતા) જાતની ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ લીલા ગાંઠિયાનું ઉત્પાદન ૪૦.૮૫ ટન/હે. વાવણીના ૧૫૦ દિવસ પછી આવે છે, જે રાષ્ટ્રિય અંકુશ જાત પ્રગતિ અને સ્થાનિક અંકુશ જાતો જી.એન.ટી.-૩ અને જી.એન.ટી.-૨ કરતા અનુક્રમે ૨૬.૬૯%, ૬૧.૮૬% તથા ૮૮.૪૬% જેટલું વધુ લીલા ગાંઠિયાનું ઉત્પાદન આપે છે. આ જાતમાં વધુ ગાંઠિયાનું વજન, ગાંઠિયાની લંબાઈ, ગાંઠિયાની પહોળાઈ, વધુ સંખ્યામાં માતૃગાંઠની સાથે અંગુલી ગાંઠો ધરાવે છે. આ જાતમાં વધારે કર્કુમીન, આવશ્યક ઉડયન તેલ અને જરૂરી અપેક્ષિત લીલા ગાંઠિયાના ગુણવત્તાનાં લક્ષણો ધરાવતી હોવાથી સલાડના હેતુ માટે યોગ્ય છે. જી.એન.ટી.-૪ (અમૃતા) જાત ગાંઠિયાના સડા સામે રોગ પ્રતિકારક અને પાનના ટપકાના રોગ સામે મધ્યમ રોગ પ્રતિકારકતા ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Recast the introduction as per the specific purpose of variety. 2. Consider the data of Table No. 8 as a Table No.2. **3.** In point 9(b), give only distinguished morphological features
	Action: Professor, Dept. of GPB, NAU, Navsari
20.1.1.21	**CORIANDER: GUJARAT NAVSARI LEAFY CORIANDER-1 (GNLC-1: SURABHI)**
	The farmers of South Gujarat are recommended to grow leafy coriander variety GNLC-1 (*Surbhi*) during rabi season. This multi-cut responsive variety GNLC-1 recorded 17.12 t/ha average green leaf biomass yield, which was 24.43% and 30.48% higher over GDLC-1 (LC) and Arka Isha (NC), respectively. It possess 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, pleasant aroma with higher essential oil content and dry weight of fresh leaves are the value-added traits for better keeping quality. The leafy coriander variety GNLC-1 is moderately resistant to fusarium wilt and powdery mildew diseases.
	લીલા ધાણાની ખેતી કરતા દક્ષિણ ગુજરાતના ખેડૂતોને શિયાળાની ઋતુ માટે

	ધાણાની જાત જી.એન.એલ.સી.-૧ (સુરભિ) ભલામણ કરવામાં આવે છે. વધુ વખત કાપણી માટે અનુકૂળ જી.એન.એલ.સી.-૧ જાતનું સરેરાશ લીલા ધાણાનું ઉત્પાદન ૧૭.૧૨ ટન/હેક્ટર આવે છે, જે સ્થાનિક અંકુશ જાત જી.ડી.એલ.સી.-૧ અને રાષ્ટ્રિય અંકુશ જાત અર્કા ઈશા કરતાં અનુક્રમે ૨૪.૪૩% અને ૩૦.૪૮% જેટલું વધુ લીલા ધાણાનું ઉત્પાદન આપે છે. આ જાતમાં છોડ દીઠ વધુ પાયાના પાંદડા, પાંદડાનું વજન, દાંડીનુ વજન, છોડ દીઠ પત્રિકાઓ, પાંખડીની લંબાઈ, પાયાના પાંદડાની લંબાઈ તેમજ પહોળાઈ ધરાવે છે. ચમકદાર, સુગંધિત લીલા ધાણાનાં પાંદડા, વધુ આવશ્યક ઉડયનશીલ તેલનું પ્રમાણ તેમજ લીલા પાંદડાનું શુષ્ક વજન જેવા મુલ્યવર્ધક ગુણો લીલા ધાણાની લાંબા સમયની ગુણવત્તાને સારી રાખવા માટે મહત્વના છે. લીલા ધાણાની જાત જી.એન.એલ.સી.-૧ સુકારો તેમજ ભૂકી છારાનાં રોગ સામે મધ્યમ પ્રતિકારકતા ધરાવે છે.
	Release proposal was deferred by the house with following suggestions: **1.** Generate one more year multi location state trial data and submit the proposal after fulfilling minimum criteria for release of variety.
	Action : Professor, Dept. of GPB, NAU, Navsari
20.1.1.22	**OKRA: GUJARAT OKRA 7 (GO 7 : *PURNA KRANTI*)**
	The farmers of Gujarat are recommended to grow Okra variety Gujarat Okra - 7 (GO 7: Purna Kranti) during *kharif* season. The proposed genotype recorded average fruit yield of 12.03 t/ha which were 10.26%, 9.88 %, 15.56 %, 0.08 % and 10.50 % higher over check varieties *viz.*, GAO-5, GO-6, Pusa Sawani, GAO-8 and GNO 1, respectively in the Gujarat state. The genotype has medium maturity, having medium size fruits, dark green skin with good plant structure. This genotype has comparable prevalence of YVMV, powdery mildew, ELCV disease reaction as well as fruit borer, jassids and whitefly infestation as compared to checks.
	ગુજરાતમાં ખરીફ ઋતુમાં ભીંડાની ખેતી કરતાં ખેડૂતોને ગુજરાત ભીંડા-૭ (જીઓ ૭ : પુર્ણા ક્રાંતિ) જાતનું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. ગુજરાતમાં આ જાતનું સરેરાશ ઉત્પાદન ૧૨.૦૩ ટન/ હે. મળેલ છે, જે ભીંડાની અંકુશ જાતો જીએઓ-૫, જીઓ-૬, પુસા સાવની, જીએઓ ૮ અને જીએનઓ ૧ કરતાં અનુક્રમે ૧૦.૨૬,૯.૮૮,૧૫.૫૬,

	૦.૦૮ અને ૧૦.૫૦ ટકા વધુ ઉત્પાદન આપે છે. આ મધ્યમ મોડી પાકતી જાતના ફળ મધ્યમ લાંબા,ઘાટા લીલા રંગના અને છોડનું સારું બંધારણ ધરાવે છે. આ જાતમાં અંકુશ જાતોની સરખામણીમાં પીળા પચરંગીયો, ભૂકી છારો અને ઈએલસીવીનો રોગ તેમજ ફળ કોરી ખાનાર ઇયળ, તડતડિયા અને સફેદ માખીનું નુકશાન ઓછું જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestions: 1. Remove the data of zonal trial in table 1 and submit revised proposal to chairman before presenting in GSSSC. 2. Change the proposed name of genotype "GO-10" instead of "GO-7" 3. Check the data of mucilage in Table 5. 4. In 2022-23, write Sardarkrushinagar instead of Jagudan.
	Action : Professor, Dept. of Veg. Science, ACH, NAU, Navsari
20.1.1.23	**BRINJAL: GUJARAT ROUND BRINJAL-10 (GRB-10 : NAV NIDHI)**
	The farmers of Gujarat State are recommended to grow brinjal variety GRB-10 (Nav Nidhi) during late *kharif/rabi* season. The medium maturing brinjal variety GRB-10 recorded 378.03 q/ha average fruit yield with yield increment of 10.98%, 11.74%, 16.37% and 19.49 % over the checks GNRB-1, GAOB-2, GRB-5 and Swarna Mani, respectively. The genotype has round, light purple fruits with medium sized, green calyx. It contains higher amount of vitamin C (2.63 mg/100g), crude fibre (1.62%) and anthocyanin (23.34 mg/100g) in comparison to state and national check. The brinjal variety GRB-10 has less prevalence of little leaf disease and less infestation of jassids, whitefly as well as shoot and fruit borer damage as compared to checks.
	ગુજરાતના મોડી ખરીફ/રવી ઋતુમાં રીંગણનું વાવેતર કરતાં ખેડુતોને જી.આર.બી.-૧૦ (નવસારી નિધિ) જાત ભલામણ કરવામાં આવે છે . મધ્યમ મોડી પાકતી રીંગણની જી.આર.બી.-૧૦ જાતનું સરેરાશ ઉત્પાદન ૩૭૮.૦૩ નોંધાયેલ છે .જે અંકુશ જાતો જી.એન.આર.બી.-૧, જી.એ.ઓ.બી.-૨, જી.આર.બી.-૫ અને સુવર્ણ મણિ કરતાં અનુક્રમે ૧૦.૯૮%, ૧૧.૭૪%, ૧૬.૩૭% અને ૧૯.૪૯% વધુ ઉત્પાદન આપે છે .આ જીનોટાઇપના ફળો ગોળાકાર, મધ્યમ કદના, ઝાંખા જાંબલી રંગ સાથે મધ્યમ કદની લીલી ડીંચ ધરાવે છે . રાજ્ય અને રાષ્ટ્રીય અંકુશ જાતોની સરખામણીમાં, આ જાતના ફળોમાં વિટામિન-સી (૨.૬૩

	મિલિગ્રામ/૧૦૦ ગ્રામ), રેષા (૧.૬૨%) અને એન્થોસાયનિન (૨૩.૩૪ મિલિગ્રામ/૧૦૦ ગ્રામ) વધુ નોંધાયું છે. રીંગણની જી.આર.બી.-૧૦ જાતમાં અંકુશ જાતોની સરખામણીએ ઘટ્ટિયાપાનના રોગ તથા ડૂંખ અને ફળ કોરી ખાનારી ઈયળ, તડતડિયાં અને સફેદ માખી જીવાતનો ઓછો ઉપદ્રવ જોવા મળેલ છે.
	Release proposal was accepted by the house with following suggestions: 1. Remove the data of zonal trial in Table 1 and submit revised proposal to chairman before presenting in GSSSC. 2. Check the biochemical data in Table 5. 3. Check the data of plant height in Table 3. 4. In point 9(b), give only distinguished morphological features.
	Action: Professor, Dept. of Veg. Science, ACH, NAU, Navsari
20.1.1.24	**ELEPHANT FOOT YAM: GUJARAT ELEPHANT FOOT YAM -2 (GEFY-2 (CHANDANA)**
	The Elephant foot yam variety 'NEFY-25' is recommended for elephant foot yam growing areas of Gujarat as GEFY-2 (Dangi Suran) during *kharif* season. Elephant foot yam variety 'NEFY-25' recorded 48.98 t/ha mean corm yield in Gujarat, which is overall 30.61 and 17.49 per cent superior over national check Gajendra and state variety Swagata, respectively. Its light orange fleshed corm is reported to have higher amount of starch, protein, crude fiber, total phenol, antioxidant, vitamin A and C, potassium, calcium, iron and zinc in comparison to national and state check. The corms are devoid of acridity while consumption. The proposed variety showed field resistance against collar rot and moderate resistance against *Phytophthora* leaf blight.
	સુરણની જાત એન.ઈ.એફ.વાય-૨૫ ને ગુજરાત રાજયમાં ચોમાસું ઋતુમાં સુરણની ખેતી કરતા વિસ્તારમા જી.ઇ.એફ.વાય-૨ (ડાંગી સુરણ) તરીકે ભલામણ કરવામાં આવે છે. સુરણની જાત એન.ઈ.એફ.વાય- ૨૫ નું ગુજરાતમાં સરેરાશ ઉત્પાદન ૪૮.૯૮ ટન/હેકટર જેટલું નોંધાયેલ છે, જે રાષ્ટ્રિય અંકુશ જાત ગજેન્દ્ર અને રાજ્ય અંકુશ જાત સ્વાગતા કરતાં અનુક્રમે ૩૦.૬૧ અને ૧૭.૪૯ ટકા વધુ છે. આ જાત નો ગર્ભ ઝાંખા નારંગી રંગનો તેમજ તેમાં સ્ટાર્ચ, પ્રોટીન, સુપાચ્ય રેસા, ફીનોલ, એન્ટિઓક્સિડન્ટ, વીટામીન-એ અને સી,

	પોટેશિયમ, કેલ્શિયમ, લોહતત્વ અને ઝીંકનું પ્રમાણ રાષ્ટ્રિય અંકુશ જાત કરતા વધારે નોંધાયેલ છે. આ જાતના કંદ ખાતા ગળામાં બળતરા થતી નથી. આ સૂચિત જાત કોલરરોટ સામે પ્રતિકારક અને ફાયટોપથોરાના રોગ સામે મધ્યમ પ્રતિકારકતા દર્શાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. Canopy area of national check should be corrected in Table 3. 2. Give rating scale in Tables 6a, 6b & 6c 3. Write "Infestation of aphid" instead of "rating of incidence of aphid" in title of Tables 7a, 7b & 7c. 4. Data of firmness for boiling (15 min.) are missing of Local Check and National Check in Table No.5b. 5. Give mean and range in ancillary observation.
	Action: Associate Research Scientist, HMRS, Waghai
20.1.1.25	**Bt COTTON: GUJARAT COTTON 10 Bt (G.COT.10 Bt) (ENDORSEMENT)**
	The hirsutum Bt cotton variety G.Cot.10 *Cry1Ac* recorded overall mean seed cotton yield of 1741 kg/ha in Gujarat under irrigated condition where it exhibited seed cotton yield advantage of 49.5, 13.9, 7.2 and 57.2 % over check varieties G.Cot.10 Non Bt, Suraj Bt, Phule Yamuna Non Bt and GN.Cot.32 Non Bt, respectively. The highest average lint yield in G.Cot.10 *Cry1Ac* was 625 kg/ha. It has 35.8 per cent ginning outturn. The proposed variety G.Cot.10 *Cry1Ac* showed disease free to resistant reaction for Bacterial Leaf Blight and Alternaria Leaf Spot. For Grey Mildew and CoLS, proposed variety showed resistant reaction. It showed below ETL population of leafhoppers, thrips, whitefly and aphids with jassid injury grade of II. The proposed variety was found effective against bollworms as it recorded very negligible population and damage whereas this genotype showed less damage of Pink bollworm as compared to checks. Thus, hirsutum Bt cotton variety G.Cot.10 *Cry1Ac* is recommended for endorsement in Gujarat under irrigated conditions as "G.Cot.10 Bt".
	ગુજરાતનાં પિયત વિસ્તારમાં હિરસુટમ કપાસની બીટી જાત જી.કોટ.૧૦ કાય૧એસી નું સરેરાશ ઉત્પાદન ૧૭૪૧ કિ.ગ્રા/હેકટર મળેલ છે. જે નિયંત્રીત જાતો જેવી કે જી.કોટ.૧૦ નોન બીટી, સુરજ બીટી, ફુલે યમુના નોન બીટી અને જીએન.કોટ.૩ ૨ નોન બીટી કરતાં અનુક્રમે ૪૯.૫, ૧૩.૯, ૭.૨ અને ૫૭.૨ ટકા વધારે ઉત્પાદન આપેલ છે. જી.કોટ.૧૦

	કાય૧એસી નું રૂ નું સરેરાશ ઉત્પાદન ૬૨૫ કિ.ગ્રા/હેકટર મળેલ છે. આ જાતની રૂ ની ટકાવારી ૩૫.૮ ટકા છે. આ જાત પાનનાં સુકારાનો રોગ તેમજ પાનનાં ટપકાંના રોગ સામે રોગ રહિતથી લઈને પ્રતિકારાત્મક લક્ષણો ધરાવે છે. આ જાત દહિયાનો રોગ તેમજ પાનનાં ટપકાં સામે પ્રતિકારાત્મક લક્ષણો ધરાવે છે. આ જાતમાં ચુસિયા પ્રકારની જીવાતો જેવી કે લીલા તડતડીયા, થ્રિપ્સ, સફેદ માખી અને મોલોમશીનું નુકશાન આર્થિક ક્ષમ્ય માત્રા કરતા ઓછુ જણાયેલ છે તેમજ લીલા તડતડીયાથી થતા નુક્શાનનો ગ્રેડ-૨ જણાયેલ છે. જ્યારે આ જાતમાં જીંડવાની ઈયળનો ઉપદ્રવ નહિવત માલુમ પડેલ છે અને તેથી જીંડવાની ઈયળથી થયેલ નુક્શાન ઘણુ ઓછુ જણાયેલ છે તેમજ ગુલાબી ઈયળથી થતુ નુક્શાન નિયંત્રિત જાતો કરતા ઓછુ છે જેથી હિરસુટમ કપાસની બીટી જાત જી.કોટ.૧૦ *કાય૧એસી* ને ગુજરાતનાં પિયત વિસ્તારમાં વાવેતર કરવા "જી.કોટ.૧૦ બીટી (ગુજરાત કપાસ ૧૦ બીટી)" તરીકે એન્ડોર્સમેન્ટ કરવા માટે ભલામણ કરવામાં આવે છે.
	Release proposal was accepted by the house.
	Action : Research Scientist (Cotton), MCRS, NAU, Surat
20.1.1.26	**SORGHUM: CSV 55 (*GUJARAT GOTI*) (ENDORSEMENT)**
	The farmers of Gujarat state are recommended to grow grain sorghum variety CSV 55 (*Gujarat Goti*) during *Kharif rainfed* seasons. This variety recorded average 2631 kg/ha grain yield and 16084 kg/ha dry fodder yield with grain yield increment of 14.7%, 15.1%, 13.0%, 19.1% and 14.1% over check varieties GNJ-1, GJ-43, GJ-44 (*Madhu*), CSV 20 and CSV 41, respectively, whereas, 28.8%, 3.3%, 37.2% and 5.6% dry fodder yield increments over check varieties GNJ-1, GJ-43, GJ-44 (*Madhu*) and CSV 20, respectively. It exhibited moderately resistance reaction against Anthracnose and Ergot disease and low incidence of stem borer.
	ગુજરાત રાજ્યમાં દાણાની જુવારની ખેતી કરતા ખેડુતોને ચોમાસુ ઋતુની માટે જુવારની જાત સી. એસ. વી. ૫૫ (ગુજરાત ગોટી)નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે. જુવારની આ જાત ચોમાસુ ઋતુ પિયત પરિસ્થિતિમાં સરેરાશ ૨૬૩૧ કિ./હે. દાણા અને ૧૬૦૮૪ કિ./હે. સુકા ઘાસચારાનુ ઉત્પાદન આપે છે. જે દાણાના ઉત્પાદનમાં ચોમાસુ

	અંકુશ જાતો જી. એન. જે. -૧, જી. જે.-૪૩, જી.જે.-૪૪ (મધુ), સી. એસ. વી. ૨૦ અને સી. એસ. વી. ૪૧ કરતા અનુક્રમે ૧૪.૭%, ૧૫.૧%, ૧૩.૦%, ૧૯.૧% અને ૧૪.૧% વધુ છે. તથા સુકા ઘાસચારાના ઉત્પાદનમા ચોમાસુ અંકુશ જાતો જી. એન. જે. -૧, જી. જે.-૪૩, જી.જે.-૪૪ (મધુ) અને સી. એસ. વી. ૨૦ અનુક્રમે ૨૮.૮%, ૩.૩%, ૩૭.૨% અને ૫.૬% વધુ છે. વધુમાં, જુવારની આ જાતમાં ગાભમારાની ઈયળનો ઓછો ઉપદ્રવ તથા રાતડો અને મધીયાના રોગો સામે આંશિક પ્રતિકારકતા જોવા મળેલ છે.
	Release proposal was accepted by the house.
	Action : Research Scientist, MSRS, NAU, Surat
20.1.1.27	**RECOMMENDATION FOR FARMERS:** **Effect of row ratio on seed setting and seed yield of hybrid rice under hybrid seed production**
	Rice seed producers of South Gujarat taking hybrid rice (GRH 2) seed production during summer season are advice to follow 3:6 (15 cm between male lines, 20 cm between male and female lines and 15 cm between female lines) or 2:6 (30 cm between male lines, 20 cm between male and female lines and 15 cm between female lines) male: female row ratio for higher seed setting, seed yield and net profit.
	દક્ષિણ ગુજરાતના ડાંગર બીજ ઉત્પાદકોને ઉનાળુ ઋતુમાં હાઇબ્રિડ ડાંગર (જી.આર.એચ. ૨) નું બીજ ઉત્પાદન કરવા માટે ૩ : ૬ (બે નર હાર વચ્ચે ૧૫ સે.મી., નર અને માદા હાર વચ્ચે ૨૦ સે.મી અને બે માદા હાર વચ્ચે ૧૫ સે.મી.) અથવા ૨ : ૬ (બે નર હાર વચ્ચે ૩૦ સે.મી., નર અને માદા હાર વચ્ચે ૨૦ સે.મી. અને બે માદા હાર વચ્ચે ૧૫ સે.મી.) પ્રમાણે નર : માદાની હાર કરવાની ભલામણ કરવામાં આવે છે જેનાથી વધુ દાણાનો ભરાવો, ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય.
	Recommendation was accepted by the house with following suggestion: 1. Write “Seed production of hybrid rice” instead of “Seed yield” in Tables 1, 2, 3, 4 & 5.
	Action : Asso. Research Scientist, RRRS, NAU, Vyara

20.1.1.28	**FENNEL: GUJARAT FENNEL 3 (GF 3: SUGANDHA)**
	The farmers of Gujarat state growing *kharif* fennel are recommended to grow bold seeded, high yielding and better quality fennel variety Gujarat Fennel 3 (Sugandha). It gave 2115 kg/ha average seed yield to the tune of 18.15 per cent higher over local check variety Gujarat Fennel 12 (GF 12). Proposed variety has higher number of umbels per plant, higher number of umbellates per umbel, compact seed arrangement in umbellate and less foliage. Proposed variety is moderately resistant to Ramularia blight.
	ગુજરાત રાજ્યના ચોમાસુ વરીયાળીની વાવણી કરતા ખેડૂતોને મોટા દાણા વાળી, વધુ ઉત્પાદન આપતી અને સારી ગુણવત્તા ધરાવતી જાત ગુજરાત વરીયાળી ૩ (સુગંધા) નુ વાવેતર કરવા ભલામણ કરવામાંઆવે છે .આ જાતના દાણાનું સરેરાશ ઉત્પાદન ૨૧૧૫ કિ.ગ્રા/.હે છે, જે અંકુશ જાત ગુજરાત વરીયાળી ૧૨સ્થાનિક સંદર્ભ જાતકરતા ૧૮.૧૫ ટકા વધારેછે. આ જાતમાં ચક્કરની સંખ્યા પ્રતિ છોડ અને ઉપચક્કરની સંખ્યા પ્રતિ ચક્કર સંદર્ભ જાતની સરખામણીએ વધુ છે. ચક્કરમાં દાણા ઘનિષ્ઠ રીતે ગોઠવાયેલા છે અને છોડમાં પલુર ઓછુ જોવા મળે છે. આ જાત રામુલારીયા બ્લાઇટ (ચરમી) રોગ સામે મધ્યમ પ્રતિકારક શક્તિ ધરાવે છે.
	Release proposal was accepted by the house with following suggestions: 1. In Table No. 3, check the mean value of branches per plant in GF-12 (C). 2. Delete the table "Yield and ancillary observations of proposed variety GF-3 along with Acc. 1252 (2017-18). **3.** Remove comparison table of JF-2018-13 and Acc.1252.
	Action: Research Scientist (Spices), SDAU, Jagudan
20.1.1.29	**OKRA HYBRID: GUJARAT OKRA HYBRID 206 (GOH 206: HARIT BHINDI)**
	The farmers of Gujarat are recommended to grow Gujarat Okra Hybrid 206 (Harit Bhindi) during kharif season. It gave 123.26 q/ha average fruit yield with tune of 6.97, 10.40, 5.58, 26.10 and 15.40 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.
	ગુજરાત રાજ્યમાં ચોમાસુ ઋતુમાં ભીંડાની ખેતી કરતા ખેડૂતોને ભીંડાની સંકરજાત ગુજરાત સંકર ભીડા ૨૦૬ (હરિત ભીંડી)નું વાવેતર કરવા માટે ભલામણ કરવામાં આવે છે.આ જાતનું સરેરાશ ઉત્પાદન ૧૨૩.૨૬ કિવ./હે છે, જે સ્થાનિક અંકુશ જાતો જીજેઓએચ ૪, જીએઓ ૫, જીએઓ ૮,એઓએલ ૨૩-૧ અને રાષ્ટ્રીય અંકુશ જાત પુસા સાવની કરતા અનુક્રમે ૬.૯૭, ૧૦.૪૦, ૫.૫૮, ૨૬.૧૦ અને ૧૫.૪૦ટકા વધારે છે.આ જાતનાભીંડા 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 પ્રતિકારક શક્તિ ધરાવે છે.
	Release proposal was deferred by the house with following suggestions: 1. Generate one more year multi location state trial data.
	Action: Professor and Head, Centre for Vegetable Research, Department of Genetics and Plant Breeding, CPCA, SDAU ,Sardarkrushinagar
20.1.1.30	**FIG: POONA FIG (ENDORSEMENT)**
	Fig variety Poona Fig is recommended for cultivation in arid and semi-arid region of Gujarat. It gave 5.15 t/ha average fruit yield with tune of 45.4, 23.7, 64.5 and 31.0 per cent higher fruit yield than Dinkar, Conadria, Excel and Dienna, respectively. The fruit is bell shape, medium size and smooth surface. Fruit has purple skin, light purple red juicy flesh with higher TSS.
	ગુજરાતના શુષ્ક અને અર્ધ શુષ્ક વિસ્તારો માટે અંજીરનીજાત પુના અંજીર વાવવા માટેની ભલામણ કરવામાં આવે છે.આ જાતના ફળનું સરેરાશ ઉત્પાદનપ.૧૫ ટન/હેક્ટર મળેલ છે. જે દિનકર, કોનાડ્રીયા, એક્સેલ અને ડિયાના કરતાં અનુક્રમે ૪૫.૪, ૨૩.૭, ૬૪.૫અને ૩૧.૦ ટકા વધારે છે. આ જાતના ફળો બેલ આકારના, લીસી સપાટી ધરાવતા મધ્યમ કદના છે. ફળનો રંગ જાંબલી તથામાવો આછા જાંબલી લાલ રંગનો તેમજ સ્વાદે

	ગળ્યા હોય છે.
	This proposal thoroughly discussed in the house and suggested that 1. This variety is approved for considered as a farmers recommendation
	Action: Research Scientist (Agro forestry),SDAU, Sardarkrushinagar
20.1.1.31	**RECOMMENDATION FOR FARMERS:** **Identify the effective method for storage of wheat seed in godown**
	The farmers and seed producers of Gujarat are recommended to fill the wheat seed in the polythene bag along with a packet of 10 g aluminum phosphide (56%) putting in the HDPE bag and stored in the godown. Thus the seed can be protected from the storage insect up to 18 months and also maximum seed germination, optimum seed moisture content in the seed and higher seed index vigour are obtained.
	ગુજરાતના બીજ ઉત્પાદકોને અને ખેડૂતોને ઘઉંના બિયારણનો સંગ્રહ કરવા માટે કોઠારમાં ૫૦ માઈક્રોનની પ્લાસ્ટિકની થેલીમાં ભરી ૧૦ ગ્રામ એલ્યુમિનીયમ ફોસ્ફાઇડ (૫૬%) ની પડીકી મૂકી એચ.ડી.પી.ઈ.ના થેલામાં સંગ્રહિત કરવાની ભલામણ કરવામાં આવે છે. આ મુજબ બીજને ૧૮ માસ સુધી જીવાતની નુકશાનથી બચાવી શકાય છે તેમજ બીજ નો મહત્તમ ઉગાવો, બીજમાં ભેજનું યોગ્ય પ્રમાણ અને ઉગાવાનો વધુ જુસ્સો મળેલ છે.
	This recommendation was accepted by the house with the following suggestion **1.** Add “Non ventilator” word in recommendation paragraph
	Action: Research Scientist (Seed Technology), SDAU, Sardarkrushinagar

20.1.2 RECOMMEDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

20.1.2.1	**Title: Effect of number of fruit retention and days to fruit maturity on seed yield and quality parameters of okra (CI/Seed Science & Technology/2022/02)**
	For seed production of Gujarat Anand Okra 8 (Anand Komal), the fruit should be harvested at 60-65 days after fruit formation with 20 number of fruits retention per plant for higher germination (as per Indian minimum seed certification standards) and higher seed yield under the middle Gujarat condition.
	The recommendation was accepted by the house.
	Action: Head, Dept. of Seed Science and Technology, BACA, AAU, Anand

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

	NIL

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

	NIL

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

	NIL

20.1.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action
20.1.3.1	Influence of different seed treatments on seed germination and vigour parameter in Holy basil (*Ocimum tenuiflorum* L.)	Approved
	Action: Assistant Prof. and Head, Dept. of Seed Sci. and Tech., BACA, AAU, Anand	
20.1.3.2	Embryo rescue for intervarietal hybridization in mango (*Mangifera indica* L.)	Approved
	Action: Prof. and Head**,** Dept. of Genetics and Plant Breeding, BACA, AAU, Anand	
20.1.3.3	Evaluation and identification of pearl millet genotypes having high beta-carotene, Fe and Zn content	New technical programme was thoroughly discussed and <u>not approved</u> by house and it should be considered as a regular research work.
	Action: Principal**,** College of Agriculture, AAU, Jabugam	

20.1.3.4	Effect of different harvesting period on yield and phytochemical contents and its consequences on sprouting of safed musli	Approved with following suggestions: 1. Replication should be three instead of two. 2. Increase plot size and measure yield in kg/ha instead of per plant yield
	Action: Associate Research Scientist**,** MAPRS, AAU, Anand	
20.1.3.5	Evaluation of different gladiolus genotypes for yield and growth parameters	New technical programme was thoroughly discussed and suggested that: ➢ Experiment should be presented in Horticulture Sub Committee group for approval.
	Action: Unit Officer, Sheth D. M. Polytechnique in Horticulture, Vadodara	
20.1.3.6	Genetic compatibility among genotypes and optimization of seed germination in sweet potato (*Ipomoea batatas* L.) under middle Gujarat condition	Approved with following suggestions: 1. Mention no. of replications/repetition in experimental details. 2. Write full diallel in treatment in place of diallel fashion 3. Mention genotypes used for experimentation
	Action: Research Scientist (Veg.)**,** Main Vegetable Research Station, AAU, Anand	
20.1.3.7	Influence of seed pelleting on germination, plant growth and yield in Mustard (*Brassica juncea* (L.) Czern)	Approved with following suggestions: 1. Take any vegetable crops (Chilli or Tomato) for experimentation instead of mustard.
	Action: Assistant Professor and Head, Dept. of Seed Sci. and Tech., BACA & Research Scientist & Nodal Officer (Seed) and Head (I/C), RRS, AAU, Anand	

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.1.3.8	Direct-organogenesis in Banana cultivar Grand Naine and Elaichi	Approved with following suggestions: 1. Present the experiment in Basic Science Sub Committee. 2. Remove rooting treatment in treatment details.

		3. Separate trials should be conducted for both varieties.
	Action: Professor & Head, Dept. of Genetics & Plant Breeding, JAU, Junagadh	

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

	NIL

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

20.1.3.9	Screening and identifying the forage sorghum genotypes under natural farming (*Kharif*)	Approved with following suggestions: 1. Add components of natural farming as per recommendation of Natural Resource Management group. 2. Add observation - Non Digestible Fibre (NDF). 3. Package of practices for natural farming should be mention 4. Include released varieties of forage sorghum 5. Mention experimental design
	Action: Research Scientist (Seed Technology), SDAU, Sardarkrushinagar	

General suggestions:

1. Release proposal must be prepared as per the standard format of SAUs.
2. Table No.1 should include only multi-location state trials yield data.
3. Zonal yield data should be considered as a supporting data.
4. If centrally released variety include the Gujarat state, then there is no need to present the release proposal as an Endorsement variety but copy of release proposal and gazette notification must be submitted to the Director of Research and Director of Agriculture, Gandhinagar.
5. Monitory data is not required, only trader's opinion to be given.
6. Add name of centre in-charge also in varietal proposal.

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20.2 CROP PRODUCTION/ NATURAL RESOURCE MANAGEMENT

DATE: May 10-13, 2024

Chairman	:	**Dr. K. B. Kathiria, Hon'ble VC, AAU, Anand**
Co-Chairmen	:	1. Dr. P.D. Kumawat, Dean (Agri.), CoA, JAU, Junagadh 2. Dr. H. M. Virdia, Prof. and Head (Agronomy), NMCA, NAU, Navsari
Rapporteurs	:	1. Dr. K.G. Patel, NAU, Navsari 2. Dr. R. M. Solanki, JAU 3. Dr. V. J. Patel, AAU, Anand 4. Dr. D. M. Patel, SDAU, Sardarkrushinagar
Statistician	:	Dr. D. V. Patel, Assoc. Professor & Head, JAU, Junagadh

The 20th Combined meeting of AGRESCO of Crop Production Sub Committee (CPSC) of SAUs was held virtually, from May 10-13, 2024, under the chairmanship of Dr. K. B. Kathiria, Hon'ble Vice-Chancellor, AAU, Anand. In his address, Dr. Kathiria praised the dedication of the crop production group for their productive research findings for the benefit of farming community and urged them to intensify efforts to address agricultural challenges, particularly those impacting farmers. The conveners of the Crop Production Subcommittee of SAUs presented recommendations for farmers, information for the scientific community, and new technical programs of the respective universities.

Presentation of the recommendations and new technical programmes by conveners of SAUs

	Name	**Designation & University**
1.	Dr. M. B. Viradiya	Associate Professor, Dept. of Soil Science & Agril.Chemistry, BACA, AAU, Anand
2.	Dr. P. D. Kumawat	Dean (Agri.), CoA, JAU, Junagad
3.	Dr. SonalTripathi	AssociateProfessor, Dept. of Soil Scienceand Agricultural Chemistry, NMCA, NAU, Navsari
4.	Dr. C. K. Patel	Associate Director of Research (Farm), SDAU, Sardarkrushinagar

Summary of the Recommendations

Name of University	**No. of Recommendations**				**New Technical Programs**	
	Farmers		**Scientific**			
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**
NAU[1]	20	18	4	5	15	12
SDAU[2]	19+2*	19	4	4	26	14
AAU	16	16	4	4	36	36
JAU[3]	9	6	6	8	19	13
Total	**64+2***	**59**	**18**	**21**	**96**	**75**

***AICRP trial

1. One recommendation for the farming community is approved as scientific information.
2. One scientific information is approved as recommendations for the farming community and one recommendation for the farming community is approved as scientific information.
3. Two recommendations for the farming community are approved as scientific information.

20.2 CROP PRODUCTION

20.2.1 RECOMMENDATIONS FOR FARMING COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.2.1.1

Title: Effect of irrigation, fertigation and mulching on fruit yield and quality of musk melon

Recommendation for farming community:

The farmers of South Gujarat zone growing summer musk melon (paired row: 20 cm (2 rows) x 60 cm: 160 cm) under drip irrigation system are recommended to give irrigation at 0.8 ETc and apply 80:40:32 N: P_2O5: K_2O kg/ha along with mulching of silver black plastic (25 micron and 50 % coverage) for getting higher fruit yield, saving of 20% N and 20% K_2O, effective weed control and improve quality of fruits.

Drip details:

Lateral spacing: 1.80 m

Dripper spacing: 0.60 m

Dripper discharge: 4 lph

Operating pressure: 1.20 kg/cm^2

System operating schedule: Alternate day

Plant growth stage	Water application (l/ plant)	System operating time (min)
Vegetative	0.80	25
Flowering	0.80 - 2.35	25 – 70
Fruit setting	2.35 - 4.35	70 – 130
Maturity	4.35 - 4.00	130 - 120

Fertigation schedule:

Apply full dose of phosphorus in the form of SSP, 10% of N in the form of urea and 10% of K in the form of Muriate of potash as basal and remaining N and K through fertigation in eight equal splits at weekly interval starting from 15 days after sowing.

ખેડૂત ઉપયોગી ભલામણ:

દક્ષિણ ગુજરાત વિસ્તારના ટપક પિયત પધ્ધતિથી ઉનાળું શક્કરટેટીનું (જોડીયા હાર :૨૦ સેમી. (૨ હાર) x ૬૦ સેમી. : ૧૬૦ સેમી.) વાવેતર કરતા ખેડૂતો ને ભલામણ કરવામાં આવે છે કે પિયત ૦.૮ ઈટીસી પ્રમાણે અને ૮૦:૪૦:૩૨ નાઈટ્રોજન: ફોસફરસ : પોટાશ કિ.ગ્રા./હે. (૮૦% ભલામણ કરેલ ખાતરનો જથ્થો) આપી સાથે સિલ્વર-બ્લેક પ્લાસ્ટિકનું

	(૨૫ માઈક્રોન-૫૦% વિસ્તાર) આવરણ કરવાથી વધુ ઉત્પાદન, ૨૦% નાઈટ્રોજન અને ૨૦% પોટાશ ખાતરની બચત, અસરકારક નિંદણ નિયંત્રણ અને ફળોની ગુણવત્તામાં સુધારો થાય છે. **ટપક પધ્ધતિની વિગત :** લેટરલ અંતર : ૧.૮૦ મી. ડ્રીપર અંતર : ૦.૬૦ મી. ડ્રીપર દર : ૪લી/કલાક ચલાવવાનું દબાણ : ૧.૨૦કિગ્રા/સેમી^{2} પધ્ધતિ ચલાવવાનો સમય : એકાંતરે દિવસે **ફર્ટીગેશન સમય પત્રક :** ફોસ્ફરસનો સંપુર્ણ જથ્થો સિંગલ સુપર ફોસ્ફેટના સ્વરુપે, ૧૦% નાઇટ્રોજનનો જથ્થો યુરીયાના સ્વરુપે અને ૧૦% પોટેશીયમનો જથ્થો મ્યુરેટ ઓફ પોટાશના સ્વરુપે પાયામા આપવા તથા બાકીનો નાઇટ્રોજન અને પોટેશીયમ એક સરખા ૮ હપ્તામા અઠવાડિયાના ગાળે પાક વાવેતરના ૧૫ દિવસ બાદ ફર્ટિગેશન દ્વારા આપવા. **Suggestions:** 1. Modify the recommendation para by considering F_2 x M_{SB} interaction. *[Action: Research Scientist, SWMRU, NAU, Navsari]*

પાક અવસ્થા	પાણીનો જથ્થો (લીટર/છોડ)	પધ્ધતિ ચલાવવાનો સમય (મિનીટ)
વાનસ્પતિક	૦.૮૦	૨૫
ફુલ અવસ્થા	૦.૮૦-૨.૩૫	૨૫-૭૦
ફળ બેસવા	૨.૩૫-૪.૩૫	૭૦-૧૩૦
પરીપક્વતા	૪.૩૫-૪૦૦	૧૩૦-૧૨૦

20.2.1.2	**Title:** Effect of irrigation and fertigation levels on ridge gourd under South Gujarat **Recommendation for farming community:**

	The farmers of South Gujarat growing ridge gourd during summer season under drip irrigation are recommended to irrigate their crop at 0.6 PEF and apply 60% RDF (90:45:90 N : P_2O_5 : K_2O kg/ha) for achieving higher yield and net return along with saving in 21% water and 40% fertilizer. *System details:* Lateral spacing : 1.5 m Dripper spacing : 0.60 m Dripper discharge: 4 lph Operating pressure: 1.20 kg/cm^2 Operating time (alternate day): March: 80-110 min, April: 105-140 min, May: 90-110 min Fertigation schedule: Apply 20% (18:9:18 N: P_2O_5: K_2O kg/ha) fertilizers as basal and remaining 80% (72:36:72 N: P_2O_5: K_2O kg/ha) through fertigation in the form of urea phosphate, urea and muriate of potash in 5 equal splits at weekly interval starting from 15 days after sowing. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતમાં ઉનાળાની ઋતુ દરમ્યાન ટપક પધ્ધતિ દ્વારા તુરીયાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે પાકને ૦.૬ પી.ઇ.એફ ના દરે પિયત કરી અને ભલામણના ૬૦% ખાતર (૯૦:૪૫:૯૦ ના.: ફો.: પો. કિગ્રા પ્રતિ હેક્ટર) આપવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે, સાથે સાથે ૨૧% પાણીની અને ૪૦% ખાતરની બચત થાય છે. **પધ્ધતીની વિગત:** લેટરલ અંતર :૧.૫૦મી ડ્રીપર અંતર : ૦.૬મી ડ્રીપર દર : ૪લી/કલાક ચલાવવાનું દબાણ : ૧.૨૦કિગ્રા/ચો.સેમી ચલાવવાનો સમય : માર્ચ:૮૦ થી ૧૦૦ મીનીટ

	એપ્રિલ: ૧૦૫ થી૧૪૦ મીનીટ મે : ૯૦ થી૧૧૦મીનીટ ખાતરનું સમય પત્રક: ૨૦% (૧૮:૦૯:૧૮ ના.:ફો.:પો.: કિગ્રા પ્રતિ હેકટર) ખાતરને પાયામાં નાખી બાકીના ૮૦% (૭૨:૩૬:૭૨ ના.:ફો.:પો.: કિગ્રા પ્રતિ હેકટર) ખાતરને યુરિયા ફોસ્ફેટ, યુરિયા અને મ્યુરેટ ઓફ પોટાશના સ્વરુપે વાવેતરના ૧૫ દિવસ પછી અઠવાડિયાના ગાળે પાંચ સરખા હપ્તામાં ટપક પધ્ધતિ દ્વારા આપવું. **Suggestions:** **1. Approved** *[Action: Research Scientist, SWMRU, NAU, Navsari]*
20.2.1.3	**Title:** Effect of different forms of gypsum on drip irrigated sugarcane **Recommendation for farming community:** The farmers of South Gujarat growing sugarcane (plant and ratoon) crops in paired row (60 cm x 120 cm) x 60 cm under surface drip irrigation system are recommended to apply either phosphogypsum powder or granular gypsum at 70% rate of gypsum requirement of soil at the time of land preparation only to plant crop for getting higher cane yield and net return along with improvement in soil properties. *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): Nov.: 2 surface irrigations (60 mm depth), Dec.:75-85 min., Jan. to Feb.:85-95 min., March: 95-110 min., April-May: 130-160 min., June: 160-175 min. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાત વિસ્તારમાં શેરડીનું (રોપણ અને લામ પાક) જોડિયા હારમાં વાવેતર (૬૦ સે.મી. x ૧૨૦ સે.મી.) x ૬૦ સે.મી. સાથે સપાટી પર રાખેલ ટપક પદ્ધતિથી

	સિચાઈ કરતા ખેડૂતોને શેરડીના સાંઠાનું વધું ઉત્પાદન, ચોખો નફો અને જમીન સુધારણા માટે ફોસ્ફો-જીપ્સમ પાવડર અથવા દાણાદાર જીપ્સમ, જમીનની તૈયારી સમયે ફક્ત રોપણ પાકને જમીનની જીપ્સમની જરૂરિયાતનાં ૭૦% ના દરે આપવાની ભલામણ કરવામાં આવેછે. **પધ્ધતીની વિગત:** લેટરલ અંતર :૧.૮૦મી ડ્રીપર અંતર : ૦.૬મી ડ્રીપર દર : ૪લી/કલાક ચલાવવાનું દબાણ : ૧.૨૦કિગ્રા/ચો.સેમી પધ્ધતિ ચલાવવાનો સમય (એકાંતરે દિવસે) : નવેમ્બેર: ૨ પૃષ્ઠ પિયતો (૬૦ મીમી), ડીસેમ્બેર: ૭૫-૮૫ મિનીટ, જાન્યુઆરી-ફેબ.:૮૫-૯૫ મિનીટ, માર્ચ: ૯૫-૧૧૦ મિનીટ, અપ્રિલ-મેં: ૧૩૦-૧૬૦ મિનીટ, જુન: ૧૬૦-૧૭૫ મિનીટ. **Suggestions:** 1. Add source of gypsum in text 2. Give details of surface drip specification as a note 3. Recommend both F_1G_3 and F_2G_3 4. Report "paired row" spacing as 60 cm : 120 cm instead of 60 cm x 10 cm: 120 cm). *[Action: Research Scientist, SWMRU, NAU, Navsari]*
20.2.1.4	**Title:** Evaluating the performance of rice variety in different intercropping systems under aerobic rice cultivation **Recommendation for farming community:** The farmers of South Gujarat growing aerobic rice in *kharif* season with 30 cm row spacing are recommended to sow six lines of aerobic rice and two lines of sorghum as intercrop application of fertilizer N: P_2O_5: K_2O kg/ha rice: 75:22.5:00, sorghum: 20:10:00 and seed rate kg/ha rice: 37.5, sorghum: 3 to 3.75 for achieving higher rice grain equivalent yield and net return.

	ખેડૂત ઉપયોગી ભલામણ: દક્ષિણ ગુજરાત વિસ્તારમાં ચોમાસુ ઋતુમાં એરોબીક ડાંગરની ૩૦ સે.મી. વાવણી કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે, છ હાર એરોબીક ડાંગર અને બે હાર આંતરપાક જુવારની ખાતરનો દર ના.: ફો.: પો. કિગ્રા/હે. ડાંગર: ૭૫:૨૨.૫:૦૦, જુવાર: ૨૦:૧૦:૦૦ અને બિયારણનો દર કિગ્રા/હે. ડાંગર: ૩૭.૫, જુવાર: ૩ થી ૩.૭૫ રાખવો વાવણી કરવાથી ડાંગર સમકક્ષ વધું ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Suggestions:** 1.In recommendation paragraph replace word "line spacing" with "row spacing" 2. Give the area base fertilizer dose in recommendation para. *[Action: Research Scientist, SWMRU, NAU, Navsari]*
20.2.1.5	**Title:** Effect of foliar application of nutrient on yield and protein content in different varieties of rice **Recommendation for farming community:** The farmers of South Gujarat transplanting protein rich rice variety GR-23 (Navsari Paushtik) in *kharif* season are recommended to spray either 2% urea or 1% KNO_3 at tillering and panicle initiation stage as foliar application along with recommended dose of biocompost 5 t/ha and chemical fertilizer: 100:30:00 kg N:P_2O_5 :K_2O /ha for higher yield, net return along with increased protein content in rice grain and straw. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાત વિસ્તારમાં ચોમાસું ડાંગરની વધુ પ્રોટીન ધરાવતી જાત જી. આર. ૨૩ (નવસારી પોષ્ટિક) ની ફેરરોપણી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, વધુ ઉત્પાદન અને નફાની સાથે દાણા અને પરાળમાં પ્રોટીનની માત્રા વધારવા માટે ફૂટ અને કંટી નીકળવાની અવસ્થાએ ૨% યુરિયા અથવા ૧% પોટેશિયમ નાઇટ્રેટનો છંટકાવ કરવાની સાથે ભલામણ કરેલ જથ્થો બાયોકોમ્પોસ્ટ ૫ ટન/હે. અને રાસાયણિક ખાતર (૧૦૦: ૩૦ : ૦૦ ના.: ફો.: પો. કિગ્રા/હે.) આપવો. **Suggestions:** 1. Mention biocompost dose in recommendation para. 2. Verify the protein content of GAR 13 variety. *[Action: Research Scientist, SWMRU, NAU, Navsari]*

20.2.1.6 **Title:** Effect of irrigation and fertilizer levels on marvel grass under coastal salt affected soils

Recommendation for farming community:

The farmers growing marvel grass in coastal salt affected areas of South Gujarat are recommended to apply irrigations of 50 mm depth, starting18-20 days after cessation of monsoon and remaining irrigations as per schedule given below along with application of N (40 kg/ha) and P_2O_5 (40 kg/ha) as basal and remaining N (40 kg/ha) at 30 days after planting. Further, additional doses of N (40 kg/ha) should be applied after each cutting for getting higher fresh fodder yield and net return.

Irrigation schedule:

Month	Irrigation interval (days)
November to February	20
March to April	12
May onwards	9

ખેડૂત ઉપયોગી ભલામણ:

દક્ષિણ ગુજરાતના દરિયાકાંઠાનાં ક્ષારગ્રસ્ત વિસ્તારમાં જીંજવો (મારવેલ ઘાસ) ઉગાડતા ખેડુતોને ભલામણ કરવામાં આવે છે કે વરસાદ બંધ થયા પછી ૫૦ મીમી ઉડાઈના પિયતો ૧૮-૨૦ દિવસે શરૂ કરી અને બાકીના પિયત નીચે દર્શાવેલ સમય પત્રક મુજબ આપવાની સાથે નાઇટ્રોજન (૪૦ કી.ગ્રા. પ્રતિ હે.) અને ફોસ્ફરસ (૪૦ કી.ગ્રા. પ્રતિ હે.) પાયામાં અને બાકીનો નાઇટ્રોજન (૪૦ કી.ગ્રા. પ્રતિ હે.) ૩૦ દિવસ પછી આપવો. તદુપરાંત દરેક કાપણી પછી વધારાનો નાઇટ્રોજન (૪૦ કી.ગ્રા. પ્રતિ હે.) આપવાથી લીલા ચારાનું વધું ઉત્પાદન અને નફો મળે છે.

પિયત સમય પત્રક

મહિનો	**પિયત ગાળો (દિવસ)**
નવેમ્બર થી ફેબ્રુઆરી	૨૦
માર્ચ થી એપ્રિલ	૧૨
મે મહિનાથી	૯

"Approved"

[Action: Research Scientist, SWMRU, NAU, Navsari]

20.2.1.7	**Title:** Integrated weed management in *Bt* cotton **Recommendation for farming community:** Farmers of South Gujarat growing *Bt* cotton hybrids are recommended to adopt any one of the following practices for effective weed management and achieving higher seed cotton yield as well as net return. • Three hand weeding at 20, 40 & 60 days after sowing **OR** • Under labour crisis area, apply Pendimethalin 30 % EC @ 1 kg a.i./ha (67 ml/ 10 liter of water) as pre emergence followed by Pyrithiobac sodium 10 % EC @ 62.5 g a.i./ha (12.5 ml/ 10 liter of water) + Quizalofop-ethyl 5 % EC @ 50 g a.i./ha (20 ml/ 10 liter of water) at 30 days after sowing (Tank mixture) + one interculturing and one hand weeding at 60 days after sowing. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતમાં બીટી સંકર કપાસ ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે પાકમાં અસરકારક નિંદણ વ્યવસ્થાપન તથા કપાસનું વધુ ઉત્પાદન અને નફો મેળવવા માટે નીચે પૈકી કોઈ એક ભલામણ અપનાવી. • વાવણીબાદ ૨૦, ૪૦ તથા ૬૦ દિવસે એમ ત્રણ વખત હાથ નિંદામણ કરવું. **અથવા** • મજૂરોની અછતવાળા વિસ્તારમાં, વાવણી બાદ તુરંત પાક ઉગ્યા પહેલા પેન્ડીમિથેલીન ૩૦ % ઇસી ૧.૦ કિ.ગ્રા. સક્રીય તત્વ/હે (૬૭ મીલી/૧૦ લીટર પાણીમાં) પ્રમાણે છંટકાવ કરવો ત્યાર બાદ ૩૦ દિવસે પાયરીથયોબેક સોડિયમ ૧૦% ઇસી ૬૨.૫ ગ્રામ સક્રીય તત્વ/હે (૧૨.૫ મીલી/૧૦ લીટર પાણીમાં) + ક્વિઝલોફોપ ઇથાઇલ ૫% ઇસી ૫૦ ગ્રામ સક્રીય તત્વ /હે (૨૦ મીલી/૧૦ લીટર પાણીમાં) પ્રમાણે મિશ્રણ તૈયાર કરી છંટકાવ કરવો. આ ઉપરાંત વાવણીબાદ૬૦ દિવસે એક વખત હાથ નિંદામણ અને આંતરખેડ કરવી. **Suggestions:** **1. Number of balls /plant is to be mentioned in table.** *[Action: Research Scientist, MCRS, Surat]*

20.2.1.8	**Title:** Evaluate the effect of different levels and frequency of K fertilizer application on yield and quality of *Bt* Cotton **Recommendation for farming community:** Farmers of South Gujarat growing *Bt* cotton hybrid under irrigated condition on potash deficient soil are recommended to apply 120 kg K_2O / ha as basal dose in addition to recommended dose of fertilizers (240-40-00 kg N, P_2O_5 and K_2O/ha) for obtaining higher seed cotton yield and net return. ખેડૂત ઉપયોગી ભલામણ: દક્ષિણ ગુજરાતમાં પોટાશની ઉણપ ધરાવતી જમીનમાં પિયત હેઠળ બીટી સંકર કપાસનું વાવેતર કરતા ખેડુતોને કપાસનું વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલ ખાતરનાં જથ્થા (૨૪૦-૪૦-૦૦ ના.ફો.પો. કીગ્રા./હે) ઉપરાંત ૧૨૦ કિલોગ્રામ પોટાશ / હેકટર મુજબ પાયાના ખાતર તરીકે આપવાની ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Replace word "soil having low potassium content" with "potash deficient soil" in recommendation para. *[Action: Research Scientist, MCRS, Surat]*
20.2.1.9	**Title:** Weed management practices in Aerobic rice (*Oryza Sativa* L.) **Recommendation for farming community:** The farmers of South Gujarat growing aerobic rice are recommended to adopt any of the following recommendation for effective weed management and obtaining higher yield. ➢ Pendimethalin 30 % EC 1000 g a.i./ha (100 ml/15 litre of water) as pre-emergence *fb*. triafamone 20% + ethoxysulfuron 10 % WG (premix) 44 +22.5 g a.i./ha (6.5 g/ 15 litre of water) at 20-25 days after sowing ➢ Pendimethalin 30 % EC 1000 g a.i./ha (100 ml/15 litre of water) as pre-emergence *fb*. penoxsulam 1.02% + cyhalofop-butyl 5.1% OD (premix) 120 g a.i./ha (60 ml/15 litre of water) as post-emergence ➢ Pendimethalin 30 % EC 1000 g a.i./ha (100 ml/15 litre of water) as pre-emergence *fb*. Hand weeding 30 DAS ➢ Pretilachlor 30 % + pyrazosulfuron-ethyl 0.75 % WG (premix) 600 +15 g a.i./ha (60 g/15 litre of water) *fb*. metsulfuron-methly 10% + chlorimuron-ethly 10 % WP (premix) 4 g a.i./ha (0.60 g/15 litre of water)

	➢ Pretilachlor 30 % + pyrazosulfuron-ethyl 0.75 % WG (premix) 600 +15 g a.i./ha (60 g/15 litre of water) *fb*. triafamone 20% + ethoxysulfuron 10% WG (premix) 44.0 +22.5 g a.i./ha (6.5 g/ 15 litre of water) at 20-25 days after sowing ➢ Pretilachlor 30 % + pyrazosulfuron-ethyl 0.75 % WG (premix) 600 +15 g a.i./ha (60 g/15 litre of water) *fb*. penoxsulam 1.02% + cyhalofop-butyl 5.1% OD (premix) 120 g a.i./ha (60 ml/15 litre of water) as post-emergence ➢ Pretilachlor 30 % + pyrazosulfuron-ethyl 0.75 % WG (premix) 600 +15 g a.i./ha (60 g/15 litre of water) *fb*. Hand weeding 30 DAS ➢ Hand weeding at 20 and 40 DAS **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતમાં એરોબીક ડાંગરની ખેતી કરતા ખેડુતોને અસરકારક નિંદણ નિયંત્રણ અને વધુ ઉત્પાદન મેળવવા માટે નીચે પૈકીની કોઇ એક નીંદણ વ્યવસ્થાપન અપનાવવા ભલામણ કરવામાં આવે છે. ➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પેન્ડીમીથેલીન ૩૦% ઇ.સી ૧૦૦૦ ગ્રામ સક્રીય તત્વ/હે (૧૦૦ મી.લિ./૧૫ લિટર પાણી) અને વાવણીના ૨૦ થી ૨૫ દિવસે ટ્રાઇફેમોન ૨૦% + ઇથોક્ષીસલ્ફુરોન ૧૦% ડબ્લુ.જી (પ્રિમિક્ષ) ૪૪.૦ +૨૨.૫ ગ્રામ સક્રીય તત્વ/હે (૬.૫ ગ્રામ/ ૧૫ લિટર પાણી) **અથવા** ➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પેન્ડીમીથેલીન ૩૦% ઇ.સી ૧૦૦૦ ગ્રામ સક્રીય તત્વ/હે (૧૦૦ મી.લિ./૧૫ લિટર પાણી) અને વાવણીના ૨૦ થી ૨૫ દિવસે પેનોક્સુલામ ૧.૦૨% + સાયહેલોફોપ- બ્યુટાઇલ ૫.૧% ઓ.ડી. (પ્રિમિક્ષ) ૧૨૦ ગ્રામ સક્રીય તત્વ/હે (૬૦ મી.લિ./ ૧૫ લિટર પાણી) **અથવા** ➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પેન્ડીમીથેલીન ૩૦% ઇ.સી ૧૦૦૦ ગ્રામ સક્રીય તત્વ/હે (૧૦૦ મી.લિ./૧૫ લિટર પાણી) અને વાવણીના ૩૦ દિવસે હાથ નિંદામણ **અથવા**

	➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પ્રિટિલાક્લોર ૩૦% + પાયરાઝોસલફ્યુરોન- ઇથાઇલ ૦.૭૫% ડબ્લુ.જી (પ્રિમિક્ષ) ૬૦૦ + ૧૫ ગ્રામ સક્રીય તત્વ/હે (૬૦ ગ્રામ/ ૧૫ લિટર પાણી) અને વાવણીના ૨૦ થી ૨૫ દિવસે મેટસલ્ફુરોન મિથાઇલ ૧૦% + ક્લોરીમ્યુરોન ઇથાઇલ ૧૦% ડબ્લુ.પી. (પ્રિમિક્ષ) ૪ ગ્રામ સક્રીય તત્વ/હે (૦.૬૦ ગ્રામ/ ૧૫ લિટર પાણી) **અથવા** ➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પ્રિટિલાક્લોર ૩૦% + પાયરાઝોસલફ્યુરોન- ઇથાઇલ ૦.૭૫% ડબ્લુ.જી (પ્રિમિક્ષ) ૬૦૦ + ૧૫ ગ્રામ સક્રીય તત્વ/હે (૬૦ ગ્રામ/ ૧૫ લિટર પાણી) અને વાવણીના ૨૦ થી ૨૫ દિવસે ટ્રાઇફેમોન ૨૦% + ઇથોક્ષીસલ્ફુરોન ૧૦% ડબ્લુ.જી (પ્રિમિક્ષ) ૪૪.૦ +૨૨.૫ ગ્રામ સક્રીય તત્વ/હે (૬.૫ ગ્રામ/ ૧૫ લિટર પાણી) **અથવા** ➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પ્રિટિલાક્લોર ૩૦% + પાયરાઝોસલફ્યુરોન- ઇથાઇલ ૦.૭૫% ડબ્લુ.જી (પ્રિમિક્ષ) ૬૦૦ + ૧૫ ગ્રામ સક્રીય તત્વ/હે (૬૦ ગ્રામ/ ૧૫ લિટર પાણી) અને વાવણીના ૨૦ થી ૨૫ દિવસે પેનોક્સુલામ ૧.૦૨% + સાયહેલોફોપ- બ્યુટાઇલ ૫.૧% ઓ.ડી. (પ્રિમિક્ષ) ૧૨૦ ગ્રામ સક્રીય તત્વ/હે (૬૦ મી.લિ./ ૧૫ લિટર પાણી) **અથવા** ➢ વાવણી બાદ અને નિંદણ ઉગતા પહેલા પ્રિટિલાક્લોર ૩૦% + પાયરાઝોસલફ્યુરોન- ઇથાઇલ ૦.૭૫% ડબ્લુ.જી (પ્રિમિક્ષ) ૬૦૦ + ૧૫ ગ્રામ સક્રીય તત્વ/હે (૬૦ ગ્રામ/ ૧૫ લિટર પાણી) અને વાવણીના ૩૦ દિવસે હાથ નિંદામણ **અથવા** ➢ વાવણીના ૨૦ અને ૪૦ દિવસે આંતરખેડ અને હાથ નિંદામણ **Suggestions:** 1.In recommendation paragraph replace word “obtaining economical yield ”with “obtaining higher yield”

	2. Verify weed index data 3. Include all at par treatments in recommendation. *[Action: Research Scientist, RRRS, Vyara]*
20.2.1.10	**Title:** Study of critical crop-weed competition in Summer Pearlmillet (*penneisetum glaucum* l.) **Recommendation for farming community:** The farmers of south Gujarat heavy rainfall zone are recommended to keep the summer pearl millet field weed free up to 40 days after sowing for getting higher yield and net return. **ખેડૂતોપયોગી ભલામણ:** દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારનાં ખેડૂતોને ઉનાળુ બાજરીનું વધુ ઉત્પાદન તેમજ નફો મેળવવા પાકને ૪૦ દિવસ સુધી નિંદણ મુક્ત રાખવા ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Mention unit of plant population 2. Report "weed free up to 40 days instead of "weed free from 20 to 40 days" in recommendation para. 3. Remove word "**ચોખ્ખો**" from recommendation paragraph *[Action: Prof. & Head, Dept. of Agronomy, NMCA, Navsari]*
20.2.1.11	**Title:** Evaluation of efficacy of two epigeic earthworm species for vermicomposting using different substrates **Recommendation for farming community:** The farmers of Gujarat engaged in vermicompost production are hereby recommended to use either *Eudrilus eugeniae* or *Eisenia fetida* earthworm species for obtaining nutrient rich good quality vermicompost in an approximately 90 days from banana plant waste. Note: Adopt the following method for making the vermicompost for banana plant waste ➢ Cut each of the above crop wastes into pieces of approximately 5 to 10 cm size with the help of a mechanical chopper. ➢ For 150 kg substrate on dry weight basis, take approximately following weight in size of 8x4x2 ft bed. ➢ Banana plant waste (70 %) weight- 1050 kg (90 % moisture content) + Cattle dung (30%) weight- 225 kg (80% moisture content)

	➢ Release 1.5 kg *Eudrilus eugeniae* or *Eisenia fetida* earthworm culture after 30 days in vermicompost bed. Alternatively, comparable quality vermicompost can be prepared from paddy straw and sugarcane trash by using above earthworm species in an approximately 105 and 120 days**,** respectively. Note: Adopt the following method for making the vermicompost for paddy straw and sugarcane trash ➢ Cut each of the above crop wastes into pieces of approximately 5 to 10 cm size with the help of a mechanical chopper. ➢ For 150 kg substrate on dry weight basis, take approximately following weight in size of 8x4x2 ft bed ➢ Paddy straw (70%) weight- 131 kg (20% moisture content) + Cattle dung (30%) weight- 225 kg (80% moisture content) or ➢ Sugarcane trash (70%) weight- 123 kg (15% moisture content) + Cattle dung (30%) weight- 225 kg (80% moisture content) ➢ Release 1.5 kg *Eudrilus eugeniae* or *Eisenia fetida* earthworm culture after 30 days in vermicompost bed. **ખેડૂત ઉપયોગી ભલામણ**: વર્મીકમ્પોસ્ટ બનાવતા ગુજરાતના ખેડૂતોને આથી ભલામણ કરવામાં આવે છે કે કેળના છોડના અવશેષોમાંથી (પાન અને થડ), પોષક તત્વોથી ભરપૂર સારી ગુણવત્તાવાળુ અળસિયાનું ખાતર અંદાજિત ૯૦ દિવસે બનાવવા યુડ્રિલસ યુજેનિયા અથવા આઈસેનિયા ફેટીડા અળસિયાની જાતનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે . **નોંધ: કેળના છોડના અવશેષોમાંથી અળસિયાના ખાતર બનાવવા નીચે મુજબની પધ્ધતી અપનાવવી** ➢ ઉપરોકત દરેક પાકના કચરાને યાંત્રિક ચોપરની મદદથી અંદાજીત પથી ૧૦સે.મી ની કદના ટુંકડા કરવા.

	➢ ૧૫૦ કિલો સૂકા વજન માટે અંદાજિત નીચે મુજબનુ વજન ૮x૪x૨ ફુટ ના બેડમાં લેવુ. ➢ કેળાના છોડનો કચરો (૭૦ %) વજન- ૧૦૫૦ કિલો (૯૦ % ભેજ પ્રમાણે) + ઢોરનું છાણ (૩૦ %) વજન- ૨૨૫ કિલો (૮૦ % ભેજ પ્રમાણે) ➢ 30 દિવસ પછી ૧.૫ કિગ્રા યુડ્રિલસ યુજેનીયા અથવા ઇસેનિયા ફેટીડા અળસિયા બેડમાં છોડો. **વૈકલ્પિક રીતે,** ડાંગરનું પરાળ અને શેરડીની પતારીમાંથી ઉપરોકત અળસિયાની જાતનો ઉપયોગ કરવાથી અનુક્રમે અંદાજિત ૧૦૫ અને ૧૨૦ દિવસે એનાજ જેવી ગુણવત્તાવાળુ અળસિયાનું ખાતર તૈયાર થાય છે. **નોંધ: ડાંગરનું પરાળ અને શેરડીની પતારીમાંથી અળસિયાના ખાતર બનાવવા નીચે મુજબની પધ્ધતી અપનાવવી** ➢ ઉપરોકત દરેક પાકના કચરાને યાંત્રિક ચોપરની મદદથી અંદાજીત પથી ૧૦સે.મી ની કદના ટુંકડા કરવા. ➢ ૧૫૦ કિલો સૂકા વજન માટે અંદાજિત નીચે મુજબનુ વજન ૮x૪x૨ ફુટ ના બેડમાં લેવુ. ➢ ડાંગરનું **પરાળ** (૭૦ %) વજન- ૧૩૧ કિલો (૨૦ % ભેજ પ્રમાણે) + ઢોરનું છાણ (૩૦ %) વજન- ૨૨૫ કિલો (૮૦ % ભેજ પ્રમાણે) અથવા ➢ શેરડીની પતારી (૭૦ %) વજન- ૧૨૩ કિલો (૧૫ % ભેજ પ્રમાણે) + ઢોરનું છાણ (૩૦ %) વજન- ૨૨૫ કિલો (૮૦ % ભેજ પ્રમાણે) ➢ 30 દિવસ પછી ૧.૫ કિગ્રા યુડ્રિલસ યુજેનીયા અથવા તો ઇસેનિયા ફેટીડા અળસિયા બેડમાં છોડો. **Suggestions:**

	1. Modify the recommendation by giving recommended treatment and other treatment, accordingly give the notes *i.e.* first give recommended treatment and its notes and then give alternate treatment and its notes. *[Action: Principal, Horticulture Polytechnic, NAU, Navsari]*
20.2.1.12	**Title:** Influence of Glufosinate ammonium on cotton yield and soil microbes **Recommendation for farming community:** Farmers of South Gujarat growing rainfed cotton (*Gossypium hirsutum*) during kharif season are advised to manage the weeds for obtaining higher and profitable production of cotton as below. Application of pendimethalin 30 EC 0.9 kg a.i./ha (60 ml/10 lit. water) PE *fb* Quizalofop-ethyl 4% + Pyrithiobac Sodium 6% EC 50 + 75 g a.i./ha ready mix (25 ml/10 lit. water) at 50 DAS OR Glufosinate ammonium 13.5 % SL applied at 350 g/ha (47 ml/10 lit. water) at 15 – 20 DAS as protected spray by hood along with hand weeding for removal of intra-row weeds *fb* HW and IC at 50 DAS. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતમાં ચોમાસા દરમ્યાન વરસાદ આધારિત કપાસ (*ગોસીપીયમ હિરસુટમ*) ઉગાડતા ખેડૂતોને કપાસનું વધુ તેમજ નફાકારક ઉત્પાદન મેળવવા માટે નીચે મુજબ નીંદણ વ્યવસ્થાપન કરવાની ભલામણ છે. કપાસની વાવણી બાદ તુરંત પેંડિમેથાલીન 30 % ઇસી ૦.૯ કિગ્રા સ. ત. /હે (૬૦મીલી/૧૦લી) તથા ૫૦ દિવસે ક્વિઝાલોફોપ ઈથાઈલ ૪ % + પાયરીથાયોબેક સોડિયમ ૬ % ઇસી ૫૦ + ૭૫ ગ્રામ સ. ત./હે (તૈયાર મિશ્રણ ૨૫ મીલી/૧૦લી) નો છંટકાવ કરવો અથવા વાવણીના બે અઠવાડીયા બાદ હાથ નીંદણ દ્વારા પાકની હારના નીંદણ દૂર કરી બે હાર વચ્ચે ગ્લુફોસિનેટ એમોનિયમ ૧૩.૫ % એસએલ ૩૫૦ ગ્રામ સ.ત. (૪૭ મીલી/૧૦લી) નો કપાસના પાક ઉપર ન પડે એ રીતે હૂડથી રક્ષિત છંટકાવ કર્યા બાદ ૫૦ દિવસે હાથ નીંદણ સાથે આંતરખેડ કરવી. **Suggestions:** 1. Incorporate the data in the report. 2. Mention the species of rainfed cotton. 3. Give the herbicide application volume per 10 litre of water *[Action: Professor of Agronomy, CoA, Bharuch]*

20.2.1.13	**Title:** Effect of nitrogen, phosphorus and potash on *rabi* sweet corn (*Zea mays* L. *var. saccharata* Sturt) **Recommendation for farming community:** The farmers of south Gujarat Agro-climatic Zone growing sweet corn in *rabi* season are recommended to apply 150 kg N/ha (N to be applied in 3 splits viz., 25 % as basal, 50 % at 30 DAS and 25 % at 45 DAS) and 60 kg P_2O_5/ha and 30 kg K_2O/ha as basal for getting higher yield and net return. Further, seed treatment of bio-fertilizers viz., Azotobacter, PSB and KMB (10 ml each/kg seed) should be applied. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં રવિ ઋતુ દરમિયાન મીઠી મકાઇ ઉગાડતા ખેડૂતોને વધુ નફાકારક ઉત્પાદન મેળવવા માટે ૧૫૦ કિ.ગ્રા.નાઇટ્રોજન પ્રતિ હેક્ટર ત્રણ હપ્તામાં (૨૫ % પાયામાં, ૫૦ % વાવણી પછી ૩૦ દિવસે અને ૨૫ % વાવણી પછી ૪૫ દિવસે) તેમજ પાયામાં ૬૦ કિ.ગ્રા. ફોસ્ફોરસ અને ૩૦ કી.ગ્રા. પોટાશ પ્રતિ હેક્ટર આપવાની ભલામણ કરવામાં આવે છે. વધુમાં, જૈવિક ખાતરો જેવા કે એઝેટોબેકટર, પીએસબી અને કેએમબી (દરેક ૧૦ મિલી/ કિ.ગ્રા. બિયારણ)ની બીજ માવજત આપવી. **Suggestions:** 1. Write as "growing sweet corn in rabi season" instead of "growing rabi sweet corn". 2. Write as "getting higher yield and return" instead of "getting higher and profitable yield". *[Action: Professor of Agronomy, CoA, Bharuch]*
20.2.1.14	**Title:** Nutrient management in dill seed under south Gujarat condition **Recommendation for farming community:** The farmers of south Gujarat growing dillseed in *rabi* season are recommended to apply 60-20-00-20 N-P_2O_5-K_2O-S kg/ha (20 kg S in form of elemental sulphur before 15 days of sowing 30-20-00 N-P_2O_5-K_2O kg/ha as basal and 30 N kg/ha at 40 DAS) for getting higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતમાં રવિ ઋતુ દરમિયાન સુવાનું વધુ ઉત્પાદન અને નફો મેળવવા માટે ૬૦-૨૦-૦૦-૨૦ કિ.ગ્રા. ના.ફો.પો.સ./હે (વાવણીના 15 દિવસ પહેલા 20 કિગ્રા સલ્ફર એલિમેન્ટલ સલ્ફરના રૂપમાં, ૩૦ કિ.ગ્રા. નાઇટ્રોજન, ૨૦ કિ.ગ્રા. ફૉસ્ફરસ અને ૦૦ કિ.ગ્રા.

	પોટેશિયમ પાયામાં તેમજ ૩૦ કિ.ગ્રા. નાઇટ્રોજન/હે. વાવણીના ૪૦ દિવસ બાદ) પ્રમાણે ખાતર આપવાની ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Remove variety name from the recommendation para. 2. Mention the season of crop in recommendation para. 3. Incorporate source of S and its of S application period. *[Action: Professor of Agronomy, CoA, Bharuch]*
20.2.1.15	**Title:** Effect of phosphorus and potassium application in *rabi* sweet corn *(Zea mays* l. *var. saccharate S*turt) under south Gujarat condition **Recommendation for farming community:** The farmers of South Gujarat Agro-climatic zone-I growing sweet corn in *rabi* season are recommended to apply 60 kg P_2O_5/ ha and 60 kg K_2O/ha as basal along with 120 kg N/ha for getting higher yield and net return. Sweet corn seed treatment should be applied with Azatobacter, PSB and KMB each @ 10 ml per kg seed. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૧ માં શિયાળુ ઋતુ દરમિયાન સ્વીટકોર્નની ખેતી કરતાં ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા ૬૦ કિલો ફોસ્ફરસ અને ૬૦ કિલો પોટાશ પ્રતિ હેકટરે પાયામાં તથા તેની સાથે ૧૨૦ કિ.ગ્રા. નાઈટ્રોજન પ્રતિ હેકટરે આપવાની ભલામણ કરવામાં આવે છે. સ્વીટકોર્નના પ્રતિ કિલો બિયારણ દીઠ ૧૦ મી.લી. દરેક જૈવિક ખાતર એઝેટોબેકટર, પી.એસ.બી. અને કે.એમ.બી નો પટ આપવો. **Suggestions:** 1. Write as “growing sweet corn in rabi season” instead of “growing *rabi* sweet corn after *kharif* rice**”** *[Action: Senior Scientist and Head, KVK, NAU, Navsari]*
20.2.1.16	**Title:** Efficacy of organic mulches on soil properties, growth and yield of mango cv. Kesar in rainfed ecosystem. **Recommendation for farming community:** The mango growing farmers of South Gujarat are recommended to mulch the adult mango trees (10 years above) with 9% area coverage (3 m radius from trunk) of 20

	kg sugarcane trash/tree in October month for obtaining higher yield with net return and improve soil health. **ખેડુત ઉપયોગી ભલામણ:** દક્ષિણ ગુજરાતના આંબાવાડીયા ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ઓક્ટોબર મહિનામાં પુખ્ત વયના આંબાના ઝાડને (૧૦ વર્ષથી મોટા) ૯% વિસ્તારમાં (થડથી ૩ મી ત્રિજ્યામાં) શેરડીના પતારીનું ૨૦ કિ.ગ્રા. પ્રતિ ઝાડ દીઠ આવરણ કરવાથી વધારે ઉત્પાદન સાથે ચોખ્ખી આવક મળે છે અને જમીનનું સ્વાસ્થ્ય સુધરે છે. **Suggestions:** 1. Remove name of variety form recommendation 2. In recommendation paragraph replace "coverage (3 x 3 m around trunk)" with "coverage (3m radius from trunk)" and modify accordingly in Gujarati paragraph *[Action: Research Scientist (Horti.), AES, NAU, Paria]*
20.2.1.17	**Title:** Effect of time of irrigation on flowering and yield of cashew **Recommendation for farming community:** The cashew growing farmers of South Gujarat are recommended to adopt ring method of irrigation at initiation of flowering (First fortnight of November) and at apple development phase (Second fortnight of January) for obtaining higher yield and net realization. **ખેડૂત ઉપયોગી ભલામણ**: દક્ષિણ ગુજરાતમાં કાજુની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે ફુલ આવવાની શરૂઆતમાં (નવેમ્બરના પહેલા પખવાડિયામાં) તેમજ કાજુ ફળના વિકાસની શરૂઆત (જાન્યુઆરીના બીજા પખવાડિયામાં) દરમ્યાન રીંગ પધ્ધતિથી ઝાડને પાણી આપવાથી વધારે ઉત્પાદન અને ચોખ્ખી આવક મળે છે. **"Approved "** *[Action: Research Scientist (Horti.), AES, NAU, Paria]*
20.2.1.18	**Title:** Effect of different sowing methods and nutrient management on Indian bean var., GNIB-21 sown after Rice **Suggestions:** **1. Not Accepted**

	[Action: Research Scientist (Horti.), AES, NAU, Paria]
20.2.1.19	**Title:** Studies on foliar spray of zinc on normal and late sown rabi castor **Recommendation for farming community:** The farmers of South Gujarat growing castor in *rabi* season are recommended to sow castor crop during 3rd week of October for obtaining higher seed yield and net return. Further, they are also recommended to carried out three sprays of 0.50% $ZnSO_4$ (monohydrate) at raceme initiation, peak flowering and 15 days after peak flowering stage for achieving higher seed yield and net return under Zn deficient soil in addition to recommended dose of fertilizer (120:40:00 $N:P_2O_5:K_2O$ kg/ha). **ખેડુત ઉપયોગી ભલામણ:-** દક્ષિણ ગુજરાતના શિયાળુ ઋતુમાં રવિ દિવેલા ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે દિવેલાની વાવણી ઓક્ટોબરના ત્રીજા અઠવાડીયામાં કરવાથી વધુ ઉત્પાદન તથા વધુ ચોખ્ખો નફો મેળવી શકાય છે. વધુમાં તેઓને ભલામણ કરવામાં આવે છે કે રાસાયણિક ખાતરનાં ભલામણ કરેલ જથ્થા (૧૨૦:૪૦:૦૦ એન:પી:કે કિગ્રા./હે.) ઉપરાંત ૦.૫૦% ઝીંક સલ્ફેટ (મોનો હાઈડ્રેટ) ના ત્રણ છંટકાવ માળ નિકળવાની અવસ્થાએ, મહત્તમ ફુલ અવસ્થાએ અને મહત્તમ ફુલ અવસ્થાના ૧૫ દિવસ બાદ કરવાથી વધુ ઉત્પાદન અને વધુ ચોખ્ખો નફો ઝીંક તત્વની ઉણપ વાળી જમીનમાં મેળવી શકાય છે. **Suggestions:** 1.In recommendation paragraph replace the word “advice” with “recommended” and modify accordingly in Gujarati paragraph 2. Include fertilizer dose in recommendation paragrapph 3. Revise the economics table *[Action: Assoc. Res. Scientist, CRSS, NAU, Achhalia]*
20.2.1.20	**Title:** Effect of ZnO nanoparticles on growth, yield and quality of rice **Suggestions:** **1. Transfer to Scientific Information** *[Action: Professor and Head, Dept. of Agronomy, NMCA, NAU, Navsari]*

20.2.1.21	**Title:** Nitrogen management in *kharif* pearlmillet **Recommendation for farming community** The farmers of North Gujarat agro climatic zone IV growing pearlmillet in *kharif* season are recommended to apply either 75% RDN (60 kg N/ha) through chemical fertilizer + 25% through castor cake (20 kg N/ha) or 75% RDN (60 kg N/ha) through chemical fertilizer + 25% through vermicompost (20 kg N/ha) in addition to recommended dose of phosphorus (40 kg/ha) as basal for obtaining higher grain yield and net return. Castor cake should be applied 15 days before sowing of crop. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત હવામાન વિભાગ ૪ ના ખેડુતોને ચોમાસુ બાજરીનુ વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલ નાઇટ્રોજનના ૭૫% (૬૦ કિ.ગ્રા. નાઇટ્રોજન/હેક્ટર) રાસાયણિક ખાતર + ૨૫% દિવેલી ખોળ (૨૦ કિ.ગ્રા. નાઇટ્રોજન /હેક્ટર) માર્ફતે અથવા નાઇટ્રોજનના ૭૫% (૬૦ કિ.ગ્રા. નાઇટ્રોજન/હેક્ટર) રાસાયણિક ખાતર + ૨૫% દિવેલી ખોળ (૨૦ કિ.ગ્રા. નાઇટ્રોજન /હેક્ટર) માર્ફતે આપવાની ભલામણ કરવામાં આવે છે. તદઉપરાંત ભલામણકરેલ ફોસ્ફરસ (૪૦ કિ.ગ્રા/હેક્ટર) વાવણી વખતે આપવું. દિવેલી ખોળ પાકની વાવણીના ૧૫ દિવસ પહેલા આપવો. **Suggestions:** 1. Add treatment T_3 i.e. 75% RDN (60 kg N/ha) through chemical fertilizer + 25% through vermicompost (20 kg N/ha) in the text of the recommendation. 2. Replace word "*kharif* pearlmillet" with "pearlmillet in *kharif* season" in English text of recommendation. **(***Action: - Prof. and Head, Dept. of Agronomy, CPCA, SDAU, Sardarkrushinagar)*
20.2.1.22	Title: Nutrient management in fodder oat **Recommendation for farming community** The farmers of North Gujarat Agro Climatic Zone-IV growing fodder oat (cv. Kent) are recommended to apply 120 kg N/ha (in 4 equal splits *i. e.,* at sowing, at 30 DAS, after first and second cut), 60 kg P_2O_5/ha and 30 kg K_2O/ha as basal to obtain higher green and dry fodder yield, net return and better quality fodder.

	ખેડૂતોપયોગીભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ધાસચારા માટે ઓટ (કેન્ટ)નું વાવેતર કરતા ખેડુતોને લીલા અને સુકા ધાસચારાનું વધારે ઉત્પાદન, નફો અને ગુણવત્તાયુકત ધાસચરાના ઉત્પાદન મેળવવા માટે પ્રતિ હેકટરે ૧૨૦ કિ.ગ્રા. નાઈટ્રોજન (ચાર સરખા હપ્તામાં વાવણી સમયે, વાવણી બાદ ૩૦ દિવસે, પ્રથમ અને બીજી કાપણી બાદ), ૬૦ કિલોગ્રામ ફોસ્ફરસ અને ૩૦ કિલોગ્રામ પોટાશ વાવણી સમયે આપવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Verify the data of N uptake by crop. 2. Add variety "Kent" in the text of recommendation. *(Action: - Prof. and Head, Dept. of Agronomy, CPCA, SDAU, Sardarkrushinaga)*
20.2.1.23	Title: Integrated nutrient management in barley under saline soil **Recommendation for farming community** The farmers of North West Agroclimatic zone-V of Gujarat growing barley (RD 2907) in saline soil are recommended to apply either 50% RDN (40 kg N/ha) through FYM (8.0 t/ha) + 25% RDN (20 kg N/ ha) through castor cake (445 kg /ha) + 25% RDN (20 kg N /ha) through vermicompost (1.5 t /ha) or 50% RDN (40 kg N/ha) through FYM (8.0 t/ha) + 50% RDN (20 kg N/ha) through vermicompost (3.0 t/ha) or 50% RDN (40 kg N/ha) through FYM (8.0 t/ha) + 50% RDN (20 kg N/ha) through castor cake (890 kg /ha) along with recommended dose of phosphorus (40 kg P_2O_5/ha) for getting higher yield besides improving the soil fertility and reducing soil salinity. **ખેડૂતોપયોગી ભલામણ** ગુજરાતના ઉત્તર પશ્ચિમ ખેત હવામાન વિભાગ–૫ ની ક્ષારીય જમીનમાં જવનું વાવેતર કરતા ખેડૂતોએ હેક્ટર દીઠ વધુ ઉત્પાદન મેળવવા તેમજ જમીનની ક્ષારીયતા ઘટાડીને જમીનની ફળદ્રુપતા વધારવા માટે પ્રતિ હેક્ટરે જવના પાકને ભલામણ કરેલ નાઈટ્રોજનના ૫૦ % (૪૦.૦ કિ.ગ્રા. પ્રતિ હેક્ટર) દિવેલાના ખોળ રૂપે (૮૯૦ કિ.ગ્રા. પ્રતિ હેક્ટર) +૫૦ % નાઈટ્રોજન (૪૦.૦ કિ.ગ્રા. પ્રતિ હેક્ટર) અળસિયાના ખાતર રૂપે (૩.૦ ટન પ્રતિ હેક્ટર) અથવા

	ભલામણ કરેલ નાઈટ્રોજનના ૫૦ % છાણીયા ખાતર રૂપે (૮.૦ ટન પ્રતિ હેક્ટર) + ૫૦ % નાઈટ્રોજન (૪૦.૦ કિ.ગ્રા. પ્રતિ હેક્ટર) અળસિયાના ખાતર રૂપે (૩.૦ ટન પ્રતિ હેક્ટર) અથવા ભલામણ કરેલ નાઈટ્રોજનના ૫૦ % છાણીયા ખાતર રૂપે (૮.૦ ટન પ્રતિ હેક્ટર) + ૨૫ % નાઈટ્રોજન (૨૦.૦ કિ.ગ્રા. પ્રતિ હેક્ટર) દિવેલાની ખોળ રૂપે (૪૪૫ કિ.ગ્રા. પ્રતિ હેક્ટર) + ૨૫ % નાઈટ્રોજન (૨૦.૦ કિ.ગ્રા. પ્રતિ હેક્ટર) અળસિયાના ખાતર રૂપે (૧.૫ ટન પ્રતિ હેક્ટર) આપવું. તદઉપરાંત ભલામણ પ્રમાણેનો ફોસ્ફરસનો જથ્થો (૪૦ કિ.ગ્રા. ફોસ્ફરસ પ્રતિ હેક્ટર) આપવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Add treatments T_{10} i.e. 50% RDN (40 kg N/ha) through FYM (8.0 t/ha) + 50% RDN (20 kg N/ha) through vermicompost (3.0 t/ha) and T_{11} i.e. 50% RDN (40 kg N/ha) through FYM (8.0 t/ha) + 50% RDN (20 kg N/ha) through castor cake (890 kg /ha) in the text of the recommendation. 2. Add table of "water quality" data in the report. *(Action: Prof. and Head, Department of Agril. Chemistry and Soil Sci, CPCA, S K Nagar)*
20.2.1.24	**Title :** Identification of cropping systems modules for different farming systems **Recommendation for farming community** The farmers of North Gujarat Agro climatic zone- IV are recommended to adopt fodder sorghum-Lucerne - lucerne continue or fodder maize - fodder oat - fodder pearl millet crop sequences for securing higher groundnut equivalent yield and net return. ખેડૂતોપયોગી ભલામણ: ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ખેડૂતોને મહત્તમ મગફળી સમકક્ષ ઉત્પાદન અને નફો મેળવવા માટે ઘાસચારા જુવાર – રજકો – રજકો ચાલુ અથવા ઘાસચારા મકાઈ – ઓટ – ઘાસચારા બાજરી ની પાક પદ્ધતિ ભલામણ કરવામાં આવે છે. Suggestions: 1. Delete the below mentioned text from English and Gujarati version of recommendation.

Based on theme, following crop sequences are to adopt for the improvement of soil health, family nutrition and income enhancement.

Sr. No.	Recommended crop sequences	Theme
1	Veg. cow pea (GDVC 2) (Soil incorporation after last picking)- amaranths (GA 2)-groundnut (TG 37)	Soil health
2	Maize (GAYMH 1)-leafy coriander (GDLC 1)-pearlmillet (GHB 558)	Family nutrition
3	Veg. cluster bean (PNB) (Soil incorporation after last picking) - leafy fenugreek (GM 2)-sesame(GT-2)	Income enhancement

2. Delete the varieties from the text of the recommendation.

(Action:-*Research Scientist, IFS, SDAU, Sardarkrushinagar)*

20.2.1.25

Title : Nutrient management in mustard

Recommendation for farming community

The farmers of North Gujarat agro climatic zone IV growing mustard are recommended to apply 75 kg N/ha, of which 50% as basal and remaining 50% at 35-40 days after sowing, in addition to 50 kg P_2O_5/ha and 40 kg S/ha as basal for obtaining higher yield and net return. Application of potash is not found beneficial.

ખેડૂતોપયોગીભલામણ:

ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના રાઇનું વાવેતર કરતાં ખેડૂતોએ હેક્ટર દીઠ વધુ ઉત્પાદન અને નફો મેળવવા માટે ૭૫ કિ.ગ્રા. નાઇટ્રોજન/હે. આપવા જે પૈકી ૫૦% જથ્થો વાવણી વખતે અને બાકીનો ૫૦% વાવણી બાદ ૩૫-૪૦ દિવસે પૂર્તિ ખાતર, ઉપરાંત ૫૦ કિ.ગ્રા. ફોસ્ફરસ તથા ૪૦ કિ. ગ્રા. સલ્ફર પ્રતિ હેક્ટરે પાયાના ખાતર તરીકે આપવાની ભલામણ કરવામાં આવે છે. પોટાશ આપવો લાભદાયક જણાયેલ નથી.

Suggestions:

1. Add quantity of sulphur (40 kg/ha) applied to the crop and word “found” before beneficial in the text of the recommendation.

(Action:- Research Scientist, Centre for Oilseeds Research, S.D.A.U., Sardarkrushinagar)

20.2.1.26	**Title :** Drumstick based agri-horticultural system **Recommendation for farmers:** The farmers of North Gujarat Agro-climatic Zone IV planting drumstick under rainfed conditions are recommended to sow either green gram or castor as a intercrop between two rows of drumstick (6 m apart) for obtaining higher drumstick pod equivalent yield and net return. ખેડૂતોપયોગીભલામણ : ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ ૪ માં વરસાદ આધારિત સરગવાની ખેતી કરતા ખેડૂતોને સરગવાની શીંગો સમકક્ષ વધુ ઉત્પાદન અને નફો મેળવવા માટે સરગવાની બે હાર વચ્ચે (૬.૦ મીટરના અંતરે) મગ અથવા દિવેલાના પાકને આંતર પાક તરીકે લેવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Add treatments T_9 i.e. "Drumstick + castor" in the text of the recommendation. ***(Action: -** Research Scientist, CNRM, SDAU, Sardarkrushinagar)*
20.2.1.27	**Title :** Fertigation scheduling for sprinkler irrigated potato **Recommendation for farming community** The farmers of North Gujarat Agro Climatic Zone- IV growing potato under sprinkler irrigation system are recommended to apply 25% RDN (69 kg N/ha) and 25% RDK (69 kg K_2O/ha)and full dose of phosphorus (138 kg P_2O_5/ha) as basal and remaining 75% RDN (206 kg N/ha) through urea and 75% RDK (206 kg K_2O/ha) through sulphate of potash each through fertigation in eight equal splits at weekly interval starting from 15 days after planting to get higher yield and net return. ***System details:*** Lateral spacing : 9.0 metre Sprinkler spacing : 9.0 metre Sprinkler discharge rate: 400 ltr/hr Pressure: 2.5 kg/cm^2 Irrigation interval : 5-6 days ખેડૂતોપયોગીભલામણ

	ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૪ ના કુવારા પદ્ધતિથી બટાટાની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલ નાઈટ્રોજનના ૨૫% (૬૯ કિ.ગ્રા.), પોટાશના ૨૫% (૬૯ કિ.ગ્રા.) અને ભલામણ કરેલ ફાસ્ફોરસ (૧૩૮ કિ.ગ્રા. /હે.) પાયામા અને બાકીનો નાઈટ્રોજન અને પોટાશ બંન્નેના ૭૫% (૨૦૬ કિ.ગ્રા. પ્રતિ હેક્ટર યુરિયા અને પોટેશિયમ સલ્ફેટ સ્વરુપે) વાવણી બાદ ૧૫ દિવસથી શરૂઆત કરી દર અઠવાડીએ આઠ સરખા હપ્તામાં ફર્ટીગેશનથી આપવાની ભલામણ કરવામાં આવે છે. **કુવારા પધ્ધતિની વિગત :** લેટરલ અંતર : ૯.૦ મી. કુવારા અંતર : ૯.૦ મી. કુવારા દર : ૪૫૦લી/કલાક ચલાવવાનું દબાણ : ૨.૫ કિગ્રા/સેમી^{2} પધ્ધતિ ચલાવવાનો સમય : ૫-૬ દિવસે Suggestions: 1. Add word “fertigation” in the gujarati version of recommendation. 2. Add source of fertilizer used in fertigation and provide details of the sprinkler system in the text of recommendation. ***(Action: -** Research Scientist, Research Scientist, CNRM, SDAU, Sardarkrushinagar)*
20.2.1.28	**Title :** Effect of phosphorus and potash on yield and quality of *Rustica* tobacco Recommendation for scientific community Application of 20 kg P_2O_5/ha and 40 kg K_2O/ha (in the form of sulphate of potash) in basal recorded significantly higher yield of *Rustica* tobacco. Suggestions: 1. Approved for “Scientific community”. *(Action: -Assoc. Research Scientist, Agricultural Research Station, Ladol)*
20.2.1.29	**Title :** Response of groundnut to seed rate and spacing for seed production **Recommendation for farming community**

	The farmers of North Gujarat Agro-climatic zone IV growing *kharif* groundnut variety GJG 22 or GJG 32 are recommended to sow at 60 cm spacing with 100 kg seed rate /ha for obtaining higher seed yield and net return. ખેડુતોપયોગી ભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ના ચોમાસુ મગફળીની જી.જે.જી. ૨૨ અથવા જી.જે.જી. ૩૨ જાતોનુ વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ૧૦૦ કિગ્રા/હેકટર બીજનો દર રાખી બે હાર વચ્ચે ૬૦ સે.મી. ના અંતરે વાવણી કરવાની ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Delete the word "for seed production" from the text of recommendation. 2. Do statistical analysis for both the varieties separately and based on this results recast the language of the recommendation. Add this in the report also. *(Action: Research Scientist, Department of Seed Technology, SDAU, S.K.Nagar)*
20.2.1.30	Title : Effect of split application of nitrogen on growth, yield and quality of *rabi* fennel (*Foeniculum vulgare* Mill.) **Recommendation for farming community** The farmers of North Gujarat Agro climatic zone IV growing fennel in *rabi* season are recommended to apply 90 kg N/ha, of which 25% (22.5 kg N/ha) as basal and 75 % (67.5 kg N/ha) in three equal splits (22.5 kg N/ha) at 20, 40 and 60 DAS as top dressing in addition to recommended dose of phosphorus @ 30 kg/ha to obtain higher seed yield and net return. ખેડૂતોપયોગી ભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના રવિ ઋતુમાં વરિયાળી વાવતા ખેડૂતોને વધારે ઉત્પાદન અને નફો મેળવવા માટે પાકને ભલામણ કરેલ ખાતર ૯૦:૩૦:૦૦ કિ.ગ્રા ના.ફો.પો./હેક્ટર આપવો. જેમાં બધો જ ફોસ્ફરસ અને ૨૫% નાઈટ્રોજન (૨૨.૫ કિ.ગ્રા./હેક્ટર) પાયાના ખાતર તરીકે વાવણી સમયે અને બાકી રહેલો ૭૫% નાઈટ્રોજન (૬૭.૫ કિ.ગ્રા./હેક્ટર) ત્રણ સરખા હપ્તામાં (૨૨.૫ કિ.ગ્રા./હેક્ટર) વાવણી બાદ ૨૦, ૪૦ અને ૬૦ દિવસે પૂર્તી ખાતર તરીકે આપવાની ભલામણ કરવામાં આવે છે.

	Suggestions: 1. Verify the “date of irrigation” as “split application of urea” is not match with the date of irrigation and correct it accordingly. ***(Action: -** Research Scientist, Seed Spices Res. Station, SDAU, Jagudan)*
20.2.1.31	**Title :** Intercropping of gram in cumin **Recommendation for farming community** The farmers of North Gujarat Agro climatic zone IV are recommended to grow gram as intercrop in cumin with 1: 2 row ratio (Gram: Cumin at 90:30 cm or Gram: Cumin at 120:30 cm) to obtain higher cumin equivalent seed yield as well as net return. ખેડૂતોપયોગીભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના જીરૂ વાવતા ખેડૂતોને વધારે જીરા સમતુલ્ય ઉત્પાદન અને નફો મેળવવા માટે ચણાને ૯૦ અથવા ૧૨૦ સે.મી ના અંતરે વાવણી કરી તેમાં જીરાની બે હાર ૩૦ સે.મી.ના અંતરે વાવવાની ભલામણ કરવામાં આવે છે. Suggestions:. 1. Replace word “test weight” with “seed index” in Table 59 and “2022-23” with “2023-24” in Table 64 in the report. ***(Action: -** Research Scientist, Seed Spices Res. Station, SDAU, Jagudan)*
20.2.1.32	Title : Study on weed management in irrigated wheat **Recommendation for farming community** The farmers of North Gujarat Agro climatic zone IV growing wheat are recommended to carry out two hand weedings at 30 and 60 DAS for effective control of both narrow and broad leaf weed and to obtain higher wheat yield. However, under labour shortage apply Clodinafop @ 60 g a.i./ha + Metsulfuron methyl @ 4 g a.i./ha (Premix) (64 g/ha) at 25-30 DAS (10 ml/ 10 lit of water). ખેડૂતોપયોગીભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકિય વિભાગ ૪ ના ઘઉંનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા તથા પહોળા અને સાંકળા પાનવાળા નીંદણોનુ અસરકારક નિયંત્રણ માટે ૩૦ અને ૬૦ દિવસે બે હાથ નિંદામણ કરવા. જ્યારે મજૂરની અછતની પરિસ્થિતીમાં પ્રતિ હેકટરે ક્લોડિનાફોપ @ ૬૦ ગ્રામ + મેટસલ્ફ્યુરોન મિથાઈલ @ ૪ ગ્રામ

	સક્રિય તત્વ (પ્રિમિક્સ) (૬૪ ગ્રા/હે) ૧૦ મિલિ/૧૦લી પાણી સાથે વાવણી બાદ ૨૫-૩૦ દિવસે આપવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Recast the language of the recommendation by adding i. control of narrow and broad leaf weeds ii. Quantity of herbicide applied (64 g/ha) and herbicide used in 10 lit of water (10 ml/ 10 lit water). *(Action: - Research Scientist, Wheat Research Station, SDAU, Vijapur)*
20.2.1.33	**Title:** Response of fenugreek to different level of fertilizers under different cutting management **Recommendation for farming community** The farmers of North Gujarat Agro climatic Zone-IV growing dual purpose fenugreek (Var. PEB) are recommended to apply 125% RDF (25-50 N-P_2O_5 kg/ha) in which whole dose of phosphorus (50 P_2O_5 kg/ha) along with half dose of nitrogen (12.5 kg. N/ha) per hectare as basal and remaining half dose of nitrogen (12.5 kg. N/ha) after cutting at 50 days after sowing and left for seed production for getting higher fenugreek seed equivalent yield and net return. ખેડુતઉપયોગીભલામણ ઉત્તર ગુજરાતના ખેત આબોહવાકીય વિભાગ-૪ માં દ્વીહેતુક મેથીનું (જાત.પુષા અર્લી બન્ચ) વાવેતર કરતા ખેડુતોને, મેથી સમકક્ષ વધુ બીજ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલ રાસાયણીક ખાતરના ૧૨૫% (૨૫-૫૦ ના.ફો કિ.ગ્રા./હે) પૈકી પુરેપુરો ફોસ્ફરસ (૫૦ કિ.ગ્રા.ફો /હે), ૫૦% નાઇટ્રોજન (૧૨.૫ કિ.ગ્રા. ના./હે)પાયામાં અને બાકીનો ૫૦% (૧૨.૫ કિ.ગ્રા. ના./હે) કાપણી બાદ (વાવણી બાદ ૫૦ દિવસે) આપવો અને ત્યારબાદ બીજ ઉત્પાદન માટે છોડી દેવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Delete the word “in the form of SSP” from the text of the recommendation. *(Action: - Assistant Research Scientist,Agricultural Research Station, SDAU, Aseda*)
20.2.1.34	Title : Feasibility of Isabgul based intercropping systems **Recommendation for farming community**

	The farmers of North Gujarat Agro climatic zone IV growing isabgul are recommended to grow ajwain as inter crop in isabgul with 3:1 or 2:1 row ratio or linseed in 3:1 or 2:1 row ratio for getting higher isabgul equivalent yield and net return. ખેડૂતોપયોગી ભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ - ૪ના ઈસબગુલનું વાવેતર કરતાં ખેડૂતોને વધારે ઈસબગુલ સમતુલ્ય ઉત્પાદન અને નફો મેળવવા માટે ઈસબગુલ સાથે અજમાનું આંતરપાક તરીકે 3:૧ અથવા ૨:૧ હારમાં અથવા અળસીનું આંતરપાક તરીકે 3:૧ અથવા ૨:૧ હાર મુજબ બે હાર વચ્ચે 30 સે.મી. ના અંતરે વાવણી કરવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Mention distance in recommended **Approved** *(Action: - Assistant Research Scientist, Agricultural Research Station, Kholwada,)*
20.2.1.35	**Title:** Response of summer pearlmillet to irrigation and nitrogen levels under sprinkler irrigation system **Recommendation for farming community** The farmers of North Gujarat agro climatic zone- IV growing summer pearlmillet under sprinkler irrigation system are recommended to give 11 irrigations to the crop as per the below schedule and apply 120 kg N/ha, of which 50% as basal and remaining 50% in two equal splits at 30 and 45 DAS in addition to recommended dose of phosphorus (40 kg/ha) and 10 t FYM/ha as basal for getting higher grain yield and net returns. Lateral spacing : 8.5 metre Sprinkler spacing : 8.5 metre Sprinkler discharge rate: 450 ltr/hr Pressure: 2.5 kg/cm2 Time interval: 6 hrs 25 minutes March : 6 days interval (3 irrigation) April : 5 days interval (5 irrigation) May : 6 days interval (3 irrigation) ખેડૂતોપયોગીભલામણ

	ઉત્તર ગુજરાત ખેત હવામાન વિભાગ-૪માં કુવારા પધ્ધિતથી ઉનાળુ બાજરીને પિયત કરતા ખેડુતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે નીચેની અનુસૂચિ મુજબ કુલ ૧૧ પિયત આપવા અને ૧૨૦ કિ.ગ્રા/હેક્ટર નાઇટ્રોજન આપવો જે પૈકી ૫૦ % પાયામાં અને ૫૦ % બે સરખા હપ્તામાં વાવણી બાદ ૩૦ અને ૪૫ દિવસે આપવાની ભલામણ કરવામાં આવે છે. આ ઉપરંત હેક્ટર દિઠ ૪૦ કિ.ગ્રા. ફોસ્ફરસ અને ૧૦ ટ્ન છણિયુ ખાતર પાયામાં આપવુ. લેટરલ પાઇપનું અંતર : ૮.૫ મીટર કુવારાનુ અંતર : ૮.૫ મીટર કુવારાની સ્ત્રાવ ક્ષમતા: ૪૫૦ લીટર/કલાક પરીચલણ દબાણ: ૨.૫ કીગ્રા/ચો.સેમી સમયગાળો: ૬ કલાક ૨૫ મિનીટ માર્ચ : ૬ દિવસે (૩ પિયત) એપ્રિલ : ૫ દિવસે (૫ પિયત) મે : ૬ દિવસે (૩ પિયત) Suggestions: 1. Give detail of basal and split application of N and add quantity of FYM applied in the text of recommendation. 2. Mention height of sprinkler *(Action: - Assistant Research Scientist Agricultural Research Station, SDAU, Shihori)*
20.2.1.36	**Title :** Scheduling of sprinkler irrigation in wheat **Recommendation for farming community** The farmers of North Gujarat agro climatic zone-IV growing wheat under sprinkler irrigation system are recommended to give 10 irrigations to the crop as per the below schedule for getting higher grain yield and net return. Lateral spacing : 8.5 metre Sprinkler spacing : 8.5 metre Sprinkler discharge rate: 450 ltr/hr Pressure: 2.5 kg/cm^2 Time interval: 6 hrs 25 minutes December : 9 days interval (3 irrigation) January : 10 days interval (4 irrigation) February : 8 days interval (3 irrigation) ખેડૂતોઉપયોગી ભલામણ ઉત્તર ગુજરાત ખેત હવામાન વિભાગ-૪માં કુવારા પધ્ધિતથી ઘઉંનુ વાવેતર કરતા ખેડુતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે નીચેની અનુસૂચિ મુજબ કુલ ૧૦ પિયત આપવાની ભલામણ કરવામાં આવે છે.

	લેટરલ પાઇપનું અંતર : ૮.૫ મીટર કુવારાનુ અંતર : ૮.૫ મીટર કુવારાની સ્ત્રાવ ક્ષમતા: ૪૫૦ લીટર/કલાક પરીચલણ દબાણ: ૨.૫ કીગ્રા/ચો.સેમી	સમયગાળો: ૬ કલાક ૨૫ મિનીટ ડીસેમ્બર : ૯ દિવસે (3 પિયત) જાન્યુઆરી : ૧૦ દિવસે (૪ પિયત) ફેબ્રુઆરી : ૮ દિવસે (3 પિયત)
	Suggestions: 1. In Table 20, give the economics of individual treatments instead of treatment combinations and accordingly correct this table in the report. *(Action: - AssistantResearch Scientist, Agricultural Research Station, SDAU, Shihori)*	
20.2.1.37	**Title :** Effect of cow based bio enhancers on yield and quality of wheat **Recommendation for farming community** The farmers of North Gujarat Agro climatic Zone IV growing wheat are recommended to apply 75% RDF (90:45:00 kg N : P_2O_5 : K_2O/ha) and 10 t FYM/ha along with soil application of *ghanjivamrut* @ 250 kg/ha as basal + *jivamrut* @ 500 lit/ha at 20 and 40 DAS with irrigation water for getting higher yield and net returns. **ખેડૂતો માટે ભલામણ** ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના ઘઉં વાવતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવા માટે હેક્ટર દીઠ ૧૦ ટન છાણીયા ખાતર સાથે ભલામણ કરેલ ખાતરનો ૭૫% જથ્થો (૯૦:૪૫:૦૦ કિ.ગ્રા. ના:ફો:પો) અને પાયામાં ૨૫૦ કિલો ઘનજીવામૃત તેમજ ૫૦૦ લીટર જીવામૃત પ્રતિ હેક્ટર દીઠ ૨૦ અને ૪૦ દિવસે પિયત પાણી સાથે આપવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Correct the application of *jivamrut* “with irrigation water” instead of “drenching” in the text of the recommendation. 2. Replace word “monetary” with “net” in the text of the English version of recommendation. *(Action : Sr. Scientist and Head, KVK, Deesa)*
20.2.1.38	**Title:** Effect of cow based bio enhancers on yield and quality of chickpea **Recommendation for farmers**

	The farmers of North Gujarat Agro climatic zone–IV growing chickpea are recommended to apply 75 % (15:30 kg N: P_2O_5/ha) recommended dose of fertilizer and 250 kg *ghanjivamrut* /ha as basal + *Jivamrut* @ 500 lit/ha through irrigation water at 20 and 40 DAS in addition to 5 t FYM/ha of basal for getting higher yield and net return. ખેડૂતોપયોગીભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ માં ચણાની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલ ખાતરના ૭૫ % (૧૫:૩૦ કિ.ગ્રા. ના:ફો/હે) અને ૨૫૦ કિ.ગ્રા. ઘનજીવામૃત પ્રતિ હેક્ટર પાયામાં + જીવામૃત ૫૦૦ લીટર/હેક્ટરે વાવણી બાદ ૨૦ અને ૪૦ દિવસે પિયત પાણી સાથે અને ૫ ટન/હેક્ટર છાણીયુ ખાતર પાયામાં આપવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Replace word "drenching" with "irrigation water" in the text of the recommendation. 2. Recast the Gujarati version of the recommendation. 3. Provide the chemical composition of different organic inputs (*ghanjivamrut*, *jivamrut* and FYM) used in the experiment. *(Action: Sr. Scientist and Head, KVK, Khedbrahma)*
20.2.1.39	**Title:** Nutrient management in *rabi* maize **Recommendation for farmers** The farmers of North Gujarat Agro-climatic Zone–IV growing hybrid maize in *rabi* (GAYMH 3) are recommended to apply 150 kg N/ha of which 25% N (37.50 kg N/ha) and full dose of phosphorus (60 kg P_2O_5/ha) and potash (30 kg K_2O/ha) as basal and remaining 75% N (112.50 kg N/ha) in three equal splits at knee high (35 DAS), tasseling (55 DAS) and milking stage (75 DAS) for getting higher yield and net return. ખેડૂતોપયોગીભલામણ ઉત્તર ગુજરાત ખેત આબોહવાકીય વિભાગ-૪ ના સંકર મકાઈનું શિયાળુ ઋતુમાં (જીએવાયએમએચ ૩) વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ૧૫૦ કિલોગ્રામ નાઈટ્રોજન પ્રતિ હેક્ટર જે પૈકી ૨૫ ટકા નાઇટ્રોજન (૩૭.૫૦ કિ.ગ્રા./હેક્ટર),

	ફોસ્ફોરસ (૬૦ કિ.ગ્રા./હેક્ટર) અને પોટાશ (૩૦ કિ.ગ્રા./હેક્ટર) પાયામાં અને બાકીનો ૭૫ ટકા નાઇટ્રોજન (૧૧૨.૫૦ કિ.ગ્રા./હેક્ટર) ત્રણ સરખા હપ્તામાં ધુંટણ (વાવણી બાદ ૩૫ દિવસે), ચમરી (વાવણી બાદ ૫૫ દિવસે) અને દુધિયા દાણા (વાવણી બાદ ૭૫ દિવસે) અવસ્થાએ આપવાની ભલામણ કરવામાં આવે છે. Suggestions: 1. Add name of variety in the text of the recommendation. 2. Check the data of "straw yield" of 2020-21 given in the Table 5 and correct accordingly. *(Action: Principal , Polytechnic in Agriculture, Khedbrahma)*

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20.2.1.40	**Weed management in onion nursery** **<u>Recommendation for farming community</u>** The farmers of Gujarat raising onion seedlings in nursery keeping the distance of 10 cm between row are recommended to adopt any one of the following weed management practices for effective management of weeds, obtaining healthy transplantable onion seedlingsand higher return. • Propaquizafop 5% + oxyfluorfen 12% w/w EC (PM) 43.75+105 g a.i./ha (17.5 ml/10 litre of water) at 10-15 DAS • Oxyfluorfen 23.5% EC 80 g a.i./ha (6.8 ml/10 litre of water) at 10-15 DAS • Pendimethalin 30% EC 300 g a.i./ha (20 ml/10 litre of water) at 1-2 DAS • Hand weeding at 15 and 30 DAS There was no any adverse effect of applied herbicide in onion nursery on succeeding crops (Wheat, Chickpea and Mustard). **<u>ખેડૂતોપયોગીભલામણ:</u>** ડુંગળીના ધરૂ બે હાર વચ્ચે ૧૦ સે.મી. અંતર રાખી ઉછેરવા માગતા ગુજરાતના ખેડુતોને અસરકારક નીંદણ વ્યવસ્થાન, ફેરરોપણી લાયક વધુ ધરું અને વળતર મેળવવા માટે નીચેના પૈકી કોઈ એક નીંદણ વ્યવસ્થાપન અપનાવવા ભલામણ કરવામાં આવે છે .

	➢ વાવણી બાદ ૧૦-૧૫ દિવસે પ્રોપાક્વીઝાફોપ ૫% + ઓક્સિફ્લુર્ફેન૧૨% ડબલ્યુ/ડબલ્યુઇસી (પ્રિમિક્ષ) ૪૩.૭૫+૧૦૫ગ્રામ સક્રિય તત્વ/હે (૧૭.૫મિ.લિ./૧૦લિટર પાણી) ➢ વાવણી બાદ ૧૦-૧૫ દિવસે ઓક્સિફ્લુર્ફેન ૨૩.૫% ઇસી ૮૦ ગ્રામ સક્રિય તત્વ/હે (૬.૮મિ.લિ./૧૦લિટર પાણી) ➢ વાવણી બાદ ૧-૨દિવસે પેન્ડીમિથાલીન ૩૦% ઇસી ૩૦૦ ગ્રામ સક્રિય તત્વ/હે (૨૦મિ.લિ./૧૦ લિટર પાણી) ➢ ૧૫ અને ૩૦ દિવસે હાથ નીંદામણ ડુંગળી ના ધરૂવાડિયામાં છંટકાવ કરેલ નીંદણ નાશકોની કોઈ પણ પ્રકારની આડ અસર તેના પછીના પાકો ઉપર જોવા મળેલ નથી (ઘઉં, ચણા અને રાઇ). **Suggestion/s: Approved with following suggestion** 1. Delete or/અથવા from the text *(Action: Agronomist& PI, AICRP-WM, BACA, AAU, Anand)*
20.2.1.41	**Weed management in onion** **<u>Recommendation for farming community</u>** The farmers of Gujarat growing *rabi* onion by transplanting are recommended to adopt any one of the following weed management practices for effective management of weeds, obtaining higher onion bulb yield and return. • Propaquizafop 5% + oxyfluorfen 12% w/w EC (PM) 43.75 +105 g/ha (17.5 ml/10 litre of water) at 25-30 DATP • Pendimethalin 38.7% CS 580.5 g/ha (30 ml/10 litre of water) at 2-3 DBTP *fb*oxyfluorfen 23.5% EC 120 g/ha (10.2 ml/10 litre of water) at 25-30 DATP • Oxyfluorfen 23.5% EC 120 g/ha (10.2 ml/10 litre of water) at 2-3 DATP *fb* propaquizafop 5% + oxyfluorfen 12% w/w EC (PM) 43.75 +105 (17.5 ml/10 litre of water) g/ha at 25-30 DATP • Twice hand weeding at 20 and 40 DATP. There was no adverse effect of applied herbicide in *rabi* onion on succeeding (pearl millet, maize and greengram) crops.

	<u>ખેડૂતોપયોગીભલામણ:</u> ગુજરાતમાં શિયાળુ ડુંગળીનું ફેરરોપણીથી વાવેતર કરતા ખેડૂતોને ડુંગળીમાં અસરકારક નીંદણ વ્યવસ્થાપન, વધુ ઉત્પાદન અને વળતર મેળવવા માટે નીચેના પૈકી કોઈ એક નીંદણ વ્યવસ્થાપન અપનાવવા ભલામણ કરવામાં આવે છે . ➢ ફેરરોપણી બાદ ૨૫-૩૦ દિવસે પ્રોપાક્વીઝાફોપ ૫% + ઓક્સિફ્લુર્ફેન ૧૨% W/W EC (પ્રિમિક્ષ) ૪૩.૭૫+૧૦૫ ગ્રામ સક્રિય તત્વ/હે (૧૭.૫ મિ.લિ./૧૦ લિટર પાણી) ➢ ફેરરોપણીના ૨-૩ દિવસ પહેલાં પેન્ડીમિથાલીન ૩૦% EC ૫૮૦.૫ ગ્રામ સક્રિય તત્વ/હે (૩૦ મિ.લિ./૧૦ લિટર પાણી) અને ફેરરોપણી બાદ ૨૫-૩૦ દિવસે ઓક્સિફ્લુર્ફેન ૨૩.૫% EC ૧૨૦ ગ્રામ સક્રિય તત્વ/હે (૧૦.૨ મિ.લિ./૧૦ લિટર પાણી) ➢ ફેરરોપણીના ૨-૩ દિવસ પહેલાં ઓક્સિફ્લુર્ફેન ૨૩.૫% EC ૧૨૦ ગ્રામ સક્રિય તત્વ/હે (૧૦.૨ મિ.લિ./૧૦ લિટર પાણી) અને ફેરરોપણી બાદ ૨૫-૩૦ દિવસે પ્રોપાક્વીઝાફોપ ૫% + ઓક્સિફ્લુર્ફેન ૧૨% W/W EC (પ્રિમિક્ષ) ૪૩.૭૫+૧૦૫ ગ્રામ સક્રિય તત્વ/હે (૧૭.૫ મિ.લિ./૧૦ લિટર પાણી) ➢ ફેરરોપણી બાદ ૨૦ અને ૪૦ દિવસે હાથ નીંદામણ શિયાળુ ડુંગળીના પાકમાં છંટકાવ કરેલ નીંદણનાશકોની કોઈપણ પ્રકારની આડઅસર તેના પછીના પાકો (બાજરી, મકાઈ અને મગ) પર જોવા મળેલ નથી. **Suggestion/s: Approved with following suggestion** 1. Delete or/અથવા from the text and add *rabi* onion *(Action: Agronomist& PI, AICRP-WM, BACA, AAU, Anand)*
20.2.1.42	**Weed management in direct dry seeded rice under irrigated condition** **<u>Recommendation for farming community</u>** The farmers of middle Gujarat Agro-climatic Zone growing direct seeded rice (DSR) are recommended to adopt any one of the following weed management practices for effective management of weeds,obtaining higher grain yield and return.

	➢ Triafamone 20% + ethoxysulfuron 10% WG (premix) 44.0+22.5 g a.i./ha (4.5 g/10 litre of water) at 10-15 DAS *fb* HW at 30 DAS ➢ Penoxsulam 1.02% + cyhalofop-butyl 5.1% OD(premix) 120 g a.i./ha (40 ml/10 litre of water) at 10-15 DAS *fb* HW at 30 DAS ➢ Pretilachlor 30% + pyrazosulfuron-ethyl 0.75% WG (premix) 600+15 g a.i./ha (40 g/10 litre of water) at 1-2 days after sowing *fb* HW at 30 DAS ➢ Hand weeding carried out at 20 and 40 DAS There was no adverse effect of applied herbicide in direct dry seeded rice (DSR) on succeeding (wheat, chickpea and mustard) crops. **<u>ખેડૂતોપયોગીભલામણ:</u>** મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં ડાંગર બીજથી સીધી વાવણી કરતા ખેડૂતોને અસરકારક નીંદણ વ્યવસ્થાપન, ડાંગરનું વધુ ઉત્પાદન અને વળતર મેળવવા માટે નીચેના પૈકી કોઈ એક નીંદણ વ્યવસ્થાપન અપનાવવા ભલામણ કરવામાં આવે છે. ➢ વાવણી બાદ ૧૦-૧૫ દિવસે ટ્રાયફેમોન ૨૦% + ઇથોક્ષીસલ્ફ્યુરોન ૧૦% WG (પ્રિમિક્ષ) ૪૪.૦+૨૨.૫ ગ્રામ સક્રિય તત્વ/હે (૪.૫ ગ્રામ/૧૦ લિટર પાણી) અને ૩૦ દિવસે હાથ નીંદામણ ➢ વાવણી બાદ ૧૦-૧૫ દિવસે પેનોક્સ્યુલામ ૧.૦૨% + સાયહેલોફોપ બ્યુટાઈલ ૫.૧% OD (પ્રિમિક્ષ) ૧૨૦ ગ્રામ સક્રિય તત્વ/હે (૪૦ મિ.લિ./૧૦ લિટર પાણી) અને ૩૦ દિવસે હાથ નીંદામણ ➢ વાવણી બાદ ૧-૨ દિવસે પ્રિટીલાક્લોર ૩૦% + પાયરાઝોસલ્ફ્યુરોન ઈથાઈલ ૦.૭૫% ૬૦૦+૧૫ ગ્રામ સક્રિય તત્વ/હે (૪૦ ગ્રામ/૧૦ લિટર પાણી) ➢ વાવણી બાદ ૨૦ અને ૪૦ દિવસે હાથ નીંદામણ ડાંગર બીજની સીધી વાવણી કરેલ પાકમાં છંટકાવ કરેલ નીંદણનાશકોની કોઈપણ પ્રકારની આડઅસર તેના પછીના પાકો (ઘઉં, ચણા અને રાઈ) પર જોવા મળેલ નથી. **Suggestion/s: Approved with following suggestion** 1. Delete or/અથવા from the text *(Action: Agronomist& PI, AICRP-WM, BACA, AAU, Anand)*

20.2.1.43	**Effect of nitrogen levels on yield and quality of bidi tobacco varieties under middle Gujarat conditions** **<u>Recommendation for Farming community</u>** The farmers of middle Gujarat Agro climatic Zone growing bidi tobacco (GT 7) are recommended to apply 10 t FYM/ha as basal along with 180 kg N/ha in four equal splits (45 kg N as basal through Ammonium sulphate, 135 kg N applied in three equal splits through Urea at 30 days interval after transplanting) for getting higher yield and net return. <u>ખેડૂતોપયોગીભલામણ</u> મધ્ય ગુજરાત ખેત આબોહવાકિય વિસ્તારમાં બીડી તમાકુ (જાત ગુજરાત તમાકુ-૭)ના પાકમાં હેક્ટરે ૧૦ ટન છાણિયુંખાતર/હે પાયામાં આપવુંઅને સાથે ૧૮૦ કિ.ગ્રા./હે નાઇટ્રોજન ચાર સરખા ભાગમાં (જે પૈકી પાયામાં ૪૫ કિ.ગ્રા.નાઇટ્રોજન એમોનિયમ સલ્ફેટના રૂપમાં અને બાકીનો ૧૩૫ કિ.ગ્રા.નાઇટ્રોજન પૂર્તિ ખાતર તરીકે ત્રણ સરખાં હપ્તામાં યુરિયાના રૂપમાં ફેરરોપણી બાદ ૩૦ દિવસના અંતરે) પુર્તિ કરવાથી વધુ ઉત્પાદન અને નફો મળે છે. **Suggestion/s: Approvedwith following suggestion** 1. Correct the year in report page no. 101 2. Correct in report available sulphur (ppm) instead of (kg/ha) in Table 18 *(Action: Research Scientist, BTRS, AAU, Anand)*
20.2.1.44	**Study the feasibility of conservation tillage in rice - wheat cropping system under middle Gujarat conditions** **<u>Recommendation for farming community</u>** The farmers of middle Gujarat Agroclimatic Zone growing wheat crop after rice harvested with combined harvester are recommended to drill wheat seed with happy seeder followed by spraying of Anubhav Bacterial Biodegradable Consortium (ABBC) @ 2 L/ha (5 x 10^9 CFU/ml) on rice residues obtained higher wheat equivalent yield and net returns. Further, conservation tillage practices with ABBC improve the physico-chemical and biological properties of soil. <u>ખેડૂતોપયોગીભલામણ</u>

	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ડાંગરની કાપણી કમ્બાઇન હાર્વેસ્ટરથી કર્યા બાદ ઘઉંની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે ઘઉંની વાવણી હેપ્પી સીડર મશીનથી કરી ડાંગરના જડીયા ઉપર અનુભવ બેક્ટેરીયલ બાયોડીગ્રેડેબલ કોન્સોર્ટીયમ **(ABBC)**નો ૨ લીટર/હેક્ટર (૫ **x** ૧૦^{૯} **CFU**/મીલી) પ્રમાણે છંટકાવ કરવાથી વધુ ઘઉં સમકક્ષ ઉત્પાદન અને વળતર મળે છે. વધુમાં સંરક્ષિત ખેડ અને **ABBC**નો ઉપયોગ કરવાથી જમીનની ભૌતિક, રાસાયણિક અને જૈવિક પરિસ્થિતિમાં સુધારો થાય છે. **Suggestion/s: Approved with following suggestion** 1. Correct bulk density unit (mg/m^3) in report page no. 129 *(Action: Research Scientist, RRS, AAU, Anand)*
20.2.1.45	**Effect of potassium application on the yield of *Kharif*maize** **<u>Recommendation for farming community</u>** The farmers of middle Gujarat Agroclimatic Zone growing hybrid maize in *kharif* season are recommended for seed treatment of 5 ml KMB/kg seed and soil application of 1 L KMB/ha (in 300 litre water/ha) at 30 DAS along with recommended dose of nitrogen and phosphorus (160:20 N:P_2O_5 kg/ha) for getting higher yield and net return.Application of potash in *kharif* maize did not increased the yield. **<u>ખેડૂતોપયોગીભલામણ:</u>** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ખરીફ ઋતુમાં સંકર મકાઇનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે ભલામણ કરેલ નાઇટ્રોજન અને ફોસ્ફરસ (૧૬૦:૨૦ના. ફો. કિ.ગ્રા./હે) ઉપરાંત પોટેશિયમ મોબીલાઇઝીંગ બેકટેરિયા ૫ મીલી./કિ.ગ્રા. બીજની માવજત અને વાવણી પછી ૩૦ દિવસે જમીનમાં ૧લીટર/હેકટર(૩૦૦ લીટર પાણી/હેક્ટર) પ્રમાણે આપવાની ભલામણ કરવામાં આવે છે.વધુમાં પોટાશ આપવાથી ચોમાસું મકાઈના ઉત્પાદનમાં વધારો જોવા મળેલ નથી. **Suggestion/s:Approved with following suggestions** 1. Mention water volume in text

	2. Include title of the experiment in the report page no. 148 2. **વધુમાં પોટાશ આપવાથી ચોમાસું મકાઈના ઉત્પાદનમાં વધારો જોવા મળેલ નથી** include in text. *(Action: Research Scientist, MMRS, AAU, Godhra)*
20.2.1.46	**Effect of potassium application on the yield of *Rabi* maize** **Recommendation for farming community** The farmers of middle Gujarat Agroclimatic Zone growing hybrid maize in *rabi* season are recommended for seed treatment of KMB 5 mL/kg seed and soil application@ 1 L/ha at 30 DAS along with recommended dose of nitrogen andphosphorus (150:40 N:P_2O_5 kg/ha)for getting higher yield and net return.Application of potash in *rabi* maize did not increased the yield. **ખેડૂતોપયોગીભલામણ** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળું ઋતુમાં સંકર મકાઇનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે ભલામણ કરેલ નાઇટ્રોજન અને ફોસ્ફરસ (૧૫૦:૪૦ ના. ફો. કિ.ગ્રા./હે) ઉપરાંત વાવતી વખતે બીજને પોટેશિયમ મોબીલાઇઝીંગ બેકટેરિયા ૫ મી.લી/કિ.ગ્રા. બીજની માવજત અને વાવણી પછી ૩૦ દિવસે જમીનમાં ૧લીટર/હેકટર(૩૦૦ લીટર પાણી/હેક્ટર) પ્રમાણે આપવાનીભલામણ કરવામાં આવે છે.વધુમાં પોટાશ આપવાથી શિયાળુ મકાઈના ઉત્પાદનમાં વધારો જોવા મળેલ નથી. **Suggestion/s:Approved with following suggestions** 1. Mention water volume in the text 2. **વધુમાં પોટાશ આપવાથી શિયાળુ મકાઈના ઉત્પાદનમાં વધારો જોવા મળેલ નથી** include in text. *(Action: Research Scientist, MMRS, AAU, Godhra)*
20.2.1.47	**Response of sweet corn hybrid to irrigation in sandy loam soil** **Recommendation for farming community** The farmers of middle Gujarat Agroclimatic Zone growing hybrid sweet corn in *rabi* season are recommended to irrigate the crop at sowing and at three critical stages i.e. knee high stage (35 DAS), tasseling stage (55 DAS) and grain formation stage (65 DAS) for getting higher green cob yield and net return.

	ખેડૂતોપયોગીભલામણ મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળું ઋતુમાં સંકર સ્વીટકોર્નનું વાવેતર કરતા ખેડૂતોને લીલા ડોડાનું વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે વાવણી સમયે અને ત્રણ કટોકટી અવસ્થાએ જેમ કે ઢીંચણની ઉંચાઈ અવસ્થાએ (૩૫ દિવસે), ચમરી અવસ્થાએ (૫૫ દિવસે) અને દાણા ભરાવાની અવસ્થાએ (૬૫ દિવસે) પિયત આપવાની ભલામણ કરવામાં આવે છે. **Suggestion/s: Approved with following suggestions** 1. Mention number and depth of irrigation in report 2. Include third year cultural operation details in report *(Action: Research Scientist, MMRS, AAU, Godhra)*
20.2.1.48	**Assessment of organically managed pigeon pea based cropping sequence** **Recommendation for farming community** The farmers of middle Gujarat Agroclimatic Zone are recommended to grow pigeonpea in *kharif* and greengram or cowpea in summer season organically and apply 25 kg N/ha through vermicompost (approx. 1250 kg/ha) only to pigeonpea crop for getting higher yield and net return. **ખેડૂતોપયોગીભલામણ** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારનાં ખેડૂતોને સેન્દ્રિય ખેતી હેઠળચોમાસુ ઋતુમાં તુવેર અને ત્યારબાદ ઉનાળુ ઋતુમાં મગ અથવા ચોળીનું વાવેતર કરવા**ની ભલામણ કરવામાં આવે છે.** હેક્ટર દીઠ ૨૫ કિ.ગ્રા. નાઇટ્રોજન વર્મિકમ્પોસ્ટ (અંદાજીત ૧૨૫૦ કી.ગ્રા./હે)દ્વારા ફકત તુવેરના પાકમાં આપવાથી વધુ ઉત્પાદન અને નફો મેળવી શકાય છે. **Suggestion/s: Approved with following suggestion** 1. Verify the cost of cultivation data in report page no. 194 *(Action: Research Scientist, PRS, AAU, Vadodara)*
20.2.1.49	**Effect of spacing and phosphorus management on pigeon pea grown on heavy black soil** **Recommendation for farming community** The farmers of middle Gujarat Agro-climatic Zone growing pigeon pea (AGT2) are recommended to treat seeds with ANUBHAV PSB and *Rhizobium* culture each at 5 ml/kg seed each before sowing and fertilize the crop with 5 t FYM and 25 kg P_2O_5/ha

	as basal and sow the crop in paired row either at the spacing of 60-120-60 cm or 60-150-60 cm for getting higher yield and net return. Besides, application of recommended dose of nitrogen (25 kg/ha) as basal. **ખેડૂતોપયોગી ભલામણ** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારના તુવેર(એ.જી.ટી. ૨) નું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અનેનફો મેળવવા માટે બીજને વાવતા પહેલા અનુભવ પી.એસ.બી. અને રાઈઝોબિયમ પ્રવાહી જૈવિક ખાતર દરેકના ૫ મિલિ પ્રતિ કિ.ગ્રા.બીજ પ્રમાણે બીજ માવજત આપવી અને પાયામાં ૫ ટન છાણીયું ખાતર તથા ૨૫ કિ.ગ્રા. ફો./હેકટર આપવો તેમજ પાકને જોડીયા હારમાં ૬૦-૧૨૦-૬૦ સે.મી. અથવા ૬૦-૧૫૦-૬૦ સે.મી. રાખી વાવણી કરવાની ભલામણ કરવામાં આવે છે. વધુમાં, ભલામણ કરેલ નાઈટ્રોજન (૨૫ કી.ગ્રા./હે) પાયામા આપવો. **Suggestions : Approved with following suggestion** 1. Mention seed rate as per spacing *(Action: Assistant Research Scientist, NIRP, AAU, Khandha)*
20.2.1.50	**Integrated nutrient management for rice residual wheat crop sequence** **Recommendation for farming community** The farmers of middle Gujarat Agroclimatic Zone growing Rice -Wheat cropping sequence are recommended to adopt any one of the following integrated nutrient management practices for getting higher yield and net return. 1. 50% RDF + 50% through castor cake i. e. 16 kg N, 12.50 kg P_2O_5 and about 900 kg castor cake/ha as basal, remaining 16 kg N/ha at tillering and 8 kg N/ha at panicle initiation stage through inorganic sources in rice. **OR** 2. 75% RDF + 25% through castor cake i. e. 24 kg N, 18.75 kg P_2O_5 and about 450 kg castor cake/haas basal, remaining 24 kg N/ha at tillering and 12 kg N/ha at panicle initiation stage through inorganic sources in rice. **ખેડૂતોપયોગી ભલામણ**

	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ડાંગર-ઘઉંની પાક પધ્ધતિ અપનાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, નીચે પૈકી કોઈ એક સંકલિત પોષણ વ્યવસ્થાપન પદ્ધતિ અપનાવવાથી વધુ ઉત્પાદન અને નફો મેળવી શકાય છે. 1. ડાંગરના પાકને ૫૦% ભલામણ મુજબ રાસાયણિક ખાતર + ૫૦% દિવેલીનો ખોળ, ૧૬ કિ.ગ્રા. નાઈટ્રોજન, ૧૨.૫૦ કિ.ગ્રા. ફોસ્ફોરસ અને અંદાજીત ૯૦૦ કિ.ગ્રા. /હેક્ટર દિવેલી ખોળ સ્વરૂપે પાયામાં આપવો જ્યારે બાકીનો ૧૬ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટરે ફૂટ અવસ્થાએ અને ૮ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટરે કંટી અવસ્થાએ રાસાયણિક ખાતરથી આપવો. અથવા 2. ડાંગરના પાકને ૭૫% ભલામણ મુજબ રાસાયણિક ખાતર + ૨૫% દિવેલીનો ખોળ, ૨૪ કિ.ગ્રા. નાઈટ્રોજન, ૧૮.૭૫ કિ.ગ્રા. ફોસ્ફોરસ અને અંદાજીત ૪૫૦ કિ.ગ્રા /હેક્ટર દિવેલી ખોળ સ્વરૂપે પાયામાં આપવો જ્યારે બાકીનો ૨૪ કિ.ગ્રા. નાઈટ્રોજન/હેક્ટરે ફૂટ અવસ્થાએ અને ૧૨ કિ.ગ્રા. નાઈટ્રોજન/ હેક્ટરે કંટી અવસ્થાએ રાસાયણિક ખાતરથી આપવો. **Suggestion: Approved with following suggestion** 1. Delete succeeding crop recommendation (last paragraph) from the text *(Action: Research Scientist, MRRS, AAU, Nawagam)*
20.2.1.51	**Nutrient management in summer groundnut** **<u>Recommendation for farming community</u>** The farmers of Chhotaudepur region of middle Gujarat Agro-climatic Zone growing groundnut in summer season are recommended for seed treatment with Bio NPK 5mL/kg seed along with application of 12.5:25:0 N:P_2O_5:K_2O kg/ha as a basal dose for getting higher yield and net return. **<u>ખેડૂતોપયોગીભલામણ</u>**

	મધ્ય ગુજરાત ખેત આબોહવાકીય ઝોન ના છોટાઉદેપુર વિસ્તારમાં ઉનાળુ ઋતુમાં મગફળીની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે વાવણી સમયે બાયો-એનપીકે ૫ મીલી .પ્રતિ કી.ગ્રા.ની બીજ માવજત સાથે પ્રતિ હેકટરે ૧૨.૫:૨૫:૦ કિ.ગ્રા.ના:ફો:પો પાયામાં આપવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved** *(Action: Assistant Research Scientist, ARS, COA, AAU, Jabugam)*
20.2.1.52	**Nutrient management in summer sesame** **Recommendation for farming community** The farmers of Chhotaudepur region of middle Gujarat Agroclimatic Zone growing sesame in summer season are recommended to apply 37.5:12.5:0 N:P_2O_5:K_2O kg/ha, of which 50 % N and 100 % P_2O_5 as basal, while remaining 50 % N at 30 DAS for getting higher yield and net return. ખેડૂતોપયોગીભલામણ: મધ્ય ગુજરાત ખેત આબોહવાકીય ઝોનના છોટાઉદેપુર વિસ્તારમાં ઉનાળુ ઋતુમાં તલની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે પ્રતિ હેકટરે ૩૭.૫:૧૨.૫:૦ ના:ફો:પો આપવો, જે પૈકી ૫૦ % નાઈટ્રોજન તથા ૧૦૦ % ફોસ્ફરસ પાયામાં આપવો જયારે બાકીનો ૫૦ % નાઈટ્રોજન વાવણીના ૩૦ દિવસે આપવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestion** 1. Mention common cost of cultivation instead of variable cost in report page 240 *(Action: Assistant Research Scientist, ARS, COA, AAU, Jabugam)*
20.2.1.53	**Effect of spacing and nutrient management in summer black gram** **Recommendation for farming community** The farmers of Chhotaudepur region of middle Gujarat Agro climatic Zone growing black gram in summer season are recommended to sow at 30 cm row spacing and apply 20:20:0 kg/ha N:P_2O_5:K_2O/ha as basal for getting higher yield and net return. ખેડૂતોપયોગીભલામણ

	મધ્ય ગુજરાત ખેત આબોહવાકીય ઝોનના છોટાઉદેપુર વિસ્તારમાં અડદની ઉનાળુ ઋતુમાં ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે બે હાર વચ્ચે ૩૦ સેમી અંતરે વાવણી કરી પ્રતિ હેક્ટરે ૨૦:૨૦:૦ કિ.ગ્રા.ના:ફો:પો પાયામાં આપવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved with following suggestion** 1. Mention common cost of cultivation instead of variable cost in report page 256, 257 2. Check the cultural practices year in report page no. 260 **(***Action: Assistant Research Scientist, ARS, COA, AAU, Jabugam)*
20.2.1.54	**Effect of spacing, nitrogen levels and biofertilizer on yield of *desi* cotton variety Wagad Gaurav under rainfed condition** **<u>Recommendation for farming community</u>** The farmers of North-West Agro-climatic Zone and Bhal & Coastal Agro-climatic Zone growing rainfed *desi* cotton (GADC 3) are recommended to treat the seed with bio NPK consortium (10 mL/kg) keeping sowing distance either 120 x 30 cm or 180 x 45 cm and apply 40 kg N (two equal splits at 25-30 DAS and 50-60 DAS) to get higher seed cotton yield and net return. **<u>ખેડૂતોપયોગીભલામણ</u>** ઉત્તર-પશ્ચિમ ખેત આબોહવાકીય વિસ્તાર તથા ભાલ અને દરિયાકાંઠા ખેત આબોહવાકીય વિસ્તારના બિન પિયત દેશી કપાસ (જી.એ.ડી.સી ૩) ઉગાડતા ખેડૂતોને કપાસનું વધુ ઉત્પાદન અને વળતર મેળવવા માટે બાયો એનપીકે કંશોર્શીયમ ૧૦મિલી/કિ.ગ્રા. ની બીજ માવજત આપી ૧૨૦x૩૦ સે.મી. અથવા ૧૮૦ x૪૫ સે.મી. ના અંતરે વાવેતર કરીને ૪૦કિ.ગ્રા નાઈટ્રોજન (વાવણી પછી ૨૫-૩૦ દિવસે અને ૫૦-૬૦ દિવસે બે સરખા હપ્તામાં) પ્રતિ હેક્ટર આપવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approvedwith following suggestion** 1. Mention variety in the text *(Action: Associate Research Scientist, RCRS, AAU, Viramgam)*

20.2.1.55	**Effect of soil and foliar application multi-micronutrient mixture on growth, yield and nutrient content of drilled paddy** **<u>Recommendation for farming community</u>** The farmers of Middle Gujarat Agro-climatic Zone growing drilled paddy are recommended to apply either 1.0% foliar spray (100 g/10 lit water) of Government notified multimicronutreint mixture Grade II (Fe: 6.0, Mn: 1.0, Zn: 4.0, Cu: 0.3 and B:0.5 per cent) OR 0.5% foliar spay of $FeSO_4$ (50 g/10 lit water) at 20, 40 and 60 days after sowing along with 50 kg N /ha, of which 25 kg N per hectare and 25 kg P_2O_5/ha as basal and 25 kg N/ha at 30 days after sowing for getting higher yield and net return. Note: 0.5% FeSO4 solution should be neutralized with 0.25% Lime solution. **ખેડૂતોપયોગીભલામણ:** મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ઓરાણ ડાંગરનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ૫૦ કિ.ગ્રા. નાઈટ્રોજનપ્રતિ હેક્ટર પૈકી ૨૫કિ.ગ્રા. નાઈટ્રોજનપ્રતિ હેક્ટરઅને ૨૫ કિ.ગ્રા. ફોસ્ફરસ પ્રતિ હેક્ટરપાયામાં અને ૨૫ કિ.ગ્રા. નાઈટ્રોજન પ્રતિ હેક્ટર વાવણી બાદ ૩૦ દિવસેઆપવા ઉપરાંત સરકાર માન્ય મલ્ટિમાઈક્રોન્યૂટ્રીયન્ટ મિક્ષ્ચર ગ્રેડ-૨(લોહ: ૬.૦ મેંગેનીજ: ૧.૦, ઝીંક: ૪.૦, તાંબુ: ૦.૩ અને બોરોન: ૦.૫%) ના ૧.૦% (૧૦૦ ગ્રામ/૧૦ લી. પાણી) અથવા ૦.૫%ફેરસ સલ્ફેટ(૫૦ ગ્રામ/૧૦ લી. પાણી) દ્રાવણનો વાવણી બાદ૨૦, ૪૦ અને ૬૦ દિવસે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. નોંધ: 0.૫% ફેરસ સલ્ફેટના દ્રાવણને 0.૨૫% ચુનાના દ્રાવણ સાથે તટસ્થ કરવું. S**uggestions: Approved** *(Action: Associate Research Scientist, ARS, AAU, Derol)*

20.2.1.56	**Evaluation of some cow-based bio-enhancers and botanicals for organic cultivation of *rabi* onion** The farmers of South Saurashtra Agro-climatic Zone growing *rabi* onion under organic farming are recommended to apply FYM 10 t/ha to obtain higher yield and net realization. The farmers who are interested in cow-based farming are recommended to apply FYM 5 t/ha alongwith *Panchagavya* 3 % spray at 30, 45 and 60 DAS **OR** FYM 5 t/ha alongwith *Jivamrut* 500 l/ha with irrigation at sowing, 30 and 45 DAS. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં શિયાળુ ડુંગળીની સેન્દ્રિય ખેતી કરતાં ખેડૂતોને વધું ઉત્પાદન અને વળતર મેળવવા માટે છાણીયુ ખાતર ૧૦ ટન પ્રતિ હેક્ટર આપવાની ભલામણ કરવામાં આવે છે. ગાય આધારિત ખેતીમાં રસ ધરાવતા ખેડૂતોને છાણીયુ ખાતર ૫ ટન પ્રતિ હેક્ટરે અને પંચગવ્ય ૩ ટકાનો છંટકાવ વાવણી બાદ ૩૦, ૪૫ અને ૬૦ દિવસે **અથવા** છાણીયુ ખાતર ૫ ટન પ્રતિ હેક્ટરે અને જીવામૃત ૫૦૦ લીટર પ્રતિ હેક્ટરે વાવેતર સમયે તેમજ ૩૦ અને ૪૫ દિવસે પિયત પાણી સાથે આપવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion/s:** 1. Delete word 'ચોખ્ખું' from vernacular paragraph 2. Mention thinning practice in cultural details 3. Check and correct the years in cultural details ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.1.57	**Calibration and validation of CERES model (DSSAT 4.6) for different cultivars of wheat under different sowing time** **Approved with following suggestion/s:** 1. Approved as scientific recommendation ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.1.58	**Effect of fresh cow dung on yield and yield attributes of garlic** The farmers of South Saurashtra Agro-climatic Zone growing garlic are recommended to apply slurry (cow dung: water - 1:3) of 1500 kg/ha fresh cow dung

	(up to 5 days) with irrigation at the time of sowing for getting higher yield, net return and improving soil fertility. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં લસણનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, લસણના પાકમાં ૧૫૦૦ કિ.ગ્રા./હે. ગાયના તાજા છાણની (પાંચ દિવસ સુધીનું) રબડી (તાજુ છાણ: પાણી- ૧:૩) પિયત પાણીની સાથે વાવેતર સમયે આપવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે તેમજ જમીનની ફળદ્રુપતા વધે છે. **Approved with following suggestion/s:** 1. Add soil health improvement in recommendation para ***(Action:** Prof. & Head, Dept. of Soil Science & Agril. Chem. & Research Scientist (G & O), Vegetable Research Station, JAU, Junagadh)*
20.2.1.59	**Effect of plant growth retardants on growth, yield attributes and yield of *kharif* groundnut** **Approved with following suggestion/s:** 1. Approved as scientific recommendation with T_8 ***(Action**: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.1.60	**Effect of foliar application of water soluble macro and micro nutrients fertilizers on growth, yield and quality of *kharif* groundnut** The farmers of South Saurashtra Agro-climatic Zone growing *kharif* groundnut are recommended to apply RDF 75 % (9.37:18.75:37.50 N: P_2O_5:K_2O kg/ha) + 1.5% (150 g/10 liter water) WSF (19-19-19-N:P:K) at 45 and 60 DAS + 1.0 % (100 g/10 liter water) Muti-micro Mixture Grade –IV (Zn-6.0%, Fe-4.0%, Cu-0.5%, Mn-1.0% and B-0.5%) at 50 and 65 DAS as a foliar spray for obtaining higher yield and net return. **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસું ઋતુમાં મગફળી ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે ભલામણ કરેલ રાસાયણિક ખાતર ૭૫ ટકા (૯.૩૭-૧૮.૭૫-૩૭.૫૦ કિગ્રા ના:ફો:પો/હે.) નો જથ્થો આપવો તેમજ ૧.૫%

	(૧૫૦ ગ્રામ/ ૧૦લીટર પાણીમાં) દ્રાવ્ય ખાતર (૧૯-૧૯-૧૯ ના:ફો:પો) વાવેતર બાદ ૪૫ અને ૬૦ દિવસે છંટકાવ કરવો અને ૧.૦ % (૧૦૦ ગ્રામ/૧૦ લીટર પાણીમાં) મલ્ટી માઈક્રો મિક્ષ ગ્રેડ-૪ (જસત ૬.૦ %, લોહ-૪.૦ %, કોપર-૦.૫ %, મેંગેનીઝ-૧.૦ % અને બોરોન-૦.૫ %) વાવેતર બાદ ૫૦ અને ૬૫ દિવસે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion/s:** 1. Made recommendation of T_5 and recast the paragraph 2. Mention the does per 10 lit. water in vernacular paragraph *(**Action**: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.1.61	**Multi-tier cropping system to enhance resource utilization, profitability and sustainability of *Bt* cotton *(Gossypium hirsutum)* production system** The farmers of South Saurashtra Agro-climatic Zone growing *Bt* cotton are recommended to grow the crop in paired rows (80:160:80 cm) and two rows of groundnut (40 cm distance) **OR** two rows of soybean (40 cm distance) **OR** one row of soybean + one row groundnut (40 cm distance) as intercrop between two pairs of *Bt* cotton for getting higher net return**.** **ખેડૂત ઉપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્ર ખેત અબોહાવાકીય વિસ્તારમાં બીટી કપાસનું વાવેતર કરતા ખેડૂતોને વધુ ચોખ્ખી આવક મેળવવા કપાસનું જોડિયા હાર પધ્ધતીમાં (૮૦:૧૬૦:૮૦ સે.મી.) અને બીટી કપાસની બે જોડીયા વચ્ચે આંતરપાક તરીકે બે હારમાં મગફળીનું (૪૦ સે.મી. અંતરે) અથવા બે હારમાં સોયાબીનનું (૪૦ સે.મી. અંતરે) અથવા એક હાર સોયાબીન અને એક હાર મગફળીનું (૪૦ સે.મી. અંતરે) વાવેતર કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion/s:** 1. Keep statistical analysis of equivalent yield year wise 2. Add yield data of intercrops 3. Make the recommendation on the basis of analysis of equivalent yield *(**Action:** Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)*
20.2.1.62	**Nutrient management in *Bt* cotton under rainfed condition (Vallabhipur)**

	The farmers of *Bhal* region growing *Bt* cotton under rainfed condition are recommended to apply 80-40-80-20 kg N-P_2O_5-K_2O-S/ha for obtaining higher yield and net return. The nitrogen should be applied in three splits i.e. 25% as basal at the time of sowing, 50 and 25% as top dressing at 35-40 and 60-65 days after sowing, respectively by drilling at 10 cm soil depth. **ખેડૂત ઉપયોગી ભલામણ:** ભાલ વિસ્તારમાં વરસાદ આધારિત પરિસ્થિતિમાં કપાસનું વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પ્રતિ હેકટરે ૮૦-૪૦-૮૦-૨૦ કિ.ગ્રા. ના-ફો-પો-સલ્ફર આપવાની ભલામણ કરવામાં આવે છે. નાઇટ્રોજન ત્રણ ભાગમાં એટલે કે ૨૫ % પાયાના ખાતર તરીકે વાવેતર સમયે , બાકીનો ૫૦ % અને ૨૫ % પૂર્તિ ખાતર તરીકે વાવેતર પછી અનુક્રમે ૩૫-૪૦ અને ૬૦-૬૫ દિવસે ૧૦ સે.મી.ની ઊંડાઇએ જમીનમાં ઓરીને આપવું **Approved with following suggestion/s:** 1. Make the recommendation on the basis of treatment T_8 2. Mention split dose of nitrogen in recommendation paragraph *(**Action**: Research Scientist (Dry Farming), Main Dry Farming Research Station, JAU, Targhadia and Assistant Research Scientist, Dry Farming Research Station, JAU, Vallabhipur)*
20.2.1.63	**Recycling of cotton stalks and its effect on yield and soil health** The farmers of North Saurashtra Agro-climatic Zone growing *Bt* cotton are recommended to apply *Ex-situ* composting of cotton stalks using shredder and addition of 10 kg N /ha through urea + compost culture @ 5 kg/ha at the time of sowing along with 80 kg N + 40 kg P_2O_5 + 250 kg gypsum/ha for obtaining higher yield and net return as well as sustaining soil health under rainfed conditions. The nitrogen should be applied in three split i.e. 25% as basal at the time of sowing, 50 and 25% as top dressing at 35-40 and 60-65 days after sowing, respectively by drilling at 10 cm soil depth. **OR** Incorporate cotton stalks using mobile chopper and apply one irrigation for decomposing along with 80 kg N + 40 kg P_2O_5 + 250 kg gypsum/ha for obtaining

higher yield and net return as well as sustaining soil health under rainfed conditions. The nitrogen should be applied in three split i.e. 25% as basal at the time of sowing, remaining 50 and 25% as top dressing at 35-40 and 60-65 days after sowing, respectively by drilling at 10 cm soil depth.

Methodology for preparation of compost from cotton stalks using shredder:

The farmers are advised to recycle of cotton stalk (which are either burned or wasted) by chopping into small pieces of 5-6 cm using cotton shedder and composting with addition of compost culture @ 500 g per tone, urea (N @ 0.5%), cow dung @ 20 % as well as *Azotobactor* and PSM @ 500 g each per tone during first turning of cotton stalk to get enriched compost within 120 days having higher content of all plant nutrients.

ખેડૂત ઉપયોગી ભલામણ:

ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં કપાસનું વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા તેમજ જમીનના આરોગ્યની જાળવણી માટે શ્રેડર મશીનનો ઉપયોગ કરીને કપાસની સાંઠીના ટુકડા કરી ખાતર બનાવી આપવું અને ૧૦ કિ.ગ્રા. નાઈટ્રોજન યુરીયા દ્વારા + કમ્પોસ્ટ કલ્ચર ૫ કિ.ગ્રા. વાવણી વખતે આપવું તેમજ સાથે પ્રતિ હેકટરે ૮૦ કિ.ગ્રા. નાઈટ્રોજન + ૪૦ કિ.ગ્રા. ફોસ્ફોરસ + ૨૫૦ કિ.ગ્રા. ઝીપ્સમ આપવાની ભલામણ કરવામાં આવે છે. નાઈટ્રોજન ત્રણ ભાગમાં એટલે કે ૨૫ % પાયાના ખાતર તરીકે વાવેતર સમયે, બાકીનો ૫૦ % અને ૨૫ % પૂર્તિ ખાતર તરીકે વાવેતર પછી અનુક્રમે ૩૫-૪૦ દિવસે અને ૬૦-૬૫ દિવસે ૧૦ સે.મી.ની ઉંડાઈએ જમીનમાં ઓરીને આપવું.

<u>અથવા</u>

સાંઠીના ટુકડા કરવાના મશીનનો ઉપયોગ કરીને કપાસની સાંઠીને જમીનમાં ભેળવવી અને સડવા માટે એક પિયત આપવું તેમજ સાથે પ્રતિ હેકટરે ૮૦ કિ.ગ્રા. નાઈટ્રોજન + ૪૦ કિ.ગ્રા. ફોસ્ફોરસ + ૨૫૦ કિ.ગ્રા. ઝીપ્સમ આપવાની ભલામણ કરવામાં આવે છે. નાઈટ્રોજન ત્રણ ભાગમાં એટલે કે ૨૫ % પાયાના ખાતર તરીકે વાવેતર સમયે,

	બાકીનો ૫૦% અને ૨૫% પૂર્તિ ખાતર તરીકે વાવેતર પછી અનુક્રમે ૩૫-૪૦ દિવસે અને ૬૦-૬૫ દિવસે ૧૦ સે.મી.ની ઉંડાઈએ જમીનમાં ઓરીને આપવું. **કપાસની સાંઠીમાંથી કમ્પોસ્ટ ખાતર બનાવવાની પધ્ધતિ:** કપાસની સાંઠીને ખેતરમાં બાળી નાખવી અથવા શેઢેપાળે ફેંકી દેવાને બદલે કોટન શ્રેડરથી ૫-૬ સે.મી.ના નાના ટુકડા કરી ,એક ટન કપાસની સાંઠી દીઠ ૫૦૦ ગ્રામ કમ્પોસ્ટ કલ્ચર અને યુરીયા (૦.૫ % નાઇટ્રોજન) તથા ૨૦% છાણ તેમજ પ્રથમવાર ફેરવતી વખતે એઝેટોબેકટર + ફોસ્ફો બેકટેરીયા એક ટન કપાસની સાંઠી દીઠ ૫૦૦ ગ્રામ પ્રમાણે ઉમેરી , કમ્પોસ્ટ તૈયાર કરવામાં આવે તો ૧૨૦ દિવસમાં દરેક પોષક તત્વોના વધુ જથ્થા વાળું સેન્દ્રિય કમ્પોસ્ટ બનાવી શકાય. **Approved with following suggestion/s:** 1. Mention the days of *Ex-situ* decompsotion in first para of recommendation 2. Mention the common dose of fertilizers applied in paragraph 3. Remove the first year data and reanalyse *(**Action:** Research Scientist, Main Dry Farming Research Station, JAU, Targhadia)*
20.2.1.64	**Screening of sesame varieties/germplasm lines for yield performance under organic condition in *kharif* season** **Not approved as farmer's recommendation:** 1. Recommendation dropped *(**Action**: Research Scientist (Pl. Br.), Agriculture Research Station, JAU, Amreli)*

20.2.2 INFORMATION FOR SCIENTIFIC COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.2.2.1	**Title:** Survey of nutrient status of mango orchard in Valsad, Navsari, Surat and Tapi districts of South Gujarat **Information for Scientific Community:** The soils of mango orchards surveyed in villages of Valsad, Navsari, Tapi and Surat indicated the following constraints

Constrains	Suggestions
- Majority of the soils had neutral to alkaline $pH_{2.5}$ while no salinity in soil was encountered.	- -
- Majority of the soils were found to have low to medium available N, medium to high in available P_2O_5 and while most of the soil were having high available K_2O content.	- Addition of sufficient and recommended organic matter, green manuring in case of organic matter and N levels. - Increase application of N and P_2O_5 levels by 25% of the recommended dose under low soil status. - In case of high P_2O_5 application of PSB culture and organic matter is suggested.
- The DTPA extractable micronutrient content in soil, was found to be high in Fe, Mn and Cu for majority of the soils (86 to 100%), except in case of Zn where soils were in medium category (13.68%).	- In case of areas having low Zn status, apply $ZnSO_4$ 25 kg/ha and for Fe status, apply $FeSO_4$ 25 kg/ha once in 2 years as soil application
- Ground water was the major source used for irrigating mango orchards. The quality of water was medium to high salinity, low in SAR and RSC, where groundwater can be safely used for irrigation, except in few cases of Navsari and Valsad districts where water sodicity problems have been encountered. Chloride levels in water were within the permissible limit for irrigation.	- Dilution of high SAR and RSC water with good quality water and avoiding critical stages in mango - Maintaining proper drainage condition of soil - Addition of gypsum in high RSC water - Use of drip irrigation system and mulches

Further, correation studies have indicated that the organic carbon content in soilhave significant and positive relation withavailability of N and micronutrients while P content in soil have positivecorrelation with micronutrient status in soil. The

<table>
<tr><td></td><td>correlation matrix betweenmango orchard soil nutrient status and content in index leaves of mango can beused for nutrient management studies.
“Approved”
[Action: Research Scientist, SWMRU, NAU, Navsari]</td></tr>
<tr><td>20.2.2.2</td><td>Title: Persistence and dissipation behaviour of pyroxasulfone in maize
Information for Scientific Community:
Pyroxasulfone is readily degradable in the soil under maize cultivation under South Gujarat as their dissipation half-life (DT50) is less than 20 days (i.e.9.0-9.12) as per FAO guidelines. Further, the residues of pyroxasulfone is BQL in grains and maize straw when applied at the rate of 127.5 g ai/ha as pre-emergence.
“Approved”
[Action: I/C Prof. & Head, FQTL, NMCA, NAU, Navsari]</td></tr>
<tr><td>20.2.2.3</td><td>Title: Persistence and dissipation behaviour of pyrazosulfuron ethyl in soil and water in transplanted rice field
Information for Scientific Community:
Dissipation of pyrazosulfuron ethyl 10% WP in water and soil of rice field under South Gujarat condition follows first-order kinetics with the half-life (DT_{50}) of 1.58-2.15 and 9.90-11.36 days, respectively and its residues were BQL in grain and rice straw when applied at the rate of 15 g ai/ha as early post-emergence in transplanted rice.
“Approved”
[Action: I/C Prof. & Head, FQTL, NMCA, NAU, Navsari]</td></tr>
<tr><td>20.2.2.4</td><td>Title: Status of different forms of nitrogen, potassium and sulphur in soils of Navsari district of SouthGujarat
Information for Scientific Community:
From the overall surveyed samples analysis, available N (30%, 61.67% and 8.33 %) and available S (30%, 48.33% and 21.67 %) were found under low, medium and high category respectively while available K_2O was found 25 % and 75 % under medium and high category respectively. Taluka wise, highest values of various fractions of nitrogen, potassium and sulphur are as under:-
➢ Fraction of Nitrogen :-
<table>
<tr><td colspan="2">Available N(kg /ha)</td><td colspan="2">NO3-N (mg kg^{-1})</td><td colspan="2">NH4 - N (mg kg^{-1})</td><td colspan="2">Total N (mg kg-1)</td></tr>
<tr><td>0-15 cm</td><td>15-30 cm</td><td>0-15 cm</td><td>15-30 cm</td><td>0-15 cm</td><td>15-30 cm</td><td>0-15 cm</td><td>15-30 cm</td></tr>
</table>
</td></tr>
</table>

Vansda Taluka		Khergam Taluka		Navsari Taluka		Vansda Taluka	
840.45	815.36	92.40	58.80	114.80	100.80	1036	924

➢ Fraction of Potassium :-

Available K_2O (kg /ha)		WS-K (mg kg^{-1})		HNO_3-K (mg kg^{-1})		Non Exch. (mg kg^{-1})		mineral K (mg kg^{-1})		total K (mg kg^{-1})	
0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm
Jalalpore Taluka		Vansda Taluka		Vansda Taluka		Vansda Taluka		Khergam Taluka		Khergam Taluka	
1612.82	1484.22	91.60	75.70	2952.80	3200	2151.52	2633.73	10447.20	11943.60	11960	13310

➢ Fraction of Sulphur :-

available S (mg /kg)		WS-S (mg kg^{-1})		adsorbed S (mg kg^{-1})		sulphate-S (mg kg-1)		non sulphate-S (mg kg-1)		total S (mg kg-1)	
0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm	0-15 cm	15-30 cm
Gandevi Taluka		Vansda Taluka		Vansda Taluka		Vansda Taluka		Khergam Taluka		Khergam	
34.25	26.21	12.17	10.67	7.97	7.56	19.41	15.36	139.60	146.97	301.19	292.91

"Approved"

[Action: Research Scientist, Soil Science, NAU, Navsari]

20.2.2.5

Title: Effect of ZnO nanoparticles on growth, yield and quality of rice

Information for Scientific Community:

Higher profitable yield and Zn content increment in *kharif* rice can be achieved through two foliar spray of PGPR mediated ZnO nanoparticles synthesized using $ZnSO_4$, either at 50 or 100 ppm or rice plant mediated ZnO nanoparticles synthesized using $ZnNO_3$ at 100 ppm at tillering and panicle initiation stage.

Suggestions:

1. Approved as scientific recommendation from farmer's recommendation (20.3.1.20)

[Action: Professor and Head, Dept. of Agronomy, NMCA, NAU, Navsari]

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

20.2.2.6	**Title:** Effect of high density planting (HDPS) on late sown wheat Information for Scientific community Recommendation for farmers The Farmers of North-Gujarat Agro-climatic Zone-IV growing late sown wheat are recommended to keep 10 cm spacing between two rows or broadcast using seed rate of 300 kg/ha and fertilized with 125 % RDF (50 kg phosphorus/ha as basal and 100 kg N/ha in two equal split at CRI stage (18-21 DAS) and tillering stage (35-40 DAS)) for getting higher yield and net return. **ખેડૂતોપયોગી ભલામણ** ઉત્તર ગુજરાત ખેત **આબોહવાકીય વિભાગ**-૪ ના ઘઉંની મોડી વાવણી કરતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા હેકટરે ૩૦૦ કિ.ગ્રા. બિયારણ નો ઉપયોગ કરી બે હાર વચ્ચે ૧૦ સે.મી. ના અંતરે અથવા પૂંખીને વાવણી કરવા તેમજ ભલામણ કરેલ ખાતર ના ૧૨૫ % (હેકટરે ૫૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં તથા ૧૦૦ કિ.ગ્રા. નાઇટ્રોજન બે સરખા હપ્તામાં મુકુટ મુળ અવસ્થાએ (૧૮-૨૧ દિવસે અને ફૂટ અવસ્થાએ (૩૫-૪૦ દિવસે) આપવાની ભલામણ કરવામાં આવે છે. **Suggestions:** 1. Approved for **"Farmers community"** with addition of treatment "S_3: Broadcast with 300 kg/ha seed rate" in the text of the recommendation. *(Action: - Research Scientist, Wheat Research Station, SDAU, Vijapur)*
20.2.2.7	**Title :** Study on weed management in irrigated wheat Information for Scientific community Application of pendimethalin @ 0.75 a.i. kg/ha as pre emergence found effective for efficient weed control and getting higher yield in wheat without any phytotoxic effect on succeeding greengram crop. **Suggestions:** **Approved** *(Action: - Research Scientist, Wheat Research Station, SDAU, Vijapur)*
20.2.2.8	**Title :** Response of wheat to sea weed under different levels of fertilizer Information for Scientific community

	Use of seaweed (Sargassum spp.) extract @ 3 and 6% and dry seaweed (*Sargassum* spp.) @ 20 and 40 kg/ha is not effective for getting higher yield of irrigated wheat. **Suggestions:** 1. Recast the language (Action: - Research Scientist, Wheat Research Station, SDAU, Vijapur)
20.2.2.9	**Title :** Establishment of critical limit of zinc for wheat in soils of north Gujarat Information for Scientific community STL should consider the critical limit of 0.60 ppm in soil and 49.40 ppm in wheat plant at 52 DAS for recommending Zn application to wheat crop grown in North Gujarat. **Suggestions:** 1. Check "Zn content" in plant for critical limit. *(Action: - Head,Bio Science Research Centre SDAU, Sardarkrushinagar)*

ANAND AGRICULTURAL UNIVERSITY, ANAND

20.2.2.10	**Effect of Nano NP fertilizer on growth, yield and quality of summer fodder maize** **Recommendation for Scientific community** Application of either 100% RDF (80 kg N: 40 kg P_2O_5: 40 kg K_2O/ha) **OR** 25% RDF + 250 ppm Nano NP foliar spray at 30 DAS **OR** 10 t FYM/ha + 1% Urea phosphate foliar spray at 30 and 45 DAS **OR** 25% RDF + 100 ppm Nano NP foliar spray at 30 and 45 DAS **OR** 10 t FYM/ha + 100 ppm Nano NP foliar spray at 30 and 45 DAS produced higher green fodder yield and quality offodder maize cv. African Tall in summer season. **Suggestion/s:Approved** *(Action: Professor& Head, Department of Soil Science, BACA, AAU, Anand)*
20.2.2.11	**Evaluation and inter-comparison of CROPGRO, InfoCrop- and WOFOST models for cotton growth and yield simulation** **Recommendation for Scientific community** CROPGRO-Cotton, Info Crop-cotton and WOFOST-cotton models calibrated and validated for two cultivars of cotton (GTHH 49 and G.Cot H8) and for three planting time (D_1: 1 June, D_2: 11 June and D_3: 21 June) in middle Gujarat agro-climatic zone. The validations of the models reveal that performance of CROPGRO-Cotton model is relatively accurate for phenology and productivity of cotton. The genetic

coefficients of CROPGRO-Cotton model as follow for crop management and yield simulations of cotton crop.

Parameter	Description of parameter coefficients controlling development aspects	GTHH49	G. Cot H 8
CSDL	Critical Short Day Length below which reproductive developmentprogresses with no day length effect (for short day plants) (hours)	25	25
PPSEN	Slope of the relative response of development to photoperiod with time (positive for short day plants) (1/hours)	0.01	0.01
EM-FL	Time between plant emergence and flower appearance (R1)	49	51
FL-SH	Time between first flower and first pod (R3) (photothermal days)	13	10
Fl-SD	Time between first flower and first seed (R5) (photothermal days)	19	22
SD-PM	Time between first seed (R5) and physiological maturity(R7) (photothermal days)	74	70
FL-LF	Time between first flower (R1) and end of leaf expansion (photothermal days)	75	74
LFMAX	Maximum Leaf photosynthesis rate at 30 ^{0}C, 350 vpm CO_2 and high light ($mgCO_2/m^2$.S)	2.20	2.60
SLAVR	Specific leaf area of cultivar under standard growth condition (cm^2/g)	259	258
SIZLF	Maximum size of full leaf (three leaflets) ($cm^{2)}$	380.2	388.5
XFRT	Maximum fraction of daily growth that is partitioned to seed + shell	1.25	1.80
WTPSD	Maximum weight per seed (g)	0.290	0.300
SFDUR	Seed filling duration for pod cohort at standard growth conditions (photothermal days)	43	41
SDPDV	Average seed per pod under standard growing conditions (#/pod)	31	28.65
*POD*UR	Time required for cultivar to reach final pod load under optimal conditions (photothermal days)	10	9

Suggestion/s: Approved

(Action : Professor & Head, Dept. of Meteorology, BACA, Anand)

20.2.2.12 **Moisture stress detection in rabi sunflower (*Helianthus annuus* L.) based on canopy-air temperature differential measurements**

Recommendation for Scientific community

In infrared thermometry based crop water stress detection, Crop Water Satisfactory Index (CWSI) value 0.28±0.047 should be used as threshold. The higher CWSI than

	the threshold indicates the crop is in water stress. The upper baseline (Tc-Ta)*ul* for CWSI calculation is 5.1^{o}C. The lower baseline (Tc-Ta)*ll* calculated from canopy– air temperature difference and vapor pressure deficit using lower base line equation. (Tc - Ta)*ll* = -1.558VPD – 0.8101 Where, (Tc-Ta)*ll* = Lower baseline VPD = Vapour Pressure Deficit (kPa) **Suggestion/s: Approved** ***(****Action : Professor & Head, Dept. of Meteorology, BACA, Anand*)
20.2.2.13	**Screening of different rice varieties for methane emission** **<u>Recommendation for scientific community</u>** Early and mid-early maturing rice varieties showed lower methane emission as compared to late and mid late rice varieties. Irrespective of varietal traits, higher methane emission was observed during reproductive phase. Methane emission pattern was found to have positive correlation with morpho-physiological traits of the crop and root zone soil properties. Methane emission was found significantly correlated with root length, shoot length, root and shoot biomass and number of aerenchyma. Suggestion/s: Approved *(Action: Professor and Head Department of Agricultural Microbiology &BiofertilizerProject, BACA, AAU, Anand)*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.2.2.14 **Calibration and validation of CERES model (DSSAT 4.6) for different cultivars of wheat under different sowing time**

CERES-Wheat model of DSSAT family was calibrated and validated for GW 499, GW 451 and GJW 463 cultivars of wheat. The model simulations of grain yield of wheat were validated with less than 10 percent error. The genetic coefficients are recommended for use in optimization for crop management and yield prediction of wheat crop as under.

Symbol	Description	GW 499	GW 451	GJW 463
PHINT	Phyllochron interval (^{0}days)	73.4	71.2	72.8
P1V	Vernalization coefficient	0.5	0.4	0.5
P1D	Photoperiodism coefficient	1.80	1.90	2.00
P5	Grain filling duration coefficient	3.25	3.15	3.10
G1	Kernel number coefficient	5.55	5.60	5.50

	G2	Kernel weight coefficient	4.20	4.35	4.25
	G3	Spike number coefficient	5.25	5.35	5.30

DSSAT model can be used for predicting wheat grain yield and phenological events under various agro-climatic conditions. The model may also be used to improve and evaluate the current practices of wheat growth management to increase the crop production.

Approved with following suggestion/s:

1. Approved

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

20.2.2.15 **Calibration and validation of CERES model (DSSAT 4.6) for different cultivars of wheat under different sowing time**

It is informed to the scientific community that wheat crop under South Saurasthra Agro-climatic condition can be sown around 15th November (Minimum temperature 15 to 17 ^{0}C and Maximum temperature 32 to 34 ^{0}C) and prefer varieties GW 499, GW 451 and GJW 463 for getting higher yield and net return.

Approved with following suggestion/s:

1. Approved as scientific recommendation from farmer's recommendation (20.4.1.2)

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

20.2.2.16 **Dynamics of weed flora in major *rabi* crops**

It is informed to scientific community that information on weed dynamics in wheat, chickpea and coriander during *rabi* season is as below:

- Total sixteen existing weed species of eleven different families were identified and observed during *rabi* season. From total sixteen species of weeds, the families constituted as Amaranthaceae (02), Asteraceae (03), Chenopodiaceae (01), Cyperaceae (01), Euphorbiaceae (01), Leguminosae (01), Liliaceae (01), Poaceae (03), Portulacaceae (01), Solanaceae (01) and Tiliaceae (01).
- Total weeds in floristic composition were *Cyperus rotundus*, *Asphodelus tenuifolius*, *Echinochloa colona*, *Eluropus villosus*, *Dactyloctenium aegyptium*, *Digera arvensis*, *Eclipta alb*a, *Euphorbia hirta*, *Parthenium hysterophorus*, *Indigofera glandulosa*, *Portulaca oleracea*, *Corchorus olitorious*, *Tridax procumbens*, *Physalis minima*, *Amaranthus spinosus* and *Chenopodium album.*
- Highest weeds were observed of families; Asteraceae ≥ Poaceae >

	Amaranthaceae. • *Cyperus rotundus, Asphodelus tenuifolius, Chenopodium album, Echinocloa colona, Physalis minima, Digera arvensis, Eluropus vilosus, Indigofera glandulosa, Eclipta alba* and *Euphorbia hirta* were found to be the most common weed species in *rabi* season. • The most dominant succession of *Cyperus rotundus, Asphodelus tenuifolius* and *Echinochloa colona* and *Digera arvensis* were noted throughout season. • *Echinochloa colona* with wheat, *Asphodelus tenuifolius, Indigofera glandulosa* and *Physalis minima* with chickpea and coriander; *Cyperus rotundus* with all crops throughout *rabi* season were associated than other weed species. • Dry weight of weeds increased over time. The lowest weed dry weight was registered in wheat, followed by coriander and the highest weed dry weight at all the stages was recorded in chickpea. • Among the crops, monocots > dicots > sedges in wheat, monocots > sedges > dicots were observed in chickpea and coriander. Among weed management practices, monocots > dicots > sedges in unweeded, monocots in weed free, monocots > sedges in HW and monocots > sedges > dicots order in herbicidal treatment was observed. • The weed late to emerge was observed i.e., *Eluropus villosus* up to 15 DAS. • Uprooting of weeds at 15 days interval decreased periodical weed dry weight, followed by two hand weeding and application of pre- & post-emergence herbicides. Whereas, the undisturbed weedy condition progressively increased weed dry weight. • Number of weeds decreased with time. The weed count at all the stages was more or less same in wheat, chickpea and coriander. • Removal of existing weeds put forth the emergence of new weeds. HW at 15 & 30 DAS and application of pre- & post-emergence herbicides were almost equally effective in suppressing weed count. Whereas, undisturbed condition reduced weed count over time, but had the highest weed count at all the stages as compared to weed control methods. • The most densely weeds *viz*., *Asphodelus tenuifolius, Echinochloa colona* and *Cyperus rotundus* and least densely were *Tridax procumbens, Chenopodium album* and *Corchorus olitorious*.

	• Removal of weeds at 15 days interval increased yields of wheat, chickpea and coriander. Manual weeding and herbicidal weed control were found equally effective in increasing crop yield. • Weed species vary according to crop and weed management practices. **Approved with following suggestion/s:** 1. Approved ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.2.17	**Dynamics of weed flora in major *kharif* crops** The scientific community is informed that information on weed dynamics in groundnut, soybean and pearl millet during *kharif* season is as below: • From total nineteen weeds species, families constituted as Aizoaceae, Amaranthaceae, Asteraceae, Commelinaceae, Cyperaceae, Euphorbiaceae, Fabaceae, Lamiaceae, Lythraceae, Poaceae, Portulacaceae, Solanaceae and Tiliaceae. Highest weeds observed of families; Poaceae > Asteraceae > Euphorbiaceae. • Total weeds in floristic composition were *Cyperus rotundus, Echinochloa colona*, *Eluropus villosus, Dactyloctenium aegyptium, Digitaria sanguinalis*; *Digera arvensis*, *Eclipta alb*a, *Euphorbia hirta*, *Indigofera glandulosa*, *Tridax procumbens, Leucas aspera*, *Phyllanthus niruri*, *Corchorus olitorious*, *Commelina benghalensis*, *Portulaca oleracea*, *Ammannia baccifera*, *Parthenium hysterophorus*, *Physalis minima* and *Trianthema portulacastrum*. • The most dominant succession of *Cyperus rotundus, Echinochloa colona*, *Commelina benghalensis, Leucas aspera* and *Digera arvensis* were noted throughout season. • *Echinochloa colona* and *Eluropus villosus* with pearl millet, *Indigofera glandulosa* with groundnut and soybean; *Cyperus rotundus* throughout the *kharif* season were associated. • Among the crops, monocots > dicots > sedges in pearl millet, dicots > sedges > monocots were observed in soybean and groundnut. Among weed management practices, dicots > monocots > sedges in unweeded, monocots in weed free and HW and monocots > sedges > dicots order in herbicidal treatment was observed. • The herbicidal treatments have lowest monocot weeds up to 30 DAS. • Dry weight of weeds increased over time. Uprooting of weeds at 15 days interval decreased periodical weed dry weight, followed by hand weeding and herbicidal

	treatments. Whereas, the undisturbed weedy condition progressively increased weed dry weight. • Number of weeds decreased with time. Weed species vary according periodical stages, crops and weed management practices. • The most densely weeds *viz*., *Echinochloa colona* and *Cyperus rotundus* and least densely were *Tridax procumbens*, *Parthenium hysterophorus* and *Trianthema portulacastrum*. • The weeds late to emerge were *Digitaria sanguinalis* up to 15 DAS, *Eluropus villosus* up to 30 DAS and *Ammannia baccifera* up to 45 DAS. • Removal of existing weeds put forth the emergence of new weeds specially weed i.e., *Ammannia baccifera* and *Cyperus rotundus*. • *Ammannia baccifera* found dominating around 45 DAS in weed free condition when the rainfall amount was more. • The *Phyllanthus niruri* dominant only in earlier season, hence it has completed life cycle within 30-45 DAS. **Approved with following suggestion/s:** 1. Approved ***(Action:** Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.2.18	**Effect of plant growth retardants on growth, yield attributes and yield of *kharif* groundnut** It is informed to the scientific community that in *kharif* groundnut foliar application of Chlormequate Chloride 1000 ppm at 45 and 60 DAS gave higher groundnut pod and haulm yield. **Approved with following suggestion/s:** 1. Approved as scientific recommendation from farmer's recommendation (20.4.1.4) 2. Recommend T_8 (Chlormequate Chloride 1000 ppm) instead of T_{12} (Paclobutrazol 150 ppm) *(**Action**: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.2.19	**Evaluation of soil texture of Junagadh district** It is informed to scientific community that, soil texture of Junagadh district is clayey, consisting of soil separate *viz;* sand 29.05 %, silt 24.67 % and clay 46.23

	% i.e. 64 % area of soils of Junagadh district. Among the different talukas, Malia, Mangrol and Visavadar talukas soils falls under clay loam texture, while, in Vanthali, Bhesan, Keshod, Manavadar, Mendarda and Junagadh talukas soils falls under clayey texture. **Approved with following suggestion/s:** 1. Approved *(Action: Professor & Head, Dept. of Soil Science & Agril. Chem., CoA, JAU, Junagadh)*
20.2.2.20	**Effect of FYM with and without phosphorus on groundnut (GG 20) yield** It is informed to scientific community that in *kharif* groundnut application of FYM 10 t ha^{-1} along with 20 kg P_2O_5 ha^{-1} every year gave higher yield and net return and also increases phosphorus content and uptake by pod and haulm. Application of FYM 10 t ha^{-1} along with 20 kg P_2O_5 ha^{-1} every year also increasing the phosphorus level in soil as compared to control. **Approved with following suggestion/s:** 1. Approved ***(Action:** Professor & Head, Dept. of Soil Science & Agril. Chem., CoA, JAU, Junagadh)*
20.2.2.21	**Screening of sesame varieties/germplasm lines for yield performance under organic condition in *kharif* season** The scientific community is informed that under Saurashtra region of Gujarat sesame varieties/germplasm lines G.Til 4, G. Til 10, AT 375, GJT 5, AT 371, AT 314, G.Til 3 and AT 377 gave high seed yield in *kharif* season under organic condition. **Approved with following suggestion/s:** 1. Approved *(**Action**: Research Scientist (Pl. Br.), Agriculture Research Station, JAU, Amreli)*

20.2.3 NEW TECHNICAL PROGRAMMES

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title	Suggestion/s and Action
20.2.3.1	Effect of enriched biochars on crop productivity and soil health in aerobic rice based cropping sequence	Suggestions: 1. Include observations on plant population and plant nutrient content & uptake. 2. Remove observation on number of picking in cowpea. 3. Replace "Green stower yield" with "Green fodder yield" in sweet corn observation. 4. Take observation on physical properties of soil at start and end of experiment. *[Action:Res. Sci., SWMRU, Navsari]*
20.2.3.2	Effect of different fertigation schedules on growth, yield and nutrient uptake pattern of banana	Suggestions: 1. Include observation on plant population 2. In title write "fertilization schedule" instead of "fertigation schedule". *[Action: Res. Sci., SWMRU, Navsari]*
20.2.3.3	Effect of land configuration on *rabi* niger (*Guizotiaabyssinica (L.f.)* Cass.) and summer greengram (*Vigna radiate L.*) varieties grown after *kharif* transplanted rice	Suggestions: 1. Remove outside control Rice-Rice treatment. 2. Include observations on plant population 3. change title as " Effect of land configuration on *rabi* niger (*Guizotiaabyssinica (L.f.)* Cass.) and summer greengram (*Vigna radiate L.*) varieties in kyari land." *[Action: Res. Sci., SWMRU, Navsari]*
20.2.3.4	Effect of biochar on aerobic rice and its residual effect on *rabi knolkhol*	Suggestions: 1. In sub plot write F1 treatment as "First year" instead of "One time" 2. Include observations on plant population *[Action: Res. Sci., SWMRU, Navsari]*
20.2.3.5	Exploration of chlorpyrifos degradation capability of bacterial isolates in soil	Suggestions: 1. Reduce size of pot 2. Maintain moisture content (50%WHC)

		[Action: Prof. & Head, FQTL,Navsari]
20.2.3.6	Yield maximization of Bt cotton by integrated crop management techniques	Suggestions: 1. Drop (AICRP trial) *[Action:Res. Sci., MCRS, Surat]*
20.2.3.7	Effect of foliar application of nano urea on growth and yield of sorghum under conserved moisture condition	Suggestions: 1. Conduct as feeler trial *[Action:Assoc. Res. Sci., ARS, Tanchha]*
20.2.3.8	Effect of biochar and fertilizer application on rice – wheat cropping sequence under south Gujarat condition	Suggestions: 1. Include observations on plant population, nutrient content and uptake and rice equivalent yield 2. Mention about rice bio fertilizer 3. Write T7 as 100% RDF + Bio-compost 5 t/ha" *[Action:Assoc. Res. Sci., ARS, Mangrol]*
20.2.3.9	Study on nutrient release pattern of various organic nutrient sources in sugarcane	Suggestions: 1. Remove statistical design 2. Plot size 6 x 6 m [*Action:Prof. & Head, SSAC, NMCA, NAU, Navsari*]
20.2.3.10	Study on comparative performance of natural and organic farming in dragon fruit (*Hylocereuspolyrhizus L.*)	Suggestions: 1. Modify the treatment as per suggestions. **In treatment M1, i)** Along with ghan-jivamrut 1.5 kg/pole (2 t/ha), also add 2000 kg FYM/ha (1.5 kg/pole) in three equal splits *i.e.* first at mid march, second at mid June and third at mid September and in succeeding year reduced 25% dose of FYM, **ii)** apply *Jivamrut* 1 lit/pole (1250L/ha) instead of 500 l/ha, iii) Foliar application of jivamrut (20 lit jivamrut in 200 lit water/ha), starting from April to July at 15 days interval. **In treatment M2, i)** add 6 kg compost/pole in three equal splits *i.e.* first at mid march, second at

		mid June and third at mid September instead of 50% RDN though compost, ii) apply *Gliricidia* based formulation (GBF) 1 lit/pole (1250L/ha) instead of 500 l/ha. iii) Foliar application of 2% GBF, starting from April to July at15 days interval. iv) Remove dhaicha as a green manuring **In treatment M3, i)** add 12 kg compost/pole in three equal splits *i.e.* first at mid march, second at mid June and third at mid September instead of 100% RDN through Castor cake and compost, ii) apply *Gliricidia* based formulation (GBF) 1 lit/pole (1250L/ha), iii) Foliar application of 2% GBF, starting from April to July at15 days interval. 2. Include observation on plant population. *[Action:Assoc. Prof., Organic Farming Cell, ACH, Navsari]*
20.2.3.11	Study on comparative performance of natural and organic farming in onion (*Allium cepa L.*) under south Gujarat region	Suggestions: 1. Modify the treatment as per suggestions. **In treatment M1, i)** Seed treatment with bijamrut @ 300 ml/kg seed, **ii)** Along with ghan-jivamrut 2 t/ha at transplanting also add 2000 kg FYM/ha and in succeeding year reduced 25% dose of FYM, **iii)** apply *Jivamrut* 1250L/ha instead of 500 l/ha with each irrigation. **In treatment M2, i)** apply *Gliricidia* + papaya based formulation 1250L/ha instead of 500 l/ha with each irrigation. **In treatment M3, i)** Also apply Foliar application of 2% *Gliricidia* + papaya based formulation starting from 15 DATP at 15 days interval upto 60 DATP 2. Include observation on plant population. *[Action: Assoc. Prof., Organic Farming Cell, ACH, Navsari]*

20.2.3.12	Variability of weather events and its impact on flowering, fruiting and yield in organic mango (*Mangifera indica L.*) cv. Kesar	Suggestions: 1. Drop *[Action:Assoc. Prof., Organic Farming Cell, ACH, Navsari]*
20.2.3.13	Effect of biocompost and irrigation levels with and without mulch on Mustard (*Brassica juncea L.*) under south Gujarat condition	Suggestions: 1. Correct irrigation depth, it should be 40 mm. 2. I_3 treatment should be : 2 (30 and 60 DAS)". 3. Include observation on soil moisture. 4. Remove common dose of FYM. 5. Specify as rice mulch *[Action:Prof. (Agron.), CoA, Bharuch]*
20.2.3.14	Nutrients management in summer rice (*Oryzae sativa L.*) for yield and lodging resistance.	Suggestions: 1. Correct the splits of SiO_2 foliar spray, it should be at tillering & panicle initiation stage. 2. SiO_2 1.5% foliar spary. *[Action:Assoc. Res. Sci. RRRS, Vyara]*
20.2.3.15	Effect of topping in pigeon pea var. GT 104 under different spacing	Suggestions: 1. Remove spacing treatment S_1 and S_3. 2. Modify detopping treatments as follows: T_1 – No detopping T_2 – detopping at 60 DAS T_3 – detopping at 75 DAS 3. Include treatment of variety *i.e.* V1: GT 104 and V2: Newly release variety *[Action:Res. Sci., Pulse Research Station, NAU, Navsari]*

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title	Suggestions
20.2.3.16	Effect of different modules on growth and yield of blackgram + sorghum and Wheat + chickpea cropping sequences	1. Recast title of experiment as "Assessment of natural and conventional farming modules on growth and yield of blackgram + sorghum - Wheat + chickpea cropping systems". 2. Delete "Module 2 : Organic Farming" from the treatments. 3. Keep rate of *Bijamrut* @ 300 ml/kg seed instead of 200 ml/kg seed in the treatments. 4. Design of the experiment is CRD in Large plot. 5. Replace blackgram variety "GU 2" with "Shyamal". 6. Add application of FYM @ 2.0 t/ha (During first year it is applied @ 2.0 t/ha and from 2nd year onward it is to be reduced to the extent of 25% each year). 7. Experiment should be conducted under "Drip irrigation system". 8. Experiment should be conducted as fixed plot experiment and boundary of the each module should be demarcated properly and protected from all sides. 9. During summer season dry sowing of any crop should be done and it is incorporated into the soil. 10. Add observation on i. Blackgram equivalent yield (kg/ha) in sorghum. ii. In system, add observation on System equivalent yield (kg/ha) iii. Micronutrients content in plant. 11. Chemical analysis for composition of all inputs should be carried out. 12. Disease- pest control should be done using natural farming practices. (*Action: Professor and Head, Department of Agronomy, CPCA, Sardarkrushinagar)*

20.2.3.17	Effect of nitrogen and phosphorus levels on growth and yield of sunnhemp (*Crotalaria juncea* L.)	1. Recast treatments as under N levels : 0, 20, 40 kg/ha Phosphorus levels: 0, 20, 40 kg/ha 2. Add observation on i. Dry weight of nodules (mg/plant) ii. N and P content (%) and uptake (kg/ha) by plant. (*Action: Professor and Head, Department of Agronomy, CPCA, Sardarkrushinagar)*
20.2.3.18	Seed production of sunnhemp (*Crotalaria juncea* L.) under Natural Farming	**Not Approved** *(Action: Professor and Head, Department of Agronomy, CPCA, Sardarkrushinagar)*
20.2.3.19	Weed management practices in groundnut	1. Formulation of herbicides should be mentioned in respective treatments. 2. Record observation on i. Group wise weed density at 20, 40, 75 DAS and at harvest ii. Weed dry weight (g/m^2) at 20, 40 DAS and at harvest. 3. Add observation on i. Periodical total soil microbial analysis ii. Chemical residue analysis of kernel and soil. *(Action: Professor and Head, Department of Agronomy, CPCA, Sardarkrushinagar)*
20.2.3.20	Effect of multi micronutrient formulations on growth, yield and quality of chickpea	1. Delete treatments T_4, T_8 and T_9 and add three new treatments for Micronutrients Grade II, III and IV. 2. Deficient micronutrients should be applied. 3. Plant analysis for Boron should be done. 4. Delete application of "FYM @ 5t/ha as common application". 5. Neutralize folier spray before application. *(Action: Unit Head, Bio Science Research Centre, SDAU, Sardarkrushinagar)*
20.2.3.21	Effect of nano urea and nano DAP on growth and yield of summer greengram	**Conduct as feeler trial** 1. Feeler trial should be conducted on nano urea and nano DAP and set of treatments shall formulated by all four HoD's of Agronomy and Soil Science jointly. Professor and Head (Agronomy), AAU,

		Anand will Co-ordinate for formulation of this new feeler trial. 2. One treatment on "Absolute control" should be taken. 3. Select the crops which have high nutrient requirements. 4. This feeler trial should be conducted at all FOUR SAU's of Gujarat as common experiment. 5. Crop and location for this feeler experiment will be decided by respective university *(**Action**: Research Scientist, Pulses Research Station, SDAU, Sardarkrushinagar)*
20.2.3.22	Performance evaluation of Agrivoltaic System for crop productivity	1. Sun shine hours data to be recorded. (**Action**: Research Scientist, Centre for Research on IFS, SDAU, Sardarkrushinagar)
20.2.3.23	Crop response to plant nutrients in greengram-wheat cropping system	**Not Approved** ***(Action**: Research Scientist, Centre for Research on IFS, SDAU, Sardarkrushinagar)*
20.2.3.24	Pilot Project for crop diversification	**Not Approved (AICRP)** **(*Action**: Research Scientist, Centre for Research on IFS, SDAU, Sardarkrushinagar)*
20.2.3.25	On-farm crop response to plant nutrients in predominant cropping systems and their impact on crop-livestock-human food chain	**Not Approved(AICRP)** ***(Action**: Research Scientist, Centre for Research on IFS, SDAU, Sardarkrushinagar)*
20.2.3.26	Evaluation of natural farming components for potato	1. Time of application of *Jivamrut* should be at sowing, 30, 45, 60 and 75 DAS along with irrigation water in all treatments. 2. Delete porosity from the observation and Bulk density to be measured at initial and at completion of the experiment. 3. Observation on heavy metal should be recorded

		4. Foliar spray of *jivamrut* @ 10% at 40 DAS and 25% at 60 DAS to be applied as common application. 5. Keep dose of *bijamrut* @ 300 ml/ kg seed instead of 200 ml/kg seed for seed treatment. *(Action: Research Scientist, Centre for Natural Resource Management, SDAU, S. K. Nagar)*
20.2.3.27	Evaluation of natural farming components for turmeric	1. Record observation on "% emergence at 45 days after planting". 2. Heavy metal analysis should be done. *(Action: Research Scientist, Centre for Natural Resource Management, SDAU, S. K. Nagar)*
20.2.3.28	Soil profile study of different afforested plots	**Approved** *(Action: Research Scientist, Agroforestry Research Station, Sardarkrushinagar,)*
20.2.3.29	Effect of nano urea and nano DAP on growth and yield of *rabi* fennel	**Conduct as feeler trial** *(Action: Research Scientist, Seed Spices Research Station, SDAU, Jagudan)*
20.2.3.30	Response of Ajwain to different component of natural farming	1. Take ajwain with cumin as intercrop instead of sole ajwain. 2. Make the required related changes in this NTP as per 20.3.3.16. *(Action:Research Scientist, Seed Spices Research Station, SDAU, Jagudan)*
20.2.3.31	Effect of nano urea and nano DAP on growth and yield of wheat (*Triticum aestivum* L).	**Conduct as feeler trial** *(Action: Research Scientist, Wheat Research Station, SDAU, Vijapur)*
20.2.3.32	Integrated nutrient management in summer pearl millet (*Penisettum glaucum* L.)	**Not approved** *(Action: Assoc. Res. Sci., Agricultural Research Station, SDAU, Ladol)*
20.2.3.33	Effect of nano urea and nano DAP on growth and yield of potato	**Conduct as feeler trial** *(Action: Assoc. Res. Sci., Potato Research Station, Deesa)*

20.2.3.34	Effect of nano urea and nano DAP on growth and yield of Pearl millet	**Conduct as feeler trial** *(Action: Assoc. Res. Sci., Centre for Millets Research, SDAU, Deesa)*
20.2.3.35	Effect of planting geometries on BBF planted *kharif* groundnut	1. Keep spacing in P_0: 30 cm 2. Add observation on "shelling percentage". ***(Action:*** *Senior Scientist and Head, KVK, SDAU, Deesa**)***
20.2.3.36	Effect of nano urea and nano DAP on growth and yield of sorghum	**Conduct as feeler trial** (Action: Assistant Research Scientist, Agricultural *Research Station, Aseda)*
20.2.3.37	Effect of nano urea and nano DAP on growth and yield of mustard	**Conduct as feeler trial** ***(Action:*** *Research Scientist, **C**entre for Oilseeds Research, S.D.A.U., Sardarkrushinagar)*
20.2.3.38	Effect of nano urea and nano DAP on growth and yield of castor	**Conduct as feeler trial** **(Action:** Research Scientist, **C**entre for Oilseeds Research, S.D.A.U., Sardarkrushinagar)
20.2.3.39	Evaluation of rainfed farming system under natural farming	1. Follow the natural farming practices viz; Apply *Ghanjivamrut* @ 2.0 t/ha and *Jivamrut* @ 1250 lit/ha at 15 days interval for 6 times. (*Action: Assistant Research Scientist Dry Farming Research Station, Radhanpur)*
20.2.3.40	Assessment of natural and conventional farming modules on growth and yield of black gram + sorghum - potato + chickpea cropping system	1. Experiment treatments and other details as per NTP no 20.3.3.16 (*Action: Associate Res. Scientist, Potato Research Station, SDAU, Deesa)*
20.2.3.41	Assessment of natural and conventional farming modules on growth and yield of black gram + sorghum- wheat + chickpea cropping system	1. Experiment treatments and other details as per NTP no 20.3.3.16 *(Action: Asstt. Res. Sci., Agri. Res. Station, SDAU, Shihori)*

Sr. No.	Title of Experiment	Suggestion/s
20.2.3.42	Assessment of crop management module in Maize + Soybean - Wheat + Chickpea cropping system	**Approved with following suggestion/s** **1.**Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis and disease/pest observation *(Action: Professor & Head, Dept. of Agronomy)*
20.2.3.43	Effect of seed rate, method of sowing and level of nitrogen on yield and quality of fodder maize in *Kharif'*	**Approved with following suggestion/s** 1. Plant population/m^2 instead of per meter row length 2. In observation simply write quality parameter (delete word from green fodder) (Action: *Research* Scientist, MFRS, AAU, Anand)
20.2.3.44	Effect of seed rate, method of sowing and level of nitrogen on yield and quality of fodder maize in *Rabi'*	**Approved with following suggestion/s** 1. Plant population/m^2 instead of per meter row length 2. In observation simply write quality parameter (delete word green fodder) (Action: *Research* Scientist, MFRS, AAU, Anand)
20.2.3.45	Effect of heat stress on tomato under different irrigation and shading levels	**Approved with following suggestion/s** **1.**Revise title as"Effect of different irrigation and shading levels on heat stress in tomato" **2. Add observations:** Plant population at 20 DATP and at harvest, consumptive use of water and water use efficiency **(**Action: Prof.& Head, Dept. of Meteorology)
20.2.3.46	Climate change impact assessment and adaptation strategies for cotton in different district of middle Gujarat region	**Approved** *(Action: Professor & Head, Dept. of Meteorology)*

20.2.3.47	Efficacy of microbial bio-stimulant on wheat	**Approved with following suggestion/s** 1. Add absolute control treatment 2. Write RDN instead of RDF in treatment T_3 to T_9) and correct method of sowing drilling instead of dibbling 3. Biostimulant composition to be mentioned and seaweed extract species to be mentioned 4. Add observations: Chlorophyll a, b and total, nutrient use efficiency, plant N, P and K content, gluten content and sedimentation rate ***(****Action:Prof. & Head, Dept. of Microbiology)*
20.2.3.48	Effect of organic and inorganic sources of phosphorus on yield and quality of wheat	**Approved with following suggestion/s** 1.Add observation: Plant population at 20 DAS 2. Equalize N and S in all treatments *(Action:Prof.& Head, Dept. of Soil Science)*
20.2.3.49	Physico-chemical characterization of soil of *Kansari* farm'	**Approved with following suggestion/s** **1. Revise title as "**Characterization of soil of *Kansari* farm" 2. Representative 5 samples from nearby farmer's field also analyzed as reference *(Action:Prof.& Head, Dept. of Soil Science)*
20.2.3.50	Bio-efficacy of herbicide against complex weed flora in potato	**Approved with following suggestion/s** **Approved** *(Action: Agronomist & PI, AICRP-WM)*
20.2.3.51	Bio-efficacy of herbicide against complex weed flora in rice nursery	**Approved with following suggestion/s** 1. Take fertilizer dose of rice nursery as per MRRS, Nawagam recommendation *(Action: Agronomist & PI, AICRP-WM)*
20.2.3.52	Influence of micronutrients enriched vermicompost on yield and nutrient of wheat and soil properties	**Approved with following suggestion/s** 1. Add individual treatment of $ZnSO_4$ and $FeSO_4$ and physical mixture of both (total treatment will be T_{12}) ***(****Action: Associate Research Scientist, Micronutrient Research Project)*
20.2.3.53	Influence of micronutrients enriched vermicompost on	**Approved with following suggestion/s**

	yield and nutrient of maize and soil properties	1. Add individual treatment of $ZnSO_4$ and $FeSO_4$ and physical mixture of both (total treatment will be T_{12}) *(Action: Associate Research Scientist, Micronutrient Research Project)*
20.2.3.54	Effect of different spacing and seed rate on growth and yield of shankhpuspi	**Approved with following suggestion/s** **1. Revise title as :**Effect of different method of sowing and seed rate on growth and yield of shankhpuspi Check treatment as Spacing: Seed rate (kg/ha): S_1: Broadcasting R_1: 6 S_2: Line sowing at 30 cm R_2: 8 S_3: Line sowing at 60 cm R_3: 10 S_4: Line sowing at 90 cm R_4: 12 **2.** Plant population/m^2 instead of per meter row length *(Action: Associate Research Scientist, M&APRS, AAU, Anand)*
20.2.3.55	Assessment of crop management module in Rice – Wheat + Chickpea cropping system	**Approved with following suggestion/s** **1.** Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis and disease/pest observation *(Action: Research Scientist, RRS, AAU, Anand)*
20.2.3.56	Nutrient management in mustard	**Approved with following suggestion/s** 1. Modified the Nitrogen level as N_1: 40, N_2: 50, N_3: 60 2. Add observation: N, P and S content and uptake in seed and stover *(Action: HOD Agronomy, COA, Jabugam)*
20.2.3.57	Effect of soil and foliar application of multimicronutrient mixture on growth, yield and nutrient content of hybrid Maize	**Approved** *(Action: Assoc. Research Scientist, ARS, Derol)*

20.2.3.58	Effects of spacing and nitrogen on *Bt* cotton grown under heavy black soil of middle Gujarat	**Approved** (*Action: Asst. Research Scientist, NIRP,Khandha)*
20.2.3.59	Optimizing method of sowing and seed rate of fine grain rice under DSR method	**Approved with following suggestion/s** 1. Treatment details: Change the symbol of Row spacing as R_1, R_2, R_3 instead of D_1, D_2, D_3 2. Add observation: Plant population/m^2 at 15 DAS (*Action: Assoc. Research Scientist, MRRS,Nawagam)*
20.2.3.60	Optimizing method of sowing and seed rate of bold grain rice under DSR method	**Approved with following suggestion/s** 1. Add observation: Plant population/m^2 at 15 DAS *(Action: Assoc. Research Scientist, MRRS,Nawagam)*
20.2.3.61	Mapping of salt-affected soils of *Bhal* and *Khabhat* regions using remote sensing data	**Approved** *(Action: Residue Analyst, AINP on Pesticide residues)*
20.2.3.62	Impact of organic amendments on pesticide degradation in soils	**Approved with following suggestion/s** 1. Correct the dose of FYM 5000 kg/ha instead of 5000 t/ha *(Action: Residue Analyst, AINP on Pesticide residues)*
20.2.3.63	Assessment of crop management module in Maize + Green gram - Wheat + Lucerne intercropping system	**Approved with following suggestion/s** **1.** Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Asstt. Res. Sci. NIRP, AAU, Khandha)*
20.2.3.64	Assessment of crop management module in transplanted Rice during *Kharif* and Summer season	**Approved with following suggestion/s** **1.** Add observation of Bulk density initial and after three year), EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Asstt. Res. Astt. Agril. Research Station, AAU, Dabhoi)*
20.2.3.65	Assessment of crop management module in *Bt.*	**Approved with following suggestion/s**

	Cotton + Soybean intercropping system	**1. Revised title:** Assessment of crop management module in **Pigeonpea** + Soybean intercropping system 2. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis 3. Rate of Ghanjivamrut is 2000 kg/ha instead of 4000 kg/ha *(Action:Associate Res. Sci. Pule Research Station, AAU, Vadodara)*
20.2.3.66	Assessment of crop management module in Banana + Blackgram intercropping system	**Approvedwith following suggestion/s** 1. Ghavjivamrut will be applied in four equal split in banana 2. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis (*Action: HOD, Agronomy College of Agri., AAU, Jabugam)*
20.2.3.67	Assessment of crop management module in Finger millet + Soybean-Garlic cropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Agril. Research Station, AAU, Dahod)*
20.2.3.68	Assessment of crop management module in Direct Seeded Rice-Potato cropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis **(***Action: Asstt. Re. Sci. Agril. Research Station, AAU, Thasara)*
20.2.3.69	Assessment of crop management module in transplanted Rice-Wheat + Mustard cropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis 2. Take the wheat variety GW 513 instead of GW 451

		(Action: HOD agronomy College of Agri., AAU, Vaso)
20.2.3.70	Assessment of crop management module in *Durum*Wheat + Chickpea cropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis **(***Action: Asstt. Res. Sci. Agril. Research Station, AAU,Dhandhuka*
20.2.3.71	Assessment of crop management module in Castor + Groundnut intercropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Agril. Research Station, AAU,Sansoli)*
20.2.3.72	Assessment of crop management module in Castor-Groundnut intercropping system	**Approved with following suggestion/s** **1. Revised title:** Assessment of crop management module in **Castor+Groundnut** intercropping system 2. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis **(***Action: Res. Sci. RRS and ARS, AAU,Kansari)*
20.2.3.73	Assessment of crop management module in Direct Seeded Rice-Wheat + Chick pea cropping system	**Approved with following suggestion/s** **Approved** *(Action: Res. Sci. RRS and ARS, AAU, Kansari)*
20.2.3.74	Assessment of crop management module in Pigeonpea + Soybean intercropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Asst. Res. Sci. ARS, AAU, Derol)*
20.2.3.75	Assessment of crop management module in *Duram* Wheat + Chickpea intercropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Asstt. Res. Sci., ARS, AAU,Arnej)*

20.2.3.76	Assessment of crop management module in Cumin	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Senior Scientist & Head KVK, AAU, Arnej)*
20.2.3.77	Assessment of crop management module in Brinjal and Tomato + Fenugreek intercropping system	**Approved with following suggestion/s** 1. Add observation of Bulk density initial and after three year, EC, micronutrient analysis, equivalent yield, Input analysis *(Action: Research Scientist (veg), Main Vegetable Research Station, Anand)*

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Sr. No.	Title of Experiment	Suggestion/s and Action
20.2.3.78	Response of summer pearl millet to Nano-DAP	**Not Approved** 1. Take it as feeler trial (***Action***: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.3.79	Weed management in *kharif* groundnut	**Approved with following suggestion/s** 1. Remove Treatment T_3 2. Add one treatment of IC & HW at 20 & 40 DAS (***Action***: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.3.80	Weed management in *kharif* pigeon pea	**Approved with following suggestion/s** 1. Add 2 to 3 treatments of pre-mix Imazethapyr 35% + Imazamox 35% WG as PE, early PoE, and PoE and revise the treatments 2. Keep IC & HW at 20, 40 and 60 DAS (***Action***: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.3.81	Feasibility of late *kharif* blackgram (*Vigna mungo* L.) under South	**Approved with following suggestion/s** 1. Take GU 4 variety instead of T 9 2. Keep seed rate 20 kg/ha

	Saurashtra Agro-climatic condition	(***Action***: *Professor & Head, Department of Agronomy, COA, JAU, Junagadh)*
20.2.3.82	Effect of soil amendments on summer groundnut under saline-sodic soil	**Approved with following suggestion/s** 1. Conduct experiment on same site for 4 years 2. Add BD, water stable aggregates and number of nodules in observation 3. Measure ECe and pH from soil 4. Keep FYM 5 & 10 t/ha in T_5 & T_6, respectively 5. Apply Gypsum in 1st & 3rd year (not every year) *(**Action**: Professor & Head, Dept. of Soil Science & Agril. Chem., CoA, JAU, Junagadh and Research Scientist (Horti.), Agriculture Research Station (Fruit Crops), JAU, Mahuva)*
20.2.3.83	Effect of nano DAP on performance of okra	**Not Approved** 1. Take it as feeler trial *(**Action**: Professor & Head, Dept. of Soil Science & Agril. Chem., CoA, JAU, Junagadh and Research Scientist (Garlic and Onion.), Vegetable Research Station, JAU, Junagadh)*
20.2.3.84	Effect of nano DAP on performance of *kharif* groundnut	**Not Approved** 1. Take it as feeler trial *(**Action**: Professor & Head, Dept. of Soil Science & Agril. Chem. and Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.3.85	Evaluation of soil texture of Rajkot district	**Approved with following suggestion/s** 1. Modify third objective *(**Action**: Professor & Head, Department of Soil Sci. & Agril. Chem., CoA, JAU, Junagadh)*
20.2.3.86	Effect of soil conditioners and fertility levels on large seeded *kharif* groundnut	**Approved with following suggestion/s** 1. Write 'bold seeded' instead of 'large seeded' in title 2. Keep fertility levels 75%, 100% and 125% 3. Use DAP as source 4. Add physical parameters of soil in obervation

		*(**Action:** Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.3.87	Evaluation of Zinc solubilizing bacteria for enhancing availability and uptake of Zinc and yield of groundnut	**Approved with following suggestion/s** 1. Start experiment from *Kharif* 2024 2. Keep 0.5% $ZnSO_4$ in T_8 3. Soil microbial population *(**Action:** Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.3.88	Evaluation of Potash solubilizing bacteria for enhancing availability and uptake of K and yield of groundnut	**Approved with following suggestion/s** 1. Keep word RDK instead of RDF 2. Keep T_{10} 75% K of RDF 3. Keep T_{11} as 75% K of RDF + 1 lit KSM/ha 4. Keep T_{12} as 75% K of RDF + 2 lit KSM/ha 5. Mention cfu of potash solubilizers in note 6. Add soil micorbes analysis in observation *(**Action:** Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)*
20.2.3.89	Developing and testing of *Bt* cotton based cropping system to enhance resource utilization and sustainability	**Approved with following suggestion/s** 1. Modify the title as "Evaluation of *Bt* cotton-based cropping system to enhance resource utilization and sustainability" 2. Specifiy the growth and yield observations 3. Keep DOS of *Bt* cotton as 1st fortnight of June 4. Take the wheat variety GW 499 instead of GW 173 5. Check the RDF and seed rate for late sown wheat *(**Action:** Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)*
20.2.3.90	Effect of land configuration and plant growth regulator on water logging management in cotton	**Approved with following suggestion/s** 1. Mention the size of BBF as 150 cm 2. Specify in note that 3rd point is for T_8 & T_9 only 3. Correct the number of rows in plot size 8 instead of 6 *(**Action:** Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)*

20.2.3.91	Long term effect of balance nutrition in *Bt* cotton	**Approved with following suggestion/s** 1. Modify the title as "Long term effect of integrated nutrient management on *Bt* cotton" 2. Keep Urea 2% spray and Urea phosphate 2% spary in T_7 and T_8, respectively instead of nano DAP 3. Specify the quanity of biomass of incorporation 4. Analyse the compost for total NPK 5. Specify the species of cellulolytic microorganisms to be used in note *(**Action:** Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)*
20.2.3.92	Effect of Nano – DAP on yield and yield attributes of Mungbean crop	**Not Approved** 1. Take it as feeler trial *(**Action:** Research Scientist (Chickpea)), Pulses Research Station, JAU, Junagadh)*
20.2.3.93	Response of groundnut to application of nano DAP under rainfed condition	**Not Approved** 1. Take it as feeler trial ***(Action**: Research Scientist (Dry Farming), Main Dry Farming Res. Station, JAU, Targhadia)*
20.2.3.94	Response of pearl millet to application of nano DAP	**Not Approved** 1. Take it as feeler trial *(**Action:** Research Scientist (Pearl millet), Main Pearl millet Research Station, JAU, Jamnagar)*
20.2.3.95	Effect of split application of phosphorus and potassium on growth and yield of sugarcane	**Approved with following suggestion/s** 1. Specify the extraction % 2. Write 0-30 cm soil depth instead of 30 cm soil depth 3. Millable cane yield ***(Action:** Research Scientist (Sugarcane), Main Sugarcane Research Station, JAU, Kodinar)*
20.2.3.96	Feasibility of tractor operated deep furrow sugarcane cutter planter for sugarcane mechanization	**Approved with following suggestion/s** 1. Include observation on juice extraction (%) ***(Action:** Research Scientist (Sugarcane), Main Sugarcane Research Station, JAU, Kodinar)*

General suggestions:

1. Formulation of herbicides should be mentioned in respective treatments.
2. Record observation on plant population at initial and at harvest.
3. Observations on organic carbon content (%) , total microbial population and heavy metal content in the soil of all natural and organic farming experiments are mandatory.
4. Treatments of feeler trial on nano DAP to be conducted in year 2024-25 at different locations of SAUs with different crops finalized during online meeting held on 23.05.2024, are as below:-

: FEELER TRAIL

Experiment

1. Title : **Effect of nano DAP on growth, yield and quality of _____**
2. Location & Agro Climatic Zone :
3. Background :
4. Objectives :
5. Principal Investigator & Associates :
6. Year of Commencement : 2024
7. Experimental period :
8. Season :
9. Crop and Variety :
10. Experimental Details:

Tr. No.	Treatments
T_1	Absolute control (No RDF)
T_2	RDF (_____N: P_2O_5: K_2O kg/ha)
T_3	75 % RDF + Seed Treatment of nano DAP @ 5 ml / kg seeds
T_4	50 % RDF + Foliar spray of nano DAP @ 4 ml / L water at ___and __ DAS
T_5	75 % RDF + Foliar spray of nano DAP @ 4 ml / L water at ___and ___DAS
T_6	50 % RDF + Seed Treatment of nano DAP @ 5 ml / kg seeds+ Foliar spray of nano DAP @ 4 ml / L water at ___and ___DAS
T_7	75 % RDF + Seed Treatment of nano DAP @ 5 ml / kg seeds+ Foliar spray of nano DAP @ 4 ml / L water at ___and ___DAS
T_8	50 % RDF + Foliar spray of Urea phosphate @ 2 % at ___and ___DAS
T_9	75 % RDF + Foliar spray of Urea phosphate @ 2 % at ___and ___DAS

Note: -

1. Fertilizer recommendation as per crop and agro-climatic condition

2. Water volume 300 litre/ha for first spray and 500 litre/ha for second spray using Flat fan nozzle

3. Analyze the N & P content of the product/material (Nano DAP) used in experiment

4. Cloth barrier will be used during foliar spray of treatment

B) Details

Plot Size : Gross : Large plot

Spacing :

Seed Rate :

Method of Sowing :

Fertilizer dose : As per treatments

11. Observations to be recorded:

As per selection of crop:

(i) Growth and yield attributes

(ii) One or two quality parameters

5. Treatments of two experiments of natural farming has been changed as below

Experiment name : **Evaluation of soybean –wheat cropping sequence under natural farming**

CP/Agronomy/2022/03

Location & Agro Climatic Zone : College Agronomy Farm, BACA, AAU, Anand

Middle Gujarat Agro climatic Zone III

Year of Commencement 2022-23

T1	RDF (As per crop)
T2	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 250 lit/ha at sowing and 30 DAS *fb* spraying of 250 lit/ha *Jivamrut* at 60 DAS
T3	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 500 lit/ha at sowing and 30DAS
T4	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 250 lit/ha at sowing, 30 and 60 DAS *fb* spraying of 250 lit/ha *Jivamrut* at 90 DAS
T5	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 500 lit/ha at sowing, 30 and 60 DAS
T6	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30 and 60 DAS
T7	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30 and 60 DAS

T8	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30, 60 and 90 DAS
T9	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30, 60 and 90 DAS
T10	*Ghan Jivamrut* 500 kg/ha + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30, 60 and 90 DAS
Note(1) Plant protection: Neemastra, Agniastra and Brahmastra etc. will be used as and when required except treatment T_1 (2) Jivamrut will be applied as soil drenching	

Corrected Treatments

T1	RDF (As per crop)
T2	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 625 lit/ha at sowing and 30 DAS *fb* spraying of 25% lit/ha *Jivamrut* at 60 DAS
T3	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 1250 lit/ha at sowing and 30DAS
T4	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 625 lit/ha at sowing, 30 and 60 DAS *fb* spraying of 25% lit/ha *Jivamrut* at 90 DAS
T5	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 1250 lit/ha at sowing, 30 and 60 DAS
T6	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250lit/ha at sowing, 30 and 60 DAS
T7	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30 and 60 DAS
T8	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30, 60 and 90 DAS
T9	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30, 60 and 90 DAS
T10	*Ghan Jivamrut* 2000 kg/ha + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30, 60 and 90 DAS
Note(1) Plant protection: Neemastra, Agniastra and Brahmastra etc. will be used as and when required except treatment T_1 (2) Jivamrut will be applied as soil drenching	

1. **Experiment name** : **Evaluation maize –chick pea cropping sequence evaluation under natural farming**
2. **Location & Agro Climatic Zone** : RRS, AAU, Anand
   Middle Gujarat Agro climatic Zone III
3. **Year of Commencement** 2022-23

T1	RDF (As per crop)
T2	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 250 lit/ha at sowing and 30DAS *fb* spraying of 250 lit/ha *Jivamrut* at 60 DAS
T3	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 500 lit/ha at sowing and 30DAS
T4	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 250 lit/ha at sowing, 30 and 60 DAS *fb* spraying of 250 lit/ha *Jivamrut* at 90 DAS
T5	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 500 lit/ha at sowing, 30 and 60 DAS
T6	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30 and 60 DAS
T7	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30 and 60 DAS
T8	*Ghan Jivamrut* 250 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30, 60 and 90 DAS
T9	*Ghan Jivamrut* 500 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30, 60 and 90 DAS
T10	*Ghan Jivamrut* 500 kg/ha + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 500 lit/ha at sowing, 30, 60 and 90 DAS
Note: Plant protection: Neemastra, Agniastra and Brahmastra etc. will be used as an when required except T_1	

Corrected Treatments

T1	RDF (As per crop)
T2	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 625 lit/ha at sowing and 30DAS *fb* spraying of 25% lit/ha *Jivamrut* at 60 DAS

T3	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 1250 lit/ha at sowing and 30DAS
T4	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 625 lit/ha at sowing, 30 and 60 DAS *fb* spraying of 25% lit/ha *Jivamrut* at 90 DAS
T5	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + soil application of *Jivamrut* 1250 lit/ha at sowing, 30 and 60 DAS
T6	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30 and 60 DAS
T7	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30 and 60 DAS
T8	*Ghan Jivamrut* 1000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30, 60 and 90 DAS
T9	*Ghan Jivamrut* 2000 kg/ha + seed treatment *Bijamrut* (300 ml/kg seed) + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30, 60 and 90 DAS
T10	*Ghan Jivamrut* 2000 kg/ha + wheat straw mulch 5 t/ha + soil application of *Jivamrut* 1250 lit/ha at sowing, 30, 60 and 90 DAS
Note: Plant protection: Neemastra, Agniastra and Brahmastra etc. will be used as an when required except T_1	

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20.3 PLANT PROTECTION/ CROP PROTECTION

Chairman : Dr. Z. P. Patel, Hon. Vice Chancellor, NAU, Navsari

Co-Chairmen : Dr. C.M. Muralidharan, Director of Research, SDAU, SK Nagar

: Dr. D. B. Sisodiya, Prof. & Head (Ag. Ento.), AAU, Anand

Rapporteurs : Dr. J.J. Pastagia, NAU, Navsari

: Dr. M. K. Ghelani, JAU, Junagadh

: Dr. N. M. Gohel, AAU, Anand

: Dr. Sushma Deb, SDAU, Sardarkrushinagar

Statistician : Dr. Alok Shrivastava, Professor& Head, NAU, Navsari

Name of Conveners of SAUs

Sr. No.	Name	University
1.	Dr. Hemant Sharma	NAU, Navsari
2.	Dr. D. S. Kelaiya	JAU, Junagadh
3.	Dr. R. K. Thumar	AAU, Anand
4.	Dr. R. S. Jaiman	SDAU, Sardarkrushinagar

The meeting of 20th Combined AGRESCO Plant Protection Sub Committee regarding "Recommendation for Farmers and Scientific Community as well as New Technical Programmes" was held during May 10-13, 2024 through virtual mode.

At the outset, Dr. Lalit Mahatma, Associate Director of Research, NAU, Navsari welcomed Dr. Z. P. Patel, Hon'ble Vice Chancellor, NAU, Navsari, Co-Chairmen, Conveners, Rapporteurs and all the members of 20th Combined AGRESCO Plant Protection Sub Committee.

Dr. Z. P. Patel, the Hon'ble Vice Chancellor, NAU, Navsari and Chairman of the Combined Joint AGRESCO meeting of the Plant Protection Sub-committee, requested all the conveners and members to actively participate in a fruitful discussion on the recommendations and new technical programs to provide sustainable technology for the farmers of Gujarat. The chairman emphasized that the plant protection sub-committee is one of the most important and vibrant group among all four SAUs of Gujarat. The scientists in the group are directly involved with the farmers in resolving their day-to-day farming problems, which affect their food, livelihood, socio-economic status, and the environment.

He stated that as plant protectionists, we must understand that "protecting plant health can help in our fight against hunger, reduce poverty, preserve biodiversity and the environment, and promote economic development." After that, the conveners of the SAUs presented recommendations and new technical programs.

SUMMARY

Name of University	No. of Recommendations				New Technical Programs	
	Farming community		Scientific community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
NAU	15	09+1 **$**	07	07+05*****	29	22+ 02 **$**+04 **@** + 01 #
JAU	07	03+01 ^	07	07+03*****	18	11+ 04 #+ 03 **Ω**
AAU	14	05+01**	41	41+08*****	27	21 +06 **$**
SDAU	08	03+ 01**+1 **$**	02	02+03*****	08	06+ 01 # +01 **$**
Total	44	22	57	76	82	60

*** Shifted from Farmers recommendation to Information to the Scientific Community**

$ Not approved

@ Merged

 # AICRP

^ Extended for one more year

Ω Shifted to Basic Science AGRESCO Group

**** Submit the residue analysis data**

20.3.1 RECOMMENDATIONS FOR FARMING COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.3.1.1 ***In vitro* compatibility of *Lecanicillium lecanii* with insecticides**

The farmers are recommended to refer the following table for mixing *Lecanicillium lecanii* with different insecticides.

Table: Compatibility of *Lecanicillium lecanii* with insecticides

Tr No	Insecticides	0.5 X RD			1 X RD			2 X RD		
		% Conc.	Dose (ml or g per 10 l)	Farmer are advised to mix the insecticides with (Yes/No)	% Conc.	Dose (ml or g per 10 l)	Farmer are advised to mix the insecticides with (Yes/No)	% Conc.	Dose (ml or g per 10 l)	Farmer are advised to mix the insecticides with (Yes/No)
1	Afidopyropen 50DC	0.003	0.60	No	0.005	1.20	No	0.010	2.40	No
2	Buprofezin 25SC	0.0170	6.60	Yes	0.033	13.20	No	0.067	26.40	No
3	Clothianidin 50WDG	0.003	0.50	Yes	0.005	1.00	Yes	0.010	20.00	No
4	Cyantraniliprole 10.26OD	0.009	8.70	No	0.018	17.40	No	0.036	34.80	No
5	Dinotefuran 20SG	0.004	2.00	Yes	0.008	4.00	Yes	0.016	80.00	No
6	Emamectin benzoate 5 SG	0.0013	2.60	No	0.003	5.20	No	0.005	10.40	No
7	Fenpyroximate 5 EC	0.0025	5.00	No	0.005	10.00	No	0.010	20.00	No
8	Thiacloprid 21.7SC	0.014	6.70	No	0.029	13.40	No	0.058	26.80	No
9	Tolfenpyrad 15EC	0.015	10.00	No	0.030	20.00	No	0.060	40.00	No
10	Spiromesifen 22.90SC	0.010	4.10	Yes	0.019	8.20	No	0.038	16.40	No

11	Flonicamid 50WG	0.008	0.15	Yes	0.015	0.30	Yes	0.030	0.60	No
12	Fipronil 5SC	0.005	10.00	No	0.010	20.00	No	0.020	40.00	No
13	Dimethoate 30EC	0.020	6.60	No	0.040	13.20	No	0.080	26.40	No
14	Spinosad 45SC	0.0068	1.50	Yes	0.014	3.00	No	0.027	6.00	No
15	Diafenthiuron 50WP	0.0250	5.00	Yes	0.050	10.00	No	0.100	20.00	No
16	Chlorantraniliprole 18.5SC	0.0028	1.50	Yes	0.006	3.20	No	0.011	5.90	No
17	Imidacloprid 17.8SL	0.0027	1.50	Yes	0.005	3.00	No	0.011	6.00	No
18	Acetamiprid 20SP	0.0040	2.00	No	0.008	4.00	No	0.016	8.00	No
19	Thiamethoxam 25WG	0.0050	2.00	Yes	0.010	4.00	No	0.020	8.00	No

Compatibility chart for *Lecanicillium lecanii* with insecticides

Sr. No.	Insecticides	Dose (ml or g per 10 l)	Farmer are advised to mix the insecticides with *L. lecanii*	Dose (ml or g per 10 l)	Farmer are advised to mix the insecticides with *L. lecanii*	Dose (ml or g per 10 l)	Farmer are advised to mix the insecticides with *L. lecanii*
1	Afidopyropen 50DC	0.60	No	1.20	No	2.40	No
2	Buprofezin 25SC	6.60	Yes	13.20	No	26.40	No
3	Clothianidin 50WDG	0.50	Yes	1.00	Yes	20.00	No
4	Cyantraniliprole 10.26OD	8.70	No	17.40	No	34.80	No
5	Dinotefuran 20SG	2.00	Yes	4.00	Yes	80.00	No
6	Emamectin benzoate 5 SG	2.60	No	5.20	No	10.40	No
7	Fenpyroximate 5 EC	5.00	No	10.00	No	20.00	No
8	Thiacloprid 21.7SC	6.70	No	13.40	No	26.80	No
9	Tolfenpyrad 15EC	10.00	No	20.00	No	40.00	No
10	Spiromesifen 22.90SC	4.10	Yes	8.20	No	16.40	No
11	Flonicamid 50WG	1.50	Yes	3.00	Yes	6.00	No
12	Fipronil 5SC	10.00	No	20.00	No	40.00	No
13	Dimethoate 30EC	6.60	No	13.20	No	26.40	No
14	Spinosad 45SC	1.50	Yes	3.00	No	6.00	No
15	Diafenthiuron 50WP	5.00	Yes	10.00	No	20.00	No
16	Chlorantraniliprole 18.5SC	1.50	Yes	3.20	No	5.90	No
17	Imidacloprid 17.8SL	1.50	Yes	3.00	No	6.00	No
18	Acetamiprid 20SP	2.00	No	4.00	No	8.00	No
19	Thiamethoxam 25WG	2.00	Yes	4.00	No	8.00	No

ખેડૂતોને જુદા જુદા કિટનાશકો સાથે *લેકાનીસીલીયમ લેકાની* ભેળવવા માટે નીચે દર્શાવેલ કોષ્ટકને

અનુસરવાની ભલામણ કરવામાં આવે છે.

કોષ્ટક: *લેકાનીસીલીયમ લેકાની* ની જુદા જુદા કિટનાશકો સાથે સુસંગતતા

ક્રમ	કીટનાશકદવાનું નામ	ભલામણ કરતા ઓછી માત્રા			ભલામણ કરેલ માત્રા			ભલામણ કરતા વધુ માત્રા		
		સાંદ્રતા (%)	પ્રમાણ (મી./ગ્રા પ્રતિ૧૦ લી)	લેકાનીસીલીયમ સાથે કીટનાશક દવા ભેળવવાની ભલામણ (હા/ના)	સાંદ્રતા (%)	પ્રમાણ (મી./ગ્રાપ્રતિ૧૦ લી)	લેકાનીસીલીયમ સાથે કીટનાશક દવા ભેળવવાની ભલામણ (હા/ના)	સાંદ્રતા (%)	પ્રમાણ (મી./ગ્રા પ્રતિ૧૦ લી)	*લેકાનીસીલીયમ* સાથે કીટનાશક દવા ભેળવવાની ભલામણ (હા/ના)
૧	એફીડોપાયરોપેન ૫૦ ડીસી	૦.૦૦૩	૦.૬૦	ના	૦.૦૦૫	૧.૨૦	ના	૦.૦૧૦	૨.૪૦	ના
૨	બુપ્રોફેઝીન ૨૫ એસી	૦.૦૧૭	૬.૬૦	હા	૦.૦૩૩	૧૩.૨૦	ના	૦.૦૬૭	૨૬.૪૦	ના
૩	ક્લોથીયાનીડીન ૫૦ ડબ્લ્યુડીજી	૦.૦૦૩	૦.૫૦	હા	૦.૦૦૫	૧.૦૦	હા	૦.૦૧૦	૨.૦૦	ના
૪	સાયન્ટ્રાનિલિપ્રોલ ૧૦.૨૬ ઓડી	૦.૦૦૯	૮.૭૦	ના	૦.૦૧૮	૧૭.૪૦	ના	૦.૦૩૬	૩૪.૮૦	ના
૫	ડીનોટેફુરાન ૨૦ એસી	૦.૦૦૪	૨.૦૦	હા	૦.૦૦૮	૪.૦૦	હા	૦.૦૧૬	૮.૦૦	ના
૬	એમામેકટીન બેન્ઝોએટ ૫ એસજી	૦.૦૦૧૩	૨.૬૦	ના	૦.૦૦૩	૫.૨૦	ના	૦.૦૦૫	૧૦.૪૦	ના
૭	ફેનપાયરોક્સિમેટ ૫ ઈસી	૦.૦૦૨૫	૫.૦૦	ના	૦.૦૦૫	૧૦.૦૦	ના	૦.૦૧૦	૨૦.૦૦	ના
૮	થાયાક્લોપ્રીડ ૨૧.૭ એસી	૦.૦૧૪	૬.૭૦	ના	૦.૦૨૯	૧૩.૪૦	ના	૦.૦૫૮	૨૬.૮૦	ના
૯	ટોલફેનપાયરાડ ૧૫ ઈસી	૦.૦૧૫	૧૦.૦૦	ના	૦.૦૩૦	૨૦.૦૦	ના	૦.૦૬૦	૪૦.૦૦	ના
૧૦	સ્પાયરોમેસીફેન ૨૨.૯૦ એસી	૦.૦૧૦	૪.૧૦	હા	૦.૦૧૯	૮.૨૦	ના	૦.૦૩૮	૧૬.૪૦	ના
૧૧	ફ્લોનીકામીડ ૫૦ ડબ્લ્યુજી	૦.૦૦૮	૧.૫૦	હા	૦.૦૧૫	૩.૦૦	હા	૦.૦૩૦	૬.૦૦	ના
૧૨	ફીપ્રોનીલ ૫ એસસી	૦.૦૦૫	૧૦.૦૦	ના	૦.૦૧૦	૨૦.૦૦	ના	૦.૦૨૦	૪૦.૦૦	ના
૧૩	ડાયમેથોએટ ૩૦ ઈસી	૦.૦૨૦	૬.૬૦	ના	૦.૦૪૦	૧૩.૨૦	ના	૦.૦૮૦	૨૬.૪૦	ના
૧૪	સ્પીનોસાડ ૪૫ એસસી	૦.૦૦૬૮	૧.૫૦	હા	૦.૦૧૪	૩.૦૦	ના	૦.૦૨૭	૬.૦૦	ના
૧૫	ડાયફેનથ્યુરોન ૫૦ ડબલ્યુપી	૦.૦૨૫૦	૫.૦૦	હા	૦.૦૫૦	૧૦.૦૦	ના	૦.૧૦૦	૨૦.૦૦	ના

૧૬	ક્લોરેન્ટ્રાનિલિપ્રોલ ૧૮.૫એસસી	૦.૦૦૨૮	૧.૫૦	હા	૦.૦૦૬	૩.૨૦	ના	૦.૦૧૧	૫.૯૦	ના
૧૭	ઈમીડાક્લોપ્રિડ ૧૭.૮ એસએલ	૦.૦૦૨૭	૧.૫૦	હા	૦.૦૦૫	૩.૦૦	ના	૦.૦૧૧	૬.૦૦	ના
૧૮	એસીટામીપ્રિડ ૨૦ એસપી	૦.૦૦૪૦	૨.૦૦	ના	૦.૦૦૮	૪.૦૦	ના	૦.૦૧૬	૮.૦૦	ના
૧૯	થાયોમેથોક્ઝામ ૨૫ ડબલ્યુજી	૦.૦૦૫૦	૨.૦૦	હા	૦.૦૧૦	૪.૦૦	ના	૦.૦૨૦	૮.૦૦	ના

કોષ્ટક: ***લેકાનીસીલીયમ લેકાની*** **ની જુદી જુદી કીટનાશક દવાઓ સાથે સુસંગતતા**

ક્રમ	કીટનાશકદવાનું નામ	પ્રમાણ (મી./ગ્રા પ્રતિ૧૦ લી)	લેકાનીસીલીયમ સાથે કીટનાશક દવા ભેળવવાની ભલામણ (હા/ના)	પ્રમાણ (મી./ગ્રાપ્રતિ૧૦ લી)	લેકાનીસીલીયમ સાથે કીટનાશક દવા ભેળવવાની ભલામણ (હા/ના)	પ્રમાણ (મી./ગ્રા પ્રતિ૧૦ લી)	લેકાનીસીલીયમ સાથે કીટનાશક દવા ભેળવવાની ભલામણ (હા/ના)
૧	એફીડોપાયરોપેન ૫૦ ડીસી	૦.૬૦	ના	૧.૨૦	ના	૨.૪૦	ના
૨	બુપ્રોફેઝીન ૨૫ એસી	૬.૬૦	હા	૧૩.૨૦	ના	૨૬.૪૦	ના
૩	ક્લોથીયાનીડીન ૫૦ ડબ્લ્યુડીજી	૦.૫૦	હા	૧.૦૦	હા	૨.૦૦	ના
૪	સાયન્ટ્રાનિલિપ્રોલ ૧૦.૨૬ ઓડી	૮.૭૦	ના	૧૭.૪૦	ના	૩૪.૮૦	ના
૫	ડીનોટેફુરાન ૨૦ એસી	૨.૦૦	હા	૪.૦૦	હા	૮.૦૦	ના
૬	એમામેકટીન બેન્ઝોએટ ૫ એસજી	૨.૬૦	ના	૫.૨૦	ના	૧૦.૪૦	ના
૭	ફેનપાયરોક્સિમેટ ૫ ઈસી	૫.૦૦	ના	૧૦.૦૦	ના	૨૦.૦૦	ના
૮	થાયાક્લોપ્રીડ ૨૧.૭ એસી	૬.૭૦	ના	૧૩.૪૦	ના	૨૬.૮૦	ના
૯	ટોલફેનપાયરાડ ૧૫ ઈસી	૧૦.૦૦	ના	૨૦.૦૦	ના	૪૦.૦૦	ના
૧૦	સ્પાયરોમેસીફેન ૨૨.૯૦ એસી	૪.૧૦	હા	૮.૨૦	ના	૧૬.૪૦	ના
૧૧	ફ્લોનીકામીડ ૫૦ ડબ્લ્યુજી	૧.૫૦	હા	૩.૦૦	હા	૬.૦૦	ના
૧૨	ફીપ્રોનીલ ૫ એસસી	૧૦.૦૦	ના	૨૦.૦૦	ના	૪૦.૦૦	ના
૧૩	ડાયમેથોએટ ૩૦ ઈસી	૬.૬૦	ના	૧૩.૨૦	ના	૨૬.૪૦	ના
૧૪	સ્પીનોસાડ ૪૫ એસસી	૧.૫૦	હા	૩.૦૦	ના	૬.૦૦	ના
૧૫	ડાયફેનથ્યુરોન ૫૦ ડબલ્યુપી	૫.૦૦	હા	૧૦.૦૦	ના	૨૦.૦૦	ના
૧૬	ક્લોરેન્ટ્રાનિલિપ્રોલ ૧૮.૫એસસી	૧.૫૦	હા	૩.૨૦	ના	૫.૯૦	ના
૧૭	ઈમીડાક્લોપ્રિડ ૧૭.૮	૧.૫૦	હા	૩.૦૦	ના	૬.૦૦	ના

	એસએલ						
૧૮	એસીટામીપ્રિડ ૨૦ એસપી	૨.૦૦	ના	૪.૦૦	ના	૮.૦૦	ના
૧૯	થાયોમેથોક્ઝામ ૨૫ ડબલ્યુજી	૨.૦૦	હા	૪.૦૦	ના	૮.૦૦	ના

Approved with following suggestion(s):

1. Mention dose per 10 litre of water in table and compatibility chart

(Action: Professor & Head, Deptt. of Entomology, NMCA, NAU Navsari)

20.3.1.2 Management of yellow stem borer of paddy under South Gujarat Conditions

Farmers of Gujarat growing rice are recommended to dip the roots of paddy seedlings in thiamethoxam 25WG @ 4.0 g/10l water solution for three hours and after 30 days of transplanting give field application by broadcasting of either chlorantraniliprole 0.40 GR @ 10kg/ha or flubendiamide 0.70 GR @15kg/ha to manage the rice yellow stem borer.

ગુજરાતમાં ડાંગરની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ડાંગરની ગાભમારાની ઈયળનાં નિયંત્રણ માટે ડાંગરનાં ધરૂંનાં મૂળને ફેરરોપણી પહેલા થાયોમેથોક્ષામ ૨૫ ડબલ્યુજી @ ૪ ગ્રામ પ્રતિ ૧૦ લીટર પાણીનાં મિશ્રણમાં ત્રણ કલાક સુધી ડુબાડી રાખવા તેમજ ફેરરોપણીનાં ૩૦ દિવસ બાદ ક્લોરાન્ટ્રાનીલીપ્રોલ ૦.૪૦ જીઆર @ ૧૦ કિગ્રા પ્રતિ હેક્ટર અથવા ફ્લુંબેન્ડીએમાઈડ ૦.૭૦ જીઆર @ ૧૫ કિગ્રા પ્રતિ હેક્ટર પ્રમાણે ખેતરમાં આપવું.

CIBRC Format:

Year	Crop	Pest/ disease	Pesticides/ Biocontrol with formulation	Dosage			Application schedule	Waiting period/ PHI (days)
				g. a.i. /ha	Conc. (%)	Dilution in water (10 lit)		
2024	Paddy	Yellow Stem borer	Thiamethoxam 25 WG	-	0.01	4.0g	Root dipping (Before Transplanting)	14
			Chlorantraniliprole 0.40 GR	40	-	10 kg/ha	Field application (By broadcasting after 30 days of transplanting)	53
			Flubendiamide 0.70 GR	100	-	15 kg/ha		25

Remark: Already registered in the CIBRC

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત	જંતુનાશક દવાઓનુ	પ્રમાણ			વાપરવાની પધ્ધત્તિ	વેઇટીંગ પીરીયડ
				સક્રિય તત્વ	સાંદ્રતા	પાણી સાથે		

				ફોર્મ્યુલેશન	ગ્રામ પ્રતિ હેક્ટર	(%)	ડાયલ્યુશન (૧૦ લીટર પાણીમાં)		/ પીએચ આઇ (દિવસ)
	૨૦૨૪	ડાંગર	ગાભમારા ની ઈયળ	થાયોમેથોક્ષામ ૨૫ ડબલ્યુજી	-	૦.૦૧	૪.૦ ગ્રામ	મૂળ ડૂબાડવા (ફેર રોપણી પહેલા)	૧૪
				ક્લોરાન્ટ્રાનીલીપ્રોલ ૦.૪૦ જીઆર	૪૦	-	૧૦ કિગ્રા/હે	ઉભા પાકમાં (૩૦ દિવસ પછી પુંખીને આપવું)	૫૩
				ફ્લુંબેન્ડીએમાઈડ ૦.૭૦ જીઆર	૧૦૦	-	૧૫ કિગ્રા/હે		૨૫
	Remark: CIBRC અંતર્ગત નોંધણી થયેલ છે.								

	Approved with following suggestion(s): 1. Mention the sand quantity in text 2. Mention date of planting in methodology 3. Remove footnote from table 4. Verify the DNMRT in all the tables 5. Write dead heart (%) instead of incidence 6. Check the data of T4 and T11 in the table in text **(Action: Research Scientist, Main Rice Res. Center, SWMRU, NAU, Navsari)**
20.3.1.3	**Non chemical management of mango hopper under South Gujarat condition** Apply three sprays of *Beauveria bassiana* 1.15 WP (1 x 10^8cfu/g minimum) or *Metarhizium anisopliae* 1.15 WP (1 x 10^8cfu/g minimum) @ 60g/10 litre of water for management of mango hopper. First spray should be done at panicle initiation and apply subsequent two sprays at an interval of 10 days. **Approved with following suggestion(s):** 1. Shifted to "Information to the Scientific community" 2. Replace the word "replications" with "repetitions" in methodology 3. Mention footnote of DNMRT below the respective table 4. Mention same age of trees and observation from all four directions in methodology **(Action: Polytechnic in Horticulture, NAU, Navsari)**

20.3.1.4	**Evaluation of biopesticides against pod borers infesting green gram** Apply three sprays of azadirachtin 0.15 EC at 0.0006% @ 40ml/10 liter of water, first spray at initiation of pod borers (*Helicoverpa armigera* and *Maruca vitrata*) and subsequent two sprays at 10 days interval for effective management of pod borers in green gram. **Approved with following suggestion(s):** 1. Shifted to "Information to the Scientific community" 2. Mention footnote of DNMRT below the respective table 3. Mention three sprays in methodology 4. Verify the transformed data in tables **(Action: Principal, CoA, NAU, Bharuch)**
20.3.1.5	**Evaluation of different modules against pink bollworm in *Bt* cotton** Farmers of Gujarat cultivating *Bt* cotton are recommended to apply a pea seed sized dollops of Gossyplure 4% RTU paste three times at 5 m plant to plant distance in alternate rows (approximately 800 plants/ ha, 200 – 250 g/ ha) on primary branch axis (below 3-4 inches from tip) for management of pink bollworm. This paste should be applied at 45, 75 and 105 days after sowing. ગુજરાતના બીટી કપાસની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ગુલાબી ઇયળના વ્યવસ્થાપન માટે ગોસીપ્લુર ૪% આરટીયુ ટ્યુબના વટાણા કદના ટપકાઓ (અંદાજીત ૮૦૦ છોડ/હે., ૨૦૦-૨૫૦ ગ્રામ/હે.) એકાંતરે કપાસની હાર છોડીને બે છોડ વચ્ચે ૫ મીટરના અંતરે છોડના અગ્રભાગે (૩ થી ૪ ઇંચ નીચે) મુકવા. આ માવજત વાવણીના ૪૫, ૭૫ અને ૧૦૫ દિવસે આપવી. **Approved with following suggestion(s):** 1. Mention footnote of DNMRT below the respective table 2. Write "spot application technology" instead of "SPLAT technology" in text 3. Remove SPLAT photographs from entire recommendation proposal 4. Write module 1, 2 and 3 in tabular form in text **(Action: Research Scientist, Main Cotton Res. Station, NAU, Surat)**
20.3.1.6	**Evaluation of different botanical formulations for management of sucking pest complex in mango** Apply first spray of Azadirachtin 1 EC @ 30 ml/10 litre of water at panicle stage and subsequent three sprays at 15 days intervals for effective management of hoppers and thrip in Mango. **Approved with following suggestion(s):** 1. Shifted to "Information to the Scientific community" 2. Mention the footnote of DNMRT **(Action: Research Scientist, AES, NAU, Paria)**

20.3.1.7 **Dissipation behavior and safety assessment of afidopyropen residues in/on brinjal**

The brinjal grower of Gujarat using Afidopyropen 50 g/L DC (50 g ai/ha) are advised to observe one day waiting period by considering the maximum residue limit (0.15 mg/kg).

ગુજરાતમા રીંગણમાં એફીડોપાઈરોપેન ૫૦ ગ્રા/લિ ડીસી જંતુનાશક (૫૦ ગ્રામ સ.ત./હે) વાપરતા ખેડૂતોને મહત્તમ અવશેષ મર્યાદાને (૦.૧૫ મિ.ગ્રામ/કિલો ગ્રામ) ધ્યાનમાં લેતા છેલ્લા છંટકાવ અને ઉતાર વચ્ચે એક દિવસનું સમય ગાળો રાખવાની સલાહ આપવામાં આવે છે.

CIBRC Format

Year	Crop	Pest/ Diseases	Pesticide with formulation	Doses			Waiting Period (days)
				Quantity of formulation	Conc. (%)	Dilution in water	
2024	Brinjal	White fly and Jassid	Afidopyropen 50 g/L DC	1000 ml	0.02 %	500 L	1.0

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	જીવાત/રોગ	જંતુનાશકનું સંયોજન	માત્રા			પ્રતીક્ષા સમય (દિવસ)
				બનાવટનું પ્રમાણ	સાંદ્રતા (%)	પાણીમાં મિશ્રણ	
૨૦૨૪	રીંગણ	સફેદ માખી અને તડતડીયા	એફીડોપાઈરોપેન ૫૦ ગ્રા/લિ ડીસી	૧૦૦૦ મિલી	૦.૦૨ %	૫૦૦ લિ.	૧.૦

Approved with following suggestion(s):

1. Mention the dose and waiting period in text

(Action: Prof. & Head, FQTL, NMCA, NAU, Navsari)

20.3.1.8 **Eco-friendly Management of Mango Post harvest diseases**

Mango growers/sellers/consumers are advised to pack harvested mango fruits with fresh neem leaves (10g/kg fruit) for effective management of post-harvest mango diseases *viz.* anthracnose, stem end rot, black rot, rhizopus rot in eco-friendly manner and to increase its shelf life.

કેરીના ઉત્પાદકો/વિક્રેતાઓ/ગ્રાહકોને સલાહ આપવામાં આવે છે કે આંબા પરથી ફળ ઉતાર્યા પછીના કેરીના રોગો જેમ કે કાલવ્રણ, ડીંચનો સડો, કાળો સડો, પોચો સડો વગેરેના પર્યાવરણ લક્ષી અસરકારક વ્યવસ્થાપન કરવા અને તેની સંગ્રહ શક્તિ વધારવા માટે કેરીને લીમડાના તાજા પાન (૧૦ ગ્રામ/કિ.ગ્રા. ફળ) સાથે પેક કરવી જોઈએ .

Suggestion: Not Approved

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

20.3.1.9 Compatibility of fungicides and insecticides with *Trichoderma viride*

The farmers are advised to refer the following table for mixing *Trichoderma viride* with different fungicides, insecticides and antibiotic.

ખેડૂતોને જુદી જુદી ફૂગનાશકો, કીટનાશકો અને જીવાણુંનાશક સાથે *ટ્રાયકોડર્મા વિરીડીને* ભેળવવા માટે નીચે દર્શાવેલ કોષ્ટકને અનુસરવાની ભલામણ કરવામાં આવે છે.

Table-1: Compatible chart for fungicides, insecticides and antibiotic with *Trichoderma viride*

Sr. No	Fungicides, Insecticides and Antibiotic	Concentration (ppm) (g or ml/10l)							
		PPM	(g or ml/10l)	PPM	(g or ml/10l)	PPM	(g or ml/10l)	PPM	(g or ml/10l)
1	Azoxystrobin 23SC	250	10.08	500	21.70	750	32.6	1000	43.4
2	Fosetyl-AL 80WP	250	3.10	500	6.30	750	09.4		
3	Sulphur 80WP	500	6.30	1000	12.50	2000	25		
4	Streptomycin Sulphate 90 + Tetracylin Hydrocloride 10) SP	100	1.00	150	1.5	200	2	250	2.5
5	Flubendiamide 7.50 + Kresoxim Methyl 37.5 w/w	500	11.00						
6	Chlorantraniliprole 18.50SC	500	27.00	1000	54	2000	108	3000	162.1
7	Chlorpyrifos 20EC	500	25.00						
8	Emamectin benzoate 5SG	500	100.00						
9	Flubendiamide 20WG	500	25.00	1000	50	2000	100	3000	150
10	Lambda-cyhalothrin 5 EC	500	100.00						
11	Novaluron 10EC	500	50.00						
12	Spinetoram 11.70 SC	500	42.70	1000	85.4	2000	170.8	3000	256.4
13	Chlorpyrifos 50 + Cypermethrin 5EC	500	9.00	1000	18.10				
14	Flubendiamide 7.50 + Kresoxim Methyl 37.5 w/w SC	500	11.00						
15	Novaluron 05.25 + Indoxacarb 04.50 SC	500	51.20	1000	102.5	2000	205	3000	307.5

16	Profenofos 40 + Cypermethrin 4 EAC	500	11.00	1000	22.7				
17	Chlorantraniliprole 9.30 + Lambda-cyhalothrin 4.6 ZC	500	35.90	1000	71.9	2000	143.8		
18	Dimethoate 30EC	250	8.30	500	16	750	249	1000	33.2
19	Spinosad 45SC	250	5.50	500	11.1	750	16.5	1000	22.2
20	Thiamethoxam 30FS	250	8.30	500	16.6	750	24.9	1000	33.2
21	Acetamiprid 20SP	250	12.50	500	25	750	37.5	1000	50

Note: Green colour indicate the compatible with *Trichoderma viride*

ટેબલ-૧: ટ્રાયકોડર્મા વિરીડીને જુદી જુદી ફૂગનાશકો, કીટનાશકો અને જીવાણુંનાશક સાથે સુસંગતા

ક્રમ	ફુગનાશક/કીટનાશક /જીવાણુંનાશક	સાંદ્રતા પીપીએમ./ ગ્રામઅથવા મીલી/લીટર							
		પીપીએમ	ગ્રામ અથવા મીલી/ ૧૦ લીટર	પીપીએમ	ગ્રામ અથવા મીલી/ ૧૦ લીટર	પીપીએમ	ગ્રામ અથવા મીલી/ ૧૦ લીટર	પીપીએમ	ગ્રામઅથવા મીલી/૧૦ લીટર
૧	એમોક્સીસ્ટ્રોબીન ૨૩ એસસી	૨૫૦	૧૦.૮	૫૦૦	૨૧.૭	૭૫૦	૩૨.૬	૧૦૦૦	૪૩.૪
૨	ફોસેટાઈલ એલ.૮૦ વે.પા	૨૫૦	૩.૧	૫૦૦	૬.૩	૭૫૦	૯.૪		
3	સલ્ફર ૮૦ વે.પા.	૫૦૦	૬.૩	૧૦૦૦	૧૨.૫	૨૦૦૦	૨૫		
૪	સ્ટ્રોપ્ટોસાયક્લીન સલ્ફેટ ૯૦ + ટ્રેટાસાયક્લીન હાયડ્રોક્લોરાઈડ ૧૦ એસપી	૧૦૦	૧૦	૧૫૦	૧.૫	૨૦૦	૨	૨૫૦	૨.૫
૫	ફ્લ્યુબેન્ડીયામાઈડ ૭.૫૦ + ક્રેસોક્સીમ મિથાઈલ ૩૭.૫ વે.પા	૫૦૦	૧૧						
૬	ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી	૫૦૦	૨૭	૧૦૦૦	૫૪	૨૦૦૦	૧૦૮	૩૦૦૦	૧૬૨.૧
૭	ક્લોરપાઈરીફોસ ૨૦ ઈસી	૫૦૦	૨૫						
૮	એમાબેક્ટીન બેન્ઝોએટ ૫ એસસી	૫૦૦	૧૦૦						
૪	સ્ટ્રોપ્ટોસાયક્લીન સલ્ફેટ ૯૦ + ટ્રેટાસાયક્લીન હાયડ્રોક્લોરાઈડ ૧૦ એસપી	૧૦૦	૧૦	૧૫૦	૧.૫	૨૦૦	૨	૨૫૦	૨.૫

૫	ફ્લ્યુબેન્ડીયામાઈડ ૭.૫૦ + ક્રેસોક્સીમ મિથાઈલ ૩૭.૫ વે.પા	૫૦૦	૧૧							
૬	ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી	૫૦૦	૨૭	૧૦૦૦	૫૪	૨૦૦૦	૧૦૮	૩૦૦૦	૧૬૨.૧	
૭	કલોરપાઇરીફોસ ૨૦ ઈસી	૫૦૦	૨૫							
૮	એમાબેક્ટીન બેન્ઝોએટ ૫ એસસી	૫૦૦	૧૦૦							
૯	ફ્લ્યુબેન્ડીયામાઈડ ૨૦ વેજી	૫૦૦	૨૫	૧૦૦૦	૫૦	૨૦૦૦	૧૦૦	૩૦૦૦	૧૫	
૧૦	લેમ્બડા સાયહેલોથ્રીન ૫ ઈસી	૫૦૦	૧૦૦							
૧૧	નોવાલ્યુરોન ૧૦ ઈસી	૫૦૦	૫૦							
૧૨	સ્પીનેટોરમ ૧૧.૭૦ એસસી	૫૦૦	૪૨.૭	૧૦૦૦	૮૫.૪	૨૦૦૦	૧૭૦.૮	૩૦૦૦	૨૫૬.૪	
૧૩	ક્લોપાયરીફોસ ૫૦+સાયપરમેથ્રીન ૫ ઈસી	૫૦૦	૯	૧૦૦૦	૧૮.૧					
૧૪	ફ્લ્યુબેન્ડીયામાઈડ ૭.૫૦ + ક્રેસોક્સીમ મીથાઈલ ૩૭.૫ વે/વે. એસસી	૫૦૦	૧૧							
૧૫	નોવાલ્યુરોન ૦૫.૨૫ + ઇન્ડોક્સાકાર્બ ૪.૫૦ એસસી	૫૦૦	૫૧.૨	૧૦૦૦	૧૦૨.૫	૨૦૦૦	૨૦૫	૩૦૦૦	૩૦૭.૫	
૧૬	પ્રોફેનોફોસ ૪૦+ સાયપરમેથ્રીન ૪ ઈસી	૫૦૦	૫૧.૨	૧૦૦૦	૨૨.૭					
૧૭	ક્લોરાન્ટ્રાનીલીપ્રોલ ૯.૩૦ + લેમ્બડા સાયહેલોથ્રીન ૪ ઈસી	૫૦૦	૩૫.૯	૧૦૦૦	૭૧.૯	૨૦૦૦	૧૪૩.૮			
૧૮	ડાઈમેથોએટ ૩૦ ઈસી	૨૫૦	૮.૩	૫૦૦	૧૬	૭૫૦	૨૪.૯	૧૦૦૦	૩૩.૨	
૧૯	સ્પીનોસાડ ૪૫ એસસી	૨૫૦	૫.૫	૫૦૦	૧૧.૧	૭૫૦	૧૬.૫	૧૦૦૦	૨૨.૨	
૨૦	થાયમેથોકઝામ ૩૦ એફએસ	૨૫૦	૮.૩	૫૦૦	૧૬.૬	૭૫૦	૨૪.૯	૧૦૦૦	૩૩.૨	
૨૧	એસીટામીપ્રીડ ૨૦ એસપી	૨૫૦	૧૨.૫	૫૦૦	૨૫	૭૫૦	૩૭.૫	૧૦૦૦	૫૦	

નોંધ: લીલો કલર *ટ્રાયકોડર્મા વિરીડી* સાથે સુસંગતા દર્શાવે છે.

Approved with following suggestion(s):

1. Mention the footnote below tables

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

20.3.1.10 **Evaluation of fungicides against the sheath blight of rice**

Paddy growers of Gujarat are recommended to apply two sprays of azoxystrobin 18.2 + difenoconazole 11.4 (29.6 SC) at 0.03 % (10 ml/10 l water) or trifloxystrobin 25

+ tebuconazole 50 (75 WG) at 0.03 % (04 g/10 l water), first spray at appearance of disease and second spray at booting stage for effective management of sheath blight.

ગુજરાતમાં ડાંગર ખેતી કરતા ખેડૂતોને પર્ણચ્છેદનો સુકારાના (શીથ બ્લાઈટ) અસરકારક નિયંત્રણ માટે એઝોકસીસ્ટ્રોબીન ૧૮.૨ + ડાયફેનકોનાઝોલ ૧૧.૪ (૨૯.૬ એસ સી) ૦.૦૩ % (૧૦ મી.લી. પ્રતિ ૧૦ લિટર પાણી) અથવા ટ્રાયફલોકસીસ્ટ્રોબીન ૨૫+ ટેબુકોનાઝોલ ૫૦ (૭૫ ડબલ્યુ જી), ૦.૦૩ % (૪ ગ્રામ પ્રતિ ૧૦ લિટર પાણી) ના બે છંટકાવ પૈકી પહેલો છંટકાવ રોગની શરૂઆત થાય ત્યારે અને ત્યારબાદ બીજો છંટકાવ ધ્વજ પર્ણદંડ (બુટ લીફ સ્ટેજ) અવસ્થાએ કરવાની ભલામણ કરવામાં આવે છે.

CIBRC Format

Year	Crop	Disease	Fungicide with formulation	Doses			Waiting Period as per CIB record (days)
				Quantity of formulation g/ a.i./ha	Conc. (%)	Dilution in water	
2024	Paddy	Sheath blight	Azoxystrobin 18.2 + difenoconazole 11.4 (29.6 SC)	150	0.03	500 L	31
			Trifloxystrobin 25 + tebuconazole 50 (7 5 WG).	150	0.03	500 L	21

સીઆઇબીઆરસી ફોર્મેટ:

વર્ષ	પાક	રોગ	ફુગનાશક	માત્રા			વેઇટીંગ પીરીયડ (દિવસ)
				સ.ત/ હે	સાંદ્રતા %	પાણીમાં મિશ્રણ	
૨૦૨૪	ડાંગર	પર્ણચ્છેદનો સુકારો	એઝોકસીસ્ટ્રોબીન ૧૮.૨ + ડાયફેનકોનાઝોલ ૧૧.૪ (૨૯.૬ SC)	૧૫૦ ગ્રામ	૦.૦૩	૫૦૦ લિ.	૩૧
			ટ્રાયફલોકસીસ્ટ્રોબીન ૨૫+ ટેબુકોનાઝોલ ૫૦ (૭૫ વેટેબલ ગ્રેનુલ્સ)	૧૫૦ ગ્રામ	૦.૦૩	૫૦૦ લિ.	૨૧

Approved with following suggestion(s):

1. Mention footnote of DNMRT below the respective table
2. Check labour cost and economics in text
3. Add g. a.i./ha and qty./ha in treatment details

(Action:Research Scientist, Main Rice Res. Centre, NAU, Navsari)

20.3.1.11 **Evaluation of locally available substrates and their combinations for the cultivation of oyster mushroom in the Dangs**

Mushroom growers of Gujarat are recommended to use paddy straw (100%) or finger millet straw: paddy straw (50:50) or wheat straw (100%) or finger millet straw: paddy straw (70:30) or finger millet straw (100%) as substrate for cultivation of oyster mushroom (*Pleurotus ostreatus*)

ગુજરાતના ઢીંગરી મશરૂમની (પ્લુરોટસ ઓસ્ટ્રીટસ) ખેતી કરતા ખેડૂતોને ડાંગરનું પરાળ (૧૦૦%) અથવા નાગલી અને ડાંગરનું પરાળ (૫૦:૫૦) અથવા ઘઉનું પરાળ (૧૦૦%) અથવા નાગલી: ડાંગરનું પરાળ

(૭૦:૩૦) અથવા નાગલીનું પરાળ (૧૦૦%) માધ્યમ તરીકે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestion(s):

1. Replace word “replications” with “repetitions”
2. Re-calculate the economics as per standard format

(Action: Principal, CoA, NAU, Waghai)

20.3.1.12 **Evaluation of different chopped stalk and grain spawns for the cultivation of oyster mushroom in the Dangs**

Oyster mushroom (*Pleurotus ostreatus*) spawn producers of Gujarat are recommended to use grains of sorghum or finger millet or little millet or wheat as a substrate.

ગુજરાતના ઢીંગરી મશરૂમના (પ્લુરોટસ ઓસ્ટ્રીટસ) બીજ ઉત્પાદકોને જુવાર અથવા નાગલી અથવા વરી અથવા ઘંઉના દાણાનો માધ્યમ તરીકે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestion(s):

1. Replace word “advised” with “recommended” from draft

(Action: Principal, CoA, NAU, Waghai)

20.3.1.13 **Evaluation of different fungicides against boll rot and foliar diseases of cotton**

Cotton growing farmers of Gujarat are recommended to apply two sprays of fluxapyroxad 167 g/ L + pyraclostrobin 333 g/ L SC at 0.3% @ 6ml/ 10L or metiram 55% + pyraclostrobin 5% WG at 0.18% @ 30g/ 10L, first spray at the initiation of disease and second spray after the 15 days for effective management of boll rot disease.

ગુજરાતના કપાસની ખેતી કરતા ખેડુતોને જીંડવાના સડાના રોગના અસરકારક નિયંત્રણ માટે ફ્લુક્ષાપાયરોક્સાડ ૧૬૭ ગ્રામ/ લી. + પાયરોકલોસ્ટ્રોબીન ૩૩૩ ગ્રામ/ લી. એસ.સી. ૦.૩% @ ૬ મીલી/ ૧૦લી. અથવા મેટીરામ ૫૫% + પાયરોકલોસ્ટ્રોબીન ૫% ડબલ્યુજી ૦.૧૮% ૩૦ગ્રામ/ ૧૦લી. પાણીનાં બે છંટકાવ પૈકી પ્રથમ છંટકાવ રોગની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ ૧૫ દિવસનાં આંતરે કરવાની ભલામાણ કરવામાં આવે છે.

CIBRC Format

Year	Crop	Pest/ disease	Pesticides/ Biocontrol with formulation	Dosage			Application schedule	Waiting period/ PHI (days)
				g. a. i. /ha (g)	Conc. (%)	Dilution in water (10 lit)		
2024	Cotton	Boll rot disease	fluxapyroxad 167 g/ L + pyraclostrobin 333g/ L SC @ 6ml/ 10L	150	0.3	6ml	Foliar spray	27
			metiram 55% + pyraclostrobin 5% WG @ 30g/ 10L	900	0.18	30g	Foliar spray	45
Remark: Already registered in the CIBRC								

	સીઆઇબીઆરસી ફોર્મેટ: **નોંધ:** સીઆઇબીઆરસી અંતર્ગત નોંધણી થયેલ છે

વર્ષ	પાક	રોગ	જંતુનાશક દવાઓનુ ફોર્મ્યુલેશન	પ્રમાણ			વાપરવાની પધ્ધતિ	પ્રતિક્ષા સમયે / પીએચ આઇ (દિવસ)
				સક્રિય તત્વ ગ્રામ પ્રતિ હેક્ટર	સાંદ્રતા (%)	પાણી સાથે ડાયલ્યુશન (૧૦ લીટર પાણીમાં)		
૨૦૨૪	કપાસ	જીંડવાનો સડો નો રોગ	ફ્લુક્ષાપાયરોક્સાડ ૧૬૭ગ્રામ/ લી. + પાયરોકલોસ્ટ્રોબીન ૩૩૩ગ્રામ/ લી. એસ.સી. @ ૬મીલી/ ૧૦લી.	૧૫૦	૦.૩	૬ મીલી	છંટકાવ	૨૭
			મેટીરામ ૫૫% + પાયરોકલોસ્ટ્રોબીન ૫% ડબલ્યુજી ૩૦ગ્રામ/ ૧૦લી.	૯૦૦	૦. ૧૮	૩૦ ગ્રામ	છંટકાવ	૪૫

Approved with following suggestion(s):

1. Recast this recommendation for the entire Gujarat state
2. Mention spray interval in draft (both English and Gujarati)
3. Mention g ai/ha in CIBRC table (both English and Gujarati)
4. Add concentration in CIBRC table (both English and Gujarati)
5. Add table of Alternaria disease incidence text
6. Correct the economics table *i.e.* quality of fungicide
7. Check "ICBR" in text
8. Write 'boll rot complex' instead of only 'boll rot'

(Action: Research Scientist, Main Cotton Res. Station, NAU, Surat)

20.3.1.14 **Efficacy of fungicides and bio-agents against sorghum grain mold**

Grain mold of sorghum can be effectively managed by two sprays of propiconazole 25 EC @ 10.0 ml or *Trichoderma harzianum* 1.5 WP ($2x10^6$ cfu/g) @ 100 g per 10 litre of water, first spray applied at the time of earhead emergence and second spray at 15 days interval.

Approved with following suggestion(s):

1. Shifted to "Information to the Scientific community"
2. Mention footnote of DNMRT below the respective table
3. Write the name of formulation in CIBRC table
4. Add CIBRC table
5. Mention data on fodder yield in text

(Action: Research Scientist, Main Sorghum Res. Station, NAU, Surat)

20.3.1.15 **Integrated management of post-harvest diseases (anthracnose, shoulder browning, stem end rot and *Aspergillus* rot) of mango fruits**

Spraying of difenoconazole 25 EC at 0.0125 @ 5 ml/10 litre of water at 30 days prior to harvest followed by hot water treatment after harvest at 52 ±1°C for 10 minutes

for integrated management of post-harvest diseases of mango *viz*., anthracnose, stem end rot and Aspergillus rot.

Approved with following suggestion(s):

1. Shifted to "Information to the Scientific community"
2. Recast draft as per the requirement of "Information to the Scientific community"

(Action:Research Scientist, Agriculture Experimental Station, NAU, Paria)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.3.1.16 **Effect of different poison baits against fall army worm *Spodoptera frugiperda* (J. E. Smith) infesting maize**

The farmers of Gujarat growing maize are recommended to apply poison baits of thiodicarb 75 WP 250 g or emamectin benzoate 5 SG 100 g mixed with 5 kg jaggery and 25 kg maize flour in 8 litre of water/ha in whorl of plants, first at the initiation of pest infestation and second application at 20 days after first application for effective management of fall armyworm.

CIB & RC 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)	Rem-ark(s)
				a.i. (g/ ha)	Quantity of formulation g or ml/kg seed, kg or l/ha	Concentration (%)	Quantity of formulation in 10 l of water (g or ml)				
1	2	3	4	5	6	7	8	9	10	11	12
2024	Maize	Fall army-worm, *S. Frugi-perda*	Thiodicarb 75 WP	-	250 g	-	-	-	First application at initiation of pest infestation, second application at 20 days after first application	-	-
			Emamectin benzoate 5 SG	-	100 g	-	-			-	-

ગુજરાતમાં મકાઈની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, પૂછડે ચાર ટપકા વાળી લશ્કરી ઈયળના અસરકારક નિયંત્રણ માટે થાયોડીકાર્બ ૭૫ ડબલ્યુપી ૨૫૦ ગ્રામ અથવા એમામેક્ટીન બેન્ઝોએટ ૫ એસજી ૧૦૦ ગ્રામ દવાને પ્રતિ હેક્ટર દીઠ ૫ કિગ્રા ગોળ અને ૨૫ કિગ્રા મકાઈના લોટ સાથે ૮ લિટર પાણીમાં ભેળવી વિષ પ્રલોભિકા બનાવીને છોડની ભૂંગળીમાં આપવી, પ્રથમ માવજત જીવાતનો ઉપદ્રવ શરૂ થયે અને બીજી માવજત પ્રથમ માવજતના ૨૦ દિવસ બાદ કરવી.

સી. આઈ. બી. અને આર. સી. ફોર્મેટ

વર્ષ	પા	જીવાત	જંતુધ્ન /	પ્રમાણ	દ્રાવણનો	વાપરવાની	વેઈટીંગ	નોંધ

	ક		જૈવિક જંતુધ્નનું ફોર્મ્યુલેશન	સક્રિય તત્વ (ગ્રામ/હે)	ફોર્મ્યુલેશનનો જથ્થો ગ્રામ અથવા મિલી/કિગ્રા બીજ, કિગ્રા અથવા લી/હે	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશનનો જથ્થો (ગ્રામ અથવા મિલી)	જથ્થો / જમીન સુધારકોની જરૂરિયાત (કિગ્રા અથવા લી/હે)	પધ્ધતિ	પિરિયડ / પી. એચ. આઇ. (દિવસ)	
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨
૨૦૨૪	મકાઇ	પૂછડે ચાર તાપકા વાળી લશ્કરી ઇયળ	થયોડીકાર્બ ૭૫ ડબલ્યુપી	-	૨૫૦ ગ્રામ	-	-	-	પ્રથમ માવજત જીવાતનો ઉપદ્રવ શરૂ થયે અને બીજી માવજત પ્રથમ માવજત ના ૨૦ દિવસ બાદ કરવી	-	-
			એમામેક ટીન બેન્ઝોએટ ૫ એસજી	-	૧૦૦ ગ્રામ	-	-			-	-

Approved with following suggestion(s):

1. Mention yield as green cob yield
2. Mention fodder yield data
3. Verify the transformation in all the tables
4. Remove ‘economical’ from recommendation draft
5. Check the final recommendation draft for both in English and Gujarati

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

20.3.1.17 **Standardization of number of pheromone traps for management of mango fruit fly, *Bactrocera dorsalis* (Hendel)**

The farmers of south Saurashtra having mango orchards are recommended to install 30 methyl eugenol parapheromone traps per hectare at pea sized fruit stage and three meter height from ground level for effective management of fruit fly and the lure to be changed three times at an interval of 40 days.

દક્ષિણ સૌરાષ્ટ્રમાં આંબાના બગીચા ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ફળ માખીના અસરકારક નિયંત્રણ માટે વટાણા જેવડી કેરીની અવસ્થાએ ૩૦ મીથાઈલ યુજીનોલ પેરાફેરોમોન ટ્રેપ પ્રતિ હેકટરે જમીનથી ત્રણ મીટર ઉચાઈએ લગાવવા તથા ત્યારબાદ લ્યુર ૪૦ દિવસના અંતરે ત્રણ વખત બદલાવવી.

Approved with following suggestion(s):

	1. Recommendation restricted to South Saurashtra Agro-climatic Zone and recast the draft 2. Write "methyl eugenol parapheromone" trap instead of "pheromone" trap 3. Mention size of the block in methodology (Action: Professor & Head, Department of Entomology, JAU, Junagadh)
20.3.1.18	**Standardization of number of pheromone traps for pink bollworm, *Pectinophora gossypiella* (Saunders) in cotton** Installation of 50 sex pheromone traps per hectare at crop canopy level after 40 days of sowing for effective management of cotton pink bollworm and the lure to be changed three times at an interval of 40 days. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community (Action: Professor & Head, Department of Entomology, JAU, Junagadh)
20.3.1.19	**Standardization of number of pheromone traps for fruit fly infesting banana** The farmers of Gujarat having banana orchards are recommended to install 35 para pheromone traps per hectare at 1.5 meter height from ground level for effective management of fruit fly and the lure to be changed three times at an interval of 40 days. ગુજરાતમાં કેળાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ફળ માખીના અસરકારક નિયંત્રણ માટે ૩૫ પેરા ફેરોમોન ટ્રેપ પ્રતિ હેકટરે જમીનથી દોઢ મીટર ઉંચાઈએ લગાવવા તથા ત્યારબાદ લ્યુર ૪૦ દિવસના અંતરે ત્રણ વખત બદલાવવી. **Approved with following suggestion(s):** 1. It was decided in the house to extend one more year to draw the final conclusion 2. Mention the time of installation of trap 3. Mention standard methodology for fruit fly damage 4. Specify block size (Action: Professor & Head, Department of Entomology, JAU, Junagadh)
20.3.1.20	**Effect of biorationals against aphid, *Lipaphis erysimi* (Kalt.) infesting mustard** Apply two sprays of *Beauveria bassiana* 1.15 WP ($1x10^8$ CFU/g) at 0.007% (60 g/10 L of water) or neem oil (10000 ppm) at 0.004% (40 ml/10 L of water) first spray when pest cross ETL level (1.5 aphid index/plant) and second spray at 10 days after first spray for effective management of mustard aphid. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community (Action: Research Scientist (Groundnut), Main Oilseeds Research Station, JAU, Junagadh)

20.3.1.21 **Integrated management practices to minimize *Aspergillus flavus* infection in groundnut**

Seed treatment with mancozeb 75 WP 3 g/kg of seed + chlorpyriphos 20 EC 25 ml/kg of seed at the time of sowing + furrow application of *Trichoderma harzianum* 1.00% WP ($2x10^6$ cfu/g min.) 2.5 kg in 500 kg of FYM/ha at the time of sowing + soil drenching of chlorpyriphos 20 EC 5 ml/lit of water at 30 and 60 days after sowing to reduce the aflarot infection in groundnut.

Approved with following suggestion(s):

1. Shifted to information for the scientific community
2. Check the date of sowing of the experiment
3. Add the formulation of *T. harzianum*
4. Check the labour cost in economics
5. Recast the information draft by adding aflarot and modifying seed treatment detail in text

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

20.3.1.22 **Evaluation of ready-mix fungicides as a seed treatment against soil borne diseases of groundnut**

Farmers of Gujarat growing *Kharif* groundnut are recommended to apply seed treatment with carboxin 37.5 + thiram 37.5 WS @ 3 g/kg seed or carbendazim 25 + mancozeb 50 WS @ 3 g/kg seed or penflufen 13.28 + trifloxystrobin 13.28 FS @ 3 ml/kg seed as ready-mix fungicide for effective management of aflarot, collar rot and stem rot in groundnut.

CIB & RC format

Year	Crop	Pest	Pesticides/ Biopesticides with formulation	Dosage				Quantity of suspension/ Soil ammendments Required (kg or l/ha)	Application schedule	Waiting period/ PHI (days)	Rema-rk(s)
				a.i. (g/ ha)	Quantity of formulation g or ml/kg seed, kg or l/ha	Concentration (%)	Quantity of formulation in 10 l of water (g or ml)				
1	2	3	4	5	6	7	8	9	10	11	12
2024	Groundnut	Aflarot, collarrot ,stem rot	Carboxin 37.5 + Thiram 37.5 WS	-	3 g	-	-	-	Seed treatment per kg at the time of sowing	Nil	These pesticides are registered with CIB & RC for use in ground nut crop for management of this disease.
			Carbendazim 25 + Mancozeb 50 WS	-	3 g	-	-	-		Nil	
			Penflufen 13.28 + Trifloxystrobin 13.28 FS	-	3 ml	-	-	-		Nil	

ગુજરાત રાજ્યમાં ચોમાસું મગફળીની ખેતી કરતા ખેડૂતોને અફલારોટ, ઉગસુક તેમજ થડ અને ડોડવાના કોહવારા રોગના અસરકારક વ્યવસ્થાપન માટે ફૂગનાશકના તૈયાર મિશ્રણ કાર્બોક્સીન ૩૭.૫ + થાયરમ ૩૭.૫ ડબલ્યુએસ ૩ ગ્રામ/કિ.ગ્રા. બીજ અથવા કાર્બેન્ડેઝીમ ૨૫+ મેન્કોઝેબ ૫૦ ડબલ્યુએસ ૩ ગ્રામ/કિ.ગ્રા. બીજ અથવા પેન્ફ્લુફેન .કિ/૨૮ એફએસ ૩ ગ્રામ.ટ્રાયફ્લોકસીસ્ટ્રોબીન ૧૩ +૨૮.૧૩ગ્રા. બીજ મુજબ

બીજ માવજત આપવાની ભલામણ કરવામાં આવે છે.

સી. આઈ. બી. અને આર. સી. ફોર્મેટ

વર્ષ	પાક	જીવાત	જંતુધ્ન / જૈવિક જંતુધ્નનું ફોર્મ્યુલેશન	પ્રમાણ				દ્રાવણનો જથ્થો / જમીન સુધારકોની જરૂરિયાત (કિગ્રા અથવા લી/હે)	વાપરવાની પધ્ધતિ	વેઈટીંગ પિરિયડ / પી. એચ. આઇ. (દિવસ)	નોંધ
				સક્રિય તત્વ (ગ્રામ/હે)	ફોર્મ્યુલેશનનો જથ્થો ગ્રામ અથવા મિલી/કિગ્રા બીજ , કિગ્રા અથવા લી/હે	સાંદ્રતા (%)	૧૦ લિટર પાણીમાં ફોર્મુલેશનનો જથ્થો (ગ્રામ અથવા મિલી)				
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦	૧૧	૧૨
૨૦૨૪	મગફળી	અફલારોટ, ઉગસુક, થડ અને ડોડવાનો કોહવારો	કાર્બોક્સીન ૩૭.૫ + થાઈરમ ૩૭.૫ ડબલ્યુ એસ	--	૩ ગ્રામ	--	--	--	વાવેતર પહેલા બીજ માવજત આપવી	--	મગફળીના આફ્લા રોટ, મુળનો કોહવારો અને મુળના સડાના રોગના નિયંત્રણ માટે આ દવાઓ સીઆઇબી-આરસીમાં નોધાયેલછે.
			કાર્બેન્ડેઝીમ ૨૫ + મેન્કોઝેબ ૫૦ ડબલ્યુ એસ	--	૩ ગ્રામ	--	--	--		--	
			પેન્ફ્લુફેન ૧૩.૨૮ + ટ્રાયફ્લોકસીસ્ટ્રોબીન ૧૩.૨૮ એફ એસ	--	૩ મીલી	--	--	--		--	

Approved with following suggestion(s):

1. Mention Seed treatment as common in treatment details as well as footnote
2. Check the year of the experiment
3. Verify the year of approval of experiment

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

20.3.1.23	**Evaluation of various insecticides as lure toxicants for fruit fly in mango orchard**
	To prepare fruit fly traps using plywood block (5 x 5 x 1.2 cm) impregnating with ethyl alcohol: methyl eugenol: malathion 50 EC (6:4:1) (v/v) or ethyl alcohol: methyl eugenol: spinosad 45 SC (6:4:1) (v/v) and install at 30 meter apart to each other one feet below the crop canopy at flowering stage to trap maximum male fruit flies in mango orchard. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community **[Action: Professor and Head, Dept. of Agril. Entomology, BACA, AAU, Anand]**
20.3.1.24	**Evaluation of various insecticides as lure toxicants for fruit fly in bitter gourd**
	To prepare fruit fly traps using plywood block (5 x 5 x 1.2 cm) impregnated with in Ethyl alcohol: Cue-lure: Malathion 50 EC (6:4:1) (v/v) and install at 30 meter apart to each other one feet below pendal at flowering stage to trap maximum male fruit flies in bittergourd orchard (Cucurbetaceae vegetables) in-case of unavailability of malathion 50 EC, use spinetoram 11.7 SC for trap preparation. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community **[Action: Professor and Head, Dept. of Agril. Entomology., BACA, AAU, Anand]**
20.3.1.25	**Effectiveness of fruit bagging on Rose-Ringed Parakeet *Psittacula krameri* (Scopoli) damage in guava**
	The farmers of Gujarat having guava orchard are recommended to bag fruits before maturity with butter paper bag (20 × 24 cm) to reduce the damage caused by rose ringed parakeet. ગુજરાતના જામફળની વાડી ધરાવતા ખેડૂતોને પોપટથી થતું નુકસાન ઘટાડવા માટે ફળ પરિપક્વ થતા પહેલા તેના પર બટર પેપર બેગ (૨૦ X ૨૪ સે.મી.) લગાવવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion(s):** 1. Replace words 'fully developed fruit' with 'before maturity of fruit' **[Action: Associate Research Scientist, AINP on VPM, Agril. Ornithology, Anand]**
20.3.1.26	**Evaluation of eco-friendly inputs against sucking pests of potato**
	Three sprays of either tobacco decoction 2 per cent (200 g/ 10 litres water) or neem oil 0.5 per cent (50 ml/ 10 litres water) first at initiation of pests and subsequent two sprays after 15 days interval found effective for management of sucking pests *viz.*, jassid, whitefly and thrips in potato. **Note:** Add sticker (10 ml/ 10 litres water) in neem oil 0.5%. **Methods of Preparation of Tobacco decoction 2% (Cold method):** Take 200g of tobacco dust and soak in one litre of water, filter it with muslin cloth next

	day and add 9 litre of water to make it 2%. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community 2. Mention CFU as 1 x 10^8 /g min. in treatment detail 3. Mention CD value in the interaction table **[Action: Assistant Professor and Head, Dept. of Plant Protection, CoH, AAU, Anand]**
20.3.1.27	**Impact of date of sowing on incidence of fall armyworm, *Spodoptera frugiperda* infesting sweet corn**
	Fall armyworm infestation remained low in sweet corn crop sown during 2nd to 4th week of June and recorded higher green cob as well as fodder yield. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community **[Action: Assistant Research Scientist (Ento.) MMRS, AAU, Godhra]**
20.3.1.28	**Evaluation of insecticides as a seed treatment against thrips in summer green gram**
	Treat the seeds with imidacloprid 48% FS (8 ml/kg seeds) and sow after drying for 12 hr found effective for the management of sucking pests *viz.*, thrips, whitefly and jassid up to one month after sowing in summer green gram. **Note:** For the treatment of 1 kg seeds, prepare 25 ml solution by adding required quantity of water. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community 2. In table, mention No. of thrips/ twigs instead of per plant **[Action: Assistant Research Scientist (Ento.), Agricultural Research Station, AAU, Derol]**
20.3.1.29	**Management of fall armyworm, *Spodoptera frugiperda* (J. E. Smith) in fodder maize**
	Treat the seeds with acephate 50% + imidacloprid 1.80 SP, 6 g/kg seed using equal quantity of water before 12 hours of sowing and apply two foliar sprays of *Bacillus thuringiensis* var. *kurstaki* 1 % WG (1×10^8 cfu/g), 20 g/10 litre water, first spray at 25 and second spray at 35 days after sowing found effective for the management of fall armyworm. **Note:** The treated seeds should be dried under shade condition before sowing. **Approved with following suggestion(s):** 1. Shifted to information for the scientific community 2. Check the interaction in Table 21 **[Action: Assistant Research Scientist (Ento.), Agricultural Research Station, AAU, Sansoli]**
20.3.1.30	**Evaluation of insecticides against invasive thrips, *Thrips parvispinus* (Karny) infesting chilli**
	For effective management of *Thrips parvispinus* in chilli adopt following module 1. Root dipping of chilli seedlings with imidacloprid 17.8 SL 10 ml per 10 litre of water for two hours before transplanting 2. Application of Neem cake @ 250 kg/ha at the time of transplanting and 30 days after

	transplanting 3. Installation of blue sticky trap @ 75 per hectare at 30 DAT 4. Spraying of spinetoram 11.7 SC, 0.0117%, 58.50 g a.i./ha, 10 ml/ 10 litre of water at initiation of pest 5. Spraying of *Metarhizium anisopliae*1.15% WP (1 x 10^8cfu/g) 50 g/ 10 litre of water after 10 days of first spray 6. Spraying of broflanilide 300 G/L SC, 0.005%, 25.2, g a.i./ha, 1.68 ml/10 litre of water after 7 days of second spray 7. Spraying of azadirachtin 10000 ppm 20 ml/ 10 litre of water after 10 days of third spray 8. Spraying of tolfenpyrad 15 EC, 0.030% 150 g a.i./ha, 20 ml/ 10 litre of water at 7 days of fourth spray **Approved with following suggestion(s):** 1. Submit the results with residue analysis data only. **[Action: Professor and Head, Dept. of Agril. Entomology, BACA, AAU, Anand]**
20.3.1.31	**Evaluation of bio-pesticides against invasive thrips, *Thrips parvispinus* (Karny) infesting chilli**
	Application of neem cake @ 250 kg/ha during soil preparation followed by sequential one spray of following bio-pesticides at 7 days interval starting from initiation of pests found effective against black thrips *Thrips parvispinus* in chilli. 1. *Pseudomonas fluorescens* 1% WP (2 x 10^8 cfu/g) 40 g /10 litre of water 2. *Metarhizium anisopliae* 1.15% WP (1 x 10^9 cfu/g) 40 g /10 litre of water 3. Aqueous bidi tobacco dust extract 2 %, 200 g/ 10 litre of water 4. *Pseudomonas fluorescens* 1% WP (2 x 10^8 cfu/g) 40 g /10 litre of water 5. *Metarhizium anisopliae* 1.15% WP (1 x 10^9 cfu/g) 40 g /10 litre of water 6. Aqueous bidi tobacco dust extract 2 %, 200 g/ 10 litre of water **OR** Application of neem cake @ 250 kg/ha during soil preparation followed by sequential one spray of following bio-pesticides at 7 days interval starting from initiation of pests found effective against black thrips *Thrips parvispinus* in chilli. 1. Neem Seed Kernel Extract 5%, 500 g/ 10 litre of water 2. Azadirachtin 10000 ppm, 0.003%, 30 ml/ 10 litre of water 3. Aqueous bidi tobacco dust extract 2 %, 200 g/ 10 litre of water 4. Neem Seed Kernel Extract 5%, 500 g/ 10 litre of water 5. Azadirachtin 10000 ppm, 0.003%, 30 ml/ 10 litre of water 6. Aqueous bidi tobacco dust extract 2 %, 200 g/ 10 litre of water **Approved with following suggestion(s):** 1. Shifted to information for the scientific community 2. Mention CFU of *Metarhizium anisopliae* 1.15% WP as 1 x 10^8 cfu/g min. **[Action: Professor and Head, Dept. of Agril. Entomology, BACA, AAU, Anand]**
20.3.1.32	**Evaluation of different modules against invasive thrips, *Thrips parvispinus* (Karny) in chilli**

For effective management of *Thrips parvispinus* in chilli adopt following module,

9. Root dipping of chilli seedlings with imidacloprid 17.8 SL 10 ml per 10 litre of water for two hours before transplanting
10. Application of Neem cake @ 250 kg/ha at the time of transplanting and 30 days after transplanting
11. Installation of blue sticky trap @ 75/ ha at 30 DAT
12. Spraying of spinetoram 11.7 SC, 0.0117%, 58.50 g a.i./ha, 10 ml/ 10 litre of water at initiation of pest
13. Spraying of *Metarhizium anisopliae*1.15% WP (1 x 10^8cfu/g), 50 g/ 10 litre of water after 10 days of first spray
14. Spraying of broflanilide 300 G/L SC, 0.005%, 25.2, g a.i./ha, 1.68 ml/10 litre of water after 7 days of second spray
15. Spraying of azadirachtin 10000 ppm, 20 ml/ 10 litre of water after 10 days of third spray
16. Spraying of tolfenpyrad 15 EC, 0.030% 150 g a.i./ha, 20 ml/ 10 litre of water at 7 days of fourth spray

Approved with following suggestion(s):

1. Shifted to information for the scientific community
2. Verify the CD value of Table 3

[Action: Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand]

20.3.1.33 Evaluation of organic materials against root-knot nematodes in tomato

Farmers growing tomato in middle Gujarat are recommended to apply *Agniastra* 800 ml in 10 litres of water and then dip the seedling roots for six hours. Thereafter, drench 500 mL *Agniastra* solution per plant at the time of transplanting and at 15, 30 and 45 days after transplanting for effective management of root-knot nematodes. The method for preparation of *Agniastra* is mentioned below:

Ingredients	Required Quantity
Cow urine (*desi*)	20 L
Neem leaves paste	5 kg
Garlic paste	500 g
Green chillies paste	500 g
Tobacco dust	1 kg

- Mix all the ingredients together in vessel and boil it 4-5 times continuously at medium flame and keep it for 48 hrs. Filter this by cloth and then use it.

મધ્ય ગુજરાતમાં ટામેટીની ખેતી કરતા ખેડૂતોને ગંઠવા ફુમિના અસરકારક વ્યવસ્થાપન માટે અગ્નિઅસ્ત્ર ૮૦૦ મિ.લિ.પ્રતિ ૧૦ લિટર પાણીમાં ભેળવી ધરુના મૂળને છ કલાક માટે બોળી રાખી ફેરરોપણી કરવી. ત્યારબાદ છોડ દીઠ ૫૦૦ મિ.લિ. અગ્નિઅસ્ત્ર દ્રાવણ ફેરરોપણીના દિવસે અને ત્યારબાદ ૧૫, ૩૦ અને ૪૫ દિવસે મૂળની આજુબાજુ રેડવાની ભલામણ કરવામાાં આવે છે. અગ્નિઅસ્ત્ર નીચે દર્શાવ્યા મુજબની પદ્ધતિથી બનાવવુ:

સામગ્રી	માત્રા
દેશી ગાયનું મૂત્ર	૨૦ લિટર
લીમડાના પાનની ચટણી	૫ કિ.ગ્રા.

લીલા મરચાની ચટણી	૫૦૦ ગ્રામ
લસણની ચટણી	૫૦૦ ગ્રામ
તમાકુનો દળ	૧ કિ.ગ્રા.

બનાવવાની રીત: ઉપરોક્ત તમામ સામગ્રીને મોટા તપેલામાં ભેગી કરી ધીમા તાપે ૪-૫ વખત ઉભરા આવે ત્યાં સુધી ઉકાળો. ત્યારબાદ ૪૮ કલાક સુધી રાખી કપડાથી ગાળી ઉપયોગ કરવો.

Approved with following suggestion(s):
1. Recommendation restricted to middle Gujarat only.
2. Mention details of scale and % reduction over control in methodology

[Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand]

20.3.1.34 Eco-friendly management of *Meloidogyne* spp. infecting tomato in nursery

Farmers raising tomato nursery in Gujarat are recommended for soil application of neem cake powder @ 200 g/m^2 area at 15 days prior to seeding in nursery for the effective management of root-knot nematodes and thereby increase in number of transplantable seedlings.

ગુજરાતમાં ટામેટીનું ધરૂ ઉછેરતા ખેડૂતોને ગંઠવા ફુમિના અસરકારક વ્યવસ્થાપન તેમજ તંદુરસ્ત રોપવા લાયક ધરૂ વધુ મેળવવા માટે ૧૫ દિવસ પહેલા જમીનમાં લીંબોળીના ખોળનો ભૂકો પ્રતિ ૨૦૦ ગ્રામ/ચો. મીટર ધરૂવાડીયાના વિસ્તારમાં આપવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestion(s):
1. Remove table in recommendation text
2. Mention the rate of application, 200 g/m^2 area

[Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand]

20.3.1.35 Bio-efficacy of fungicidal schedule for management of damping-off in bidi tobacco nursery

1. Drench ready-mix fungicide metalaxyl 8% + mancozeb 64%, 30 g/200 L water/100 m^2 two days before seeding in nursery with rose cane
2. Drench Bordeaux mixture (0.6 %, copper sulphate 1.2 kg and lime 1.2 kg dissolved separately in water and make final volume 200 L), drench it in 100 m^2 with rose cane at the appearance of disease
3. Drench ready-mix fungicide metalaxyl 8% + mancozeb 64%, 30 g/200 L water/100 m^2 in nursery with rose cane again if the disease reappears
4. Spray drench of azoxystrobin 23 SC, 50 ml/50 L water/100 m^2 with knapsack sprayer again, if the disease reappears

OR

1. Spray drench of azoxystrobin 23 SC, 50 ml/50 L water/100 m^2 two days before seeding in nursery with knapsack sprayer
2. Drench Bordeaux mixture (0.6 %, copper sulphate 1.2 kg and lime 1.2 kg dissolved separately in water and make final volume 200 L), drench it in 100 m^2 with rose cane at the appearance of disease
3. Again, if disease reappear, spray drench of azoxystrobin 23 SC, 50 ml/50 L water/100 m^2 with knapsack sprayer
4. Drench ready-mix fungicide metalaxyl 8 % + mancozeb 64 %, 30 g/200 L water/100 m^2 in nursery with rose cane again, if the disease reappears

Recommendation for PHI as per CIB guidelines

Year	Crop	Pest	Pesticide with formulation	Dosage				Application schedule	Waiting period/ PHI (days)
				g. a.i./ ha	Quantity of formula-tion/ ha	Conc (%)	Dilution in water (10 lit.)		
2024	Bidi Tobacco (Nursery)	Damping-off	Metalaxyl 8 % + mancozeb 64	3.6 kg	5.0 kg	0.015	1.5 g	As per treatment detail	--
			Azoxystrobin 23 SC	230	1 lit.	0.023	10 ml		

મધ્ય ગુજરાતના બીડી તમાકુનુ ધરુવાડીયુ ઉછેરતા ખેડૂતોને ધરુના કોહવારાના અસરકારક વ્યવસ્થાપન માટે નીચે જણાવ્યા મુજબ ફૂગનાશકનો અનુક્રમિક ઉપયોગથી ધરુના કોહવારાનુ નિયંત્રણ થઇ રોપવાલાયક તંદુરસ્ત ધરુની સંખ્યા વધારે મળે છે.

ફૂગનાશકોનો ક્રમિક ઉપયોગ

૧. બજારમાાં મળતુ તૈયાર ફૂગનાશાકનુ મિશ્રણ મેટાલેક્સિલ ૮% + મેન્કોઝેબ ૬૪%, 30 ગ્રામ/૨૦૦ લિટર પાણી/૧૦૦ ચો.મી. પ્રમાણે ધરુવાડીયામાં બીજ વાવણીના બે દિવસ પહેલા ઝારાથી રેડવું.

૨. રોગની શરૂઆત થતા બોર્ડેક્ષ મિક્ષ્ચર (0.૬%, કોપર સલ્ફેટ ૧.૨ કિ. ગ્રા. અને ચૂનો ૧.૨ કિ. ગ્રા.) અલગ અલગ પાણીમાં ઓગાળવું અને ૧૦૦ ચો.મી. વિસ્તારમાાં ૨૦૦ લિટર પ્રમાણે ઝારાથી રેડવુ.

૩. બજારમા મળતુ તૈયાર ફૂગનાશકનુ મિશ્રણ મેટાલેક્સિલ ૮% + મેન્કોઝેબ ૬૪%, 30 ગ્રામ/૨૦૦ લિટર પાણી/૧૦૦ ચો.મી. પ્રમાણે રોગ ફરીથી દેખાય તો ઝારાથી રેડવું.

૪. એઝોક્સિસ્ટ્રોબિન ૨૩ એસસી, ૫૦ મિલિ/૫૦ લિ. પાણી/ ૧૦૦ ચો.મી. પ્રમાણે ધરુવાડીયામાં ફરીથી રોગ દેખાય તો દવા છાંટવાના પંપથી રેલાવીને છંટકાવ કરવો

અથવા

૧. એઝોક્સિસ્ટ્રોબિન ૨૩ એસસી, ૫૦ મિલિ/૫૦ લિ. પાણી/ ૧૦૦ ચો.મી. પ્રમાણે ધરુવાડીયામાં બીજ વાવણીના બે દિવસ પહેલા દવા છાંટવાના પંપથી રેલાવીને છંટકાવ કરવો.

૨. રોગની શરૂઆત થતા બોર્ડેક્ષ મિક્ષ્ચર (0.૬%, કોપર સલ્ફેટ ૧.૨ કિ. ગ્રા. અને ચૂનો ૧.૨ કિ. ગ્રા.) અલગ અલગ પાણીમાં ઓગાળવું અને ૧૦૦ ચો.મી. વિસ્તારમાાં ૨૦૦ લિટર પ્રમાણે ઝારાથી રેડવુ.

૩. ફરીથી રોગની શરૂઆત થાય તો તુરંત એઝોક્સિસ્ટ્રોબિન ૨૩ એસસી, ૫૦મિલિ/૫૦ લિ. પાણી/ ૧૦૦ ચો.મી. પ્રમાણે દવા છાંટવાના પંપથી રેલાવીને છંટકાવ કરવો.

૪. બજારમાાં મળતુ તૈયાર ફૂગનાશાકનુ મિશ્રણ મેટાલેક્સિલ ૮% + મેન્કોઝેબ ૬૪%, 30 ગ્રામ/૨૦૦ લિટર પાણી/૧૦૦ ચો.મી. પ્રમાણે જો રોગ ફરીથી દેખાય તો ઝારાથી રેડવું

સેન્ટ્રલ ઇન્સેક્ટિસાઇડ બોર્ડની ગાઇડ લાઇન મુજબ:

વર્ષ	પાક	રોગ	જંતુનાશક દવાઓનુ ફોર્મ્યુલેશન	પ્રમાણ				વાપરવાની પધ્ધતિ	વેઇટીંગ પીરીયડ/ પી.ચએ ઇઆ. (દિવસ)
				ગ્રામ સક્રિય તત્વ પ્રતિ હેક્ટર	ફોર્મ્યુલેશનની માત્રા પ્રતિ હેક્ટર	પ્રમાણ (%)	પાણી સાથે ડાયલ્યુશન/ ૧૦ લિ.		
૨૦૨૪	બીડી તમાકુ (ધરુવાડીયુ)	ધરુનો કોહવારો	મેટાલેક્સિલ ૮% + મેન્કોઝેબ ૬૪%	૩.૬ કિગ્રા.	૫.૦ કિગ્રા.	૦.૦૦૧૫	૧.૫ ગ્રા.	અખતરાની માવજત મુજબ	--
			એઝોક્સીસ્ટ્રોબીન ૨૩ એસ.સી.	૨૩૦	૧ લિટર	૦.૦૨૩	૧૦ મિ.લિ.		

	Suggestion: Approved **[Action: Associate Research Scientist (Nema.), BTRS, AAU, Anand]**
20.3.1.36	**Rotational study with resistant bidi tobacco to manage root-knot disease in bidi tobacco**
	Bidi tobacco farmers whose fields are infested with root-knot nematode are recommended to grow Anand Bidi Tobacco 10 (root-knot resistant) by replacing susceptible variety for four years continuously for effective management of root-knot nematode. બીડી તમાકુની ખેતી કરતા ખેડૂતો કે જેઓનાં ખેતરો ગંઠવા કૃમિથી રોગગ્રસ્ત છે તેઓને ગંઠવા કૃમિના અસરકારક વ્યવસ્થાપન માટે સતત ચાર વર્ષ માટે ગંઠવા કૃમિ ગ્રાહ્ય જાતોને બદલે આણંદ બીડી તમાકુ ૧૦ (ગંઠવા કૃમિ પ્રતિકારક) જાત વાવવાની ભલામણ કરવામાં આવે છે. **Suggestion: Approved** **[Action: Associate Research Scientist (Nema.), BTRS, AAU, Anand]**

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

20.3.1.37 **Evaluation of insecticides against cotton sucking pests**

Farmers of Gujarat cultivating *Bt* cotton are recommended to apply sequential sprays of acetamiprid 20%SP 0.0034% (1.70 g /10 L), spinetoram 11.70% SC 0.0094% (7.83 ml /10 L) and flonicamid 50%WG 0.0125% (2.50 g/ 10 L) or fipronil 18.87%SC 0.0118% (6.25 ml/10 L), thiamethoxam 12.6% + lambda cyhalothrin 9.5% ZC 0.0074% (3.33 ml/10 L) and dinotefuran 20% SG 0.0050% (2.50 g/ 10 L) at 15 days intervals. First spray should be applied when total sucking pest population (thrips and leaf hoppers) exceeds 5 per leaf for effective and economical management of sucking pests. Minimum PHI of acetamiprid, spinetoram and flonicamid or fipronil, thiamethoxam + lambda cyhalothrin and dinotefuran should be kept 15, 30 and 25 days or 21, 26 and 15 days, respectively.

Year	Crop	Pest	Pesticide with formulation	Dose/ha			Formulation in 10 lit. water	Application schedule	Weighting period/PHI (days)
				a.i. (g)	Formulation (g/ml)	Water requirement litre/ha			
2024	Cotton	Leaf hoppers and thrips	Acetamiprid 20 % SP	20	100	600	1.70	First spray at total sucking pest population exceeds 5 per leaf and subsequent two sprays at 15 days	15
			Spinetoram 11.7% SC	56	470		7.83		30
			Flonicamid 50 % WG	75	150		2.50		25

								intervals	
OR									
2024	Cotton	Leaf hoppers and thrips	Fipronil 18.87 % SC	75	375	600	6.25	First spray at total sucking pest population exceeds 5 per leaf and subsequent two sprays at 15 days intervals	21
			Thiamethoxam 12.6% + L. cyhalothrin 9.5 % ZC	44	200		3.33		26
			Dinotefuran 20 % SG	30	150		2.50		15

ગુજરાતના બીટી કપાસની ખેતી કરતા ખેડૂતોને થ્રિપ્સ અને તડતડિયાના અસરકારક વ્યવસ્થાપન માટે જ્યારે ચૂસીયા જીવાતો (થ્રિપ્સ અને તડતડિયા)ની સંખ્યા પ્રતિ પાન દીઠ ૫ (પાંચ) કરતાં વધારે હોય ત્યારે એસીટામિપ્રીડ ૨૦% એસ.પી. ૦.૦૦૩૪% (૧.૭૦ ગ્રામ/ ૧૦ લિટર પાણી), સ્પીનેટોરમ ૧૧.૭૦% એસ.સી. ૦.૦૦૯૪% (૭.૮૩ મિલી / ૧૦ લિટર પાણી) અને ફ્લોનીકામાઈડ ૫૦% ડબલ્યુ.જી. ૦.૦૧૨૫% (૨.૫૦ ગ્રામ/ ૧૦ લિટર પાણી) અથવા ફિપ્રોનીલ ૧૮.૮૭% એસ. સી. ૦.૦૧૧૮% (૬.૨૫ મિલી/ ૧૦ લિટર પાણી), થાયામેથોક્ઝામ ૧૨.૬% + લેમડા સાયહેલોથ્રીન ૯.૫% ઝેડ.સી. ૦.૦૦૭૪% (૩.૩૩ મિલી/ ૧૦ લિટર પાણી) અને ડીનેટોફ્યુરાન ૨૦% એસ.જી. ૦.૦૦૫૦% (૨.૫૦ ગ્રામ/ ૧૦ લિટર પાણી) નો પંદર દિવસના અંતરે ક્રમાનુસાર છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. છેલ્લા છંટકાવ અને વીણી વચ્ચેનો સમયગાળો એસીટામિપ્રીડ, સ્પીનેટોરમ અને ફ્લોનીકામાઈડ અથવા ફિપ્રોનીલ, થાયામેથોક્ઝામ + લેમડા સાયહેલોથ્રીન અને ડીનેટોફ્યુરાન માટે અનુક્રમે ૧૫, ૩૦, ૨૫ અથવા ૨૧, ૨૬ અને ૧૫ દિવસ રાખવો.

વર્ષ	પાક	જીવાત	જંતુનાશક	પ્રમાણ			માત્રા /૧૦ લિટર પાણી	છંટકાવના સમય	પ્રતીક્ષા સમય (દિવસ)
				સક્રિય તત્વ ગ્રામ/હે.	જંતુનાશક્નુ પ્રમાણ/ હે.	પાણીની જરૂરીયાત/હે.			
૨૦૨૪	કપાસ	થ્રીપ્સ અને તડતડિયા	એસીટામિપ્રીડ ૨૦ % એસ.પી	૨૦	૧૦૦	૬૦૦	૧.૭૦	પ્રથમ છંટકાવ પાંચથી વધુ ચૂસીયા પ્રકારની જીવાતો હોય ત્યારે અને બીજા બે છંટકાવ પંદર દિવસના અંતરે કરવા	૧૫
			સ્પીનેટોરમ ૧૧.૭૦ % એસ.સી.	૫૬	૪૭૦		૭.૮૩		૩૦
			ફ્લોનીકામાઈડ ૫૦ % ડબલ્યુ.જી. ૦.૦૧૨૫%	૭૫	૧૫૦		૨.૫૦		૨૫
અથવા									
૨૦૨૪	કપાસ	થ્રીપ્સ અને તડતડિયા	ફિપ્રોનીલ ૧૮.૮૭ % એસ. સી.	૭૫	૩૭૫	૬૦૦	૬.૨૫	પ્રથમ છંટકાવ પાંચથી વધુ ચૂસીયા	૨૧
			થાયામેથોક્ઝા	૪૪	૨૦૦		૩.૩૩		૨૬

				મ ૧૨.૬% + લેમડા સાયહેલોથ્રીન ૯.૫% ઝેડ.સી.				પ્રકારની જીવાતો હોય ત્યારે અને બીજા બે છંટકાવ પંદર દિવસના અંતરે કરવા.	
				ડીનેટોફ્યુરાન ૨૦% એસ.જી.	૩૦	૧૫૦		૨.૫૦	૧૫

Approved with following suggestion(s):

1. Submit the residue analysis data only.
2. Mention "square root transformation" instead of "Arc sine transformation" in footnote of tables

[Action: Assoc. Res. Sci., Cotton Research Station, SDAU, Talod]

20.3.1.38 **Chemical Control of date palm mite complex (Ad-hoc recommendation)**

Date palm growers of Gujarat are recommended to spray Propargite 57 EC 0.057% (10ml/ 10 lit) or Fenazaquin 10 EC 0.01% (10ml/ 10 lit) or Spiromesifen 240 SC 0.12% (5ml/ 10 lit) or Ethion 50 EC 0.05% (20ml/ 10 lit), first at initiation of mite and second spray at 15 days after first spray for effective management of mites.

Year	Crop	Pest	Pesticide with formulation	Dosage				Application schedule	Waiting period PHI (days)
				Conc. (%)	Quantity of formulation l/ha	Dose /10 lit.	Dilution in water (lit./ha)		
2024	Date palm	Mite	Propargite 57% EC	0.057%	0.5 lit	10 ml	500	First spray at initiation of mite population and second spray at 15 days after first spray	07
			Fenazaquin 10% EC	0.01%	0.5 lit	10 ml			07
			Spiromesifen 240 SC	0.12%	0.25 lit	5 ml			07
			Ethion 50% EC	0.05%	1 lit	20ml			05

ગુજરાતમાં ખારેક ઉગાડતા ખેડૂતોએ કથીરીના અસરકારક નિયંત્રણ માટે પ્રોપરગાઈટ ૫૭ ઇસી ૦.૦૫૭% (૧૦મીલી/ ૧૦ લી) અથવા ફેનાઝાક્વિન ૧૦ ઇસી ૦.૦૧% (૧૦મીલી/ ૧૦ લી) અથવા સ્પાયરોમેસીફેન ૨૪૦ એસસી ૦.૧૨% (૫મીલી/ ૧૦ લી) અથવા ઇથીઓન ૫૦ ઇસી ૦.૦૫% (૨૦મીલી/ ૧૦ લી), ના બે છંટકાવ કરવા, પ્રથમ છંટકાવ જીવાત દેખાય ત્યારે અને ત્યારબાદ બીજો છંટકાવ ૧૫ દિવસ બાદ કરવાની ભલામણ કરવામાં આવે છે.

વર્ષ	પાક	જીવાત	કિટનાશક	પ્રમાણ				છંટકાવનો સમય	પ્રતિક્ષા સમય (દિવસ)
				સાંદ્રતા (%)	કિટનાશક નુ પ્રમાણ લી/હે.	માત્રા /૧૦ લી.	પાણી સાથે મિશ્રણ (લી/હે.)		
૨૦૨૪	ખારેક	કથીરી	પ્રોપરગાઈટ ૫૭ ઇસી	૦.૦૫૭%	૦.૫ લી.	૧૦ મીલી	૫૦૦	પ્રથમ છંટકાવ જીવાત દેખાય ત્યારે અને ત્યારબાદ બીજો છંટકાવ ૧૫ દિવસ બાદ	૦૭
			ફેનાઝાક્વિન ૧૦ ઇસી	૦.૦૧%	૦.૫ લી.	૧૦ મીલી			૦૭
			સ્પાયરોમેસીફેન ૨૪૦ એસસી	૦.૧૨%	૦.૨૫ લી.	૫ મીલી			૦૭
			ઇથીઓન ૫૦ ઇસી	૦.૦૫%	૧ લી.	૨૦ મીલી			૦૫

	Approved with following suggestion(s): 1. Considered as 'Adhoc recommendation' provided with supported documents. 2. Correct the "Ethion 25 EC" as "Ethion 50 EC" in recommendation draft and in report 3. Check the economics data in table **[Action: Assoc. Res. Sci., Date palm Research Station, SDAU, Mundra]** **Special remarks** Item No. **20.3.1.38** is passed as an Adhoc recommendation by considering the following points: 1. Letter from the farmer Shri. Narayan Tharu Gadhvi dated: 22/09/2017 of village-Jarpar Marvadi Vistar, (Kachha) regarding heavy infestation of Date palm mite in about 500 trees. 2. Letter from the farmer Shri. Ganibhai Daudbhai Turk dated: 19/12/2017 of village-Drub, Kamadhpur vali vistar (Kachha) regarding heavy infestation of Date palm mite in about 200 trees. 3. Letter from Kachha Date Growers Association, Umiya Nagar, Mundra (Kachha) dated: 05/10/2018 regarding heavy infestation of Date palm mite in the area. 4. Letter from the farmer Shri. Jamalbhai Turk dated: 25/12/2018 of village-Drub, Kamadhpur vali vistar (Kachha) regarding heavy infestation of Date palm mite in about 130 trees. 5. Letter from Shree Khedoi Juth Fal ane Sakbhaji Utpadak Mandali Limited, Moti Khedoi Tal. Anjar (Kachha) dated: 06/02/2019 regarding heavy infestation of Date palm mite in the area. 6. Letter from Unidates Farmer Producer Company Limited, Reldi Moti, Tal. Bhuj (Kachha) dated: 10/10/2022 regarding heavy infestation of Date palm mite in the fields of approximately 100 farmers. By considering the above facts and urgent need of the farmers, Date Palm Research Station, SDAU, Mundra (Kachha) has conducted the research on "Chemical Control of date palm mite complex". Therefore, the house suggested to approve the ad-hoc recommendation for the benefit of date palm growers of Gujarat. **(Action: All Conveners (PPSC), SAU's of Gujarat)**
20.3.1.39	**Evaluation of biorationals for the management of mite complex infesting date palm** Application of two sprays of *Beauveria bassiana* (1×10^8 cfu/g) (40 g/ 10 lit) followed by Azadirachtin 1500 ppm (50 ml/ 10 lit) or *Beauveria bassiana* (1×10^8 cfu/g) (40 g/ 10 lit) or Azadirachtin 1500 ppm (50 ml/10 lit) or *Beauveria bassiana* (1×10^8 cfu/g) (40 g/ 10 lit) followed by Azadirachtin 10000 ppm (30 ml/ 10 lit) or Karanj oil + 0.1% soap solution (20 ml/ 10 lit) or Azadirachtin 10000 ppm (30 ml/ 10 lit), first at initiation of mite and second at 15 days after first spray against mites in date palm. **Approved with following suggestion(s):** 1. Shifted to information to the Scientific community 2. Check the economics data in table **[Action: Assoc. Res. Sci., Date palm Research Station, SDAU, Mundra]**

20.3.1.40 **Evaluation of cow urine enriched botanicals against fruit fly infesting muskmelon**

Farmers of Gujarat growing muskmelon are recommended to apply three sprays of cow urine + neem leaf extract or cow urine + jatropha leaf extract or cow urine + custard apple leaf extract 10% + 10% (1L + 1L per 10L water), first at appearance of pest and subsequent two sprays at 10 days interval for effective and eco-friendly management of fruit fly.

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)		
2024	Musk melon	Fruit fly	Cow urine + Neem leaf extract	10+10	1000 + 1000	50 + 50	500	First spray on pest initiation and subsequent two sprays at 10 days interval	-
			Cow urine + Jatropha leaf extract	10+10	1000 + 1000	50 + 50			-
			Cow urine + Custard apple leaf extract	10+10	1000 + 1000	50 + 50			-

ગુજરાતમાં શક્કરટેટીની ખેતી કરતા ખેડૂતોને ફળમાખીના અસરકારક અને પર્યાવરણીય અનુકુળ વ્યવસ્થાપન માટે ગૌમૂત્ર + લીમડાના પાનનો અર્ક અથવા ગૌમૂત્ર + રતનજ્યોતના પાનનો અર્ક અથવા ગૌમૂત્ર + સીતાફળના પાનનો અર્ક ૧૦% + ૧૦% (૧લિ./૧૦ લિ. પાણી) પ્રમાણે ત્રણ છંટકાવ કરવા. પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થયે અને ત્યારબાદ બે છંટકાવ ૧૦ દિવસના અંતરે કરવાની ભલામણ કરવામાં આવે છે.

વર્ષ	પાક	જીવાત	કીટનાશક	પ્રમાણ				છંટકાવ નોસમય	પ્રતીક્ષા સમય (દિવસ)
				સાંદ્રતા (%)	માત્રા મિલી/ ૧૦ લિટર પાણી	જૈવિક કીટનાશકનું પ્રમાણ લીટર/હે.	પાણી સાથે મિશ્રણ (લીટર/હે.)		
૨૦૨૪	શક્કરટેટી	ફળમાખી	ગૌમૂત્ર+લીમડા પાનનો અર્ક	૧૦+૧૦	૧૦૦૦ + ૧૦૦૦	૫૦ +૫૦	૫૦૦	પ્રથમ છંટકાવ જીવાત ઉપદ્રવની શરૂઆતે અને ત્યારબાદ બે છંટકાવ ૧૦ દિવસના ગાળે	-
			ગૌમૂત્ર+રતનજયોત પાનનો અર્ક	૧૦+૧૦	૧૦૦૦ + ૧૦૦૦	૫૦ +૫૦			-
			ગૌમૂત્ર+સીતાફળ પાનનો અર્ક	૧૦+૧૦	૧૦૦૦ + ૧૦૦૦	૫૦ +૫૦			-

Suggestion: Not Approved

[Action: Prof. & Head, Dept. of Entomology, CPCA, SDAU, Sardarkrushinagar]

20.3.1.41 **Evaluation of seed protectants against rice moth in stored groundnut**

Mixing of 2.0 per cent neem leaf powder (20 g/kg of seeds) with groundnut seeds was effective against rice moth, *Corcyra cephalonica* up to three months under storage condition.

Approved with following suggestion(s):

1. Shifted to information to the Scientific community
2. Check the data for adult longevity

[Action: Prof. & Head, Dept. of Entomology, CPCA, SDAU, Sardarkrushinagar]

20.3.1.42	**Evaluation of indigenous bee attractants in enhancing pollination in mustard** The farmers of Gujarat growing mustard are recommended to apply two sprays of jaggery solution 15 % (1.5 kg/10 L of water), first at 10% flowering and second at 50% flowering for maximum attraction of honey bees and higher seed yield. ગુજરાતમાં રાઇની ખેતી કરતા ખેડૂતોએ મધમાખીઓને આકર્ષવા તેમજ વધુ ઉત્પાદન માટે ગોળનું દ્રાવણ ૧૫ % (૧.૫ કિગ્રા/૧૦ લીટર પાણી) મુજબનાં બે છંટકાવ કરવા, જે પૈકી પ્રથમ છંટકાવ ૧૦ % ફૂલ અવસ્થાએ અને બીજો છંટકાવ ૫૦ % ફૂલ અવસ્થાએ કરવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestion(s):** 1. Check the yield of T_2 in Table 6.6 2. Check the economics table 3. Include the C.D.% value in interaction **[Action: Prof. & Head, Dept. of Entomology, CPCA, SDAU, Sardarkrushinagar]**
20.3.1.43	**Evaluation of different organic inputs for the management of sclerotium rot in groundnut (*Arachis hypogea* L.)** Application of vermicompost (1 t/ha) enriched with *Trichoderma harzianum* 1.0% WP (2 X 10^8 cfu/g) (10 g/ kg vermicompost) and soaking seeds in *Beejamrutha* (300 ml/ kg seeds) for five minutes + post drying seed treatment with *Trichoderma harzianum* 1.0%WP (2 X 10^8 cfu/g) (10 g/kg seeds) was effective against stem rot of groundnut. **Approved with following suggestion(s):** 1. Shifted to information to the Scientific community 2. Include the pod yield instead of the seed yield 3. Check the required time (min.) for treatment 4. Add details of the data for *sclerotium* (%) in Table 7.5 5. Check the CFU and formulation in the treatments of *T. harzianum and P. f.* 6. Correct seed soaking duration in whole text **[Action: Asstt. Res. Sci., CNRM, SDAU, Sardarkrushinagar]**
20.3.1.44	**Assessment of different substrate for cultivation of milky mushroom (*Calocybe indica*) in North Gujarat condition** The farmers of Gujarat growing milky mushroom (*Calocybe indica*) are recommended to use wheat straw as a substrate with 5% (seed) spawn rate (50 g/kg) to get better yield of milky mushroom (*Calocybe indica*). ગુજરાતના મિલ્કી (દૂધિયા) મશરૂમની ખેતી કરતા ખેડૂતોને મશરૂમના વધુ ઉત્પાદન માટે ૫% સ્પાન (બીજ) (૫૦ ગ્રામ/કિ.ગ્રા) સાથે ઘંઉના પરાળને માધ્યમ તરીકે વાપરવાની ભલામણ કરવામાં આવે છે. **Suggestion: Approved** **[Action: Asstt. Prof., Polytechnic in Agriculture, SDAU, Deesa]**

20.3.2 INFORMATION FOR SCIENTIFIC COMMUNITY
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.3.2.1	**Morphological basis of resistance in pigeonpea (*Cajanus cajan* (L.) Millspaugh) against pod borer complex** Among the twelve pigeonpea genotypes/cultivars screened, BP-17-02 was found highly resistant and BP-16-182, BP-16-228, BP-16-261, ICPL-87119 and BP-16-166 were found resistant whereas, GNP-2 and Vaishali were found highly susceptible against pod borers. Pod length had a significant positive correlation with *Maruca vitrata, Exelastis atomosa* and pod fly damage. Significant positive association was found between pod breadth and larval population of *Helicoverpa armigera* and *Maruca vitrata.* Significant negative correlation was found between *Exelastis atomosa* and pod wall thickness. Genotypes/cultivars *viz*., BP-16-178, ICPL 87119, BP-16-182, BP-16-228 and BP-16-183 were found resistant to pod fly. **Approved with following suggestion(s):** 1. Replace "different" with word "twelve" 2. Recast draft based on morphology parameter (significant parameter only) 3. Mention pod fly and add resistant variety against it. **(Action: Principal, College of Agriculture, NAU, Bharuch)**
20.3.2.2	**Seasonal incidence with different dates of sowing on incidence of insect pests of finger millet** Finger millet sown during 30th July and 15th August (late sown) registered the highest incidence of important insect pest *viz.*, stem borer (0.87 to 1.40 per cent dead heart), defoliators (0.78 – 0.88 larva/10 plant), ear head caterpillar (0.48-0.58 larva/10 earhead) and grass hopper (0.77-0.89 no./meter row). Moreover, finger millet sown on 15th June, 30th June and 15th July (early sown) registered traces to low incidence of stem borer, defoliators, ear head caterpillar and grasshopper. **Approved with following suggestion(s):** 1. Recast draft as per minimum and maximum incidence of pest and date of sowing (period) 2. Check the year in Table-11 and Table-14 **(Action: Principal, College of Agriculture, NAU, Waghai)**

20.3.2.3	**Investigation on pre mature dropping of reproductive parts of cotton due to biotic stress** Natural shedding of cotton square, flower and green bolls was 13.01, 2.93 and 1.17 per cent, respectively. Dropping of squares, flower and green bolls due to pink bollworm was 2.10, 3.06 and 1.05 per cent and due to boll rot was 0.85, 2.84 and 3.26 per cent, respectively. The proportion of natural shredding vis-a-vis premature dropping due to biotic stress (pink bollworm and rotting) was 60:40. The boll rot pathogen associated were *Xanthomonas, Alternaria, Penicilium, Rhizopus, Aspergillus, Curvularia* and *Capnodium*. **Approved with following suggestion(s):** 1. Remove word "premature" from draft 2. Recast the draft as per suggestions in the house 3. Replace word "shredding" with "shedding" 4. Remove "will be" from the methodology **(Action: Research Scientist, Main Cotton Res. Station, NAU, Surat)**
20.3.2.4	**Varietal performance of sapota against bud borer and chiku moth** Sapota varieties/hybrids *viz.*, Kalipatti, CO-2, Kirthibharti, CO-1 and DHS-1 were more damage (11.70-15.20%), while Chala Collection 3, PKM-1, Chala Collection 1, Pilipatti and Chala Collection 2 were less infested (7.63-9.19%) by bud borer. May is the critical month of infestation. Sapota varieties/hybrids *viz.*, Kalipatti, Paria Collection, Kirthibharti, CO-2 and CO-1 were more damage (12.99-15.62%), while Chala Collection 2, Chala Collection 3, PKM-1, Mohangootee and Chala Collection 1 were less infested (7.05-8.46%) by chiku moth. May and December are the critical months of infestation. Escape type resistance was found in less infested sapota varieties/hybrids due to late flowering initiation in both pests. **Approved with following suggestion(s):** 1. Recast draft as per suggestion in the house 2. Mention correlation matrix in the report/table 3. Replace word "infested" with "damage" **(Action: Asso. Res. Sci., Fruit Res. Station, NAU, Gandevi)**
20.3.2.5	**Prevalence and Loss Assessment of Mango Post harvest diseases** During the survey of mango cv. Kesar post-harvest diseases *viz*., anthracnose, stem end rot, black rot and rhizopus rot were reported at all three levels *i.e.* field, whole seller and retailer. Among them, anthracnose and stem end rot were more prevailing and causing post harvest losses. **Approved with following suggestion(s):** 1. Mention per cent incidence and about marketable loss with formula in methodology 2. Add GPS coordinate for each location

	3. Mention name of variety 'kesar' in the draft 4. Verify the data on disease incidence and disease severity **(Action: Prof. & Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)**
20.3.2.6	**Evaluation of Ardu (*Ailanthus excelsa* Roxb.) germplasm against powdery mildew disease** Among the fifteen germplasm of Ardu/Arduso (*Ailanthus excelsa* Roxb.), Khampuri, Bisdalia, Taba, Vatariya, Netrang and Tapi were found moderately resistant while Kadali-2 and Kadali-3 were found highly susceptible against powdery mildew (*Erysiphe quercicola*) disease. Moreover, none of the germplasm were found resistant to powdery mildew. **Approved with following suggestion(s):** 1. Add one line 'none of the germplasm were found resistant' in para **(Action: Prof. & Head, Deptt. of Plant Protection, ACH, NAU, Navsari)**
20.3.2.7	**Estimation of yield losses caused by diseases in pigeon pea (*Cajanus cajan* (L.) Millsp.** The avoidable loss of grain and stover yield in pigeonpea recorded 31.57 and 10.23 per cent, respectively by diseases. Amongst the diseases, virus (sterility mosaic) followed by wilt (*Fusarium udum*) causing maximum loss. **Approved with following suggestion(s):** 1. Recast the draft as per suggestions 2. Remove words "up to" from draft 3. Mention the management strategies in methodology used for the control the insect pest 4. Check CFU of *T. viride* in methodology **(Action: Assistant Professor, NARP, Bharuch)**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.3.2.8	**Effect of different poison baits against fall army worm *Spodoptera frugiperda* (J. E. Smith) infesting maize** Two applications of poison baits in whorl of plants containing indoxacarb 15.8 EC 125 ml, 5 kg jaggery and 25 kg maize flour in 8 L of water/ha, first at the initiation of pest infestation and second application at 20 days after first application found effective against fall armyworm infesting maize. **Approved with following suggestion(s):** 1. Fodder yield to be added 2. Verify transformation used in all the tables **(Action: Professor & Head, Department of Entomology, CoA, JAU, Junagadh)**

20.3.2.9	**Effect of date of sowing and acaricides against yellow mite, *Polyphagotarsonemus latus* (Banks) infesting cluster bean** Sowing of cluster bean crop during fourth week of February and two sprays of diafenthiuron 50 WP 0.05% (10 g/10 lit of water) or fenpyroximate 5 EC 0.005% (10 ml /10 lit of water), first spray at initiation of the pest and second at 20 days after first spray found effective against mobile stage of yellow mite, *Polyphagotarsonemus latus* (Banks) infesting cluster bean. **Approved with following suggestion(s):** 1. Mention number of mite/cm^2 in table 2. Add mobile stage in methodology 3. Mention DNMRT in the footnote 4. Replace word "miticide" with "acaricide" **(Action: Professor & Head, Department of Entomology, CoA, JAU, Junagadh)**
20.3.2.10	**Evaluation of different insecticides against thrips in groundnut** Two sprays of spinetoram 11.7 SC 0.012% (10 ml/10 L of water) or spinosad 45 SC 0.014% (3 ml/10 L of water) or cyantraniliprole 10.26 OD 0.010% (10 ml/10 L of water), first spray at the initiation of pest infestation and second at 10 days after first spray for the management of thrips in groundnut. **Suggestion: Approved** **(Action: Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)**
20.3.2.11	**Bio-efficacy of ready-mix insecticides against capsule borer, *Dichocrosis punctiferalis* infesting castor** Two sprays of chlorantraniliprole 10 + lambda cyhalothrin 5 ZC (4 ml/10 L of water) or novaluron 5.25 + emamectin benzoate 0.9 SC (15 ml/10 L of water) or novaluron 5.25 + indoxacarb 4.5 SC (16 ml/10 L of water) first spray at the initiation of pest infestation and second at 15 days after first spray for the management of castor capsule borer. **Approved with following suggestion(s):** 1. Mention DNMRT in the footnote of all table **(Action: Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)**
20.3.2.12	**Management of pearl millet blast (*Pyricularia grisea*) disease** Two sprays of azoxystrobin 11 + tebuconazole 18.30 SC 0.05% (17.00 ml/10 L of water) or tebuconazole 50 + trifloxystrobin 25 WG 0.05% (6.50 g/10 L of water) first at initiation of disease and second spray after 15 days of first spray for the management of blast disease in pearl millet. **Approved with following suggestion(s):** 1. Check transformation in footnote of all the tables **(Action: Research Scientist, Pearl millet Research Station, JAU, Jamnagar)**

20.3.2.13	**Management of pearl millet blast by using chemical and bio agents** Spray of *Pseudomonas fluorescens* 1.00 WP 1×10^8 cfu/g min. (100 g/10 l of water) at 20 days after sowing (DAS) and second spray of tebuconazole 50 + trifloxystrobin 25 WG 0.04% (5.33 g/10 L of water) at 35 DAS or two sprays of tebuconazole 50 + trifloxystrobin 25 WG 0.04% (5.33 g/10 L of water) at 20 and 35 DAS for the management of blast disease in pearl millet. **Approved with following suggestion(s):** 1. Check the footnote in treatment detail 2. Mention the chitosan treatment application in methodology **(Action: Research Scientist, Pearl millet Research Station, JAU, Jamnagar)**
20.3.2.14	**Effect of different fungicides for the management of blight and powdery mildew in fennel** Three sprays of azoxystrobin 11 + tebuconazole 18.30 SC 0.044% (15 ml/10 L water) or metiram 55 + pyraclostrobin 5 WP 0.18% (30 g/10 L water) or tebuconazole 50 + trifloxystrobin 25 WG 0.045% (6 g/10 L water) first spray at initiation of disease and subsequent two sprays at an interval of 20 days for the management of Alternaria blight of fennel. **Approved with following suggestion(s):** 1. Mention Alternaria in information text **(Action: Professor and Head, Department of Plant Pathology, CoA, JAU, Junagadh)**

ANAND AGRICULTURAL UNIVERSITY, ANAND

20.3.2.15	**Development of low-cost production medium of bio-pesticide *Metarhizium anisopliae*, using spent larval medium of *Corcyra cephalonica*** The use of sorghum grains 100 g (33.3 %) with spent larval medium 200 g (66.7 %) of *Corcyra cephalonica* found effective medium for the production of *Metarhizium anisopliae* AAUBC Ma1 with highest spore yield. The formulation *M. anisopliae* AAUBC Ma1 - 1% WP ($1x10^9$ cfu/g) prepared from the above growth medium, applied once on tree trunk during the month of November @ 40 or 50 g/10 lit. of water and three sprays on foliage at ten days interval with the initiation of pest is found effective against hoppers infesting mango. **Approved with following suggestion(s):** 1. Remove 'low cost' from the draft **[Action: Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand]**

20.3.2.16	**Efficacy of different biocontrol agents against onion thrips, *Thrips tabaci* L.** Foliar spray of either *Metarhizium anisopliae* AAU Ma1-1% WP (50 g/10 lit. of water) or Azadirachtin 10000 ppm (20 ml/10 lit. of water) for three times at ten days interval with the initiation of pest is found effective for the management of thrips, *Thrips tabaci* infesting onion crop. **Suggestion: Approved** **[Action: Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand]**
20.3.2.17	**Residues and persistence of fluopyram 400 g/L SC in tomato (Drip irrigation)** Following either a single application of fluopyram 400 g/L SC at 500 g a.i./ha (at 3 days after transplanting) or two applications each at 250 g a.i./ha (at 3 and 21 days after transplanting) through drip irrigation to tomato crop, the residues of fluopyram in tomato fruits respectively at 50 and 29 days after the last application were found below the CODEX MRL of 0.5 mg/kg. Therefore, the preharvest interval (PHI) of 50 days (for a single application at 500 g a.i./ha) and 29 days (for two applications each at 250 g a.i./ha) are suggested for use at the recommended dose in tomato. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.18	**Residues and persistence of fluopyram 400 g/L SC in pomegranate (Soil drench)** Following either a single application of fluopyram 400 g/L SC at 500 g a.i./ha (at 2 days after defoliation) or two split applications each at 250 g a.i./ha (at 2 and 45 days after defoliation) through soil drenching near root zone of pomegranate tree, the residues of fluopyram in mature pomegranate fruits respectively at 176 and 131 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 176 days (for a single application at 500 g a.i./ha) and 131 days (for two split applications each at 250 g a.i./ha) are suggested for use at recommended dose in pomegranate. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.19	**Residues and persistence of fluoxapiprolin 30 g/L + fluopicolide 200 g/L SC in cucumber** Following three foliar applications of a combi-product fluoxapiprolin 30 g/L + fluopicolide 200 g/L SC at 18.75 + 125 g a.i./ha (at 7 days interval starting from fruit development stage) to cucumber, the residues of fluoxapiprolin and fluopicolide in cucumber fruits were found below the LOQ value of 0.01 mg/kg at 5 and 21 days after the last foliar application, respectively. Therefore, the preharvest interval (PHI) of 21 days is suggested for use at the recommended dose in cucumber. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.20	**Residues and persistence of fluopyram 400 g/L SC in potato (Soil drench)** Following either a single application of fluopyram 400 g/L SC at 500 g a.i./ha (at 10 days after sowing) or two applications each at 250 g a.i./ha (at 14 and 35 days after sowing) through soil drenching near root zone of potato plant, the residues of fluopyram in potato tubers respectively at 78 and 43 days after the last application were found below the CODEX MRL of 0.15 mg/kg. Therefore, the preharvest interval (PHI) of 78 days (for a single application at 500 g a.i./ha) and 43 days (for two applications each at 250 g a.i./ha) are suggested for use at the recommended dose in potato. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.21	**Residues and persistence of fluopyram 400 g/L SC in okra (Drip irrigation)** Following either a single application of fluopyram 400 g/L SC at 500 g a.i./ha (at 10 days after sowing) or two applications each at 250 g a.i./ha (at 10 and 24 days after sowing) through drip irrigation to okra, the residues of fluopyram in okra fruits respectively at 30 and 16 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 30 days (for a single application at 500 g a.i./ha) and 16 days (for two applications each at 250 g a.i./ha) are suggested for use at the recommended dose in okra. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.22	**Residues and persistence of fluopyram 400 g/L SC in okra (Soil drenching)** Following either a single application of fluopyram 400 g/L SC at 500 g a.i./ha (at 10 days after sowing) or two applications at each 250 g a.i./ha (at 10 and 24 days after sowing) through soil drenching near root zone of okra plant, the residues of fluopyram in okra fruits respectively at 30 and 16 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 30 days (for a single application at 500 g a.i./ha) and 16 days (for two applications each at 250 g a.i./ha) are suggested for use at the recommended dose in okra. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.23	**Residue and persistence of isocycloseram 9.2% w/w DC in tomato** Following two foliar applications of isocycloseram 9.2% w/v DC at 60 g a.i./ha (at 10 days interval starting from the fruit development stage) to tomato, the residues of isocycloseram in tomato fruits at 15 days after the last foliar application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 15 days is suggested for use at the recommended dose in tomato. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.24	**Residues and persistence of fluopyram 250 g/L + trifloxystrobin 250 g/L SC in mango** Following three foliar applications of a combi-product fluopyram 250 g/L + trifloxystrobin 250 g/L SC at 20 + 20 g a.i./100 L water (at 10 days interval starting from 35 days before harvest of mature mango fruits) to mango trees, the residues of fluopyram and trifloxystrobin in immature mango fruits (with peel) respectively at 0-day (2 h) and 1-day were found below the CODEX MRL of 1.00 mg/kg and FSSAI MRL of 0.40 mg/kg. Likely, the respective residues in mature mango fruits (with peel) and mango pulp 15 days after the last application were also found below the CODEX MRL of 1.00 mg/kg and FSSAI MRL of 0.40 mg/kg. Therefore, the preharvest interval (PHI) of 1 day for unripe mango fruits and 15 days for mature mango fruits are suggested for use at the recommended dose in mango. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.25	**Residues and persistence of flonicamid 20% + fipronil 8% SC in okra** Following two foliar applications of a combi-product flonicamid 20% + fipronil 8% SC at 98.4 + 39.4 g a.i./ha (at 15 days interval starting from the fruit development stage) to okra, the residues of flonicamid and fipronil in okra fruits respectively at 7 and 20 days after the last foliar application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 20 days is suggested for use at the recommended dose in okra. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.26	**Residues and persistence of tolfenpyrad 18.75% + emamectin benzoate 0.94% w/w SC in cauliflower** Following two foliar applications of a combi-product tolfenpyrad 18.75% + emamectin benzoate 0.94% SC at 140 + 7 g a.i./ha (at 14 days interval starting from curd development stage) to cauliflower, the residues of tolfenpyrad and emamectin benzoate in cauliflower curd respectively at 15 and 7 days after the last foliar application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 15 days is suggested for use at the recommended dose in cauliflower. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.27	**Residue and persistence of tetraniliprole 480 g/L FS in maize** Following a seed treatment of tetraniliprole 480 g/L FS at 7.20 g a.i./kg of maize seed, the residues of tetraniliprole in maize leaves, immature cobs, mature grain, and stover at 30 days after sowing were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 30 days is suggested for use at the recommended dose as a seed treatment in fodder maize. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.28	**Residues and persistence of isoxaflutole 225 g/L + thiencarbazone-methyl 90 g/L SC in maize** Following a single application of a combi-product isoxaflutole 225 g/L + thiencarbazone-methyl 90 g/L SC at 90 + 36 g a.i./ha either as pre-emergence or as early pre-emergence in fodder maize field, the residues of isoxaflutole and thiencarbazone-methyl in maize leaves, immature cobs, mature grains, and stover at 30 days after sowing were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 30 days is suggested for use at the recommended dose in fodder maize. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.29	**Residues and persistence of fluopyram 250 g/L + trifloxystrobin 250 g/L SC in banana** Following three foliar applications of a combi-product fluopyram 250 g/L + trifloxystrobin 250 g/L SC at 125 + 125 g a.i./ha (at 10 days interval starting from 35 days before harvest of mature banana fruits) to banana, the residues of fluopyram and trifloxystrobin in banana fruit (mature banana fruit with peel and banana pulp) at 15 days after the last foliar application were found below the respective MRLs of CODEX 0.80 mg/kg and FSSAI 1.0 mg/kg. Therefore, the preharvest interval (PHI) of 15 days is suggested for use at the recommended dose in banana. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.30	**Residues and persistence of tetraniliprole 120 g/L + spirotetramat 240 g/L SC in okra** Following three foliar applications of a combi-product tetraniliprole 120 g/L + spirotetramat 240 g/L SC at 45 + 90 g a.i./ha (at 7 days interval starting from fruit development stage) to okra, the residues of tetraniliprole and spirotetramat (and its metabolite, spirotetramat-enol) in okra fruits respectively at 5 and 0 days (2 h) after the last application was found below the LOQ value of 0.01 mg/kg and CODEX MRL of 1.0 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 5 days is suggested for use at the recommended dose in okra. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.31	**Residue and persistence of flupyradifurone 200 g/L SL in tomato** Following three foliar applications of flupyradifurone 200 g/L SL at 200 g a.i./ha (at 10 days interval starting from the fruit development stage) to tomato, the residues of flupyradifurone in tomato fruits at 0 days (2 h) after the last foliar application were found below the CODEX MRL of 1.0 mg/kg. Therefore, the preharvest interval (PHI) of 1 day is suggested for use at the recommended dose in tomato. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.32	**Residues and persistence of tolfenpyrad 18.75% + emamectin benzoate 0.94% w/w SC in brinjal** Following two foliar applications of a combi-product tolfenpyrad 18.75% + emamectin benzoate 0.94% SC at 140 + 7 g a.i./ha (at 14 days interval starting from fruit development stage) to brinjal, the residues of tolfenpyrad and emamectin benzoate in brinjal fruits respectively at 15 and 0 (2 h) days after the last application were found below the LOQ value of 0.01 mg/kg and CODEX MRL of 0.02 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 15 days is suggested for use at the recommended dose in brinjal. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.33	**Residues and persistence of pyrithiobac sodium 12.5% + bispyribac sodium 5% SC in paddy (direct seed rice)** Following a single application of combi-product pyrithiobac sodium 12.5% + bispyribac sodium 5% SC at 62.5 + 25.0 g a.i./ha (at 15 days after sowing) in direct seed rice field, the residues of pyrithiobac sodium and bispyribac sodium in plant foliage at 7 days after application were found below the LOQ of 0.01 and FSSAI MRL of 0.05 mg/kg, respectively. The residues in the paddy grains, husk, and straw at 105 days after application were also found below the respective MRLs. Therefore, the preharvest interval (PHI) of 105 days is suggested for use at the recommended dose in direct-seeded paddy. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.34	**Residues and persistence of fluopyram 200 g/L + tebuconazole 200 g/L SC in tomato** Following three foliar applications of a combi-product fluopyram 200 g/L + tebuconazole 200 g/L SC at 100 + 100 g a.i./ha (at 10 days interval starting from fruit development stage) to tomato, the residues of fluopyram and tebuconazole in tomato fruits at 0 (2 h) days after the last application were found below the CODEX MRL 0.5

	mg/kg and FSSAI MRL of 2.0 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 1 day is suggested for use at the recommended dose in tomato. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.35	**Residue and persistence of tebuconazole 430 g/L SC in mango** Following three foliar applications of tebuconazole 430 g/L SC at 47.30 g a.i./100 L water (at 10 days interval starting from 35 days before harvest of mature fruits) to mango, the residues of tebuconazole in mature mango fruits (with peel and without peel i.e. mango pulp) at 15 days after the last foliar application were found below the FSSAI MRL of 0.2 mg/kg. Therefore, the preharvest interval (PHI) of 15 days is suggested for to use at the recommended dose in mango. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.36	**Residues and persistence of fluopyram 250 g/L + trifloxystrobin 250 g/L SC in okra** Following three foliar applications of a combi-product fluopyram 250 g/l + trifloxystrobin 250 g/ SC at 150 + 150 g a.i./ha (at 10 days interval starting from fruit development stage) to okra, the residues of fluopyram and trifloxystrobin in okra fruits at 5 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 5 days is suggested for use at the recommended dose in okra. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.37	**Residues and persistence of tebuconazole 50% + trifloxystrobin 25% WG in turmeric** Following three foliar applications of a combi-product tebuconazole 50% + trifloxystrobin 25% WG at 200 + 100 g a.i./ha (at 10 days interval starting from 50 days before harvest of fresh mature rhizomes) to turmeric, the residues of tebuconazole and trifloxystrobin in mature fresh turmeric rhizomes and dry turmeric powder at 30 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the pre-harvest interval (PHI) of 30 days is suggested for use at the recommended dose in turmeric. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.38	**Residues and persistence of fluopyram 250 g/L + trifloxystrobin 250 g/L in tomato** Following three foliar applications of a combi-product fluopyram 250 g/L + trifloxystrobin 250 g/L SC at 150 + 150 g a.i./ha (at 10 days interval starting from fruit development stage) to tomato, the residues of fluopyram and trifloxystrobin in tomato fruits at 0 days (2 h) after the last foliar application were found below the CODEX MRL of 0.5 mg/kg and FSSAI MRL of 1.0 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 1 day is suggested for use at the recommended dose in tomato. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.39	**Residues and persistence of fluopyram 200 g/L + tebuconazole 200 g/L SC in okra** Following three foliar applications of a combi-product fluopyram 200 g/L + tebuconazole 200 g/L SC at 100 + 100 g a.i./ha (at 10 days interval starting from the fruit development stage) to okra, the residues of fluopyram and tebuconazole in okra fruits at 7 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 7 days is suggested for use at the recommended dose in okra. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.40	**Residues and persistence of beta-cyfluthrin 90 g/L + imidacloprid 210 g/L OD in rice** Following three foliar applications of a combi-product beta-cyfluthrin 90 g/L + imidacloprid 210 g/L OD at 22.5 + 52.5 g a.i./ha (at 10 days interval starting from the panicle initiation stage) to paddy, the residues of beta-cyfluthrin and imidacloprid in dry mature whole rice grains (with husk), polished rice grains, husk and straw at 40 days after the last application were found below the LOQ value of 0.01 mg/kg and FSSAI MRL of 0.05 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 40 days is suggested for use at the recommended dose in paddy. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.41	**Residues and persistence of fluopyram 250 g/L + trifloxystrobin 250 g/L in cucumber** Following three foliar applications of a combi-product fluopyram 250 g/L + trifloxystrobin 250 g/L SC at 150 + 150 g a.i./ha (at 10 days interval starting from the fruit development stage) to cucumber, the residues of fluopyram and trifloxystrobin in cucumber fruits at 5 days after the last application were found below the CODEX MRL of 0.50 mg/kg and LOQ value of 0.01 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 5 days is suggested for use at the recommended dose in cucumber. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.42	**Residues and persistence study of azoxystrobin 4.8% + chlorothalonil 40% SC in pea** Following two foliar applications of a combi-product azoxystrobin 4.8% + chlorothalonil 40% SC at 100.85 + 739.15 g a.i./ha (at 10 days interval starting from the pod formation stage) on pea, the residues of azoxystrobin and chlorothalonil in green pea at 0 day (2 hr) after the last application were found below the CODEX MRL of 20 mg/kg and LOQ value of 0.01 mg/kg, respectively. The respective residues in dry peas 30 days after the last application were also found below the CODEX MRL of 20 mg/kg and LOQ value of 0.01 mg/kg. Therefore, the preharvest intervals (PHI) of 1 days for green peas and 30 days for dry peas are suggested for use at the recommended dose in peas. The dissipation of azoxystrobin (for a recommended dose) in green pea pods and green peas appeared to be monophasic with half-lives of 3.29 and 9.29 days, respectively. Likely the dissipation of chlorothalonil (for a recommended dose) in green pea pods was also monophasic with a half-life of 3.88 days. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.43	**Residues and persistence study of flubendiamide 90 g/L + deltamethrin 60 g/L SC in mango** Following three foliar applications of a combi-product flubendiamide 90 g/L + deltamethrin 60 g/L SC at 4.50 + 3.00 g a.i./100 L water (at 10 days interval starting from 35 days before harvest of mature mango fruits) to mango, the residues of flubendiamide and deltamethrin in mature mango fruit (without peel i.e. mango pulp) at 15 days after the last application were found below the LOQ value of 0.01 mg/kg and FSSAI MRL of 0.01 mg/kg, respectively. Therefore, the preharvest interval (PHI) of 15 days for mature mango (without peel i.e. mango pulp) is suggested for use at the recommended dose in mango. The dissipation of flubendiamide (for a recommended dose) in immature mango fruits appeared to be monophasic with a half-life of 9.4 days. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.44	**Residues and persistence study of tetraniliprole 200 g/L SC in groundnut** Following three foliar applications of tetraniliprole 200 g/L SC at 50 g a.i./ha (at 10 days interval starting from the pod formation stage) to groundnut, the residues of tetraniliprole and its metabolite (BCS-CQ63359) in mature groundnut pods, dry kernels, oil, and cake at 30 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 30 days for mature groundnut pods, dry kernel, oil, and cake is suggested for use at the recommended dose in groundnut. The dissipation of tetraniliprole (for a recommended dose) in groundnut leaves appeared to be monophasic with a half-life of 19.3 days. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**
20.3.2.45	**Residues and persistence study of chlorantraniliprole 4.3% + abamectin 1.7% SC in watermelon** Following two foliar applications of a combi-product chlorantraniliprole 4.3% + abamectin 1.7% SC at 37.5 + 37.5 g a.i./ha (at 15 days interval starting from the fruit development stage) to watermelon, the residues of chlorantraniliprole and abamectin in watermelon fruit at 15 days after the last application were found below the LOQ value of 0.01 mg/kg. Therefore, the preharvest interval (PHI) of 15 days is suggested for use at the recommended dose in watermelon. The dissipation of chlorantraniliprole (for a recommended dose) in watermelon fruits appeared to be monophasic with a half-life of 3.79 days. **Approved with following suggestion(s):** 1. Mention the protocol of "method of validation" **[Action: Residue Analyst, AINP on Pesticide Residues, ICAR, AAU, Anand]**

20.3.2.46	**Impact of storage bag container, application methods and insecticide against *Callosobruchus maculatus* (Fabricius) infesting green gram during storage** Green gram seeds can be stored for 135 days by managing pulse beetle effectively by adopting following measures • Jute bag treated by spraying or impregnation with deltamethrin 2.8 EC (0.7 ml /liter water) for 10 minutes OR • Seed treated with deltamethrin 2.8 EC (0.7 ml/ liter water) or spinosad 45 SC (0.04 ml/ liter water) or fipronil 5 SC (0.40 ml /liter water) and stored in jute bag. **Approved with following suggestion(s):** 1. Mention methodology of recording seed moisture **[Action: Research Scientist & Nodal Office (Seed) and Head, RRS, Anand]**
20.3.2.47	**Study to find out the critical weather parameters on insect-pests of rice at Nawagam** In *Kharif* (end of July to August) transplanted rice, stem borer, leaf folder and white backed plant hopper population has congenial condition due to low minimum temperature (^{o}C) and high sunshine hours. The overall peak infestation of stem borer, leaf folder occurs during 45th SMW, while maximum population of WBPH occur during 41st SMW. **Approved with following suggestion(s):** 1. Remove R^2 table **[Action: Research Scientist, MRRS, AAU, Nawagam]**
20.3.2.48	**Efficacy of different insecticides against pod borer complex of pigeon pea** Two sprays of chlorantraniliprole 8.80% + thiamethoxam 17.5% SC, 0.025%, 150 g a.i/ha (9.50 ml/ 10 litre of water) first at flowering and second at pod setting stage was found effective for management of pod borer, *Heliocoverpa armigera*, blue butterfly, *Lampides boeticus* and plume moth, *Exelastis atomosam* infesting pigeonpea. Two sprays either chlorantraniliprole 8.80% + thiamethoxam 17.5% SC, 0.025%, 150 g a.i./ha (9.50 ml/ 10 litre of water) or emamectin benzoate 5% + lufenuron 40% WG, 0.005%, 27 g a.i./ha (1 g/ 10 litre of water) first at flowering and second at pod setting stage was found effective against pod fly, *Melanagromyza obtusa* infesting pigeonpea. **Approved with following suggestion(s):** 1. Check the date of sowing and spraying in methodology 2. Highlight the interaction in Table 4, 5 and 6 3. Rectify statistical analysis as per statistician consultation **[Action: Assistant Research Scientist (Ento.), ARS, AAU, Derol]**

20.3.2.49	**Screening of potato varieties against foliar diseases** Among the 23 varieties screened, Kufri Lima was found resistant against early blight disease of potato whereas, Kufri Ganga and Kufri Arun were found resistant against late blight disease in potato. **Approved with following suggestion(s):** 1. Check the interaction Y x T in table 2. Mention disease rating scale clearly for both the diseases 3. No. of whiteflies and aphid/ 3 leaves 4. Mention details of recording membrane injury in methodology **[Action: Professor and Head, Dept. of Pl. Path., BACA, AAU, Anand]**
20.3.2.50	**Evaluation of nematicides against *Meloidogyne* spp. in cucumber** The application of fluopyram 400 g/L SC, 34.48% SC, 0.625 L/ha as soil drenching with 200 ml solution/ pit at 4 days before sowing reduced root-knot nematode population and root knot index with higher fruit yield of cucumber without any phytotoxicity. **Approved with following suggestion(s):** 1. Mention the quantity of water for soil drenching in draft **[Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand]**
20.3.2.51	**Eco-friendly management of *Meloidogyne incognita* infecting cucumber under protected cultivation** Soil application of FYM enriched *Bacillus amyloliquefaciens* strain No. IIHR Ba 2 ($2x10^8$ cfu/g), 1 kg/1000 m^2 before sowing and 45 DAS in soil is effective for management of root-knot nematodes and with higher fruit yield of cucumber under polyhouse. **Approved with following suggestion(s):** 1. Verify the data of T_4, T_5 and T_6 treatment for 2022 and 2023 for the parameters RKI (Table-8 of report) 2. Add ratio of *Bacillus amyloliquefaciens* with FYM **[Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand]**
20.3.2.52	**Bio-efficacy of ready-mix fungicides for management of powdery mildew in fenugreek** Two sprays of tebuconazole 10% + sulphur 65% WG at 0.187% (25 g /10 lit of water), first at initiation of powdery mildew and second at 15 days after first spray against powdery mildew of fenugreek. **Suggestion: Approved** **[Action: Department of Plant Protection, COH, AAU, Anand]**

20.3.2.53	**Bio-efficacy of different bioagents against early blight of potato** The application of bioagents *viz*., *Trichoderma harzianum* (AAUBC-Th1, $2x10^6$ cfu/g) 1% WP and *Pseudomonas fluorescens* (NBAIR PfDWD, $2x10^8$ cfu/g) 1% WP through any of the following methods is effective for the management of early blight disease of potato. 1. Soil application of vermicompost enriched with bioagents (1.25 kg of each bioagent/250 kg vermicompost/ha) before transplanting, seedling root dip (5 g of each bioagent/litre of water) for 30 min just before transplanting and two foliar sprays (2.5 g of each bioagent/litre of water), first spray starting with the appearance of the disease and second at 10 days after first spray. 2. Soil application of vermicompost enriched with bioagent (2.5 kg of *P. fluorescens*/250 kg vermicompost/ha) before transplanting, seedling root dip (10 g of *P. fluorescens*/litre of water) for 30 min just before transplanting and two foliar sprays (5 g of *P. fluorescens*/litre of water), first spray starting with the appearance of the disease and second at 10 days after first spray. **Note**: • For the preparation of vermicompost enriched with bioagents, mix the bioagents with vermicompost and keep for 10 days under shade. • For seed treatment, mix the bioagents with equal quantity of plain talc powder for uniform treatment of tubers **Approved with following suggestion(s):** 1. Verify the interaction Y x T in report **[Action: Principal Research Scientist, AICRP on Biological Control of Crop Pests, AAU, Anand & Professor & Head, Dept. of Pl. Path. BACA, AAU,Anand]**
20.3.2.54	**Bio-efficacy of ready-mix fungicides against purple blotch of onion** Two foliar sprays of kresoxim-methyl 15% + chlorothalonil 56% WG, 0.177% (25 g per 10 litre of water) mixed with sticker 0.1% (10 ml per 10 litre of water), first at the appearance of disease and second spray at 10 days after first spray are found effective in managing purple blotch in onion. **Suggestion: Approved** **[Action: Assistant Professor, Dept. of Pl. Path. COA, AAU, Jabugam]**
20.3.2.55	**Screening of maize genotypes for their resistance against turcicum (*Exserohilum turcicum*) leaf blight of maize** Among 46 different maize inbreds screened, GWH-1230, I-07-66-2-2, GWC-1210, IGPHC-1203, and HKI-287-1 are resistant against Turcicum leaf blight (*Exserohilum turcicum*) of maize. **Suggestion: Approved** **[Action: Research Scientist, MMRS, AAU, Godhra]**

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

20.3.2.56	**Evaluation of different insecticides against sucking pests infesting brinjal** Two foliar sprays of Sulfoxaflor 21.8 SC at 0.03% (12.5 ml/10 liter of water), first spray at ETL (5 whiteflies & jassid/leaf) and second spray at 15 days after first spray for effective management of whitefly and jassid in brinjal.

	Approved with following suggestion(s): 1. Mention name of predator 2. Remove 'infestation' word from lady bird beetle (LBB) data 3. Check the treatment C.D. (%) in Table 9.14, whether it is 2.27 or Non-significant (NS) 4. Correct white fly as "whitefly" 5. Include DMNRT in all tables 6. Check the predator data in Table 9.7 and mention the name of predator **[Action: Asstt. Res. Sci., ARS, SDAU, Ladol]**
20.3.2.57	**Determination of nutritional composition of *Agaricus bisporus* (NBS-5A) and Pleurotus sajor-caju (P-112) cultivated in North Gujarat** Button mushroom (*Agaricus bisporus* NBS-5A) is nutritionally promising in terms of protein (34.05%), total soluble sugar (13.95%), ash (10.2%) and amino acid (34.25%) in comparison to oyster mushrooms (*Pleurotus sajor-caju* P112). Both button and oyster mushrooms can be an important component in diet as a nutritionally rich food. **Approved with following suggestion(s):** 1. Keep average value (statistical) in Table 10.1 2. Mention the value of "Too high" and "Not detected" in Table 10.1 3. Analyze the data statistically **[Action: Asstt. Prof., Polytechnic in Agriculture, SDAU, Deesa]**

20.3.3 NEW TECHNICAL PROGRAMMES
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title	Suggestion/s and Action
20.3.3.1	Study on diversity of soil oribatid mite	**Approved with following suggestion(s):** 1. Merge with Expt. No. 20.1.3.8 2. Revise title as "Biodiversity of soil oribatid mite and red velvet mite under South Gujarat" 3. Revise the objectives and methodology as per revised title. **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.2	Effect of temperature on survival and development of entomopathogenic nematodes *Heterorhabditis* sp.	**Approved with following suggestion(s):** 1. Recast the methodology in consultation with Nematologist Dr. Ajay Maru, AAU, Anand 2. Add lower temperature 10 ^{0}C and ambient temperature treatments in methodology 3. Take total 8 treatments 4. Add references in methodology **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.3	Mapping of stingless bee in Gujarat	**Approved with following suggestion(s):** 1. Merge with Expt No. 20.1.3.4, 20.1.3.5 and 20.1.3.6 2. Revise title as "Mapping of different honey bee species and stingless bee species in Gujarat" 3. Recast the objectives and methodology as per revised title. 4. Take minimum 50 bees per district **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.4	Mapping of little bee (*Apis florae* Fabricius) in Gujarat	**Approved with following suggestion(s):** 1. Merge with Expt No. 20.1.3.3 2. All the suggestions mentioned in Expt No. 20.1.3.3 are also applicable to this trial **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.5	Mapping of the Indian honey bee (*Apis cerana indica* Fabricius) in Gujarat	**Approved with following suggestion(s):** 1. Merge with Expt No. 20.1.3.3 2. All the suggestions mentioned in Expt No. 20.1.3.3 are

		also applicable to this trial **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.6	Mapping of the rock bee (*Apis dorsata* Fabricius) in Gujarat	**Approved with following suggestion(s):** 1. Merge with Expt No. 20.1.3.3 2. All the suggestions mentioned in Expt No. 20.1.3.3 are also applicable to this trial **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.7	Studies on combination of attraction in trapping fruit flies infesting mango	**Approved with following suggestion(s):** 1. Revise title as "Evaluation of methyl eugenol trap and poison bait in trapping the fruit flies infesting mango" 2. Write "Observations to be recorded" in methodology 3. Replace "Deltamethrin 2.8 EC" with "Malathion 50 EC" 4. Finalize design in consultation with statistician 5. Mention the quantify and concentration the fruit juice 6. Change the fruit juice at fortnight intervals 7. Mention detail composition and replacement time of methyl eugenol block in methodology **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.8	Diversity of red velvet mite under South Gujarat	**Approved with following suggestion(s):** 1. Merge with Expt No. 20.1.3.1 2. All the suggestions mentioned in Expt No. 20.1.3.1 are also applicable to this trial **(Action: Professor and Head, Deptt. of Entomology, NMCA, NAU, Navsari)**
20.3.3.9	Evaluation of biopesticides against pod borers infesting blackgram	**Approved with following suggestion(s):** 1. Correct the dose T_1, T_2, and T_3 @ 40 g/10 lit of water and T_7 as 20 g/10 lit 2. Record observations on natural enemies 3. Record grain and haulm yield 4. Add one treatment of Novel plus with standard dose 5. Add resistant variety for mosaic, if possible 6. Use latest name of *Metarhizium anisopliae* 7. Add observation of *Helicoverpa* and *Maruca* per plant 8. Mention word with "minimum" in CFU count 10. Take ancillary observations on thrips **(Action: Principal, CoA, NAU, Bharuch)**

20.3.3.10	Diversity of lady bird beetle in cotton ecosystem	**Approved with following suggestion(s):** 1. Revise title as "Diversity of major predatory fauna in cotton ecosystem" and recast objectives as "To study the diversity of predatory fauna in cotton ecosystem" 2. Add observation - number of predators per plant 3. Perform the molecular identification of all reported species 4. Check taluka of Bharuch and Surat in methodology **(Action: Principal, ASBI, NAU, Surat)**
20.3.3.11	Assessment of seed production losses due to bollworms in intra-hirsutum non-Bt and Bt hybrid seed production	**Approved with following suggestion(s):** 1. Revise title as "Assessment of losses due to bollworms in intra-hirsutum non-Bt and Bt hybrid seed production" **(Action: Research Scientist, Main Cotton Res. Station, NAU, Surat)**
20.3.3.12	Bio-efficacy of organic preparations and microbial insecticides against aphid infesting Bt cotton	**Approved with following suggestion(s):** 1. Revise title as "Eco-friendly management of sucking pest infesting Bt cotton" and recast objective "To evaluate the organic preparations and microbial insecticides against sucking pest infesting Bt cotton" 2.Take available Bt hybrid, if G cot-8 (BG-II) is not available. 3. Correct the dose T_1, T_2, and T_3 @ 40 g/10 lit of water 4. Remove one day observation 5. Treatment T_6: Neemastra, No dilution required. Keep as such preparation (100%) 6. Add word "min" in CFU ($1x10^8$ cfu/g) 7. Mention first spray at initiation of pest in methodology 8. Add ancillary observations on pink bollworms incidence **(Action: Research Scientist, Main Cotton Res. Station, NAU, Surat)**
20.3.3.13	Efficacy of ready-mix insecticides against sucking pests of *Bt* cotton	**Approved with following suggestion(s):** 1. Mention the need base spray in the methodology 2. Mention common/blanket spray for PBW and record ancillary observation of PBW **(Action: Research Scientist, Main Cotton Res. Station, NAU, Surat)**
20.3.3.14	Management of sucking pest complex of Mango with insecticides	**Approved with following suggestion(s):** 1. Recast the title as "Evaluation of insecticides against sucking pest complex of mango" and recast objective as "To evaluate the insecticides against sucking pest

		complex of mango" 2. Take observations on hopper per shoot at vegetative stage and per panicle at flowering stage 3. Take observation on healthy and damaged shoot/ panicle and fruits 4. Add unit in observation as per methodology 5. Correct year as "2024-25" 6. Take spray schedule as "need based" 7. Take observations from four directions per tree as per standard methodology **(Action: Research Scientist, Agri. Experimental Station, NAU, Paria)**
20.3.3.15	Studies on natural parasitization of mango fruit borer, *Citripestis eutraphera* (Meyrick) (Lepidoptera: Pyralidae)	**Approved with following suggestion(s):** 1. Revise title as "Assessment on natural parasitization of mango fruit borer, *Citripestis eutraphera* (Meyrick) (Lepidoptera: Pyralidae)" and objective as per title. 2. Record the observation from pea stage to harvesting stage at weekly interval and mention this in methodology **(Action: Research Scientist, Agri. Experimental Station, NAU, Paria)**
20.3.3.16	Dissipation behaviour and dietary risk assessment of combi-product Chlorantraniliprole and λ-cyhalothrin residues in/on Indian bean (*Lablab purpureus* L.)	**Approved with following suggestion(s):** 1. Add formulation and methodology of dissipation study 2. Add treatment of 37.5 g ai/ha for risk assessment as per suggestions in the house **(Action: Professor and Head, FQTL, NAU, Navsari)**
20.3.3.17	Morphological characterization and sample preservation methods of *Termitomyces* spp.	**Approved with following suggestion(s):** 1. Revise title as "Morphological and molecular characterization of *Termitomyces* spp." and recast objective as per revised title 2. Take GPS coordinates for each location during survey work 3. Add biochemical analysis **(Action: Professor and Head, Dept. of Plant Pathology, NMCA, NAU, Navsari)**
20.3.3.18	Forewarning model for mango powdery mildew under South Gujarat climatic condition	**Approved with following suggestion(s):** 1. Recast the title as "Development of forewarning model for mango powdery mildew under South Gujarat" 2. Take experiment for the 10 years and also take more 3

		years for model validation 3. Write "Validation will also be performed from other centres" in methodology 4. Delete weather parameters from observations 5. Mention formula of PDI in methodology **(Action: Prof. and Head, Deptt. of Plant Protection, ACH, NAU, Navsari)**
20.3.3.19	Biological management of sugarcane red rot and wilt	**Approved with following suggestion(s):** 1. Revise title as "Management of sugarcane red rot and wilt through bioagent" and recast objective as per revised title 2. Add one more treatment "recommended standard check" 3. Add one more treatment as "Hot water treatment" 4. Correct the plot size in the methodology 5. Add observations- germination (eye buds), wilt/plant, red rot intensity 6. Keep only one set of treatment. delete 'B' set 7. Mention CFU of *T. viride* as 2 x 10^6 cfu/g. min. and also CFU of *P. f.* as 1 x 10^8 cfu/g. min 8. Check the formula of sett germination 9. Specify the "observations to be recorded" clearly **(Action: Research Scientist, Main Sugarcane Research Station, NAU, Navsari)**
20.3.3.20	Study of biodiversity of *Fusarium* spp. infecting major crops of Bharuch district	**Approved with following suggestion(s):** 1. Revise title as "Biodiversity of *Fusarium* spp. infecting major crops of Bharuch district 2. Add castor crop **(Action: Principal, CoA, NAU, Bharuch)**
20.3.3.21	Biological management of stem canker of pigeon pea	**Approved with following suggestion(s):** 1. Remove "economics" from observations 2. Recheck plot size (both Gross & Net plot) 3. Take T_7 as treated check (standard check) 4. Mention CFU of *T. viride* as 2 x 10^6 cfu/g. min. and also CFU of *P. f.* as 1 x 10^8 cfu/g. min 5. Mention the objective as per the presentation in report and verify it, remove oil cake and add bio-agent 6. Correct objective as per title **(Action: Principal, CoA, NAU, Bharuch)**
20.3.3.22	Evaluation of biostimulatory activity of *Trichoderma*	**Approved with following suggestion(s):** 1. Revise title as "Evaluation of *Trichoderma* isolates against-Fusarium wilt of pigeonpea"

		2. Recast objectives as per revised title 3. Take biochemical parameters *i.e.* IAA, protein content in seed *etc.* 4. Mention isolation site (root zone) 5. Mention method of application 6. Identify the promising isolates of *Trichoderma* through appropriate molecular technique 7.Give the detailed methodology for pot and field experiments 8. Specify the method of applications, time, dose, *etc*. 9. *In-vivo* experiment should be conducted for two years 10. Write "observations to be recorded" clearly **(Action: Principal, Polytechnic in Agriculture, NAU, Bharuch)**
20.3.3.23	Efficacy of different oil cakes against pigeonpea wilt disease	**Suggestion: Not Approved** **(Action: Principal, NARP, NAU, Bharuch)**
20.3.3.24	Efficacy of bio-agents against sugary disease of sorghum	**Suggestion: Not Approved** **(Action: Research Scientist, Main Sorghum Res. Station, NAU, Surat)**
20.3.3.25	Comparative study on major diseases incidence of drilled rice (*Oryza sativa L*.) in natural, organic and conventional farming system	**Approved with following suggestion(s):** 1. Revise title as "Assessment of natural, organic and conventional modules against insect pest and diseases of aerobic rice" 2. Recast objectives as per revised title 3. Take Neemastra 100% 4. Remove "Copping system" 5. Natural farming protocol to be followed as per the book '*Prakrutik Kheti*' written by Acharya Devvrat Ji 6. Remove inorganic carbon from observations 7. Add – observation on insect pest 8. Mention the name of modules as Module I: Natural farming; Module II: Organic farming and Module III: conventional farming in treatment details 9. Verify the plot size 10. Remove pendimethalin in T3 Module III 11.Correct experiment design in consultation with statistician **(Action: Assoc. Res. Sci., Regional Rice Res. Station, NAU, Vyara)**
20.3.3.26	Comparative study on major diseases incidence	**Approved with following suggestion(s):** 1. Revise title as "Assessment of natural, organic and

	of chickpea (*Cicer arietinum* L.) in Natural, organic and conventional farming system	conventional modules against insect pest and diseases of chickpea" 2. Recast objectives as per revised title 3. Take Neemastra 100% 4. Remove "Copping system" 5. Natural farming protocol to be followed as per the book *'Prakrutik Kheti'* written by Acharya Devvrat Ji 6. Remove inorganic carbon from observations 7. Add – observation on insect pest 8. Mention the name of modules as Module I: Natural farming; Module II: Organic farming and Module III: conventional farming in treatment details 9. Verify the plot size 10. Correct experiment design in consultation with statistician **(Action: Assoc. Res. Sci., Regional Rice Res. Station, NAU, Vyara)**
20.3.3.27	Comparative study on major diseases incidence of groundnut (*Arachis hypogaea* L) in Natural, organic and conventional farming system	**Approved with following suggestion(s):** 1. Recast title as "Assessment of natural, organic and conventional farming modules against insect pests and diseases of groundnut" 2. Recast objectives as per revised title 3. Take Neemastra 100% 4. Remove "Copping system" 5. Natural farming protocol to be followed as per the book *'Prakrutik Kheti'* written by Acharya Devvrat Ji 6. Remove inorganic carbon from observations 7. Add – observation on insect pest 8. Mention the name of modules as Module I: Natural farming; Module II: Organic farming and Module III: conventional farming in treatment details 9. Verify the plot size 10. Correct experiment design in consultation with statistician **(Action: Assoc. Res. Sci., Regional Rice Res. Station, NAU, Vyara)**
20.3.3.28	Comparative study on major diseases of Okra [*Abelmoschus esculentus* (L.) Moench] in Natural, organic and conventional farming system	**Approved with following suggestion(s):** 1. Recast title as "Assessment of natural, organic and conventional farming modules against insect pests and diseases of okra" 2. Recast objectives as per revised title 3. Take Neemastra 100% 4. Remove "Copping system" 5. Natural farming protocol to be followed as per the book

		'Prakrutik Kheti' written by Acharya Devvrat Ji 6. Remove inorganic carbon from observations 7. Add – observation on insect pest 8. Mention the name of modules as Module I: Natural farming; Module II: Organic farming and Module III: conventional farming in treatment details 9. Verify the plot size 10. Correct experiment design in consultation with statistician **(Action: Assoc. Res. Sci., Regional Rice Res. Station, NAU, Vyara)**
20.3.3.29	Artificial Intelligence (AI) powered decision support system development for leaf spot disease management in banana	**Approved with following suggestion(s):** 1. Approved as AICRP trial **(Action: Assoc. Res. Sci., Fruit Res. Station, NAU, Gandevi)**

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20.3.3.30	Standardization of number of pheromone traps for *Helicoverpa armigera* (Hubner) in groundnut	**Approved with following suggestion(s):** 1. Keep plot size one acre 2. Record larval population instead of damage 3. Record yield and work out economics 4. Record moth catches at weekly intervals 5. Add standard check for comparison **(Action: Professor & Head, Department of Entomology, JAU, Junagadh)**
20.3.3.31	Management of branch gall midge infesting mango	**Approved with following suggestion(s):** 1. Record the observation from all four directions from two tree 2. Record observations for tagged twigs 3. Remove per cent incidence from observation 4. Correct the formula for damage 5. Keep the quantity of the spray fluid 15-20 lit/tree 6. Record the observation at 7 and 14 days 7. Replace T_3 with Chlorpyriphos 20 EC 8. Replace T_4 with Tetraniliprole 18.18 SC 9. Add control treatment in soil application 10. Calculate the interaction effect **(Action: Professor & Head, Department of Entomology, JAU, Junagadh)**
20.3.3.32	Evaluation of ready-	**Approved with following suggestion(s):**

	mix insecticides on sucking pests and pink bollworm in cotton	1. Recast title as "Evaluation of ready-mix insecticides against sucking pests and pink bollworm in *Bt* cotton" 2. Check formula of % rosette flower 3. Record natural enemies 4. Keep the dose @ 125 g. a.i./ha in T_7 5. Keep number in place of per cent in observation **(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)**
20.3.3.33	Bio-efficacy of ready-mix insecticides against pod borer *Helicoverpa armigera* (Hubner) in pigeonpea	**Approved with following suggestion(s):** 1. Recast title as "Bio-efficacy of ready-mix insecticides against pod borer complex in pigeonpea" 2. Recast objective accordingly 3. Add pod fly in observation 4. Verify Fertilizer dose 5. Record haulm yield 6. Record natural enemies 7. Keep replication as three 8. Check the dose of T_2 and T_8 9. Replace T1 with Beta cyfluthrin 8.49 + Imidacloprid 19.81 OD @ 60 g a.i./ha 10. First spray at 50% flowering and second at 15 days after first, remove need base spray **(Action: Research Scientist (Chickpea), Pulses Research Scientist, JAU, Junagadh)**
20.3.3.34	Efficacy of different insecticides against ear head worm, *Helicoverpa armigera* (Hubner) in Pearl Millet	**Approved with following suggestion(s):** 1. Check the dose of malathion, Chlorantraniliprole and indoxacarb 2. Keep spray interval at 15 days 3. Check 'a.i.' in all treatments **(Action: Research Scientist, Main Pearl Millet Research Station, JAU, Jamnagar)**
20.3.3.35	Evaluation of ready-mixed insecticides against *Spodoptera litura* Fab. infesting soybean	**Approved with following suggestion(s):** 1. Replace word "Ready-Mixed" with "Ready-Mix" in the title 2. Check the dose of T_4 and keep as per red gram from CIBRC 3. Add recommended check, if any **(Action: Research Scientist, Agricultural Research Scientist, JAU, Amreli)**

20.3.3.36	Efficacy of plant based neutral silica on storage insects and seed quality during storage under ambient condition in chickpea	**Approved with following suggestion(s):** 1. Recast title as "Efficacy of seed protectants against pulse beetle during storage of chickpea for seed purpose" 2. Add "number of insects to be released" in methodology 3. Add reference of boric acid 4. Mention T_7 as recommended check 5. Check dose of T_5 (Deltamethrin) **(Action: Professor and Head, Department of Seed Science and Technology, JAU, Junagadh)**
20.3.3.37	Efficacy of plant based neutral silica on storage insects and seed quality during storage under ambient condition in pearl millet	**Approved with following suggestion(s):** 1. Recast title as "Efficacy of seed protectants against lesser grain borer during storage of pearl millet for seed purpose" 2. Add "number of insects to be released" in methodology 3. Add reference of boric acid 4. Mention T_7 as recommended check 5. Check dose of T_5 (Deltamethrin) **(Action: Professor and Head, Department of Seed Science and Technology, JAU, Junagadh)**
20.3.3.38	Studies on the effect of insecticidal seed treatment on seed viability during storage under ambient condition in pearl millet (AICRP trial)	**Approved with following suggestion(s):** 1. Approved as an AICRP trial 2. Add "number of insects to be released" in methodology 3. Remove trade name from the treatment **(Action: Professor and Head, Department of Seed Science and Technology, JAU, Junagadh)**
20.3.3.39	Studies on the effect of insecticidal seed treatment on seed viability during storage under ambient condition in groundnut (AICRP trial)	**Approved with following suggestion(s):** 1. Approved as an AICRP trial 2. Add "number of insects to be released" in methodology **(Action: Professor and Head, Department of Seed Science and Technology, JAU, Junagadh)**
20.3.3.40	Efficacy of bio-agents against wilt of castor	**Approved with following suggestion(s):** 1. Add formulation in treatment detail 2. Take ancillary observation of nematode **(Action: Research Scientist, Main Oilseeds Research Station, JAU, Junagadh)**
20.3.3.41	Field evaluation of endophytic bca_s (biological control	**Approved with following suggestion(s):** 1. Approved as an AICRP trial

	agents) along with chemicals for seed and soil borne diseases in cotton (AICRP trial)	**(Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)**
20.3.3.42	Evaluation of natural inputs against wilt and root rot disease in chickpea	**Approved with following suggestion(s):** 1. Remove "disease" word from title 2. Take design RBD with four replications 3. Mention T5 as the recommended check 4. Add soil drenching of buttermilk as treatment 5. Mention the time for seed treatment in methodology 6. Check dosage and concentration as per Natural farming protocol given in the book 'Prakrutik Kheti' written by Acharya Devvrat Ji **(Action: Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh)**
20.3.3.43	Management of pearl millet blast by using chemicals and bio agents (AICRP trial)	**Approved with following suggestion(s):** 1. Approved as an AICRP trial **(Action: Research Scientist, Main Pearl millet Research Station, JAU, Jamnagar)**
20.3.3.44	Impact of npk consortia on wheat under field condition	**Suggestion(s):** 1. Based on Chairman's remark, the NTP has been shifted to Basic Science AGRESCO Group **(Action: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)**
20.3.3.45	Eco-friendly management of stem and root rot disease in sesame caused by *Macrophomina phaseolina*	**Approved with following suggestion(s):** 1. Recast title as "Eco-friendly management of stem and root rot disease in sesame" 2. Take three replications 3. Remove '2×10^6 CFU/ ml' from methodology 4. Write "Soil application of bioagents after enrichment" in methodology **(Action: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)**
20.3.3.46	Isolation and testing of potash mobilizing bacteria under *in vitro* and *in vivo* (pot)	**Suggestion(s):** 1. Based on Chairman's remark, the NTP has been shifted to Basic Science AGRESCO Group **(Action: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)**
20.3.3.47	Isolation and testing of sulphur oxidizing bacteria under *in vitro* and *in vivo* (pot)	**Suggestion(s):** **1.** Based on Chairman's remark, the NTP has been shifted to Basic Science AGRESCO Group **(Action: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)**

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action
20.3.3.48	Evaluation of various natural inputs against pulse beetle, *Callosobruchus chinensis* (Linnaeus) infesting stored green gram	**Approved with following suggestion(s):** 1. Take treatment T_1 and T_3 with 2% in place of 5% 2. Add observation: Seed damage (%) 3. Mention the actual quantity in each treatment 4. In observations, record No. of adults developed after 3 and 6 months of storage 5. Remove organoleptic test **[Action: Professor and Head, Department of Entomology, BACA, AAU, Anand]**
20.3.3.49	Effect of Nitrogen based nano fertilizers on pollinator fauna in mustard	**Approved with following suggestion(s):** 1. First year results to be present in 21st AGRESCO meeting 2. First spray will apply at 45 days and second spray at 60 days 3. In observation to be recorded: delete 'Chlorophyll and oil content' **[Action: (1) Professor & Head, Dept. of Agril. Entomology, BACA, AAU, Anand, (2) Professor & Head, Dept. of Biochemistry, BACA, AAU, Anand]**
20.3.3.50	Efficacy of bio-inputs against sweet potato weevil, *Cylas formicarius* (F.)	**Approved with following suggestion(s):** 1. Mention CFU as 1 x 10^8 /g min. in treatment **[Action: Principal Research Scientist, AICRP on Biocontrol of Crop Pests, AAU, Anand]**
20.3.3.51	Effect of chitosan in combination with microbial biopesticides against spotted pod borer, *Maruca vitrata* (Fab.) infesting Indian bean	**Approved with following suggestion(s):** 1. Add ancillary observation of *Helicoverpa* 2. Observations will be recorded before the first spray as well as 3, 7, and 9 days after each spray 3. Apply 3 sprays in treatment 4. Mention CFU per g. min. as per standard **[Action: Principal Research Scientist, AICRP on Biocontrol of Crop Pests, AAU, Anand]**
20.3.3.52	Seasonal incidence of pest complex infesting Indian bean	**Suggestion: Not Approved** **[Action: Principal Research Scientist, AICRP on**

		Biocontrol of Crop Pests, AAU, Anand]
20.3.3.53	Effect of physical repellents for birds damaging chilli crop	**Approved with following suggestion(s):** 1. Recast the title as "Effect of physical repellents for parakeet damaging chilli crop" 2. Other birds should be included in observations. 3. In methodology add: Activity of birds will be observed by watching camera/ binocular 4. Mention camera/binocular details in the methodology **[Action: Associate Research Scientist, AINP VPM: Agril. Ornithology, Anand]**
20.3.3.54	Evaluation of various insecticides against stem borer, *Scrobipalpa heliopa* (Lower) in tobacco	**Approved with following suggestion(s):** 1. Take T_3: Chlorantraniliprole 18.5 SC instead of 20 EC 2. Add new treatment: Fipronil 0.6% G **[Action: Research Scientist, BTRS, AAU, Anand]**
20.3.3.55	Incidence of insect-pests and diseases of groundnut in Middle Gujarat	**Suggestion: Not Approved** **[Action: Assistant Professor, SMC Polytechnic in Agriculture, AAU, Anand]**
20.3.3.56	Seasonal incidence of major insect pests of pearl millet	**Suggestion: Not Approved** **[Action: Research Scientist, RRS, AAU, Anand]**
20.3.3.57	Effect of storage bag and insecticides against lesser grain borer infesting wheat seed under storage	**Approved with following suggestion(s):** 1. Mention number of insects to be released in methodology 2. In treatment details, remove PPM 3. In methodology, record the observation at 90, 180 and 270 days 4. In treatment, replace the word 'Gunny bag' with 'Jute bag' **[Action: Research Scientist, RRS, AAU, Anand]**
20.3.3.58	Effect of aluminum phosphide on groundnut bruchid during groundnut storage	**Approved with following suggestion(s):** 1. Mention bin size in methodology 2. Recast the "observations to be recorded" 3. Take T4 treatment as untreated 4. Mention dose per m^3 area 5. Record per cent pod damage **[Action: Research Scientist, RRS, AAU, Anand]**

20.3.3.59	Evaluation of different acaricides against mite infesting brinjal	**Approved with following suggestion(s):** 1. Recast the title as "Evaluation of different acaricides against spider mite, *Tetranychus urticae* infesting brinjal" 2. In objective: add name of crop 3. Record predatory mites 4. In observations, take mite population based on "mobile stage" 5. In methodology: record observations before the application of treatment and 3, 7 and 14 days after treatment 6. Keep spray interval as 15 days 7. Verify the technical names and doses in all the treatments 8. Add treatment of Diafenthiuron 50 WP **[Action: Research Scientist, MVRS, AAU, Anand]**
20.3.3.60	Evaluation of different modules against major lepidopteran insect-pests infesting cabbage	**Approved with following suggestion(s):** 1. Write CFU of *B. bassiana* and *Bt* as 1 x 10^8 cfu/g min. 2. Keep the formulation of *B. bassiana* 1.15 WP in place of 5 WP 3. Add: observations on natural enemies **[Action: Assistant Professor and Head, Dept. of Plant Protection, CoH, AAU, Anand]**
20.3.3.61	Bio-efficacy of insecticides against fruit borers infesting jamun	**Approved with following suggestion(s):** 1. Conduct regular trial to generate the information for the scientific community 2. Conduct filler trial on botanicals against fruit borers 3. Mention the name of pests in objective **[Action: Assistant Professor and Head, Dept. of Plant Protection, CoH, AAU, Anand]**
20.3.3.62	Seasonal incidence of major insect-pests and diseases in rice	**Suggestion: Not Approved** **[Action: Research Scientist, MRRS, AAU, Nawagam]**
20.3.3.63	Seasonal incidence and avoidable yield losses in chickpea caused by gram pod borer, *Helicoverpa armigera* (Hübner)	**Suggestion: Not Approved** **[Action: Assistant Research Scientist (Ento.), Agricultural Research Station, AAU, Derol]**

20.3.3.64	Residues and persistence study of beta-cyfluthrin, imidacloprid, fluopicolide and propamocarb hydrochloride in pomegranate	**Approved with following suggestion(s):** 1. Mention the name of variety 2. Add soil parameters **[Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand]**
20.3.3.65	Residues and persistence study of spirotetramat, spidoxamat and spinetoram in tomato	**Approved with following suggestion(s):** 1. Take soil dissipation study **[Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand]**
20.3.3.66	Evaluation of post-harvest processing techniques for minimization of the pesticide residues in cumin seeds	**Approved with following suggestion(s):** 1. Add test pesticide molecules: kresoxim methyl, picoxystrobin and flonicamid 2. Increase the plot size **[Action: Residue Analyst, AINP on Pesticide Residues, AAU, Anand]**
20.3.3.67	Assessment of seasonal incidence of major insect pests and diseases in maize	**Suggestion: Not Approved** **[Action: Research Scientist, Main Maize Research Station, AAU, Godhra]**
20.3.3.68	Efficacy of botanicals against late blight of potato	**Approved with following suggestion(s):** 1. Remove the treatment T_{11}: Water spray **[Action: Professor and Head, Dept. of Pl. Pathology, BACA, AAU, Anand]**
20.3.3.69	Assessment of different sawdust substrates on growth and yield of Reishi Mushroom (*Ganoderma lucidum*)	**Approved with following suggestion(s):** 1. Add spawn rate per bag 2. Keep 28 to 32^{o}C in methodology 3. Take biochemical parameters 4. Take this trial in kharif season 5. Economics to be work out **[Action: Professor and Head, Dept. of Pl. Pathology, BACA, AAU, Anand]**

20.3.3.70	Evaluation of eco-friendly inputs against of root-knot nematodes, *Meloidogyne* spp. in tomato	**Approved with following suggestion(s):** 1. Check CFU in T_1, T_2 and T_3 as cfu/g. min. 2. Mention methodology of garlic extract 3. Remove footnote from treatment details of *Agniastra* **[Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand]**
20.3.3.71	Evaluation of bioagents against root-knot nematodes, *Meloidogyne* spp. in Indian bean	**Approved with following suggestion(s):** 1. Check CFU as per norms (cfu/g. min.) in all the treatments **[Action: Professor and Head, Dept. of Nematology, BACA, AAU, Anand]**
20.3.3.72	Evaluation of ready-mix fungicides against Alternaria blight of cluster bean	**Suggestion: Approved** **[Action: Assistant Professor and Head, Dept. of Plant Protection., College of Horticulture, AAU, Anand]**
20.3.3.73	Evaluation of fungicides as a seed treatment against major diseases in chickpea	**Approved with following suggestion(s):** 1. Mention the time for seed treatment i.e. 12 hrs in methodology 2. Replace "T_3: Metalaxyl-M 31.8% ES" with "Carbendazim 8% + Mancozeb 64% WP" 3. Remove the word 'economical' from the objective **[Action: Assistant Prof. and Head, College of Agriculture, Jabugam]**
20.3.3.74	Efficacy of fungicides in control of Turcicum leaf blight in maize	**Suggestion: Approved** **[Action: Research Scientist, Main Maize Research Station, Godhra]**

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title	Suggestion/s and Action
20.3.3.75	Cow urine based botanicals for the management of thrips (*Scirtothrips dorsalis*) on pomegranate	**Approved with following suggestion(s):** 1. Recast title as "Management of thrips in pomegranate through cow urine-based botanicals" 2. Replace treatment "T_7: Jivamrut" with "Neemastra 100%" 3. Observation at before spray as well as 3, 7 and 9 days after each spray

		4. Take three sprays at 10 days interval 5. Correct No. of thrips/10 cm twig in observation 6. Record the observations of thrips from all four direction 7. Check Cow urine 10% 8. Record Yield data **[Action: Assoc. Res. Sci., Ento., Arid Fruit Research Station, SDAU, Sardarkrushinagar]**
20.3.3.76	Management of pest complex in ber through IPM approaches	**Approved with following suggestion(s):** Approved as AICRP trial **[Action: Assoc. Res. Sci., Ento., Arid Fruit Research Station, SDAU, Sardarkrushinagar]**
20.3.3.77	Management of ear head worm in summer pearl millet through botanicals	**Approved with following suggestion(s):** 1.Write as "earhead worm" 2. Add Azadirachtin 10000 ppm (20 ml/ 10 L water) 3. Take both grain and fodder yield 4. Record the observations before spray as well as 5, 7 and 9 days after each spray 5. Take three sprays at 10 days interval **[Action: Prof. & Head, Dept. of Entomology, CPCA, SDAU, Sardarkrushinagar]**
20.3.3.78	Eco-friendly management of powdery mildew in ber	**Approved with following suggestion(s):** 1. Mention the name of the ber variety: Umran 2. Delete per cent disease control and economics from observation **[Action: Asstt. Res. Sci., Ento., Arid Fruit Research Station, SDAU, Sardarkrushinagar]**
20.3.3.79	Management of powdery mildew in ber through bioagents, phytoextracts and green chemicals	**Approved with following suggestion(s):** 1. Recast the title as "Management of powdery mildew in ber through bioagents and phytoextracts" and recast objective accordingly 2. Delete economics from observation 3. Write method of preparation of Sunthastra 4. Delete T_2 and T_3 5. Treatment T_6 *Jivamrut* replaced with *Panchagavya* 5% 6. Add Wood ash 15 kg/ha 7. Write formulation and CFU in T_1 8. Add formulation and a.i./ha in T_8 **[Action: Asstt. Res. Sci., Ento., Arid Fruit Research Station, SDAU, Sardarkrushinagar]**

20.3.3.80	Biodiversity of powdery mildew pathogens on different hosts at and around Sardarkrushinagar and their morphological and molecular characterization	**Suggestion: Not Approved** **[Action: Prof. & Head, Deptt. Of Pl. Patho CPCA, SDAU, Sardarkrushinagar]**
20.3.3.81	Bio-management of tomato leaf curl	**Approved with following suggestion(s):** 1. Recast the objective of the experiment 2. Write "Seedlings will be grown in nursery under nylon net" in methodology 3. Write "seedling root dip treatment" instead of "seed treatment" 4. Check formulation and CFU in treatments 5. Take spray application at 15 days intervals (at 15^{th}, 30^{th} and 45^{th} days) 6. Take observation on whitefly at before spray as well as 3, 6, 9 and 14 DAS 7. Record yield data (Kg/plot) 8. Add one more treatment as "Raw milk 10%" 9. Workout correlation between whitefly population and disease incidence 10. Remove the observations: plant height, total plant biomass, No. of fruit per plant, 11. Take the tomato variety "GT-3" instead of "Pusa Ruby" 12. Add number of infected plants for disease incidence **[Action: Prof. & Head, Deptt. of Pl. Patho. CPCA, SDAU, Sardarkrushinagar]**
20.3.3.82	Evaluation of organic formulations against powdery mildew of fenugreek	**Approved with following suggestion(s):** 1. Add one more treatment: Dusting of wood ash @ 15 kg/ha early in the morning 2. Keep T_1 and T_2 as Cow urine 10 % and 20%, respectively 3. Add one more treatment: Water spray 4. Natural inputs to be prepared as per the Natural farming protocol published in the book *'Prakrutik Kheti'* written by Acharya Devvrat Ji **[Action: Assoc. Prof., Pl. Patho., College of Agriculture, SDAU, Tharad]**

General suggestions:

1. Mention approval number of technical programme of respective Combined Joint AGRESCO in report as well as at the time of presentation.
2. Don't use sentences like **"Recommendations for Scientific Community"**; instead, concerned scientists must be write **"Information to the Scientific Community"**.
3. If a pesticide is not registered under the CIBRC label claim, then the proposed recommendation shall be considered as **"Information to the Scientific Community"**.
4. In plant protection experiments, it is important to first consider the efficacy of pesticide/s and then the net realization/ ICBR for recommendation.
5. There should be a standardized common format for all four SAUs for farmers' recommendations, information to the scientific community, and NTPs.
6. All legal matters and court cases related to research must be reported to the house.
7. Review existing "farmers recommendations" and "information to scientific community" for modification, if required as per new guidelines of CIBRC.
8. Before formulating a new technical program, it should be predetermined whether the outcome will be for farmers recommendation or information to the scientific community.
9. Scientists must review related research work and published papers before formulating new technical programs.
10. For multi locations trials, minimum two locations should be kept for the new/ invasive insect pests and diseases.
11. There should be a uniformity in doses for biorational and biopesticide *etc.*
12. The modified AICRP trials should be presented in the Combined Joint Agresco.
13. 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.
14. 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.
15. 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.
16. Take high quality photographs of research/ trial and it should be included in report and PPT.
17. Record the GPS coordinates during the investigation.

Statistical Points to be incorporate as Guideline during AGRESCO

Needs to follow a standard statistical table format and economic table to maintain uniformity across all four SAUs. Keeping in view of Pooled analysis interpretation and then recommendation, following points should be kept in mind to avoid any ambiguity:

A. **For table presentation:**

1. Mention SEm ±, CD at 5% and CV (%) in all the tables.

2. 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.

3. 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.

4. **Year/Season and T x Y interaction must be showed in the table whether is significant or non-significant.**

B. If Y and T x Y is found **non-significant** for two or more years then recommendation can be approved for **farmers community.**

C. 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.**

D. 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**.

E. In pooled analysis **if the treatment effects are at par** then recommendation of the treatment should be taken **on the basis of economics table.**

F. **During NTP** (New technical programme) it is necessary to keep vigilant **for observation to be recorded** (keeping in view of proposed objective) along with suitable units in following manner:

1. When (stage), What (quantity/ frequency) Where (before /after)

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20.4 Horticulture and Agro-Forestry Sub Committee
Date: 15-17 May 2024

Summary

Name of University	No. of Recommendations				New Technical Programs	
	Farmers/Entrepreneurs / Industry		Scientific			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
NAU (Hort)	10+4*	9+4*	2	0	22+6*	21+5*
SDAU	10	09	-	-	13	13
AAU	09	09	-	-	08	08
JAU	03	03	-	-	09	08
NAU (Forestry)	03	03	11	11+1#	10	10
Total	**35+4***	**33+4***	**13**	**12**	**62+6***	**60+5***

* Presented for information only and considered under AE, PHT & FPT Sub Committee
# Recommendation shifted from farmer to Scientific information

Chairman	Dr. T. R. Ahlawat, DR, NAU, Navsari
Co-Chairman	(1) Dr. N. I. Shah, Dean (Horti.), AAU, Anand
	(2) Dr. D. K. Varu, Dean (Horti.), JAU, Junagadh
Rapporteurs	(1) Dr. Darshan Bhanderi, NAU, Navsari
	(2) Dr. K. M. Karetha, JAU, Junagadh
	(3) Dr. B. N. Satodiya, AAU, Anand
	(4) Dr. Manish Patel, SDAU, Sardarkrushinagar
Statistician	Dr. A. P. Chaudhary, NAU, Navsari

20.4.1 RECOMMENDATIONS FOR FARMING COMMUNITY
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Horticulture, NAU	
	FRUIT SCIENCE
20.4.1.1	**Feasibility of planting and pruning intensity of meadow orchard in guava cv. Lalit** The farmers of south Gujarat are recommended to grow guava cv. Lalit in meadow orchard at 2m × 2 m planting distance and after two years, prune ¾ current season shoot growth in second forth night of May month after formative pruning during January month to maintain canopy every year for getting maximum yield, quality and net return. દક્ષિણ ગુજરાતના ખેડૂતોને ભલામણ કરવામાં આવે છે કે મીડો ઓર્ચાડ (બગીચો) પધ્ધતિથી જમરૂખ જાત લલિત ઉગાડવા માટે ૨ મી × ૨ મી અંતરે વાવ્યા બાદ બે વર્ષ પછી, જાન્યુઆરી માસમાં કેનોપી ને આકાર આપવા માટે છંટણી કર્યા બાદ, ચાલુ સીઝનની ૩/૪ (ત્રીજા) ભાગની ડાળીને છંટણી મે માસના બીજા પખવાડિયામાં કરવાથી ગુણવત્તાસભર વધુ ઉત્પાદન અને વળતર મળે છે. **Approved with following suggestions:**

	1. Add quality parameters in recommendation text 2. Mention the time of resting in report 3. Recast the recommendation text Action: Professor and Head, Fruit Science, ACH, NAU
20.4.1.2	**Effect of pruning on sapota cv. Kalipatti planted at normal distance** The farmers of South Gujarat having more than 25 years old and over-crowded orchard of sapota tree cv. Kalipatti, planted at 10 m X 10 m spacing are advised to rejuvenate the tree at 2 or 3 meter height from ground level, following canopy management by keeping 4 to 6 branches at each secondary branch and subsequently prune them at 30 to 45 cm after 6 to 8 months for maintaining canopy to get higher yield and net return. દક્ષિણ ગુજરાતના ખેડૂતો ને ભલામણ કરવામાં આવે છે કે ૧૦ મી. x ૧૦ મી. અંતરે વાવેતર કરેલ ૨૫ વર્ષે થી વધુ ઉંમર ના ગીચ થયેલ ચીકુ કાલીપત્તીના ઝાડને, જમીનથી ૨ થી ૩ મી. ની ઊંચાઈથી કાપ્યા બાદ કેનોપીની કેળવણી માટે નવી નીકળેલ ડાળી દીઠ ૪ થી ૬ પાકટ ડાળીઓને ૩૦ થી ૪૫ સે.મી. લંબાઈ રાખી ૬ થી ૮ મહિને છંટણી કરવાથી વધુ ઉત્પાદન અને વળતર મેળવી શકાય છે. **Approved with following suggestions:** 1. Merge reco-2 & 3 2. Use word rejuvenation instead of head-back 3. Recast the recommendation text *(Action: Professor and Head, Fruit Science, ACH, NAU* *Research Scientist, AES, Paria)*
20.4.1.3	**Effect of pruning on sapota *cv.* Kalipatti planted at normal distance** **Approved with following suggestions:** 1. As per Recommendation No. 2 Action: Research Scientist, AES, Paria
20.4.1.4	**Studies for intercropping in cashew** Farmers of South Gujarat having more than ten year old cashew orchard, planted at 8m x 8m spacing are recommended to take green coriander as intercrop in *rabi* season along with recommended dose of fertilizer for getting maximum realization. દક્ષિણ ગુજરાતમાં ૮મી. x ૮મી. અંતરે રોપેલ કાજુની દસ વર્ષથી વધુ વયની વાડી ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે શિયાળામા આંતર પાક તરીકે ભલામણ મુજબના ખાતર સાથે લીલા ધાણા વાવવાથી વધુ આવક મળી શકે છે. **Approved with following suggestions:** 1. Use the word leafy coriander in recommendation text 2. Recast the recommendation text (Action: Research Scientist, AES, Paria)
VEGETABLE SCIENCE	
20.4.1.5	**Response of Brinjal (GNRB-1) to foliar application of Novel Organic Liquid Nutrients and Micronutrients**

	Farmers of South Gujarat growing brinjal (cv. GNRB-1) are recommended to apply foliar spray of Novel Organic Liquid Nutrients 1.5% (150 ml/10 litre of water) at 30, 60 and 75 DATP along with Grade- IV Micronutrient 1.0 % (100 ml/10 litre of water, after two days) with recommended dose of fertilizer (100-50-50 N-P-K kg/ha) for getting higher yield and net realization. દક્ષિણ ગુજરાતના ખેડુતોને ભલામણ કરવામાં આવે છે કે રીંગણની (જી એન આર બી -૧) જાતને ફેરરોપણી બાદ ૩૦,૬૦ અને ૭૫ દિવસે નોવેલ ઓર્ગેનિક લીક્વીડ ન્યુટ્રીઅન્ટસ ૧.૫ % (૧૫૦ મિલી ૧૦ લીટર પાણીમાં) અને સુક્ષ્મ પોષક તત્વ (ગ્રેડ-૪) ૧.૦ % (૧૦૦ મિલી૧૦ લીટર પાણીમાં,બે દિવસ બાદ) છંટકાવ કરવાની સાથે ભલામણ કરેલ રાસાયણિક ખાતરનો જથ્થો (૧૦૦-૫૦-૫૦ ના.ફો.પો કી/હે) આપવાથી વધુ ઉત્પાદન અને નફો મેળવી શકાય છે. **Approved with following suggestions:** 1. Remove the name of variety from recommendation text 2. Recast the recommendation text *(Action: Professor and Head, Vegetable Science, ACH, NAU)*
20.4.1.6	**Response of Tomato (GT-7) to foliar application of Novel Organic Liquid Nutrients and Micronutrients** Farmers of South Gujarat growing tomato (cv.GT-7) are recommended to apply foliar spray of Novel Organic Liquid Nutrients 1.5% (150 ml/10 litre of water) at 30, 60 and 75 DATP along with Grade - IV Micronutrient 1.0 % (100 ml/10 litre of water, after two days) with recommended dose of fertilizer (100-50-50 N-P-K kg/ha) for getting higher yield and net realization. દક્ષિણ ગુજરાતના ખેડુતોને ભલામણ કરવામાં આવે છે કે ટામેટા ની (જી ટી–૭) જાતને ફેરરોપણી બાદ ૩૦,૬૦ અને ૭૫ દિવસે નોવેલ ઓર્ગેનિક લીક્વીડ ન્યુટ્રીઅન્ટસ ૧.૫ % (૧૫૦ મિલી ૧૦ લીટર પાણીમાં) અને સુક્ષ્મ પોષક તત્વ (ગ્રેડ-૪) ૧.૦ % (૧૦૦ મિલી ૧૦ લીટર પાણીમાં,બે દિવસ બાદ) છંટકાવ કરવાની સાથે ભલામણ કરેલ રાસાયણિક ખાતરનો જથ્થો (૧૦૦-૫૦-૫૦ ના.ફો.પો કી/હે) આપવાથી વધુ ઉત્પાદન અને નફો મેળવી શકાય છે. **Approved with following suggestions:** 1. Remove the name of variety from recommendation text 2. Recast the recommendation text *(Action: Professor and Head, Vegetable Science, ACH, NAU)*
20.4.1.7	**Effect of different colour shade nets on germination and seedling growth of broccoli (*Brassica oleracea* var. Italica) var. Pusa Kts-1** The farmers and nurserymen raising broccoli seedlings in Gujarat are recommended to raise broccoli seedlings under 50 % red shade net for early germination, better survival and superior growth with higher net return.

	ગુજરાતમાં બ્રોકોલી ના ધરૂ ઉછેરતા ખેડૂતો અને નર્સરીધારકો ને ભલામણ કરવામાં આવે છે કે બ્રોકોલીનું ધરૂ ૫૦ ટકા લાલ શેડનેટમાં તૈયાર કરવાથી વહેલું બીજ સ્ફૂરણ, વધારે સારી ટકાઉ શકિત અને ધરૂના ઉત્તમ વિકાસની સાથે વધુ ચોખ્ખી આવક મેળવી શકાય છે. **Approved with following suggestions:** 1. Remove the word "South" from recommendation text 2. Add word "Farmers" in recommendation text 3. Recast the recommendation text *(Action: Professor and Head, Deptt of Hort, NMCA, NAU)*
FLORICULTURE AND LANDSCAPE ARCHITECTURE	
20.4.1.8	**Evaluation of Ferns in different growing media under benching system in Orchid (Dendrobium) polyhouse** Farmers growing orchid in NV polyhouse are recommended to grow *Nephrolepis exaltata* fern as a secondary crop in cocopeat growing media under benching system for obtaining better plant growth and yield as cut greens. Note: Fertilizer application: Urea- 50 mg/l of 100 ml/pot (Once a month in the first week) 19:19:19 NPK-50 mg/l of 100 ml/pot (Once a month in third week) Pot size : Height 19 cm, top diameter 19 cm, bottom diameter:15 cm કુદરતી હવા-ઉજાસવાળા પોલીહાઉસમાં ઓર્કીડની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, બેંચિંગ સિસ્ટમની નીચે ગૌણ પાક તરીકે હંસરાજને કોકોપીટ મીડિયામાં ઉગાડવાથી છોડની વધુ સારી વૃધ્ધિ અને પાનનું ઉત્પાદન મેળવી શકાય છે. **નોંધ :**ખાતર: યુરિયા -મહિનાના પ્રથમ અઠવાડિયામાં એક વાર ૫૦ મિલીગ્રામ/લિ સાંદ્રતાવાળું પાણી ૧૦૦ મિલી/કુંડા દીઠ આપવું .૧૯:૧૯:૧૯ -NPK મહિનાના ત્રીજા અઠવાડિયામાં એક વાર ૫૦ મિલીગ્રામ/લિ સાંદ્રતાવાળું પાણી ૧૦૦ મિલી/કુંડા દીઠ આપવું. કૂંડાનુમાપ : ઉંચાઇ – ૧૯ સેમી, ઉપરનો વ્યાસ – ૧૯ સેમી, તળીયાનો વ્યાસ – ૧૫ સેમી **Approved with following suggestions:** 1. Correct the pot size 2. Recast the recommendation text 3. Add the word Naturally ventilated poly house in title *(Action: Professor and Head, FLA, NAU)*
20.4.1.9	**Effect of type and height of rootstock for grafting in Moon Cactus** Nurserymen raising cactus under naturally ventilated polyhouse are recommended to graft *Gymnocalycium mihanovichii* (as Scion) cactus on 3 edged and 5 cm height of *Hylocereus monacanthus* rootstock to develop moon cactus for higher graft survival, more number of flowers and baby cactus.

	નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે, કુદરતી હવા-ઉજાસવાળા પોલીહાઉસમાં મુન કેક્ટસની કલમ બનાવી વિકસાવવા માટે જીમ્નોકેલીસીયમ મિહાનોવિચી (ઉપરોપ)ને ૩ ધાર વાળા અને ૫ સેમી ઉંચાઈ વાળા હાઇલોસેરીયસ મોનોકેન્થસ મૂલકાંડ ઉપર કલમ કરવાથી કલમોનો ઊંચો જીવિત-શેષ દર તેમજ કલમ પર વધુ ફુલો અને બેબી કેક્ટસ મેળવી શકાય છે. **Approved with following suggestions:** 1. Add word "and" between 3 edge and 5 cm height 2. Recast the recommendation text 3. Mention the name of Hylocereus species *(Action: Professor and Head, FLA, NAU)*
20.4.1.10	**Effect of pinching and foliar application of nutrients on growth, quality and yield of African marigold (*Tagetes erecta* L.) var. Punjab Gainda – 1** Farmers of South Gujarat, growing African marigold are recommended to pinch at 20 and 35 days after transplanting along with Novel Organic Liquid Nutrients @ 1% (1liter/100/liter water) spray during 6th and 7th week of transplanting with the recommended dose of fertilizer (150:100:100 kg NPK/ha) along with 10 tonne of well rotten Farm Yard Manure (FYM) per hectare to achieve maximum production and profit. દક્ષિણ ગુજરાતમાં આફ્રીકન ગલગોટા ઉગાડનાર ખેડૂતોને ભલામણ કરવામાં આવે છે કે ગલગોટામાં ફેરરોપણીના ૨૦ અને ૩૫ દિવસે અગ્રકલીકા ચુંટવાથી તથા ફેરરોપણી કર્યાના છઠ્ઠા અને સાતમા અઠવાડીયામાં નોવેલ સેન્દ્રીય પ્રવાહી પોષક તત્વનો ૧ % (૧ લિટર/ ૧૦૦ લિટર પાણી) નો છંટકાવ ભલામણ કરેલ રાસાયણિક ખાતર (૧૫૦:૧૦૦:૧૦૦) અને ૧૦ ટન કોહવાયેલા છાણીયા ખાતરની સાથે કરવાથી મહત્તમ ઉત્પાદન અને નફો મેળવી શકાય છે. **Approved with following suggestions:** 1. Remove the name of variety from recommendation text 2. Recast the recommendation text *(Action: Professor and Head, FLA, NAU)*
POST HARVEST TECHNOLOGY	
*****	**Standardization of process technology for the preparation of *Aloe vera* and Aonla blended juice** Processors and entrepreneurs associated with juice processing are recommended to produce *Aloe vera* and aonla blended juice with 75:25 proportion by adding 8 g sugar / 100 ml to maintain 12 °Brix TSS along with black salt 3 g and ginger juice 3 ml per litre blended juice. The blended juice must be heated at 95±1°C for 5 minutes, packed in glass bottles followed by thermal processing at 95±1°C for 30 minutes. The packed juice has storage life for 8 months at ambient temperature.

	પ્રોસેસરો અને ફળોના રસ સાથે સંકળાયેલ ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, એલોવીરા અને આમળાનો મીક્ષ રસ બનાવવા માટે ૭૫:૨૫ પ્રમાણ મુજબ ૮ ગ્રામ ખાંડ પ્રતિ ૧૦૦ મી.લી. રસમાં ઉમેરી ટી.એસ.એસ.નું પ્રમાણ ૧૨°બ્રીક્ષ જાળવી સંચળ ૩ ગ્રામ અને આદુનો રસ ૩ મી.લી. પ્રતિ લીટર મીક્ષ રસ પ્રમાણે ઉમેરવા. ત્યારબાદ મીક્ષ રસને ૯૫±૧ °સે. તાપમાને ૫ મીનીટ સુધી ગરમ કરી કાચની બોટલમાં ભર્યા બાદ ૯૫±૧°સે. તાપમાને ૩૦ મીનીટ સુધી ગરમ કરવું. આ રીતે પેક કરેલ મીક્ષ રસને ૮ માસ સુધી સામાન્ય તાપમાને સંગ્રહ કરી શકાય છે. **Approved with following suggestions:** **1. Approved in Dairy Science and FPT group, only for information** ***(Action: Professor and Head, PHT, NAU)***
*****	**Standardization of suitable treatments for preparation of osmo-air dehydrated mango (*Mangifera indica* L.) slices** Processors and entrepreneurs are recommended to prepare osmo-air dehydrated mango slices from mango fruits var. Kesar after 6th day of harvesting by giving 24 hours osmotic treatment to 1.5±0.2cm thick slices with osmotic solution (sugar syrup) of 60^{o}Brix at 40^{o}C followed by drying in cabinet dryer till moisture content of 15±0.4%. The osmo-air dehydrated mango slices prepared by this technique possess 30.86% yield along with higher beta-carotene, higher overall acceptability score and lower non-enzymatic browning. The osmo-air dehydrated mango slices had production cost of Rs 833 / kg and storage life of six months in 380 gauge polypropylene bags at ambient temperature. પ્રોસેસરો અને ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, કેસર કેરીના ફળોમાંથી ઓસ્મો-એર દ્વારા સુકવણી કરીને ચીરીઓ તૈયાર કરવા માટે કેરીને ઉતાર્યા પછી છઠ્ઠા દિવસે ૧.૫±૦.૨ સેમી જાડાઈની ચીરીઓને ૪૦° સે તાપમાને અને ૬૦°બ્રિક્ષ વાળા ઓસ્મોટીક દ્રાવણ (ખાંડની ચાસણી) માં ૨૪ કલાક ઓસ્મોટીક ટ્રીટમેન્ટ આપ્યા બાદ ૧૫±૦.૪ % ભેજનું પ્રમાણ રહે ત્યાં સુધી કેબિનેટ ડ્રાયર દ્વારા સુકવણી કરવી. આ પધ્ધતિથી તૈયાર કરવામાં આવેલ ઓસ્મો-એર સુકવણી કરેલ ચીરીઓમાં ૩૦.૮૬% ઉત્પાદન સાથે ઓછું બ્રાઉનીંગ તેમજ વધારે બીટા–કેરોટીન અને સારી સ્વીકાર્યતા ધરાવે છે. ઓસ્મો-એર સુકવણી કરેલ ચીરીઓનો ઉત્પાદન ખર્ચ રૂ. ૮૩૩ પ્રતિ કિલો થાય છે અને ૩૮૦ ગેજ પોલીપ્રોપીલીનની થેલીમાં સામાન્ય તાપમાને ૬ મહિના સુધી સંગ્રહ કરી શકાય છે. **Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information *(Action: Professor and Head, PHT, NAU)*
*****	**Standardization of formulation for preparation of fruit bar from sapota pulp** Processors and entrepreneurs are recommended to prepare sapota fruit bar by mixing sapota pulp and sugarcane juice with 60:40 proportion by open pan heat concentration upto 40^{o}Brix TSS along with 0.5% pectin followed by addition of 100 ppm potassium metabisulphite (KMS). Then pouring and spreading concentrated mixture on SS trays by maintaining 10mm thick layer

	and drying in cabinet dryer at 60°C till final moisture of 16±0.5%. Sapota fruit bar pieces (2.5x2.5x0.6 cm) packed in 95 micron HDPE bags possesses lower non-enzymatic browning, higher iron content and overall acceptability and have shelf life up to 9 months at ambient temperature storage. પ્રોસેસરો અને ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, ચીકુબાર બનાવવા માટે ચીકુ પલ્પ અને શેરડીનો રસ ૬૦:૪૦ પ્રમાણ મુજબ મીક્ષ કરી, ૦.૫ % પેક્ટીન ઉમેરી, ૪૦°બ્રીક્ષ ટી.એસ.એસ. થાય ત્યાં સુધી ખુલ્લા વાસણમાં ગરમ કરી તેમાં ૧૦૦ પીપીએમ પોટેશીયમ મેટા બાય સલ્ફાઇટ (કેએમએસ) ઉમેરવુ. ત્યારબાદ આ મીશ્રણને ૧૦ મીમી જાડાઇનું લેયર એસ.એસ. ટ્રેમાં પાથરી, ૧૬±૦.૫% ભેજનું પ્રમાણ જળવાઇ રહે ત્યાં સુધી કેબિનેટ ડ્રાયરમાં ૬૦°સે. તાપમાને સુકવવું. આ રીતે તૈયાર થયેલ ચીકુ બારને નાના ટુકડામાં (૨.૫x૨.૫x૦.૬ સેમી) કાપ્યા બાદ ૯૫ માઈક્રોન એચ.ડી.પી.ઇ. બેગમાં પેક કરવામાં આવે તો ઝાંખી પડ્યા વગર, વધારે આઇરનનું પ્રમાણ અને સ્વીકાર્યતા સાથે ૯ માસ સુધી સામાન્ય તાપમાને સંગ્રહ કરી શકાય છે. **Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information (*Action: Professor and Head, PHT, NAU)*
*****	**Studies on quality of thermally processed Oyster Mushroom during storage** Processors and entrepreneurs are recommended to preserve the oyster mushroom in A 2 ½ SR tin can (99 x 119 mm, 850 g capacity) by following steps: washing of mushroom in water containing 0.1% KMS, blanching, filling of 400 g mushroom, addition of solution containing 2.00 % NaCl and 0.05 % citric acid in tin can, exhausting, seaming, retorting at 121°C and 15 psi pressure for 25 min followed by cooling. The canned oyster mushroom can be stored and utilized up to 6 months with good quality. પ્રોસેસર્સ અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે ઢીંગરી મુશરૂમ ને એ ૨ ૧/૨ એસ. આર. ટીન કૅન (૯૯ x ૧૧૯ એમ. એમ., ૮૫૦ ગ્રા. શ્રમતા) માં સાચવવા માટે તેઓ નીચે દર્શાવેલા પગલાંને અનુસરે: મુશરૂમ ને 0.૧% પોટેશિયમ મેટાબાઈસલ્ફાઈટ ધરાવતા પાણીમાં ધોવા, બ્લાન્ચિંગ, ૪૦૦ ગ્રા. મુશરૂમ ને ભરવા, ૨.00 % સોડિયમ ક્લોરાઇડ અને 0.0૫ % સાઇટ્રિક એસીડ ધરાવતાં દ્રાવણ ને ઉમેરવુ, એક્ઝોસ્ટિંગ, સીમિંગ, ૧૨૧ ડિગ્રી સેલ્સિયસ તાપમાને અને ૧૫ પી.એસ.આઈ. દબાણે, ૨૫ મિનીટ રિટૉર્ટિંગ કર્યા બાદ ઠંડુ કરવું. તૈયાર કરેલ કૅન્ડ ઢીંગરી મશરૂમ સારી ગુણવત્તા સાથે ૬ મહિના સુધી સંગ્રહિત અને તેનો ઉપયોગ કરી શકાય છે. **Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information (Action: Professor and Head, PHT, NAU)
Forestry, NAU	

20.4.1.11	**Study of growth and bark biomass potential of Ashok [*Saraca asoca* (Roxb.) Willd.)] under different spacing** Nurserymen are recommended to use bold seeds (single seed weight of 9.9 to 13 g) followed by soaking seeds in normal water for 24 hrs to obtain higher seed germination (>85%) and seedling growth in Ashok. Farmers are suggested to raise Ashok plantation at 1m x 2m spacing for bark harvesting and plantation can be managed under coppice system after bark harvesting at the age of 5½ years by maintaining 2 to 3 coppice shoots per stem for higher growth and bark yield. નર્સરીધારક ને ભલામણ કરવામાં આવે છે કે અશોકના બીજનો વધુ ઉગાવો (>૮૫%) મેળવવા માટે તેના મોટા બીજ (એક બીજ નું વજન ૯.૯ થી ૧૩ ગ્રા.) પસંદ કરવા અને ત્યારબાદ તેને ૨૪ કલાક સાદા પાણીમાં ડુબાડી રાખવા. ખેડૂતો ને સુચવવાનું કે છાલ ની લણણી માટે અશોક નું વાવેતર ૧મી x ૨મી ના અંતરે રાખવું અને ૫½ વર્ષે છાલ ઉત્પાદન મેળવી વાવેતરને (કાપણી /લણણી) કોપાઈસ પદ્ધતિ દ્વારા વૃક્ષ દીઠ ૨ થી ૩ ડાળી (શુટ) રાખવી જેથી વધુ વિકાસ અને છાલનું ઉત્પાદન મેળવી શકાય. **Approved with following suggestions:** 1. Give range of seed weight 2.Give the time of coppice 3. Recast the recommendation text *[Action: PI & HOD, Silviculture and Agroforestry Department, CoF, NAU, Navsari]*
20.4.1.12	**Influence of pre-sowing treatments on germination and early growth in Khatichamol (*Bauhinia malabarica* Roxb.)** Farmers, foresters and nurserymen are recommended to use pre-sowing treatment by soaking seeds in 98 per cent concentrated sulphuric acid (H_2SO_4) for 30 min followed by soaking in normal water for 24 hrs for achieving higher seed germination and seedling growth in Khati chamol (*Bauhinia malabarica*). ખેડૂતો, વનપાલો અને નર્સરીમાં રોપા ઉછેરનારાઓને ભલામણ કરવામાં આવે છે કે ખાટી ચામોલના બીજોને ૩૦ મિનિટ સુધી ૯૮ ટકા સાંદ્ર સલ્ફયુરીક એસિડ (98 % conc. H_2SO_4) માં અને ત્યાર બાદ ૨૪ કલાક માટે સામાન્ય પાણીમાં ભીંજવ્યા બાદ વાવેતર કરવાથી વધારે બીજ-અંકુરણ મળે છે તેમજ રોપાઓનો ઝડપી વિકાસ થાય છે. **Approved with following suggestions:** 1. Recast the recommendation text 2. Use the word Nurserymen instead of nursery growers [*Action: PI & HOD, Silviculture and Agroforestry Department, CoF, NAU, Navsari*]
20.4.1.13	**Impact of short term water logging on *Ailanthus species*** The farmers of South Gujarat, who intend to grow *Ailanthus excelsa* and *Ailanthus triphysa* are recommended to be grown under well drained soil where the water logging conditions prevail for not more than two days.

	દક્ષિણ ગુજરાત ના અરડૂસાની પ્રજાતિ એલેનથસ એક્સેલસા અને એલેનથસ ટ્રાઈપ્સાની ખેતી કરવા ઇચ્છતા ખેડૂતોને સારી નિતારશક્તિ ધરાવતી જમીન જ્યાં બે દિવસ કરતાં વધારે પાણી ભરાઈ ન રહે તેવી જમીનમાં વાવવાની ભલામણ કરવામાં આવે છે. **Approved with following suggestions:** 1. Recast the recommendation text [*Action: PI & HOD, Forest Resource Management, CoF, NAU, Navsari]*

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20.4.1.14	**Response of different rootstocks under saline irrigation condition in tomato** The farmers of South Saurashtra Agroclimatic zone growing tomato are recommended to use var. GT-6 grafted on Arka Vikas with use of saline irrigation water upto 2.0 dS/m EC for higher yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ટામેટાની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ટમેટાના મૂળકાંડ અર્કા વિકાસ ઉપર કલમ કરેલ જીટી-૬ જાતની ટામેટીને ૨.૦ ડીએસ/મી. ઇસી સુધીનું ક્ષારવાળું પાણી વાપરવાથી વધુ ઉત્પાદન અને નફો મળે છે. **Approved with following suggestions:** 1. Recast recommendation. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
20.4.1.15	**Nutrient management in tomato under polyhouse** The farmers of Gujarat growing tomato under poly house are recommended to apply RDF (25.0-12.5-12.5 N-P_2O_5-K_2O kg/ 1000m^2) + *Panchgavaya* 3% (3 spray at 45, 60 and 75 days after transplanting) to obtain higher yield and net return. પોલીહાઉસમાં ટમેટાની ખેતી કરતા ગુજરાતના ખેડુતોને ભલામણ કરવામાં આવેછે કેટમેટાને ભલામણ મુજબના ખાતરો ૨૫-૧૨.૫૦-૧૨.૫૦ ના-ફો-પોકિગ્રા / ૧૦૦૦ ચો.મી. સાથે પંચગવ્ય ૩ % ના ત્રણ છંટકાવ ફેરરોપણી કર્યા પછીના ૪૫, ૬૦ અને ૭૫ દિવસે કરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફોમળે છે. **Approved with following suggestions:** 1.Recast recommendation with correction, Naturally poly house instead of poly house *(Action: Principal & Dean, CoH, JAU, Junagadh)*
20.4.1.16	**Propagation of a rare and medicinally important declining shrub species Agnimantha (*Premna serratifolia* L.) by hardwood cuttings** The nurserymen of Gujarat are recommended to use plant growth regulator either IBA @ 450 ppm (73.33 % sprouting) or IAA @ 450 ppm (70.67

	% sprouting) [i.e. 450 mg in one litre water] for 15 minutes dipping for better propagation in hardwood cuttings of Agnimantha (*Premna serratifolia* L.). ગુજરાતના નર્સરીમેનને આથી ભલામણ કરવામાં આવે છે કે, અગ્નિમંથાના કટકાને ૪૫૦ પી.પી.એમ. આઈ.બી.એ (IBA) (૭૩.૩૩ % સ્ફુરણ) અથવા ૪૫૦ પી.પી.એમ. આઈ.આઈ.એ. (IAA) (૭૦.૬૭ % સ્ફુરણ) [૪૫૦ મીલી ગ્રામ એક લીટર પાણીમાં] ૧૫ મિનિટ સુધી છોડ વૃદ્ધિનિયંત્રકનાં દ્રાવણમાં બોળીને વાવવાથી સારો ઉગાવો જોવા મળે છે. **Approved with following suggestions:** **1. Recast recommendation in Gujarati and English language.** **2. Add economics table in report.** *(Action: Principal & Dean, CoH, JAU, Junagadh)*

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20.4.1.17	**Title: Effect of integrated nutrient management on growth and yield of potato (*Solanum tuberosum* L.)** The farmers of middle Gujarat agro climatic zone growing potato are recommended to apply 25% RDN through vermicompost (approximately 5 t/ha) or FYM (approximately 9 t/ha) and 75 % RDF (165-82-165 NPK kg/ha) from chemical fertilizers. From this N, P and K each 82 kg/ha should be applied as basal and remaining 83 kg N and K should be applied at 30 DAP for getting higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં બટાટાનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામા આવે છે કે ૨૫% નાઈટ્રોજન અળસીયાના ખાતર (અંદાજીત ૫ ટન/હે.) અથવા છાણીયા ખાતર (અંદાજીત ૯ ટન/ હે.) મારફતે અને ભલામણના ૭૫% (૧૬૫-૮૨-૧૬૫ ના.ફો.પો. કીગ્રા./હે.) રાસાયણિક ખાતર મારફતે આપવું. જેમાથી નાઇટ્રોજન, ફોસ્ફરસ અને પોટાશ દરેક ૮૨ કિ.ગ્રા./હે. પાયામા આપવો તથા બાકીનો ૮૩ કિ.ગ્રા. નાઇટ્રોજન અને પોટાશ રોપણીના ૩૦ દિવસ પછી આપવાથી વધુ ઉત્પાદન અને આવક મળે છે. **Approved with following suggestions:** 1. Recast Recommendation Text by merging two into one *(Action: Principal, College of Horticulture, Anand*)
20.4.1.18	**Title: Effect of seed treatment on germination of foxtail palm (*Wodyetia bifurcata*)** Nurserymen are recommended to grow foxtail palm seeds in walk in tunnel by soaking the seed for two days (48 hrs.) in **1000 ppm** solution of gibberellic acid (**1000 mg / 1 litre water**) and sowing in plastic bag for early germination and higher survival.

	નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે, ફોકસટેલ પામના બીજને બે દિવસ (૪૮ કલાક) સુધી **૧૦૦૦ પી. પી. એમ. જીબ્રેલીક એસિડ (૧૦૦૦ મિ. ગ્રા. ૧ લિટર પાણી)** ના દ્રાવણમાં ડુબાડી કોથળીમા રોપ્યા બાદ વોક-ઈન ટનેલ માં ઉછેરવામાં આવે તો બીજનો વહેલો ઉગાવો અને વધુ જીવંત છોડ મળે છે. **Approved with following suggestions:** **1. Recast text** *(Action: Principal, College of Horticulture, Anand)*
20.4.1.19	**Title: Effect of seed treatment on germination of fishtail palm (*Caryota urens* L.)** Nurserymen are recommended to grow fishtail palm seeds in naturally ventilated poly house with seed soaking for one day (24 hrs.) in **1000 ppm** solution of gibberellic acid (**1000 mg / 1 litre water**) for early germination, higher survival and quality planting material. નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે, ફિશ ટેલ પામના બીજને એક દિવસ (૨૪ કલાક) સુધી **૧૦૦૦ પી. પી. એમ. જીબ્રેલીક એસિડ (૧૦૦૦ મિ. ગ્રા. / ૧ લિટર પાણી)** ના દ્રાવણમાં ડુબાડીને રાખ્યા બાદ નેચરલી વેન્ટિલેટેડ પોલી હાઉસમાં ઉછેરવામાં આવે તો બીજનો વહેલો ઉગાવો, વધુ જીવંત અને સારી ગુણવત્તાવાળા રોપા મળે છે. **Approved with following suggestions:** **1. Recast text** *(Action : Principal, SDM Polytechnic, Vadodara)*
20.4.1.20	**Title: Effect of IBA and growing conditions on growth of cutting in mogra (*Jasminum sambac*) var. Local.** Nurserymen are recommended to propagate mogra in winter season(December) by semi-hardwood cuttings after dipping the basal end cuttings in IBA 1500 mg/liter water for 5 minutes and placing them after planting in Naturally Ventilated Poly house to get early growth and higher survival percentage. નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે, શિયાળામાં (ડિસેમ્બર) મોગરાના અર્ધકાષ્ઠમય કટકા ના (સેમી હાર્ડવૂડ કટિંગ) નિચેના છેડાને આઈ.બી.એ. ૧૫૦૦ મિ.ગ્રા પ્રતિ ૧ લિટર પાણીના દ્રાવણમાં ૫ મિનિટ ડૂબાડીને રોપ્યા બાદ નેચરલી વેન્ટિલેટેડ પોલિહાઉસમાં રાખવાથી વહેલો ઉગાવો અને વધુ જીવંત છોડ મળે છે. **Approved with following suggestions:** **1.Recast text** *(Action : Principal, SDM Polytechnic, Vadodara)*

20.4.1.21	**Title: Effect of growing condition, rootstock height and poly-tube cap on softwood grafting in jamun** Nursery men are recommended that, 15 months old root stock are grafted with soft wood grafting method from the height of 20 cm during the first week of November and kept in naturally ventilated polyhouse for getting higher grafted plant height and growth as well as more number of surviving grafts. નર્સરી ધારકોને ભલામણ કરવામાં આવે છે કે, જાંબુના ૧૫ મહિના જૂના મૂળકાંડને નવેમ્બર માસના પહેલા અઠવાડિયામાં ૨૦ સેમી ઊંચાઈએથી નુતન કલમ કરીને નેચરલી વેંટીલેટેડ પોલીહાઉસમાં રાખવાથી વધારે ઊંચાઈની કલમ તેમજ વૃદ્ધિ સારી થાય છે અને વધુ સંખ્યામાં જીવિત કલમો મળે છે. **Approved with following suggestions:** **1. Recast text** *(Action : Principal, SDM Polytechnic, Vadodara)*
20.4.1.22	**Title: Effect of secondary nutrients on yield and quality of banana** The farmers of middle Gujarat agro climatic zone growing banana cv. Grand Naine are recommended to apply Bentonite Sulphur (90 %) 10 g/plant at planting and $CaNO_3$ 12g/plant in equal split at 4^{th}, 5^{th} and 6^{th} month after planting as a soil application along with RDF for getting higher yield and net return. **Note:** 10 kg FYM/plant applied at planting and 40 % NK and 100 % P applied at 30 and 60 DAP in ring equal split and remaining 60 % NK applied at 90,105,120, 135, 150, 165 DAP equal split as fertigation. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તાર માં કેળ (ગ્રાન્ડ નૈન)ની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે છોડ દીઠ ૧૦ ગ્રામ બેન્ટોનાઈટ સલ્ફર (૯૦%) રોપણી સમયે તથા ૧૨ ગ્રામ કેલ્શિયમ નાઈટ્રેટ ત્રણ સરખા હપ્તામાં રોપણીના ચોથા, પાંચમાં અને છઠ્ઠા મહિને ભલામણ કરેલ ખાતરની સાથે જમીનમાં આપવાથી વધુ ઉત્પાદન તથા આવક મળે છે. **નોંધ:** છોડ દીઠ ૧૦ કી.ગ્રા. છાણીયું ખાતર રોપણી વખતે અને ૪૦ % નાઈટ્રોજન અને પોટાશ તથા ૧૦૦ % ફોસ્ફરસ રોપણી બાદ ૩૦ અને ૬૦ દિવસે છોડની ફરતે બે સરખા હપ્તામાં ખામણામાં આપવો તથા બાકીનો ૬૦ % નાઈટ્રોજન અને પોટાશ રોપણી બાદ ૯૦, ૧૦૫, ૧૨૦,૧૩૫,૧૫૦ અને ૧૬૫ દિવસે સરખા હપ્તામાં ફર્ટીગેશન સ્વરૂપે આપવો. **Approved with following suggestions:** **1. Approved as such** *(Principal, COA, ARS, AAU, Jabugam)*
20.4.1.23	**Title: Effect of micronutrients on yield and quality of banana** The farmers of middle Gujarat agro climatic zone growing banana cv. Grand Naine are recommended to apply multimicronutrient government notified

	Grade-V @ 40 g/plant or Banana shakti @ 20 g/plant each at second and fourth month after planting as a soil application along with RDF for getting higher yield and net return. **Note:** 10 kg FYM/plant applied at planting and 40 % NK and 100 % P to be applied at 30 and 60 DAP in ring equal split and remaining 60 % NK applied at 90,105,120, 135, 150, 165 DAP equal split as fertigation. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તાર માં કેળ (ગ્રાન્ડ નૈન) ની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે છોડ દીઠ ૪૦ ગ્રામ સરકાર માન્ય મલ્ટી માઈક્રોન્યુટ્રીએન્ટ ગ્રેડ-૫ અથવા ૨૦ ગ્રામ બનાના શક્તિ રોપણીના બીજા અને ચોથા મહિને ભલામણ કરેલ ખાતરની સાથે જમીનમાં આપવાથી વધુ ઉત્પાદન તથા આવક મળે છે. **નોંધ:** છોડ દીઠ ૧૦ કી.ગ્રા. છાણીયું ખાતર રોપણી વખતે અને ૪૦ % નાઈટ્રોજન અને પોટાશ તથા ૧૦૦ % ફોસ્ફરસ રોપણી બાદ ૩૦ અને ૬૦ દિવસે છોડની ફરતે બે સરખા હપ્તામાં ખામણામાં આપવો તથા બાકીનો ૬૦ % નાઈટ્રોજન અને પોટાશ રોપણી બાદ ૯૦,૧૦૫,૧૨૦,૧૩૫,૧૫૦ અને ૧૬૫ દિવસે સરખા હપ્તામાં ફર્ટીગેશન સ્વરૂપે આપવો. **Approved with following suggestions:** **1. Approved as such** *(Principal, COA, ARS, AAU, Jabugam)*
20.4.1.24	**Title: Integrated nutrient management in brinjal (*Solanum melongena* L.)** The farmers of middle Gujarat agro-climatic zone growing brinjal are recommended to dip seedling root for 15 minutes before transplanting in liquid Bio NPK consortium (5 mL/L water) and fertilized with 80-40-40 NPK kg/ha (20 kg N, 40 kg P_2O_5 and 40 kg K_2O/ha as basal and remaining 60 kg N/ha applied in three equal split at 30 days interval after transplanting) and soil drenching with Bio NPK (500 L water/1 L Bio NPK/ha) at 40 and 70 DATP. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં રીંગણની ખેતી કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે ધરૂના મૂળીયાને ફેરરોપણી પહેલા બાયો એન.પી.કે પ્રવાહી જૈવીક ખાતરમા (૫ મિ.લિ./લિ પાણીમા મિશ્રણ કરી) ૧૫ મીનીટ સુધી ડૂબાડવા અને ૮૦-૪૦-૪૦ ના:ફો:પો. કિ.ગ્રા./હે. (૨૦ કિ.ગ્રા. નાઇટ્રોજન ૪૦ કિ.ગ્રા. ફોસ્ફરસ અને ૪૦ કિ.ગ્રા. પોટાશ ફેરરોપણી સમયે પાયામાં આપવો જયારે બાકી રહેલ ૬૦ કિ.ગ્રા. નાઇટ્રોજન ત્રણ સરખા હપ્તામાં ફેર રોપણી બાદ ૩૦ દિવસના અંતરે આપવો). વધુમાં ફેરરોપણી બાદ ૪૦ અને ૭૦ દિવસે (૫૦૦ લિ. પાણી/૧ લિ. બાયો એન.પી.કે/હે.) જમીનમા છોડના મુળમા રેડવાથી વધુ ઉત્પાદન અને વળતર મળે છે. **Approved with following suggestions:** **1. Remove 1st paragraph** **2. Recast text** *(Action: Pro. & Head, Department of Plant Pathology, BACA, AAU, Anand)*
20.4.1.25	**Title: Integrated nutrient management in chilli (*Capsicum annuum L.)***

	The farmers of middle Gujarat agro-climatic zone growing chilli are recommended to dip seedling root in liquid Bio NPK consortium (5 ml/L water) for 15 minutes before transplanting and 100-40-40 NPK kg/ha (25 kg N, 40 kg P_2O_5 and 40 kg K_2O/ha as basal and remaining 75 kg N/ha applied in three equal split at 30 days interval after transplanting) and soil drenching with Bio NPK (1 lit Bio NPK in 500Lwater /ha) at 40 and 70 DATP for getting higher yield and net return. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં મરચાની ખેતી કરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે ધરૂના મૂળીયાને ફેરરોપણી પહેલા બાયો એન.પી.કે પ્રવાહી જૈવીક ખાતરમા (૫ મિ.લિ./લિ પાણીમા મિશ્રણ કરી) ૧૫ મીનીટ સુધી ડૂબાડવા અને ૧૦૦-૪૦-૪૦- ના:ફો:પો કિ.ગ્રા/હે. (૨૫ કિ.ગ્રા નાઇટોજન, ૪૦ કિ.ગ્રા. ફોસ્ફરસ અને ૪૦ કિ.ગ્રા પોટાશ ફેરરોપણી સમયે પાયામાં આપવો જ્યારે બાકી રહેલ ૭૫ કિ.ગ્રા નાઇટોજન ત્રણ સરખા હપ્તામાં ફેરરોપણી બાદ ૩૦ દિવસના આંતરે આપવો). વધુમાં ફેરરોપણી બાદ ૪૦ અને ૭૦ દિવસે (૧ લિ. બાયો એન.પી.કે ૫૦૦ લિ.પાણી /હે.) જમીનમા છોડના મુળમા રેડવાથી વધુ ઉત્પાદન અને વળતર મળે છે. **Approved with following suggestions** **1. Recast text** *(Action: Prof. & Head, Department of Plant Pathology, BACA, AAU, Anand)*

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20.4.1.26	**Performance of different varieties of Mango in North Gujarat conditions under different plant spacing** The mango growers of North Gujarat Agro climatic Zone IV are recommended to plant Kesar variety at 4 m x 4 m spacing for getting higher return. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૪ માં આંબાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે કેસર જાતની રોપણી ૪ મી. x ૪ મી. ના અંતરે કરવાથી વધુ વળતર મેળવી શકાય છે. **Suggestions: Approved** *(Action: Head, Dept. of Horticulture, CPCA, SDAU, Sardarkrushinagar)*
20.4.1.27	**Effect of different spacing on growth, yield and quality of phalsa (*Grewia asiatica* L.).** **Suggestions:** Experiment is extended for one more year. (Action: Head, Dept. of Horticulture, CPCA, SDAU, Sardarkrushinagar)
20.4.1.28	**Standardization of holding solutions for extending keeping quality of cut spikes of gladiolus** The consumers are recommended to keep cut spikes of gladiolus in 50 ppm of NaOCl (Sodium hypochlorite) with 2% sucrose solution for extending vase life.

	ગ્લેડીઓલસની ફૂલદાંડીની આવરદા (વાઝ લાઇફ) વધારવા માટે ફૂલદાનીમાં ૫૦ પીપીએમ સોડીયમ હાઈપોક્લોરાઈટ સાથે ૨ ટકા સુક્રોઝના દ્રાવણમાં મૂક્વાની ઉપભોક્તાઓને ભલામણ કરવામાં આવે છે. **Suggestions: Approved** (Action: Head, Dept. of Horticulture, CPCA, SDAU, Sardarkrushinagar)
20.4.1.29	**Effect of liquid organic manures and bio agents on management of vegetable waste** The vegetable growers and entrepreneurs who are interested to prepare the compost from vegetable waste are recommended to take 4 kg vegetable waste and add 1 kg ghanjivamrut as a masking material and five drenching of 1 litre liquid waste decomposer solution done at weekly interval for rapid decomposition and superior quality organic manure. શાકભાજી ઉગાડતા ખેડૂતો અને જૈવિક ખાતર બનાવવા રસ ધરાવતા વ્યવસાયિકોને ભલામણ કરવામાં આવે છે કે, ૪ કી.ગ્રા. શાકભાજીનો કચરો લઈને તેના ઉપર ૧ કી.ગ્રા. ઘનજીવામૃત નાંખવુ અને તેમાં પ્રવાહી વેસ્ટ ડીકમ્પોઝરનું ૧ લીટર દ્રાવણ અઠવાડિયાના અંતરે પાંચ વખત નાંખવાથી ઝડપી કોહવાયેલું અને સારી ગુણવત્તાવાળું જૈવિક ખાતર મળે છે. **Suggestions: Approved** (Action: Scientist, KVK, Banaskantha I, SDAU, Deesa)
20.4.1.30	**Effect of different planting distance and levels of nitrogen fertilizer on growth, flower production and quality of spider lily under North Gujarat Agro climatic conditions** Farmers of North Gujarat Agro Climatic Zone IV growing spider lily are recommended to plant spider lily at 60 cm x 50 cm and apply nitrogen 300 kg/ha in six equal splits at two months interval from June to April to get higher yield and net return. The FYM @ 20 t/ha and phosphorus and potash each @ 200 kg/ha should be given as basal dose. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૪ ના ખેડૂતોને ભલામણ કરવામાં આવે છે કે, સ્પાઇડર લીલીની ૬૦ સે.મી. X ૫૦ સે.મી. ના અંતરે રોપણી કરી, ૩૦૦ કિ.ગ્રા. નાઇટ્રોજન/હેક્ટર ખાતર છ સરખા હપ્તામાં જૂન થી એપ્રિલ માસ દરમ્યાન બે માસના અંતરે આપવાથી વધુ ઉત્પાદન અને વળતર મળે છે. ૨૦ ટન છાણિયું ખાતર અને ૨૦૦ કિ.ગ્રા. ફોસ્ફરસ અને પોટાશ પ્રતિ હેક્ટરમાં પાયામાં આપવું. **Suggestions: Approved** (Action: Asstt. Res. Scientist, Fruit Research Station, SDAU, Dehgam)
20.4.1.31	**Standardization of propagation technique in date palm (Phoenix dactylifera L.) through offshoots** Date palm growers and nurserymen are recommended to select offshoots having at least 40 cm girth and prepare them through *in-situ* method (during July-August) and separate the offshoots from mother plant after six months (during January-February),

transfer them in nursery bags and keep them in shade net for hardening for two months before planting (during March-April) for better post plantation survival.

ખારેક ઉગાડતા ખેડૂતો અને નર્સરીધારકોને ભલામણ કરવામાં આવે છે કે ખારેકના પીલા (ઓફશૂટ) ઓછામાં ઓછા 40 સે.મી. નો ઘેરાવો હોય તેવા પસંદ કરવા અને તેને ઇન-સીટુ પદ્ધતિથી (જુલાઈ-ઓગસ્ટ દરમિયાન) તૈયાર કરવા અને છ મહિના પછી (જાન્યુઆરી-ફેબ્રુઆરી દરમિયાન) માતૃ છોડથી અલગ કરીને બે મહિના સુધી નર્સરી બેગમાં શેડ નેટમાં રાખ્યા પછી વાવેતર કરવું (માર્ચ-એપ્રિલ દરમિયાન) જેથી જીવંત પીલા મળે છે.

Suggestions: Approved

(Action: Asso. Res. Scientist, Date palm Research Station, SDAU, Mundra)

20.4.1.32 **Evaluation of different spacing for tissue culture and offshoots of date palm cv. Barhee**

Growers are recommended to plant date palm at a distance of 6m x 6m to get higher yield.

ખારેક ઉગાડતા ખેડૂતોને વધુ ઉપજ મેળવવા માટે 6 મી. x 6 મી. ના અંતરે વાવેતર કરવાની ભલામણ કરવામાં આવે છે.

Suggestions: Approved

(Action: Asso. Res. Scientist, Date palm Research Station, SDAU, Mundra)

20.4.1.33 **Irrigation and fertigation scheduling in date palm (*Phoenix dactylifera*) cv. ADP-1**

Date palm growers of North West Gujarat Agro-Climatic Zone -V are recommended to irrigate through drip irrigation on alternate days as per the schedule (1.2 PEF) and apply fertilizers in eight equal splits every month (from October to May) trough drip system as per the schedule for better plant growth and get higher yield.

Irrigation Schedule (Hour: Minutes)

Drippers/ plant : 4

Drippers capacity : 8 lph

Operating Pressure : 1.2 kg/cm^3

Fortnight	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
January 1st Fortnight	00:35	00:35	01:05	01:25	02:45	05:35	06:40
January 2nd Fortnight	00:35	00:35	01:05	01:30	03:00	05:55	07:00
February 1st Fortnight	00:35	00:35	01:05	01:30	03:05	06:05	07:20
February 2nd Fortnight	00:45	00:45	01:25	02:00	04:00	08:00	08:30
March 1st Fortnight	00:45	00:45	01:25	01:50	03:45	07:20	08:35
March 2nd Fortnight	00:55	00:55	01:45	02:20	04:50	09:30	11:15
April 1st Fortnight	01:05	01:05	01:50	02:40	05:15	10:25	12:20
April 2nd Fortnight	01:15	01:15	02:00	02:45	05:45	11:25	13:35
May 1st Fortnight	01:15	01:15	02:10	03:00	06:05	11:50	14:00
May 2nd Fortnight	01:15	01:15	02:20	03:05	06:15	12:20	14:40
June 1st Fortnight	00:45	00:45	01:15	01:40	03:35	07:00	08:15

June 2nd Fortnight	00:00	00:00	00:00	00:00	00:00	00:00	00:00
July 1st Fortnight	00:00	00:00	00:00	00:00	00:00	00:00	00:00
July 2nd Fortnight	00:00	00:00	00:00	00:00	00:00	00:00	00:00
August 1st Fortnight	00:00	00:00	00:00	00:00	00:00	00:00	00:00
August 2nd Fortnight	00:00	00:00	00:00	00:00	00:00	00:00	00:00
September 1st Fortnight	00:00	00:00	00:00	00:00	00:00	00:00	00:00
September 2nd Fortnight	00:10	00:20	00:20	00:35	01:25	01:30	01:40
October 1st Fortnight	00:35	01:05	01:30	03:00	06:05	07:20	08:00
October 2nd Fortnight	00:35	01:15	01:45	03:25	06:50	08:05	08:55
November 1st Fortnight	00:45	01:15	01:45	03:35	07:00	08:15	09:05
November 2nd Fortnight	00:35	01:05	01:30	03:05	06:15	07:20	08:05
December 1st Fortnight	00:35	01:05	01:25	03:00	05:45	06:50	07:40
December 2nd Fortnight	00:35	01:05	01:25	03:00	05:55	07.00	07:40

Fertilizer Schedule

Interval	Fertilizer	1st Year	2nd Year	3rd Year	4th Year	5th Year and onwards
2nd Fortnight September	FYM as basal (kg)	10	20	30	40	50
2nd Fortnight of every month (From October to May)	N (g)	25	50	75	100	125
	P_2O_5 (g)	25	50	75	100	125
	K_2O (g)	25	50	75	100	125

ઉત્તર પશ્ચિમ ગુજરાત કૃષિ-આબોહવા ક્ષેત્ર - V ના ખારેક ઉગાડતા ખેડૂતો ને ભલામણ આપવામાં આવે છે કે છોડની સારી વૃદ્ધિ અને વધુ ઉપજ મેળવવા માટે સમયપત્રક મુજબ (1.2 PEF) એકાંતરે દિવસે ટપક સિંચાઈ પદ્ધતિ દ્વારા પાણી આપવું અને દર મહિને (ઓક્ટોબરથી મે સુધી) આઠ સમાન ભાગોમાં ટપક સિંચાઈ દ્વારા ખાતર આપવું.

સિંચાઈ સમયપત્રક (કલાક: મિનિટ)

ડ્રિપર્સ/ પ્લાન્ટ : 4

ડ્રિપર્સની ક્ષમતા: 8 lph

ઓપરેટિંગ પ્રેશર: 1.2 kg/cm^3

પખવાડિયું	પ્રથમ વર્ષ	બીજું વર્ષ	ત્રીજુ વર્ષ	ચોથુ વર્ષ	પાંચમું વર્ષ	છઠ્ઠુ વર્ષ	સાતમું વર્ષ
જાન્યુઆરી પ્રથમ પખવાડિયું	00:35	00:35	01:05	01:25	02:45	05:35	06:40
જાન્યુઆરી બીજું પખવાડિયું	00:35	00:35	01:05	01:30	03:00	05:55	07:00

ફેબ્રુઆરી પ્રથમ પખવાડિયું	00:35	00:35	01:05	01:30	03:05	06:05	07:20
ફેબ્રુઆરી બીજું પખવાડિયું	00:45	00:45	01:25	02:00	04:00	08:00	08:30
માર્ચ પ્રથમ પખવાડિયું	00:45	00:45	01:25	01:50	03:45	07:20	08:35
માર્ચ બીજું પખવાડિયું	00:55	00:55	01:45	02:20	04:50	09:30	11:15
એપ્રિલ પ્રથમ પખવાડિયું	01:05	01:05	01:50	02:40	05:15	10:25	12:20
એપ્રિલ બીજું પખવાડિયું	01:15	01:15	02:00	02:45	05:45	11:25	13:35
મે પ્રથમ પખવાડિયું	01:15	01:15	02:10	03:00	06:05	11:50	14:00
મે બીજું પખવાડિયું	01:15	01:15	02:20	03:05	06:15	12:20	14:40
જૂન પ્રથમ પખવાડિયું	00:45	00:45	01:15	01:40	03:35	07:00	08:15
જૂન બીજું પખવાડિયું	00:00	00:00	00:00	00:00	00:00	00:00	00:00
જુલાઈ પ્રથમ પખવાડિયું	00:00	00:00	00:00	00:00	00:00	00:00	00:00
જુલાઈ બીજું પખવાડિયું	00:00	00:00	00:00	00:00	00:00	00:00	00:00
ઓગસ્ટ પ્રથમ પખવાડિયું	00:00	00:00	00:00	00:00	00:00	00:00	00:00
ઓગસ્ટ બીજું પખવાડિયું	00:00	00:00	00:00	00:00	00:00	00:00	00:00
સપ્ટેમ્બર પ્રથમ પખવાડિયું	00:00	00:00	00:00	00:00	00:00	00:00	00:00
સપ્ટેમ્બર બીજું પખવાડિયું	00:10	00:20	00:20	00:35	01:25	01:30	01:40
ઓક્ટોબર પ્રથમ પખવાડિયું	00:35	01:05	01:30	03:00	06:05	07:20	08:00
ઓક્ટોબર બીજું પખવાડિયું	00:35	01:15	01:45	03:25	06:50	08:05	08:55
નવેમ્બર પ્રથમ પખવાડિયું	00:45	01:15	01:45	03:35	07:00	08:15	09:05
નવેમ્બર બીજું પખવાડિયું	00:35	01:05	01:30	03:05	06:15	07:20	08:05
ડિસેમ્બર પ્રથમ પખવાડિયું	00:35	01:05	01:25	03:00	05:45	06:50	07:40
ડિસેમ્બર બીજું પખવાડિયું	00:35	01:05	01:25	03:00	05:55	07:00	07:40

ખાતર સમયપત્રક

સમયગાળો	ખાતર	પ્રથમ વર્ષ	બીજું વર્ષ	ત્રીજુ વર્ષ	ચોથુ વર્ષ	પાંચમા વર્ષથી
સપ્ટેમ્બરબીજું પખવાડિયું	છાણીયું ખાતર (પાયામાં) (કિ.ગ્રા)	10	20	30	40	50
	N (ગ્રામ)	25	50	75	100	125

	દરેક માસનું બીજું પખવાડિયું (ઓક્ટોબર થી મે)	P_2O_5 (ગ્રામ)	25	50	75	100	125
		K_2O (ગ્રામ)	25	50	75	100	125

Suggestions: Approved

(Action: Asso. Res. Scientist, Date palm Research Station, SDAU, Mundra)

20.4.1.34	**Effect of bagging of date palm (*Phoenix dactylifera*) inflorescence on fruit set and quality** Date palm growers are recommended not to cover the inflorescence using paper bags after pollination to save additional expenditure. ખારેક ઉગાડતા ખેડૂતો ને વધુ ખર્ચથી બચવા માટે પરાગનયન પછી પુષ્પગુચ્છને પેપર બેગથી ન ઢાંકવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved** (Action: Asso. Res. Scientist, Date palm Research Station, SDAU, Mundra)
20.4.1.35	**Optimization of number of offshoots in date palm (*Phoenix dactylifera* L.)** The date palm growers are recommended to keep maximum four offshoots per palm for better growth and yield. ખારેક ઉગાડતા ઝાડના સારા વિકાસ અને વધુ ઉત્પાદન મેળવવા માટે ઝાડ દીઠ વધુમાં વધુ ચાર પીલા રાખવાની ભલામણ કરવામાં આવે છે. **Suggestions: Approved** (Action: Asso. Res. Scientist, Date palm Research Station, SDAU, Mundra)

20.4.2 INFORMATION FOR SCIENTIFIC COMMUNITY
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Horticulture, NAU	
20.4.2.1	**Evaluation of banana dwarf Cavendish clones (AAA) (MLT-4)** Scientists are informed to cultivate tissue culture banana cv. Phule Pride plants for dwarf stature, Grand Naine for higher yield and net realization and cv. TBM-9 for better quality parameters. **Suggestions:** 1. CONCLUDED (Action: Research Scientist, FRS, Gandevi)
20.4.2.2	**Evaluation of new crosses in Adenium for profuse flowering habit** The germplasm NASDUS2 profusely bears red coloured flowers having single whorl. It can be further utilised in breeding program. **Suggestions: Not Approved** 1. Propose this as a variety in next year under crop improvement sub-committee (Action: Professor and Head, FLA, NAU)

Forestry, NAU	
20.4.2.3	**Rapid multiplication of *Dendrocalamus hamiltonii* through *in vitro* regeneration techniques from nodal explant** In bamboo species *Dendrocalamus hamiltonii, c*ontamination control by Absolute Alcohol (70%) for 30 Sec + Mercuric Chloride (0.1%) for 5 Min followed by shoot multiplication in MS + 4.0 mg/l BAP and rooting in 3mg/l IBA + 3mg/l IAA + 2% Sucrose and final acclimatization in Soil + sand + Vermicompost (1:1:1) media results in rapid multiplication through *in vitro* regeneration techniques from nodal explant. **Approved with following suggestions:** 1. For information in Basic Science Sub-commtittee 2. Recast the recommendation text as per Bio-technology group Bio-technology group Suggestions: 1. Recast the recommendation 2. Add bamboo species in recommendation text [Action: PI & HOD, Silviculture and Agroforestry Department, CoF, ACHF, NAU, Navsari]
20.4.2.4	**Population structure and genetic diversity analysis of Timru (*Diospyros melanoxylon)*** In Timru (*Diospyros melanoxylon*), higher within population diversity observed in Waghai (The Dang district) and Kothiya populations (Chhota Udaipur district), hence can be selected for *In situ* conservation. Moderate to low gene flow, and low genetic differentiation observed among populations. **Approved with following suggestions:** 1.Recast the recommendation text [Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]
20.4.2.5	**Population structure and genetic diversity analysis of Kadayo (*Sterculia urens)*** In Kadayo (*Sterculia urens)*, the diversity within Nana Pondha region (Valsad District) is higher and can be selected for construction of region for *in situ* conservation area. Low to moderate gene flow in this species indicates setting up population-specific conservation strategy. **Approved with following suggestions:** 1.Correct writing method as per Scientific way 2. Use the word – Nana Pondha region [Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]
20.4.2.6	**Genetic diversity and population structure analysis of Tetu (*Oroxylum indicum)*** Waghai population (Dang District) and Dediyapada population (Narmada District) harbor higher diversity for Tetu (*Oroxylum indicum)* so it be selected for *in situ* conservation area. Moreover there is less genetic differentiation and higher gene flow among population in *O. indicum.* **Approved with following suggestions:** 1.Recast the recommendation text [Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]
20.4.2.7	**Genetic diversity and population structure analysis of Charoli (*Buchnania lanzan)***

<table>
<tr><td></td><td>For Charoli (Buchanania lanzan), Shambhunagar and Namariya populations (both in Narmada district) were showing more diversity, hence can be used for collection of genetic material for improvement purpose as well as setting priority area for in situ conservation.
Approved with following suggestions:
1. Remove first two sentence of starting from recommendation text
2.Give botanical and common name of crops
[Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]</td></tr>
<tr><td>20.4.2.8</td><td>Variability study for fruit and seed characters in Diospyros melanoxylon from Gujarat
Population Devgadh Bariya (Dahod District) can be selected or better fruit collection in Timru (Diospyros melanoxylon). Overall trees DM49, DM50, DM48, DM41, DM43 from Devgadh Bariya (Dahod district) can be selected for better fruit yield. However, Ahwa population (The Dang district) can be selected for better antioxidant property.
Approved with following suggestions:
1. Remove first line of recommendation text
2. Give botanical and common name of crops
[Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]</td></tr>
<tr><td>20.4.2.9</td><td>Intra-population variation for fruit and nut characters in Charoli (Buchnania lanzan)
The Gondariya populations (Chhota Udaipur district) shows superiority in kernel traits hence it should be used as a seed source for genetic improvement in kernel traits in Charoli (Buchanania lanzan). Trees KC05, KC06, and KC04, from Kothiya population (Chhota Udaipur district) and GC02, GC-04, GC06, GC07, GC09 and GC50 from Gondariya population (Chhota Udaipur district) can be selected as CPTs for further tree improvement programme
Approved with following suggestions:
1.Remove first line of recommendation text
2. Give botanical and common name of crops
[Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]</td></tr>
<tr><td>20.4.2.10</td><td>Progeny evaluation of selected plus trees of Teak from Gujarat

Trait wise following CPTs can be selected for nursery growing or using as seed collection source for the improvement for nursery traits in teak (Tectona grandis).

<table>
<tr><th>Trait</th><th>CPTs in descending order</th></tr>
<tr><td>Germination</td><td>CPT02, CPT01, CPT11, CPT03, CPT10, CPT20, CPT12 (Kalibel, Dang District)</td></tr>
<tr><td>Seedling height</td><td>CPT19, CPT20, CPT25, CPT21, CPT26, CPT16, CPT17 (Bardipada and Bhenskatri, Dang District)</td></tr>
<tr><td>Seedling biomass</td><td>CPT19, CPT25, CPT21, CPT16, CPT20, CPT22, CPT07 (Bardipada and Bhenskatri, Dang District)</td></tr>
</table>
</td></tr>
</table>

	Seedling Quality Index	CPT01, CPT32, CPT23, CPT37, CPT35, CPT07, CPT05 (Kalibel and Bardipada, Dang district)

Approved with following suggestions:
1. Remove first paragraph from recommendation text
2. Write CPTs in descending order
3. Mention the source of collection (Area)

[Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]

20.4.2.11 **Candidate plus tree selection for Behda (*Terminalia bellerica*) from Gujarat**

Trait wise following CPTs can be selected in Behda (*Terminalia bellirica*).

Trait	**CPTs in decreasing order**
Fruit size and weight	TB39, TB15, TB08, TB18 and TB17 (Nana ponda, Valsad district)
Tannin content	TB17, TB39, TB08 (Nana Ponda, Valsad district) , TB22, TB25 (Rajpipala, Narmada district)

Approved with following suggestions:
1.Start recommendation text from CPTs
2. Mention the name of crop and area of collection

[Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]

20.4.2.12 **Within population variation for tree growth and seed oil content of Mahua (*Madhuca longifolia* var. *latifolia* (Roxb.) A. Chev.) in south Gujarat**

Variation among Mahua accessions for growth and biomass as well as seed traits and seed-oil content was recorded in all the three populations. Accessions *viz.*, NAU-ML-10 (Limberpada population), NAU-ML-12, NAU-ML-17, NAU-ML-14, NAU-ML-11 (Sidumber population) and NAU-ML-27 (Pipalkhed population) recorded higher growth and biomass. Accessions *viz.*, NAU-ML-9 (Limberpada population), NAU-ML-20 (Sidumber population), NAU-ML-21 and NAU-ML-27 (Pipalkhed population) recorded higher seed oil content. Further, these Mahua accessions are suggested for selection and conservation.

Approved with following suggestions:
1. Recast the recommendation text
2. Correct the language of recommendation text

[Action: PI & HOD, FPU Department, CoF, ACHF, NAU, Navsari]

20.4.2.13 **Study of growth and bark biomass potential of Ashok (*Saraca asoca* syn. *S. indica*) under different spacing**

For estimation of bark yield from standing plant in Ashok [*Saraca asoca* (Roxb.) Willd.)], regression equation *i.e.*, $Y = -0.0303 + 0.0001X$ (R^2=0.876) can be used to obtain bark yield (kg) in Ashok tree.

[Note: Y= Dry bark biomass (kg) and X = HD, where H = Height in cm and D=Basal diameter in cm].

Further, Ashok [*Saraca asoca* (Roxb.) Willd.)] accessions *viz.*, T1, T4, T9 and T15 are superior for seed weight and germination percentage, and these accessions can be used for seedling production and further selection.

Approved with following suggestions:

	1. Recommendation start from Estimation [Action: PI & HOD, FBTI Department, CoF, ACHF, NAU, Navsari]
20.4.2.14	**Monitoring Human-Leopard Conflict using Remote Sensing and GIS in South Gujarat (Surat, Navsari, Valsad and Dang Districts)** To reduce the conflict, there is a need to stratify the area into high and low-risk zones. Mandvi and Vansda talukas should be classified as high-risk zones and forest department needs to put intense focus in high conflict areas. The temporal distribution of livestock depredation occurred between 8 to 9 pm. There is a need to make farmers aware of this timeframe. The maximum depredation occurs outside the cattle shed during night time. Therefore, farmers should be made aware of the need to either attend to their cattle during the night or house them in the cattle shed. **Approved with following suggestions:** 1.Approved as Scientist Information 2. Make the short recommendation 3. Remove the Gujarati text [Action: PI & HOD, Wildlife Sciences, CoF, ACHF, NAU, Navsari]

20.4.3 New Technical Programmes

NAVSARI AGRICULTURAL UNIVERSITY

Sr. No	Title of Experiment	Suggestion/s
FRUIT SCIENCE		
20.4.3.1	Improving bearing potential of mango through girdling on branches	**Approved with following suggestions:** 1. Remove the treatment T4 2. Change the deign RBD instead of FCRD 3. Recast the title and objectives 4. Use word trunk instead of stem **Action:** Research Scientist, RHRS, ACH, NAU, Navsari
20.4.3.2	Effect of espalier architecture on mango cultivars under HDP	**Approved with following suggestions:** 1. Mention the number of espalier in methodology 2. Remove observation on biomass production 3. Add quality parameters 4. Mention the time 2 PM for measurement of light intensity Action: Research Scientist, RHRS, ACH, NAU, Navsari
20.4.3.3	Induction of off-season flowering in dragon fruit	**Approved with following suggestions:** 1. Duration of light 4, 5 , 6 hr. 2. Mention number of plants per poll

		3. Recast the objective as per treatment Action: Research Scientist, RHRS, ACH, NAU, Navsari
20.4.3.4	Effect of saline water irrigation and biochar application on growth and yield of dragon fruit	**Approved with following suggestions**: 1. Soil parameters should be measured during each year 2. remove the word "Best" from T1 3. Write the unit in gram instead of mg in B2, B3 and B4 Action: Research Scientist, RHRS, ACH, NAU, Navsari
20.4.3.5	Effect of anti-transpirant spray on dragon fruit	**Approved with following suggestions:** 1. Add observation on Fruit Set percentage and Number of fruits per poll 2. Fix the time of treatment application (Apporox in April month) Action: Research Scientist, RHRS, ACH, NAU, Navsari
20.4.3.6	Performance of dragon fruit cultivars under salt effected area of South Gujarat conditions	**Not Approved:** Action: Research Scientist, RHRS, ACH, NAU, Navsari
20.4.3.7	Effect of enriched biochar on germination and growth of Khirni seeds	**Approved with following suggestions:** 1. Add absolute control in treatment (No biochar) 2. Common application of fertilizer as 10 : 5 : 5 g NPK/plant Action: Professor and Head, Fruit Science, ACH, NAU, Navsari
20.4.3.8	Feasibility of mango, guava and lime in container gardening	**Approved with following suggestions:** 1. Use public sector varieties 2. Use Fertilizer dose as per Pot Recommendation of CISH Action: Professor and Head, Vegetable Science, ACH, NAU, Navsari
20.4.3.9	Effect of green manuring and nutrient management on banana productivity and soil health	**Approved with following suggestions:** 1. N1 – 80 % RDF and N2 – 60 % RDF Action: Professor and Head, NMCA, Deptt of Hort. NAU, Navsari
20.4.3.10	Study of yield and quality of different guava (*Psidium guajava* L.) cultivars in high density plantation under Bara tract of Gujarat	**Approved with following suggestions:** 1. Remove year of completion

		Action: Head, Deptt of Hort, COA, NAU, Bharuch
20.4.3.11	Evaluation of Chironji (*Buchanania lanzan* Spreng.) genotypes under South Gujarat agro-climatic conditions	**Approved with following suggestions**: 1. Approved as such Action: Research Scientist, AES, NAU, Paria
20.4.3.12	Observational trial on MLT of mango varieties through top working	**Approved with following suggestions**: 1. Add the observations on vegetative parameters 2. Mention exact age of top-worked plants 3. Mention number of plants per treatment Action: Research Scientist, AES, NAU, Paria
20.4.3.13	Evaluation of salinity tolerant mango rootstock ML-2 Sagarika	**Approved with following suggestions:** 1. Approved as such Action: Research Scientist, AES, NAU, Paria
20.4.3.14	Evaluation of avocado varieties (MLT-1)	**Approved with following suggestions**: 1. Remove the word "Location" from objective 2. Add observation on flowering parameters Action: Research Scientist, AES, NAU, Paria
VEGETABLE SCIENCE		
20.4.3.15	Effect of Nano Urea application in elephant foot yam	**Approved with following suggestions:** 1. Approved as such Action: Professor and Head, Vegetable Science, ACH, NAU, Navsari
20.4.3.16	Standardization of growing media for coriander under vertical growing system for urban peri – urban horticulture	**Approved with following suggestions:** 1. Approved as such Action: Professor and Head, Veg. Sci. & FLA, ACH, NAU, Navsari
FLORICULTURE AND LANDSCAPE ARCHITECTURE		
20.4.3.17	Response of *Sansevieria cylindrical* to different growing media	**Approved with following suggestions:** 1. Approved as such Action: Professor and Head, FLA, ACH, NAU, Navsari

20.4.3.18	Effect of biochar-based media and nano fertilizers on Gypsophilla paniculata L	**Approved with following suggestions:** 1. Add observation on number of cuttings 2. Recast the title 3. Recast objectives as per title Action: Professor and Head, FLA, ACH, NAU, Navsari
20.4.3.19	Standardization of propagation technique for *Zamioculcus zamifolia* L.	**Approved with following suggestions:** 1. Approved as such Action: Professor and Head, FLA, ACH, NAU, Navsari
20.4.3.20	Feasibility of soilless cultivation of *Chlorophytum borivilianum* under NVPH	**Approved with following suggestions:** 1. Approved as such Action: Professor and Head, FLA, ACH, NAU, Navsari
20.4.3.21	Standardization of planting geometry and fertilizer dose on growth and flowering of china aster [*Callistephus chinensis* (L.) Nees]	**Approved with following suggestions:** 1. Use Split Plot Design Action: Professor and Head, FLA, ACH, NAU, Navsari
20.4.3.22	Effect of plant geometry and date of sowing on growth and flower quality of gypsophila (*Gypsophila paniculata*)	**Approved with following suggestions:** 1. Add observation on Number of cutting Action: Principal, Hort Polytech., NAU, Paria
POST HARVEST TECHNOLOGY		
******	Standardization of process technology for preservation of tender coconut water	**Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information Action: Professor and Head, PHT, ACH, NAU, Navsari
******	Standardization of process technology for preservation of sugarcane juice	**Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information Action: Professor and Head, PHT, ACH, NAU, Navsari
******	Standardization of process for freeze drying of baby corn slices	**Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information Action: Professor and Head, PHT, ACH, NAU, Navsari
******	Effect of Melatonin on Post Harvest life of Dragon fruit	**Approved with following suggestions:**

		1. Approved in Dairy Science and FPT group, only for information Action: Professor and Head, PHT, ACH, NAU, Navsari
******	Extraction and drying of pigments from Red Dragon Fruit Peel and Pulp	**Approved with following suggestions:** 1. Approved in Dairy Science and FPT group, only for information Action: Professor and Head, PHT, ACH, NAU, Navsari
******	To standardize the formulation for preparation of Turmeric Based Spice Mix	**Not Approved with following suggestions:** **1**. Not Approved in Dairy Science and FPT group, only for information Action: Professor and Head, PHT, ACH, NAU, Navsari
NAU, COF, Forestry		
20.4.3.23	Feasibility of Fenugreek and Brinjal varieties under Industrial Agroforestry model	**Approved with following suggestions:** 1. Change the crops as Methi, Palak and Coriander 2. Change the title & objectives accordingly Action: PI and HoD, Deptt of SAF, COF, NAU
20.4.3.24	Influence of pre-sowing treatments on germination and early growth of Kamala (*Mallotus philippinensis* Muell.)	**Approved with following suggestions:** 1. Remove treatments T5, T8, T9 and T12 Action: PI and HoD, Deptt of SAF, COF, NAU
20.4.3.25	Assessment of variation in drupe, kernel and tannin content among different accessions of Harad [*Terminalia chebula* (Retz.)]in South Gujarat	**Approved with following suggestions:** 1. Approved as such Action: PI and HoD, Deptt of FBTI, CoF, NAU
20.4.3.26	Documentation and Quantitative analysis of plants used for Oral health care by local inhabitants of Dharampur and Dangs Forests.	**Approved with following suggestions:** 1. Also present in Social Science Sub-committee Action: PI and HoD,Deptt of FPU, CoF, NAU
20.4.3.27	Evaluation of different classification methods for identification of tree plantation using Remote Sensing and GIS	**Approved with following suggestions:** 1. Correct the title 2. Increase the sample size (Action: PI and HoD, Deptt of FRM, CoF, NAU)

20.4.3.28	Assessment of occupancy and habitat use of Large Carnivores in South Gujarat	**Approved with following suggestions:** 1. Approved as such (Action: PI and HoD, Deptt of WLS, CoF, NAU)
20.4.3.29	Prey availability of Large Carnivore in selected Protected Areas of Gujarat, India	**Approved with following suggestions:** 1. Approved as such (Action: PI and HoD, Deptt of WLS, CoF, NAU)
20.4.3.30	Movement ecology of Leopards (*Panthera pardus fusca*) using radio-collar in South Gujarat	**Approved with following suggestions:** 1. Approved as such (Action: PI and HoD, Deptt of WLS, CoF, NAU)
20.4.3.31	Modelling Leopard's suitable habitat using machine learning algorithm	**Approved with following suggestions:** 1. Approved as such (Action: PI and HoD, Deptt of WLS, CoF, NAU)
20.4.3.32	Niche partitioning between Leopard (*Panthera pardus fusca*) and Asiatic Lion (*Panthera leo leo*) in Gir Protected Area	**Approved with following suggestions:** 1. Approved as such (Action: PI and HoD, Deptt of WLS, CoF, NAU)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title	Suggestion/s and Action
20.4.3.33	Effect of different varieties on pollen viability and cross compatibility with Kesar mango	**Approved with following suggestions:** 1. Add Totapuri variety in treatment. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
19.4.3.34	Effect of growth retardants on dwarfism, flowering and yield of papaya cv. GJP 1	**Approved with following suggestions:** 1. Remove variety name in title. 2. Mention spraying time. 2. Design CRD. 3. Remove average in observation. 4. Add quality parameters. 5. Recast objective as per title. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
19.4.3.35	Effect of pruning and nutrient management on growth, yield and quality of custard apple (*Annona squamosa* L.)	**Approved with following suggestions:** 1. Remove pruning treatment. 2. Recast title. 3. Recast objective. 4. Add quality parameters. 5. Remove average in observation.

		(Action: Principal & Dean, CoH, JAU, Junagadh)
19.4.3.36	Evaluation of different avocado varieties under Saurashtra conditions	**Approved with following suggestions:** 1. Change variety (Select public sector variety) 2. Follow NAU experiment observations. 3. Add quality parameters. *(Action: Principal & Dean, CoH, JAU, Junagadh)*
19.4.3.37	Effect of different growing media on seed germination and seedling growth of avocado	**Approved with following suggestions:** 1. Design: CRD 2. Mention bag size. 3. 30 bag/treatment 4. Replication: 4 5. Observation No 1,2,3 and 6 at 60,90,120 and 180 DAS 6. Observation no 4,5, 7 at 180 DAS *(Action: Principal & Dean, CoH, JAU, Junagadh)*
19.4.3.38	Effect of different rootstocks and environmental conditions in watermelon during winter season	**Approved with following suggestions:** 1. Variety: Arka Manek 2. Mention grafting stage (2 leaf stage)' 3. Mention grafting method (Slant cut method). 4. Factor B Poly house instead of open field. 5. Design: FCRD 6. Mention removing time of grow cover *(Action: Principal & Dean, CoH, JAU, **Junagadh)***
19.1.3.39	Salinity response function ongermination performance of coconut (*Cocos nucifera* L.) seedlings	**Approved with following suggestions:** 1. Recast title (Seedling to seed). 2. Mention germination (%) of nut after 3 and 6 months. 3. Mention survival (%). 4. Design: FCRD *(Action: ARS, FRS, JAU, Mangrol)*
19.4.3.40	Impact of different drip irrigation levels and organic mulch types on coconut seedlings	**Approved with following suggestions:** 1. Recast title. 2. Observation: Periodically. 3. Mention, how much mulching material is required? 4. 3plants/repeation. 5. Mention drip irrigation information in methodology. *(Action: ARS(Fruit), JAU, Mahuva)*
19.4.3.41	Influence of IBA on propagating stem cutting of	**Approved with following suggestions:** 1. Not approved.

	Harsingar [*Lagerstromia indica* (L.) Pers.]	*(Action: Prof. and Head, Dept. of GPB, CoA, JAU, Junagadh)*

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title of Experiment	Suggestion/s
20.4.3.42	Effects of growing methods and media on growth, yield and cut flower quality of Gypsophila (*Gypsophila paniculata* L.) under naturally ventilated green house.	**Approved with following suggestions:** **1**. Write third objective complete instead of if any 2. Mention Quantity and time of Humic acid application (Action: Principal, College of Horticulture, Anand)
20.4.3.43	Effect of hydroponic methods on growth yield and quality of mint (*Mentha arvensis* L.)	**Approved with following suggestion/s** 1. Mention nutrient source as Hoagland's solution 2. Repetition-4 3. Mention time of observations (Action: Principal, College of Horticulture, Anand)
20.4.3.44	Effect of growing conditions and soilless media on growth and yield of capsicum	**Approved with following suggestion/s** **1**. Write third objective complete instead of if any 2. Mention quantity and time of application of Hoagland's solution 3.Mention 2 stem training 4. Remove completion year (Action: Principal, College of Horticulture, Anand)
20.4.3.45	Effect of Nutrient management on growth and yield of turmeric (*Curcuma longa* L.)	**Approved with following suggestion/s** **1.**Change Title as mention 2.Add quality parameter in observation as Curcumin content (Action: Principal, College of Horticulture, Anand)
20.4.3.46	Effect of organic and natural sources of nutrients for growth, yield and quality of vegetable cluster bean	**Approved as such** **(Action: Unit officer, AHRS, AAU, Khambholaj)**
20.4.3.47	Effect of NPK on growth, yield and quality of Banana cv. Anand Vaaman	**Approved with following suggestion/s** **1.** Change Title as mention 2. Add Observation Shelf life 3.Write third objective complete instead of if any (Action: Principal, COA, ARS, AAU, Jabugam)

20.4.3.48	Evaluation of Tomato varieties under summer season in Gujarat condition	**Approved with following suggestion/s** 1. Change title as mention write summer instead of hot-wet 2. Remove 1st objective 3. Gross plote size 3.6 X 4.5 m 4. In observation Initial plant stand at 15 DATP Final plant stand at last harvest Add yield t/ha Remove word soluble from 14 observation 5. Remove completion year **(**Action: Res. Sci , MVRS, AAU, Anand
20.4.3.49	Evaluation of different gladiolus genotypes for yield and growth parameters	**Approved with following suggestion/s** Add observations: 1. No. of cormels/plant 2. Flower colour 3. No. of florets/spike (Action : Principal, SDM Polytechnic, Vadodara)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr.no.	Title of experiment	Suggestion/s and Action
20.4.3.50	Effect of top end plugs on rooting of cuttings of different ornamental shrubs	**Approved with following Suggestions:** 1. Mention the size of polybags. 2. All periodical observations should be taken at 2 months and 3 months of planting. (Action: Head, Dept. of Horticulture, CPCA, SDAU, Sardarkrushinagar)
20.4.3.51	Effect of different media and jeevamrut on growth, flowering and yield of container grown China aster (*Callistephus chinensis*)	**Approved with following Suggestions:** 1.Keep 6 pots per treatment. (Action: Head, Dept. of Horticulture, CPCA, SDAU, Sardarkrushinagar)
20.4.3.52	Effect of different media and bio enhancer on protray sapling through finger rhizomes of turmeric	**Approved with following Suggestions:** 1. Remove observation on economics 2. Take finger size of 30-40 gm 3. Add observations on: a) Growth and survival b) Curcumin content 4. Add one more objective on yield (Action: Scientist, KVK, Banaskantha I, SDAU, Deesa)
20.4.3.53	Effect of different media and bio enhancer on protray sapling through finger rhizomes of ginger	**Approved with following Suggestions:** 1. Remove observation on economics 2. Take finger size of 30-40 gm 3. Add observation on growth and survival 4. Add one more objective on yield

		(Action: Scientist, KVK, Banaskantha I, SDAU, Deesa)
20.4.3.54	Effect of organic input and bio-enhancers on growth, yield and quality of Gaillardia	**Approved with following Suggestions:** 1. Recast title as "Effect of natural faming inputs on growth and yield of Gaillardia" 2. Keep dose of Jivamrut 1250 lit/ha in Factor B 3. Keep dose of Ghanjivamrut 2 t/ha, 3 t/ha and 4 t/ha in Factor A 4. Remove words quality from objectives 1 & 2 5. Add one more objective on Soil nutrient status 6. Mention time of Ghanjivamrut application 7. Mention time of duration for seed treatment of Bijamrut (Action: Asstt. Res. Scientist, Fruit Research Station, SDAU, Dehgam)
20.4.3.55	Intercropping of turmeric in aonla plantation under natural farming condition.	**Approved with following Suggestions:** 1. Recast title as "Effect of natural faming inputs on turmeric in Aonla plantation" 2. Mention the distance of bed from Aonla tree 3. Mention distance between two beds in methodology 4. Write "Days to harvest" instead of Date of harvest 5. Remove word non-replicated from design (Action: Principal, College of Horticulture, SDAU, Jagudan)
20.4.3.56	Use of ethephon for defoliation in Pomegranate cv Bhagwa in Hast Bahar	**Approved with following Suggestions:** 1. Title change: Effect of ethephon for defoliation in Pomegranate cv Bhagwa in Hast Bahar 2. Remove treatment T_1 i.e 500 ppm (0.5 ml/L) 3. Start the experiment in 1st fortnight of September 4. Application of ethephon should be given in 1st fortnight of September 5. Add quality parameters 6. Add observation on Days to flowering (Action: Res. Scientist, Agroforestry Rese. Station SDAU, Sardarkrushinagar**)**
20.4.3.57	Effect of growing media on hardwood cutting of fig (*Ficus carica*)	**Approved with following Suggestions:** 1. Plant the cutting in Last week of August instead of Last week of September 2. Mention the size of polybags 3. Add observation on I. survival percentage II. Number of leaves at 90 DAP 4. Observation on number of shoots per planting and length of shoots per cutting should be taken at 90 days after planting

		5. Mention the condition of experiment i.e Shade net house (Action: Res. Scientist, Agroforestry Rese. Station SDAU, Sardarkrushinagar)
20.4.3.58	Intercropping of turmeric in neem plantation under natural farming condition.	**Approved with following Suggestions:** 1. Add two more treatments: T_3: Ginger alone & T_4: Neem + Ginger 2. Add observation: LER (Land Equivalent Ratio) 3. Use design Large Plot Technic in CRD (Action: Res. Scientist, Agroforestry Rese. Station SDAU, Sardarkrushinagar)
20.4.3.59	Effect of different pole system on growth and yield of Dragon fruit "*Kamalam*"	**Approved with following Suggestions:** 1. Remove treatment T_1 2. Remove objective 2nd and 4th. 3. Remove observation: Plant height 4. Add observations: I. Number of days taken to reach at ring II. TSS III. Shelf life IV. Pulp weight V. Size of canopy (N-S & E-W) VI. Number of cladodes 5. Note the quantity of Ghanhivamrut added in pole in second year 6. Mention number of plants per pole (Action: Asstt. Res. Scientist, Regional Research Station, SDAU, Bhachau)
20.4.3.60	Studies on the shelf life of date fruits (Khalal Stage) under different temperature conditions	**Approved without any suggestions** (Action: Asso. Res. Scientist, Date palm Research Station, Mundra)
20.4.3.61	Varietal trials of promising indigenous date palm (*Phoenix dactylifera*) germplasm	**Approved with following Suggestions:** 1. Mention the time of taking observation for growth parameters 2. Modify observation a and b as: a. Days to pollination b. Days to harvest 3. Add observation: I. TSS II. Days to reach khalal stage 4. Days to initiation of spathe (Cut of date) (Action: Asso. Res. Scientist, Date palm Research Station, Mundra)
20.4.3.62	Development of maturity indices in date palm (*Phoenix dactylifera*) thorough heat unit	**Approved without any suggestions** (Action: Asso. Res. Scientist, Date palm Research Station, Mundra)

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20.5 AGRESCO Sub-Committee Name: Agril. Engg./FPT/ PHT/AIT/ Food Tech. & Bio Energy

Chairman	Dr. P. M. Chauhan, I/c. Principal and Dean, CAET, JAU, Junagadh
Co-Chairmen	1. Dr. R. Subbaiah, Principal and Dean, CAET, AAU, Godhra
	2. Dr. P. K. Shrivastava, I/c. Principal and Dean, CAET, NAU, Dediapada
Rapporteurs	1. Dr. Swagatika Jena, Assistant Professor, Dept of FMPE, CAET, NAU, Dediapada
	2. Dr. G. V. Prajapati, Associate Professor, Dept of RERE, CAET, JAU, Junagadh
	3. Dr. D. K.Vyas, Assocaite Professor, Dept. of RERE, CAET, AAU, Godhara
	4. Dr. B. S. Parmar, Associate Professor, SDAU, Sardarkrushinagar
Statistician	Dr. Nitin Varshney, Assistant Professor, Dept of Statistics, NMCA, NAU, Navsari
Convener	Er. P. S. Pandit, NAU, Navsari
Venue	Room No-116, Center of Excellence, PHT, NAU, Navsari
Presentation	Respective Conveners of NAU, JAU, AAU and SDAU
	1. Er. P. S. Pandit, NAU, Navsari – Agricultural Engineering, PHT-(Horticulture)
	2. Dr. H. D. Rank, JAU, Junagarh – Agricultural Engineering,
	3. Dr. S. H. Akbari, AAU, Anand – Agricultural Engineering, AIT, Food Tech. & Bio Energy
	4. Dr. V. M. Modi, SDAU, Sardarkrushinagar - Agricultural Engineering
	5. Dr. Ashish Dixit. SDAU, Sardarkrushinagar – Food Technology

Summary

Name of University	No. of Recommendations				New Technical Programs	
	Farmers/Entrepreneurs/ Industry		Scientific			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
NAU	10	10	02	02	12	09
JAU	11	10	03	03	18	18
AAU	07	06	07	07	14	09
SDAU	06	05	00	00	06	05
Total	34	31	12	12	50	41

20.5 AGRICULTURAL ENGINEERING/FPT/PHT/AIT/FOOD TECH. & BIO ENERGY

20.5.1 RECOMMENDATIONS FOR FARMING COMMUNITY

Number	Particulars
	NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI
20.5.1.1	**Title:** Development and performance evaluation of SPV powered refrigerating system for perishable food products. **Recommendation:** Domestic users are recommended to use 'SPV power supply, off line without grid system' developed by Navsari Agricultural University, Navsari for conventional storage of perishable food products in 300 L refrigerator. SPV power supply system having 1 kW polycrystalline solar panel, 1 KVA pure sine wave inverter and 200AH, 24 V lead acid deep discharge battery bank and System payback period found to be 9 years. **ભલામણ:** ઘરેલું વપરાશકારોને ૩૦૦ લિ. રેફ્રિજરેટરમાં નાશવંત ખાદ્ય ઉત્પાદનોના પરંપરાગત સંગ્રહ માટે નવસારી કૃષિ યુનિવર્સિટી, નવસારી દ્વારા વિકસાવવામાં આવેલ 'SPV પાવર સપ્લાય, ઑફ લાઇન ગ્રીડ સિસ્ટમ'નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. SPV પાવર સપ્લાય સિસ્ટમ જેમાં ૧ kW પોલિક્રિસ્ટલાઇન સોલર પેનલ, ૧ KVA પ્યોર સાઈન વેવ ઇન્વર્ટર અને ૨૦૦AH, ૨૪V લીડ એસિડ ડીપ ડિસ્ચાર્જ બેટરી બેંક અને સિસ્ટમ પેબેક સમયગાળો ૯ વર્ષનો હોવાનું જણાયું છે. **House approved with following suggestions:** 1. Specify the type of compressor used in refrigerator and add the design criteria for designing the SPV powered refrigerator system. 2. Recalculate the economics. ***[Action:*** Asst. Prof., Dept. of BEAS, CAET, NAU, Dediapada***]***
20.5.1.2	**Title:** Design and development of raised bed former-cum-seeder for clay loam soil condition for Narmada District. **Recommendation:** The farmers of South Gujarat growing wheat are recommended to use tractor operated raised bed former attachment with existing seed drill developed by Navsari Agricultural University, Navsari for getting higher yield and net income. **ભલામણ:** દક્ષિણ ગુજરાતનાં ઘઉં ઉગાડતા ખેડૂતોને વધારે ઉપજ અને ચોખ્ખી આવક મેળવવા માટે નવસારી કૃષિ વિશ્વવિદ્યાલય, નવસારી દ્વારા વિકસાવેલ ટ્રેક્ટર સંચાલિત સીડડ્રિલ સાથે ઊચા પાળા બનાવવાનું જોડણ્યું લગાવી ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **House approved with following suggestions:** 1. Add design detail of developed ridge and bund attachment. 2. Mention irrigation method and % of germination of the crop in report. 3. Cost of the attachment should be added. ***[Action:*** Asst. Prof. , Dept. of FMPE, CAET, NAU, Dediapada***]***

20.5.1.3

Title: Effect of drip irrigation scheduling on *Ailanthus excelsa* in South Gujarat.

Recommendation:

The farmers of South Gujarat, who intend to grow Ardusa (*Ailanthus excelsa*) are recommended to irrigate their trees through drip irrigation system should schedule a s detailed below for achieving higher yield and net return along with 66-72 % saving in water.

System details:

Tree spacing : 3m x 2m
Lateral spacing : 3m
Dripper spacing : 2 Drippers/tree
Dripper discharge : 4 LPH
Operating pressure : 1.2 kg/cm2
Operating time : Alternate day (Minutes)

Particular	Oct.-Nov.	Dec.-Jan.	Feb.-March	April-May
1st Year	25-29	20-22	35-40	54-58
2nd Year	35-40	25-32	46-53	60-76
3rd Year	40-44	34-40	55-64	80-90
After 3 Years	71-81	62-71	77-85	100-110

ભલામણ:

દક્ષિણ ગુજરાતના અરડૂસા (આઇલાન્થસ એકસેલસા) ની ખેતી કરવા ઇચ્છતા ખેડૂતોને વધુ ઉત્પાદન અને આવક સાથે ૬૬-૭૨% પાણીની બચત મેળવવા નીચેની વિગતે ટપક સિંચાઇ દ્વારા પિયત કરવાની ભલામણ કરવામાં આવે છે.

ટપક સિંચાઇ પદ્ધતિની વિગત:

ઝાડ વચ્ચેનું અંતર : ૩ મી **X** ૨ મી
બે લેટરલ વચ્ચેનું અંતર : ૩ મી
ડ્રીપર વચ્ચેનું અંતર : ૨ નંગ/ઝાડ
ડ્રીપર ક્ષમતા : ૪ લિટર/કલાક
દબાણ : ૧.૨કિલો/સેમી^{૨}

ચલાવવાનો સમય: એકાંતરે દિવસ (મિનિટ).

	ઓક્ટો-નવે.	ડિસે.-જાન્યુ.	ફેબ્રુ-માર્ચ	એપ્રિલ - મે
૧લુ વર્ષ	૨૫-૨૯	૨૦-૨૨	૩૫-૪૦	૫૪-૫૮
૨જુ વર્ષ	૩૫-૪૦	૨૫-૩૨	૪૬-૫૩	૬૦-૭૬
૩જુ વર્ષ	૪૦-૪૪	૩૪-૪૦	૫૫-૬૪	૮૦-૯૦
ત્યારબાદ	૭૧-૮૧	૬૨-૭૧	૭૭-૮૫	૧૦૦-૧૧૦

House approved with following suggestions:

1. Correction in conclusions text w.r.t discharge and yield.

[Action: Asst. Prof. , Dept. of NRM, CoF, NAU, Navsari**]**

20.5.1.4	**Title:** Redesign and development of banana bunch harvesting tools. Recommendation: Farmers growing banana fruits are recommended to use 'banana bunch harvesting tool', designed and developed by Navsari Agricultural University, Navsari for the bunch having maximum 20±5kg bunch weight and 40±5mm bunch stock diameter to reduce the harvesting time and labor. **ભલામણ:** **કેળ ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે કાપણીના સમય અને મજૂર ઓછા કરવા માટે નવસારી કૃષિ વિશ્વવિદ્યાલય, નવસારી દ્વારા ડિઝાઇન કરી અને વિકાસવેલ કેળાંની લુમ કાપવાનું સાધન મહત્તમ ૨૦±૫ કિ.ગ્રા. કેળાની લૂમ ના વજન અને ૪૦±૫ મી.મી. કેળના દંડા ની જડાઈ માટે વાપરવું.** **House approved with following suggestions:** 1. Ergonomic aspects as well as data should be incorporated in the report. 2. Add grip thickness in conclusion. 3. Suggested to go for design of patent for tool. **[Action:** Asst. Prof. , PHTC, NAU, Navsari**]**
20.5.1.5	**Title:** Development of tea extract based hard boiled candy. Recommendation: Processors are recommended to prepare 'tea candy' as per process developed by Navsari Agricultural University, Navsari use tea extract, liquid glucose, sugar and condensed milk with 16ml, 24g, 49g and 11g, respectively. Heat the ingredients at 254ºC temperature for 15 minutes, pore into mold and cool for 20 minutes, de-mold, hardening in dehumidified room at 25°C and 45% Rh for 2h, wrapping and packing. The cost to prepared 100g tea candy is Rs.16.80 with net realization of 19%. **ભલામણ:** પ્રસંસ્કરણ કરો ને ભલામણ કરવામાં આવે છે કે 'ચા ની કેન્ડી' બનાવવા માટે ચા નો અર્ક, લિક્વિડ ગ્લુકોઝ, ખાંડ અને કોન્ડેન્સડ મિલ્ક ને અનુક્રમે ૧૬મિ.લી., ૨૪ ગ્રા., ૪૯ગ્રા. અને ૧૧ગ્રા. પ્રમાણે લઈ નવસારી કૃષિ વિશ્વવિધ્યાલય, નવસારી દ્વારા વિકસાવેલ પધ્ધતિ નો ઉપયોગ કરવો. જેમાં બધીજ સામગ્રીને ભેળવી ૨૫૪ °સે. તાપમાને ૧૫ મિનિટ માટે ગરમ કરો, બીબમાં ઢાળી ૨૦ મિનિટ ઠંડુ કરી, બિબામાંથી કાઢી લેવું, કઠણ થવા માટે ૨૫°સે. અને ૪૫% ભેજ વાળા ડીહયુમીડિફાઈડ રૂમમાં ૨ કલાક રાખી, વ્રેપ્પિંગ અને પેકેજિંગ કરવું. ૧૦૦ ગ્રામ ચા-કેન્ડી બનાવવા રૂા. ૧૬.૮૦ ના ખર્ચ ની સામે ૧૯% નો ચોખ્ખા નફા મળે છે. **House approved with following suggestions:** 1. Give the formulation for 100 gram of product. **[Action:** Asst. Prof. , PHTC, NAU, Navsari**]**
20.5.1.6	**Title:** Design and Development of Battery Operated NSKE Sprayer Recommendation: The spinning disc type nozzle developed by Navsari Agricultural University, Navsari for 6 Volt battery-operated knapsack sprayer is recommended to farmers for

	spraying of Neem Seed Kernel Extract (NSKE) from three feet height without blockage with similar performance and droplet distribution compared to existing knapsack sprayer nozzle. **ભલામણ:** નવસારી કૃષિ વિશ્વવિધ્યાલય, નવસારી દ્વારા વિકસાવેલ ફરતી ડિસ્ક પ્રકારની નોઝલનો ૬.૦૦ વોલ્ટની બેટરી દ્વારા સંચાલિત નેપસેક સ્પ્રેયરમાં લીંબોળીના બીજના અર્કનો (NSKE) ત્રણ ફૂટ ઉચાઇથી અત્યારે મળતી નેપસેક સ્પ્રેયરની નોઝલ જેટલીજ કામગીરી અને ટીંપાના વેરણ સાથે નોઝલ બ્લોકેજ થયા વગર છંટકાવ કરવા માટે ખેડૂતોને ભલામણ કરવામાં આવે છે. **House approved with following suggestions:** 1. Mention detailed design calculations and assumptions in report for the spinning disc nozzle for the neem oil spraying. 2. Convert drop numbers into droplet density 3. Mention performance comparison data of developed sprayer with commercially available sprayer for neem oil spraying in the report. **[Action:** Asst. Prof., Dept. of Ento., NMCA, NAU, Navsari**]**
20.5.1.7	**Title:** Standardization of process technology for the preparation of *Aloe vera* and Aonla blended juice. **Recommendation:** Processors and entrepreneurs associated with juice processing are recommended to produce *Aloe vera* and aonla blended juice with 75:25 proportion by adding 8 g sugar / 100 ml to maintain 12 °Brix TSS along with black salt 3 g and ginger juice 3 ml per litre blended juice. The blended juice must be heated at 95±1°C for 5 minutes, packed in glass bottles followed by thermal processing at 95±1^{o}C for 30 minutes. The packed juice has storage life for 8 months at ambient temperature. ભલામણ: પ્રોસેસરો અને ફળોના રસ સાથે સંકળાયેલ ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, એલોવીરા અને આમળાનો મીક્ષ રસ બનાવવા માટે ૭૫:૨૫ પ્રમાણ મુજબ ૮ ગ્રામ ખાંડ પ્રતિ ૧૦૦ મી.લી. રસમાં ઉમેરી ટી.એસ.એસ.નું પ્રમાણ ૧૨°બ્રીક્ષ જાળવી સંચળ ૩ ગ્રામ અને આદુનો રસ ૩ મી.લી. પ્રતિ લીટર મીક્ષ રસ પ્રમાણે ઉમેરવા. ત્યારબાદ મીક્ષ રસને ૯૫±૧ °સે. તાપમાને ૫ મીનીટ સુધી ગરમ કરી કાચની બોટલમાં ભર્યા બાદ ૯૫±૧°સે. તાપમાને ૩૦ મીનીટ સુધી ગરમ કરવું. આ રીતે પેક કરેલ મીક્ષ રસને ૮ માસ સુધી સામાન્ય તાપમાને સંગ્રહ કરી શકાય છે. **House approved with following suggestions:** 1. Check and rectify experimental data with respect to sugar, Ascorbic Acid, etc. 2. Specify and add sugar concentration for all combinations of treatments in report. 3. Replace the "Below Detection Limit' in place of "Ab" and use word 'Aerobic Plate Count' instead of 'TPC' in the report. Mansion pH of final product. **[Action:** Professor and Head, PHT, ACH, NAU, Navsari**]**
20.5.1.8	**Title:** Standardization of suitable treatments for preparation of osmo-air dehydrated mango (*Mangifera indica* L.) slices. **Recommendation:**

	Processors and entrepreneurs are recommended to prepare osmo-air dehydrated mango slices from mango fruits var. Kesar after 6th day of harvesting by giving 24 hours osmotic treatment to 1.5±0.2cm thick slices with osmotic solution of 60° Brix sugar syrup at 40°C followed by drying in cabinet dryer till moisture content of 15±0.4%. The osmo-air dehydrated mango slices prepared by this technique possess 30.86% yield along with higher beta-carotene, higher overall acceptability score and lower non-enzymatic browning. The osmo-air dehydrated mango slices had production cost of Rs 833 / kg and storage life of six months in 95 micron polypropylene bags at ambient temperature. ભલામણ: પ્રોસેસરો અને ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, કેસર કેરીના ફળોમાંથી ઓસ્મો-એર દ્વારા સુકવણી કરીને ચીરીઓ તૈયાર કરવા માટે કેરીને ઉતાર્યા પછી છઠ્ઠા દિવસે ૧.૫±૦.૨ સેમી જાડાઈની ચીરીઓને ૪૦°સે તાપમાને અને ૬૦°બ્રિક્ષ ખાંડની ચાસણી વાળા ઓસ્મોટીક દ્રાવણમાં ૨૪ કલાક ઓસ્મોટીક ટ્રીટમેન્ટ આપ્યા બાદ ૧૫±૦.૪ % ભેજનું પ્રમાણ રહે ત્યાં સુધી કેબિનેટ ડ્રાયર દ્વારા સુકવણી કરવી. આ પધ્ધતિથી તૈયાર કરવામાં આવેલ ઓસ્મો-એર સુકવણી કરેલ ચીરીઓમાં ૩૦.૮૬% ઉત્પાદન સાથે ઓછું બ્રાઉનીંગ તેમજ વધારે બીટા–કેરોટીન અને સારી સ્વીકાર્યતા ધરાવે છે. ઓસ્મો-એર સુકવણી કરેલ ચીરીઓનો ઉત્પાદન ખર્ચ રૂ. ૮૩૩ પ્રતિ કિલો થાય છે અને ૯૫ માઈક્રોન પોલીપ્રોપીલીનની થેલીમાં સામાન્ય તાપમાને ૬ મહિના સુધી સંગ્રહ કરી શકાય છે. **House approved with following suggestions:** 1. Correct the treatments combinations table. 2. Mention proximate analysis of final product and actual storage conditions for storage study in the report. ***[*Action:** Professor and Head, PHT, ACH, NAU, Navsari*]***
20.5.1.9	**Title:** Standardization of formulation for preparation of fruit bar from sapota pulp. **Recommendation:** Processors and entrepreneurs are recommended to prepare sapota fruit bar by mixing sapota pulp and sugarcane juice with 60:40 proportion by open pan heat concentration up to 40°Brix TSS along with 0.5% pectin followed by addition of 100 ppm Potassium Metabisulphite. Then pouring and spreading concentrated mixture on SS trays by maintaining 10mm thick layer and drying in cabinet dryer at 60°C till final moisture of 16±0.5%. 2.5x2.5x0.6 cm Sapota fruit bar pieces packed in 95 micron HDPE bags possesses lower non-enzymatic browning, higher iron content and overall acceptability and have shelf life up to 9 months at ambient temperature storage. ભલામણ પ્રોસેસરો અને ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, ચીકુબાર બનાવવા માટે ચીકુ પલ્પ અને શેરડીનો રસ ૬૦:૪૦ પ્રમાણ મુજબ મીક્ષ કરી, ૦.૫ % પેક્ટીન ઉમેરી, ૪૦°બ્રીક્ષ ટી.એસ.એસ. થાય ત્યાં સુધી ખુલ્લા વાસણમાં ગરમ કરી તેમાં ૧૦૦ પીપીએમ પોટેશીયમ મેટા બાય સલ્ફાઇટ ઉમેરવુ. ત્યારબાદ આ મીશ્રણને ૧૦ મીમી

	જાડાઇનું લેયર એસ.એસ. ટ્રેમાં પાથરી, ૧૬±૦.૫% ભેજનું પ્રમાણ જળવાઇ રહે ત્યાં સુધી કેબિનેટ ડ્રાયરમાં ૬૦°સે. તાપમાને સુકવવું. આ રીતે તૈયાર થયેલ ચીકુ બારના ૨.૫x૨.૫x૦.૬સેમીના ટુકડા ૯૫ માઈક્રોન એચ.ડી.પી.ઇ. બેગમાં પેક કરવામાં આવે તો ઝાંખી પડ્યા વગર, વધારે આઇરનનું પ્રમાણ અને સ્વીકાર્યતા સાથે ૯ માસ સુધી સામાન્ય તાપમાને સંગ્રહ કરી શકાય છે. **House approved with following suggestions:** 1. Rectify the Table 1in report. ***[*Action:** Professor and Head, PHT, ACH, NAU, Navsari*]***
20.5.1.10	**Title:** Studies on quality of thermally processed Oyster Mushroom during storage. **Recommendation:** Processors and entrepreneurs are recommended to preserve the oyster mushroom in A-2·½ SR tin can having 850 g capacity by following steps in sequence for storage and utilization up to 6 months; washing of mushroom in 0.1% Potassium Metabisulfite solution followed by blanching, filling of 400 g mushroom in can, covering with 2.00 % NaCl and 0.05 % citric acid of solution, lid clinching, exhausting, seaming, retorting at 121°C and 15 psi pressure for 25 min followed by dipping in chilled water for cooling. **ભલામણ:** પ્રોસેસર્સ અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે ઢીંગરી મુશરૂમ ને સારી ગુણવત્તા સાથે ૬ મહિના સુધી સંગ્રહિત અને ઉપયોગ કરવા, ૮૫૦ ગ્રા. ક્ષમતા વાળા એ-૨·૧/૨ એસ. આર. ટીન કૅન માં નીચે દર્શાવેલા પગલાં ક્રમ પ્રમાણે અનુસરી સાચવણી કરવી: મુશરૂમ ને ૦.૧% પોટેશિયમ મેટાબાઈસલ્ફાઈટના દ્રાવણમાં ધોયા બાદ બ્લાન્ચિંગ કરવું, ૪૦૦ ગ્રા. મુશરૂમને ડબ્બામાં ભરી, ૨.૦૦ % સોડિયમ ક્લોરાઇડ અને ૦.૦૫ % સાઇટ્રિક એસીડ ધરાવતાં દ્રાવણ થી કવર કરવું, ઢાંકણનું ક્લીંચિંગ, એક્ઝોસ્ટિંગ, સીમિંગ, ૧૨૧ ડિગ્રી સેલ્સિયસ તાપમાને અને ૧૫ પી.એસ.આઈ. દબાણે, ૨૫ મિનીટ માટે રિટૉર્ટિંગ કર્યા બાદ ચિલ્ડ પાણીમાં ડૂબાડી ઠંડા કરવા. **House approved with following suggestions:** 1. Correct as per process flow chart. **[Action:** Asst. Prof., PHT, ACH, NAU, Navsari**]**

Number	**Particulars**
JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH	
20.5.1.11	**Title:** Yield response of drip fertigation for wheat-green gram crop sequence. **Recommendation:** The farmers of South Saurashtra Agro-Climatic zone growing wheat are recommended to apply 75 % of NPK of RDF (120 N:60 P2O5:60 K2O kg/ha) through drip fertigation only (with no basal doze) adopting the following drip system and irrigation schedules to wheat crop in 8 equal splits at 6 days interval after 12 days of sowing to get higher grain yield and net return.

Specifications of drip irrigation system and its operating time for wheat crop	
Drip irrigation system details	Nos and depth of irrigation and drip irrigation system operating time for wheat crop during winter season

	DAS	No. of irrigations	Irrigation depth (mm)	Operating time/ irrigation
Lateral type = Inline Inline drip size = 16 mm (OD) Dripper rate = 4 lph Dripper spacing = 0.5 m Lateral spacing = 0.675 m Nos of crop rows per drip line = 3	0	1	40	3 h & 23 Minutes
	0-10	1	30	2 h & 32 Minutes
	10-40	5	20	1 h & 41 Minutes
	41-70	5	22	1 h & 51 Minutes
	71-90	3	24	2 h
	> 90	2	26	2 h & 12 Minutes

It is also recommended to sow green gram crop in paired row (0.3 m x 0.375 m) after harvesting of wheat crop without any cultivation operation and to apply 75 % P of RDF (20 N:40 P2O5:00 K2O kg/ha) as basal doze and 75 % N of RDF through drip fertigation adopting the following drip system and irrigation schedules in 5 equal splits at 6 days interval after 12 days of sowing to get higher seed yield and net return.

Specifications of drip irrigation system and its operating time for green gram crop				
Drip irrigation system details	Nos and depth of irrigation and drip irrigation system operating time for green gram crop during summer season			
	DAS	No. of irrigations	Irrigation depth (mm)	Operating time/ irrigation
Lateral type = Inline Inline drip size = 16 mm (OD) Dripper rate = 4 lph Dripper spacing = 0.5 m Lateral spacing = 0.675 m Nos of crop rows per drip line = 2	0	1	20	1 h & 41 Minutes
	0-10	1	15	1 h & 16 Minutes
	11-30	5	21	1 h & 46 Minutes
	31-70	6	23	1 h & 56 Minutes
	>70	1	22	1 h & 51 Minutes

ભલામણ:

દક્ષિણ સૌરાષ્ટ્ર ખેત-આબોહવાકીય વિસ્તારમાં ઘઉંનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને વળતર મેળવવા માટે ભલામણ થયેલ રસાયણિક ખાતર (નાઇટ્રોજન:ફોસ્ફોરસ:પોટાશ ૧૨૦:૬૦:૬૦ કિ.ગ્રા./ હેક્ટર) નાં ૭૫ % ખાતર નીચે મુજબની ડ્રીપ પધ્ધતિ અને પિયત સમયપત્રક મુજબ વાવેતરનાં ૧૨ દિવસ બાદ ૬ દિવસ નાં અંતરે એક સરખા ૮ હપ્તામાં આપવાની ભલામણ કરવામાં આવે છે.

ડ્રીપ પધ્ધતિ અને પિયત સમયપત્રકની વિગત				
ડ્રીપ પિયત પધ્ધીતી વિગત	શિયાળામાં ઘઉંનાં પાક માટે પિયત ઊંડાઈ, સંખ્યા અને ડ્રીપ પધ્ધતિ સંચાલન સમય			
	વાવેતર	પિયત	પિયત	સંચાલન

	બાદ (દીવસો)	સંખ્યા	ઊંડાઈ (મીમી)	સમય
લેટરલ પ્રકાર = ઇનલાઇન. ઇનલાઇન ડ્રીપ સાઈઝ = ૧૬ મીમી. ડ્રીપર પ્રવાહ = ૪ લી/કલાક. ડ્રીપર અંતર = ૦.૫ મી. ઇનલાઇન અંતર = ૦.૬૭૫ મી. દરેક ઇનલાઇન ડ્રીપ દીઠ હારોની સંખ્યા = ૩	૦	૧	૪૦	૩ કલાક & ૨૩ મીનીટ
	૦-૧૦	૧	૩૦	૨ કલાક & ૩૨ મીનીટ
	૧૧-૪૦	૫	૨૦	૧ કલાક & ૪૧ મીનીટ
	૪૧-૭૦	૫	૨૨	૧ કલાક & ૫૧ મીનીટ
	૭૧-૯૦	૩	૨૪	૧ કલાક
	૯૦ બાદ	૨	૨૬	૨ કલાક & ૧૨ મીનીટ

તેમજ ઘઉંનાં પાકની કાપણી બાદ એક પણ ખેડ કાર્ય કર્યા વિના સીધા જ મગનાં પાકને જોડીયા હાર (૦.૩ મી. x ૦.૩૭૫ મી.) પધ્ધતિમાં વાવેતર કરીને ભલામણ ખાતર (નાઇટ્રોજન:ફોસ્ફોરસ:પોટાશ ૨૦:૪૦:૦૦ કિ.ગ્રા./હેક્ટર) નાં ૭૫ % ફોસ્ફોરસ પાયાના ખાતર તરીકે અને ૭૫ % નાઈટ્રોજન વાવેતરના ૧૨ દિવસ બાદ ૬ દિવસ નાં અંતરે એક સરખા ૫ હપ્તામાં નીચે મુજબની ટપક પિયત પધ્ધતિથી આપવાની ભલામણ કરવામાં આવે છે જેનાથી વધુ ઉત્પાદન અને વળતર મેળવી શકાય છે.

ડ્રીપ પિયત પધ્ધીતી વિગત	ઉનાળામાં મગનાં પાક માટે પિયત ઊંડાઈ, સંખ્યા અને ડ્રીપ પધ્ધતિ સંચાલન સમય			
	વાવેતર બાદ (દીવસો)	પિયત સંખ્યા	પિયત ઊંડાઈ (મીમી)	સંચાલન સમય
લેટરલ પ્રકાર = ઇનલાઇન ઇનલાઇન ડ્રીપ સાઈઝ = ૧૬ મિમિ.	૦	૧	૨૦	૧ કલાક & ૪૧ મીનીટ
ડ્રીપર પ્રવાહ = ૪ લી/કલાક. ડ્રીપર અંતર = ૦.૫ મી. ઇનલાઇનઅંતર = ૦.૬૭૫ મી.	૦-૧૦	૧	૧૫	૧ કલાક & ૧૬ મીનીટ

	દરેક ઇનલાઇન ડ્રીપ દીઠ હારોની સંખ્યા = ૨	૧૧-૩૦	૫	૨૧	૧ કલાક & ૪૬ મીનીટ
		૩૧-૭૦	૬	૨૩	૧ કલાક & ૫૬ મીનીટ
		૭૦ બાદ	૧	૨૨	૧ કલાક & ૫૧ મીનીટ

House approved with following suggestions:

1. Check the statistical data of the report.

[Action: HoD, IDE, CAET, JAU, Junagadh***]***

20.5.1.12

Title: In-situ soil moisture conservation: utilization and management of rainwater for groundnut production.

Recommendation:

The farmers of North Saurashtra Agro-climatic Zone are recommended to grow groundnut by sowing on tied ridge with plot bunding and apply agricultural waste (Groundnut shells @ 1.5 t/ha) as mulch to conserve moisture and obtaining maximum rain water use efficiency, higher productivity and net returns under dry farming conditions.

ભલામણ**:**

ઉતર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના સુકી ખેતીની પરિસ્થિતિમાં મગફળીનું વાવેતર કરતા ખેડૂતોને જમીનમાં ભેજ જાળવવા અને વરસાદના પાણીની મહતમ કાર્યક્ષમ ઉપયોગ કરવા તેમજ વધારે ઉત્પાદન અને આર્થીક વળતર મેળવવા માટે પાળા પર વાવેતર સાથે પાળા બંધી અને કૃષિ કચરા (મગફળીની ફોતરી @ ૧.૫ ટન/હે.) ને મલ્ચ તરીકે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.

House approved with following suggestions:

1. Check statistical experimental design based on main and sub plot treatments.

[Action: Research Scientist (DFRS), JAU, Targhadia***]***

20.5.1.13

Title: Design, development and performance evaluation of battery operated light weight interculture tool/weeder.

Recommendation:

Farmers and manufacturers are recommended to use the JAU developed battery operated (easily operated by one person) intercultural tool /weeder (having rotary type blades, operated by 0.5 hp DC motor and 12-V 74-Ah, rechargeable battery) for vegetable/horticultural crops for interculturing / weeding operation. The working width of weeder is 30 cm with field capacity 0.02-0.03 ha/h and 84 to 90 % weeding efficiency. There is a saving of up to 85 % in time, 35 % in energy and 78 % in cost of operation.

ભલામણ:

ખેડૂતો અને યંત્ર ઉત્પાદકોને શાકભાજી/બાગાયતી પાકોમાં જૂનાગઢ કૃષિ

	યુનિવર્સીટી દ્વારા વિકસાવાયેલ એક માણસથી ચલાવી શકાય તેવા બેટરી સંચાલિત આંતરખેડ/નીંદણ યંત્ર (જેમાં રોટરી બ્લેડ હોય છે, જે ૧૨ વોલ્ટ-૭૪ એમ્પી.ની લીડ-એસીડ રીચાર્જેબલ બેટરીથી ચાલે છે) નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ યંત્રથી ૩૦ સેમી. પહોળાઈમાં ૦.૦૨-૦.૦૩ હે/કલાકની કાર્યક્ષમતા અને ૮૪-૯૦% જેટલી નીંદણક્ષમતા મળે છે. આ યંત્રથી ૮૫% સુધી સમયનો, ૩૫% સુધી શક્તિ વપરાશનો અને ૭૮% સુધી ખર્ચની બચત થાય છે. **House approved with following suggestions:** 1. Check experimental data and units in report. 2. Add "easily operated by one person" in-place-of "light weight". ***[Action:** HoD, FMPE, CAET, JAU, Junagadh]*
20.5.1.14	**Title:** Development and performance evaluation of mini tractor operated multi crop weeder. **Recommendation:** Farmers are recommended to use "Mini Tractor Operated Multi Crop Sweep Blades Weeder" developed by Junagadh Agricultural University for better performance in weeding, time and cost saving in place of existing blade harrow. ભલામણ: આથી ખેતરમાંથી જુદાજુદા પાક વચ્ચેના નિંદામણને વધારે સારી રીતે દૂર કરવા, સમય અને નાણાની બચત હેતુસર જૂનાગઢ કૃષિ યુનિવર્સીટી દ્વારા વિકસાવવામાં આવેલ "મીની ટ્રેક્ટર સંચાલિત મલ્ટી ક્રોપ સ્વીપ બ્લેડ વીડરનો" સામાન્ય રીતે વપરાશમાં લેવાતી રાપની જગ્યાએ ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **House approved with following suggestions:** 1. Add cost of machine and its operation in the report. ***[Action:** HoD ,Dept. of Farm Engineering CoA, JAU, Junagadh]*
20.5.1.15	**Title:** Development and performance evaluation of mini tractor operated weed inverting roller. **Recommendation:** Farmers are recommended to use "Mini Tractor Operated Weeder with weed inverting roller" developed by Junagadh Agricultural University for better performance in weeding, weed inverting and time saving in place of existing blade harrow. ભલામણ: આથી ખેતરમાંથી જુદાજુદા પાક વચ્ચેના નિંદામણને વધારે સારી રીતે દૂર કરવા, પલટાવવા અને સમયની બચત હેતુસર જૂનાગઢ કૃષિ યુનિવર્સીટી દ્વારા વિકસાવવામાં આવેલ "મીનીટ્રેક્ટર સંચાલિત વીડર સાથેના રોલરનો" સામાન્ય રીતે વપરાશમાં લેવાતી રાપની જગ્યાએ ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **House approved with following suggestions:** 1. Add cost of machine and its operation in the report. ***[Action:** HoD ,Dept. of Farm Engineering CoA, JAU, Junagadh]*
20.5.1.16	**Title:** Standardization of process technology for preparation of peanut sauce (Chemical process). **House differed with following Suggestions:**

	1. Replace “partially defatted peanut sauce” in place of defatted peanut sauce in report. 2. Correct and Replace original process flow chart in the report. 3. Conduct storage study using different packaging material 4. Presentation and submitted report of experiment is matching “In Toto” with post graduate research work. 5. House suggested presenting next year with additional treatments and data. ***[Action:** HoD, PFE, CAET, JAU, Junagadh**]***
20.5.1.17	**Title:** Standardization of process parameters for sesame spread preparation. **Recommendation:** *PART-I:* *The* manufacturers of sesame spread are recommended to adopt the process technology developed by Junagadh Agricultural University for the production of good quality sesame spread. The recommended procedure involves roasting of dehulled sesame seeds at 147 °C for 27 minutes 30 second**.** Subsequently, the cool roasted dehulled sesame seeds are blended and grinded with jaggery (9.50 %), hydrogenated vegetable oil (6.20 %), guar gum powder (1.3 %) and salt (1.0 %). Following this process protocol leads to sesame spread with optimal quality attributes. *PART-II:* *The* manufacturers of sesame spread are recommended to store sesame spread in PET (Polyethylene Terephthalate) containers under refrigerated conditions (8°C) to ensure safety storage up to three months. This storage protocol developed by Junagadh Agricultural University maintains superior biochemical, rheological and sensory quality along with oxidative and microbial stability of the sesame spread throughout the three month storage period. **ભલામણ:** ***ભાગ-૧:*** તલ સ્પ્રેડ ઉત્પાદકોને ગુણવતાયુક્ત તલ સ્પ્રેડ બનાવવા જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ પધ્ધતિ અપનાવવા માટે ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં પ્રથમ ફોતરી કાઢેલા તલને ૧૪૭° સે. તાપમાને ૨૭ મિનીટ અને ૩૦ સેકંડ માટે શેકવામાં આવે છે. ત્યારબાદ, ઠંડા પડેલ શેકેલા તલને ૯.૫૦ % ગોળ, ૬.૨૦ % હાઇડ્રોજીનેટેડ વેજીટેબલ ઓઈલ તેમજ ૧.૩૦ % ગુવાર ગમ પાવડર અને ૧.૦૦ % મીઠા સાથે ઉમેરી બારીકાઈથી પીસવામાં આવે છે. આ પધ્ધતિ અપનાવવાથી સારી ગુણવતા ધરાવતું તલસ્પ્રેડ તૈયાર કરી શકાય છે. **ભાગ-૨:** તલ સ્પ્રેડ ઉત્પાદકોને આવી રીતે તૈયાર થયેલ તલસ્પ્રેડ ને ત્રણ મહિના સુધી યોગ્ય ગુણવતા સાથે જાળવવા માટે પી.ઈ.ટી. (પોલિઈથીલીન ટેરેફ્થાલેટ) કન્ટેનરમાં રેફ્રીજરેટેડ તાપમાને (૮°સે.) સંગ્રહ કરવાની ભલામણ કરવામાં આવે છે. જૂનાગઢ કૃષિ યુનિવર્સિટી વિકસિત આ સ્ટોરેજ પદ્ધતિ દ્વારા તલસ્પ્રેડની ઓક્સિડેટીવ અને માઇક્રોબાયલ સ્થિરતા સાથે ઉચ્ચ બાયોકેમિકલ, રિઓલોજિકલ અને સંવેદનાત્મક

	ગુણવત્તા ત્રણ મહિના સુધી જાળવી શકાય છે. **House approved with following suggestions:** 1. Rectify the yeast count and microbial data in report. ***[Action:** Research Scientist, ARS, JAU, Amreli**]***
20.5.1.18	**Title:** Development of solar tunnel dryer for local spices. **Recommendation:** The farmers and processors involved with drying of spices, viz., fresh red chilies, turmeric and ginger are recommended to use the solar tunnel dryer developed by Junagadh Agricultural University to reduce the drying time, drying space, minimize post-harvest losses during drying and handling, better quality, more recovery as well as higher economic returns of their dried spices as compared to traditional sun drying method. • Qaunity of spices in the dryer: 500 ± 5 kg (Red chilies), 540 ± 5 kg (Turmeric), 525 ± 5 kg (Ginger) per batch • Drying time: 14 days (red chilies), 22 days (turmeric), 23 days (ginger) (during January- April). **ભલામણ:** મરીમસાલા પાકોનું ઉત્પાદન લેતા ખેડુતો અને સુકવણી કરતા પ્રોસેસરોને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ સોલાર ટનલ ડ્રાયરની મદદથી તાજા લાલ મરચા, હળદર અને આદુ જેવા મરી-મસાલા પાકોની સુકવણી કરવા માટે ભલામણ કરવામાં આવે છે. જેના ઉપયોગથી પરંપરાગત સૂર્યપ્રકાશથી સુકવવાની પદ્ધતિની સરખામણીએ ઓછો સુકાવણી સમય, ઓછી જગ્યા, સૂકવણી અને જાળવણી દરમ્યાન નહીવત બગાડ, ઉચ્ચ ગુણવત્તાવાળા સુકવેલ મરી-મસાલા, સૂકાયેલ મરી-મસાલા પાકોની વધારે રિકવરી તેમજ ઊંચું આર્થિક વળતર મેળવી શકાય છે. • સુકવણીની ક્ષમતા : ૫૦૦ ± ૫ કિ.ગ્રા. (લાલ મરચા), ૫૪૦ ± ૫ કિલો (હળદર), ૫૨૫ ± ૫ (આદુ) પ્રતિ બેચ. • સુકવણીના કલાકો : ૧૪ દિવસ (લાલ મરચા), ૨૨ દિવસ (હળદર), ૨૩ દિવસ (આદુ) (જાન્યુઆરી–અપ્રિલ). **House approved:** ***[Action:** HoD, REE, CAET, JAU, Junagadh**]***
20.5.1.19	**Title:** Development of solar tunnel dryer for local spices. **Recommendation:** The farmers and processors involved with drying of spices are recommended to use the solar tunnel dryer developed by Junagadh Agricultural University for drying spices to a safe moisture level as per following details. Details of solar tunnel dryer: • Capacity of dryer: 500 ± 5 kg to 540 ± 5 kg depends on spices to be dried. • Drying trays: 64 trays arranged in two tiers. • Maximum drying air temperature: 53ºC ± 2ºC. • Maximum increment in drying temperature: 25.9ºC (winter) and 28.8ºC (summer). • Solar collectors (Optional): 3 Nos. (1.22 m x 2.44 m). **ભલામણ:**

	મરીમસાલા પાકોનું ઉત્પાદન લેતા ખેડુતો અને સુકવણી કરતા પ્રોસેસરોને તાજા મરી-મસાલા પાકોની સલામત ભેજના પ્રમાણ સુધી સુકવણી કરવા માટે જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ સોલાર ટનલ ડ્રાયરની નીચે મુજબની ભલામણ કરવામાં આવે છે. વિકસાવાયેલ સોલાર ટનલ ડ્રાયરની વિગત : • સુકવણીની ક્ષમતા : ૫૦૦ ± ૫ કિ.ગ્રા. થી ૫૪૦ ± ૫ પ્રતિ બેચ (મરીમસાલા પાકો આધારિત). • સુકવણીની ટ્રે : બે સ્તરમાં ગોઠવેલ કુલ - ૬૪ નંગ. • સુકવણીની હવાનું તાપમાન : ૫૩ ± ૨° સે. • સુકવણીની હવાના તાપમાનમા મેળવી શકાતો વધારો: ૨૫.૯° સે. (શિયાળામાં) અને ૨૮.૮° સે. (ઉનાળામાં). • સોલાર કલેકટર (વૈકલ્પિક) : ૩ નંગ (૧.૨૨ મીટર X ૨.૪૪ મીટર). **House approved:** ***[Action:** HoD, REE, CAET, JAU, Junagadh]*
20.5.1.20	**Title:** Gasification of Castor and pigeon pea crop residues for combined gaseous and bio-char production. **Recommendation:** The farmers and entrepreneurs are recommended to use shredded castor and pigeon pea stalks as feed stalks in an open-core downdraft gasifier system developed by Junagadh Agricultural University. The maximum gasification efficiency of 71.44 % & 73.28 % and biochar production of 21.56 % & 21.78 % having the fixed carbon content of 59.61 % and 49.22 % could be achieved from castor and pigeon pea stalk respectively at 22 m^3/h gas flow rate. The carbon footprint (CF) of biochar is a net reduction of 1.67 tons of CO_2 per ton of feedstock. **ભલામણ:** ખેડૂતો અને ઉદ્યોગસાહસિકો ને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ ઓપન કોર ડાઉનડ્રાફ્ટ ગેસીફાયરમાં દિવેલા અને તુવેરની સાઠીના ટુકડાનો ઉપયોગ કરી બાયોચાર બનાવવા ભલામણ કરવામાં આવે છે. આ ગેસીફાયરમાં દિવેલા અને તુવેર માટે ૨૨ મીટર^3/કલાક ગેસ પ્રવાહનાં દરે અનુક્રમે ૭૧.૪૪ % અને ૭૩.૨૮ % મહતમ ગેસિફિકેશન કાર્યક્ષમતા તથા ૨૧.૫૬ % અને ૨૧.૭૮ % સારો બાયોચાર જેમાં ૫૯.૬૧ % અને ૪૯.૨૨ % સ્થિર કાર્બન હોવાથી ઉત્પાદન મેળવવા ભલામણ કરવામાં આવે છે. બાયોચારની કાર્બન ફૂટપ્રિન્ટ **(CF)** એક ટન ફીડસ્ટોક દીઠ ૧.૬૭ ટન **CO_2** નો ચોખ્ખો ઘટાડો કરે છે. **House approved:** ***[Action:** HoD, REE, CAET, JAU, Junagadh]*
20.5.1.21	**Title:** Performance of field crops and shade resistance vegetable crops under the Agrivoltaic System. **Recommendation:** Farmers of Gujarat state are recommended to use J.A.U model of Agrivoltaic system for electricity generation along with the cultivation of field crops like; Cotton,

	Groundnut and Cucumber to get additional income on the same land throughout the year. **ભલામણ:** ગુજરાત રાજ્યના ખેડૂતોને આખા વર્ષ દરમિયાન એકજ જમીન પર; કપાસ, મગફળી અને કાકડી જેવા પાકોની ખેતી સાથે વીજળી ઉત્પાદન દ્વારા વધારાની આવક મેળવવા માટે એગ્રીવોલ્ટેઇક સિસ્ટમ નું જુ.કૃ.યુ. મોડલ નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **House approved:** ***[Action:** HoD, REE, CAET, JAU, Junagadh]*

Number	Particulars
	ANAND AGRICULTURAL UNIVERSITY, ANAND
20.5.1.22	**Title:** Development of perforated storage bin for garlic. **Recommendation:** Manufacturers, restaurant owners and retailers are recommended to use storage bin (805 mm height x 470 mm diameter) having perforations of 6 mm developed at Anand Agricultural University to store 50 kg garlic bulbs with 21.99% losses for atleast6 months. **ભલામણ:** ઉત્પાદનકર્તા, ભોજનાલયના માલિકોઅને છૂટક વેપારીઓને ૫૦ કિલો લસણનો ૨૧.૯૯% ની ઘટ સાથે ઓછામાં ઓછા ૦૬ મહિના સુધી સંગ્રહ માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ૦૬મીલી મીટર છિદ્રવાળી જાળીદાર કોઠીનો (૮૦૫ mm ઊચાઇ x ૪૭૦ mm વ્યાસ) ઉપયોગ કરવા માટે ભલામણ કરવામાં આવે છે. **House approved with following suggestions:** 1. Add the monthly average temperature and humidity, during storage condition data in the report. 2. Give percentage infestation and parameters data instead of numbers in table of report. 3. Data of damage /rotted be presented in percentage in all tables. 4. Individual % losses should be added in the report. 5. Mention the % moisture variation in initial and final stage of the storage in report. 6. Mention the % perforation of the storage bin in the report. **[Action:** PI & HOD, Dept. of PFE, CAET, Godhara**]**
20.5.1.23	**Title:** Experimental investigations of energy yield from Bifacial Silicon Solar photovoltaic (PV) module and its comparison with mono-facial solar photovoltaic module. **Recommendation:** Solar panel installers and consumers interested to adopt solar photovoltaic systems are suggested to implement the recommendations based on the field experiments carried out by the Anand Agricultural University, Anand. Bifacial solar photovoltaic modules, if installed at a height of two feet facing towards the south direction tilted at an angle equal to the latitude with reflective (white) surface having a minimum albedo between 0.25-0.30 of the site, produces 18-20 percent more energy compared to the mono facial solar photo voltaic modules and also produces 15-16 percent and 19-20 percent more energy higher compared to the one feet and

	five feet Bifacial solar photovoltaic installations respectively. **ભલામણ :** સોલર ફોટોવોલ્ટેઇક મોડ્યુલ્સ ફીટીંગ કરનાર (ઇન્સ્ટોલર્સ) અને સોલાર ફોટોવોલ્ટેઇક સિસ્ટમમાં રસ ધરાવતા ગ્રાહકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારાકરવામાં આવેલ પ્રાયોગિક કાર્યોને આધારે ભલામણ કરવામાં આવે છે કે, બાયફેસિયલ સોલાર ફોટોવોલ્ટેઇક મોડ્યુલ્સને દક્ષિણ દિશા તરફ બે ફૂટની ઊંચાઈ ૫૨૦.૨૫ થી ૦.૩૦ની વચ્ચે લઘુત્તમ અલ્બેડો ધરાવતી પ્રતિબિંબીત (સફેદ) સપાટી જેતે સ્થળના અક્ષાંશના કોણ જેટલા જ કોણ રાખીને પ્રસ્થાપિત કરવામાં આવે તો મોનો ફેસીઅલ સોલર ફોટોવોલ્ટેઇક મોડ્યુલ્સની સરખામણીએ બાયફેસિયલ સોલર ફોટોવોલ્ટેઇક પેનલ્સથી ૧૮-૨૦ ટકા વધુ ઉર્જા ઉત્પન્ન થાય છે અને એ એક અને પાંચ ફૂટ બાય ફેસિયલ સોલર ફોટોવોલ્ટેઇકની સરખામણીએ અનુક્રમે ૧૫-૧૬ ટકા અને ૧૯-૨૦ ટકા વધુ ઉર્જા ઉત્પન્ન થાય છે . **House approved with following suggestions:** 1. Check data of Table 1 and correct the specification details 2. Correct the cost economics including installation cost Provide round the year data. **[Action:** PI & HOD, Deptt. of BEAS, CAET, Godhara**]**
20.5.1.24	**Title:** Process development for nutritive extruded snack utilizing amaranth grain. **Recommendation:** The entrepreneurs and food processors interested in manufacture of nutritious extruded snacks are recommended to adopt technology developed by AAU, Anand. The technology involves blending of coarse flours of amaranth (40%), rice (30%) and maize (30%) followed by moisture conditioning (15.3%). This flour blend is passed through the extruder (Screw speed: 287.50 rpm, Barrel temperature: 118°C) and extruded snack is further dried for 1 h at 60 °C in a hot air oven. This product contains 12.2% protein, 4.8% fat, 4.9 mg/100 g iron, 65.0 mg/100 g calcium, 3.9 mg/100 g zinc and 469.3 mg/100 g phosphorus. The product remains acceptable up to 90 days at ambient temperature. The cost of 100 g pack is approximately Rs. 6.42. **ભલામણ:** રાજગરા યુક્ત પોષક નાસ્તો બનાવવામાં રસ ધરાવતા ઉદ્યોગ સાહસિકો અને ખાદ્ય પ્રક્રિયકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવેલ ઉત્તોદન (extrusion) તકનીક અપનાવવાની સલાહ છે .આ તકનીક માં કકરા દળેલા રાજગરાનાં લોટ) ૪૦(%, ચોખાનો લોટ) ૩૦ (%અને મકાઈનો લોટ) ૩૦ (%ને મિશ્રિત કરી તેમાં ભેજનું પ્રમાણ ૧૫ %નિયમિત કરવામાં આવે છે .ત્યારબાદ આ મિશ્રણને ઉત્તોદન મશીન) સ્ક્રૂસ્પીડ : ૨૮૭.૫ આરપીએમ ,બેરલ તાપમાન :૧૧૮°સે(.માંથી પસાર કર્યા બાદ ,ઓવનમાં ૬૦°સે .તાપમાને એક કલાક સુધી સૂકવવામાં આવે છે .આ પોષક એક્સટ્રુડેડ નાસ્તામાં ૧૨.૨ %પ્રોટીન, ૪.૮ %ચરબી, ૪.૯મિ.ગ્રા/.૧૦૦ગ્રામ, લોહતત્વ ,૪.૯મિ.ગ્રા/.૧૦૦ગ્રામ કેલ્શિયમ ,૩.૯મિ.ગ્રા/.૧૦૦ગ્રામ જસત તત્વ અને ૪૬૯.૩મિ.ગ્રા/.૧૦૦ગ્રામ ફોસ્ફરસ રહેલું છે .આ ઉત્પાદ સામાન્ય તાપમાને ૯૦ દિવસ સુધી સ્વીકાર્ય રહે છે .૧૦૦ ગ્રામ રાજગરા યુક્ત પોષક નાસ્તાની કુલ કિંમત આશરે રૂ. ૬.૪૨ જેટલી છે.

	House approved with following suggestions: 1. Check the unit of hardness and fracturability in the report. **[Action:** PI & HOD, Dept. of FPT**]**
20.5.1.25	**Title:** Standardization of thermal processing of drumstick pod pulp and its utilization in food products. **Recommendation:** Part-I The entrepreneurs and food processors interested in processing of drumstick pod are recommended to adopt the technology developed by Anand Agricultural University, Anand. In this technology, matured drumstick pods are washed, cut and blanched followed by pulp extraction using brush type pulper, filling in retortable pouches, exhausting, sealing of pouches and thermal processing at F0 5 min in retort. This processed and packaged product of drumstick is acceptable up to 12 months at ambient condition. Part-II The entrepreneurs and food processors interested in production of drumstick chutney from thermally processed drumstick pod pulp are recommended to adopt the technology developed by Anand Agricultural University, Anand. The micronutrients richdrumstick chutney can be prepared with 62 % drumstick pod pulp and with other ingredients. The chutney isthermally processed, filled hot andpackedin metalized laminated polyester pouches. The shelf life of drumstick chutney is 137 days at 7^{o}C and 83 days at 30^{o}C. **ભલામણ :** ભાગ-૧: સરગવાની સીંગના માવાના પ્રોસેસિંગમાં રસ ધરાવતા ઉદ્યોગકારો અને ખાદ્ય પ્રક્રિયકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં પરિપક્વ સરગવાની સીંગને પાણીથી ધોઈ, કટકા કર્યા બાદ બ્લાન્ચિંગ કરવામાં આવે છે, ત્યારબાદ બ્રશ પ્રકારના પલ્પરનો ઉપયોગ કરીને માવો કાઢવામાં આવે છે, આ માવાને રિટોર્ટેબલ પાઉચમાં ભરી, પાઉચને વરાળ માંથી પસાર) એક્ઝોસ્ટિંગ (કરી,પાઉચને સીલ કરીને રીટોર્ટમાં F0 5 મિનિટ સુધીમાં થર્મલ પ્રોસેસિંગ કરવામાં આવે છે .આ રીતે પ્રોસેસ અને પેક કરેલ સરગવાનું ઉત્પાદ સામાન્ય વાતાવરણમાં ૧૨મહિના સુધી સ્વીકાર્ય રહે છે. ભાગ-૨: સરગવાની સીંગના માવાની ચટણીના ઉત્પાદનમાં રસ ધરાવતા ઉદ્યોગકારો અને ખાદ્ય પ્રક્રિયકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગક રવાની ભલામણ કરવામાં આવેછે. સૂક્ષ્મ પોષક તત્વોથી ભરપૂર સરગવાના માવાની ચટણી ૬૨ % સરગવાનો માવો તેમજ અન્ય ઘટકો સાથે તૈયાર કરી શકાય છે . ચટણીને ગરમ કર્યાબાદ મેટલાઈઝ્ડ લેમિનેટેડ પોલિએસ્ટર પાઉચમાં ભરી પેક કરવામાં આવે છે .આ ચટણીને ૭^{O} સે તાપમાને ૧૩૭ દિવસ અને ૩૦^{O} સે તાપમાને ૮૩ દિવસ સાચવી શકાય છે. **House approved with following suggestions:** 1. Add cost economics, microbial analysis and storage study in the report.

	[Action: PI & HOD, Dept. of FPT**]**
20.5.1.26	**Title:** Development of sorghum based multigrain biscuits. **Recommendation:** Bakery industrialist and entrepreneurs interested in production of multigrain gluten free biscuits are recommended to use the technology developed by Anand Agricultural University, Anand. The technology involves formulation of 65 % sorghum flour, 20 % soybean flour and 15 % oat flour. This product contains 11.69 % protein and 2.57 % fiber. The biscuits packed in polypropylene and aluminum laminates are remain acceptable upto 60 days at 30±1ºC temperature. **ભલામણ** મલ્ટિગ્રેન ગ્લુટેનફ્રી બિસ્કિટના ઉત્પાદનમાં રસ ધરાવતા બેકરી ઉત્પાદક અને ઉદ્યોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ ધ્વારા વિકસિત તકનીકનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે .આ તકનીક માંઙપ % જુવારનો લોટ, ૨૦ % સોયાબીનનો લોટ અને ૧૫ % ઓટનો લોટ ઉપયોગ કરવામાં આવે છે .આ બિસ્કિટમાં ૧૧.ઙ૯ % પ્રોટીન અને ૨.૫૭ % ફાઇબર મળે છે .પોલીપ્રોપીલીન અને એલ્યુમીનીયમ લેમિનેટ્સમાં પેક કરી ૩૦±૧º સે. તાપમાને ઙ૦દિવસ સુધી બિસ્કિટનો સંગ્રહ કરી શકાય છે. **House approved with following suggestions:** 1. Check the statistical design of the experiment. 2. Add microbiological data in report. **[Action:** PI & HOD, Dept. of FPT**]**
20.5.1.27	**Title:** Supercritical fluid extraction of cumin seed essential oil. **House differed with following Suggestions:** 1. Check the essential oil content of the cumin in the report. 2. Remove word “resin” from report. 3. Percentage of essential oil is too high as per proximate analysis. The essential oil should be reanalyzed for different physical/chemical compositions and proposed in the next year. **[Action:** PI & HOD, Dept. of FPT**]**
20.5.1.28	**Title:** Development of pizza base incorporating millets. **Recommendation:** The technology developed by Anand Agricultural University is recommended to the bakery industrialists and entrepreneurs interested in manufacturing millet pizza base. Millet pizza base prepared by 40% Maida, 35% Sorghum flour, 15% Moraiyo flour and 10% Kodo flour shows 2.06g (68.90%) and 2.19g (106.80%) more ash and fiber per100g, respectively as compared to normal pizza base. Antioxidant activity of millet pizza base found slightly higher as compared to control. Millet pizza base can be stored up to 4 days in polyethylene pouches at ambient temperature. **ભલામણ:** મીલેટપીઝા બેઇઝના ઉત્પાદન માં રસ ધરાવતા બેકરી ઉદ્યોગકારો અને ઉદ્યોગસાહસિકોને આણંદ કૃષિ યુનિવર્સીટી ધ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગ કરવા ભલામણ છે . જેમાં ૪૦ % મેંદો , ૩૫ % જુવારનો લોટ, ૧૫ % મોરિયાનો લોટ અને ૧૦ % કોદરીનો લોટ ઉમેરી તૈયાર કરેલા મીલેટ પીઝા બેઇઝમાં સામાન્ય પીઝા બેઇઝ કરતા પ્રતિ૧૦૦ ગ્રામ ૨.૦ઙ ગ્રામ) ઙ૮.૯૦ (% એશ અને ૨.૧૯ગ્રામ)

	૧૦૬.૮૦ (% રેષા વધુ મળે છે . મીલેટ પીઝા બેઇઝની એન્ટીઓક્ષીડેંટ એક્ટીવીટી સામાન્ય પીઝા બેઇઝ કરતા વધુ મળેલ છે .આવા બેઇઝને પોલોથીલીન પાઉચમાં પેક કરી રૂમ તાપમાને ૪દિવસ સુધી સંગ્રહ કરી શકાય છે . **House approved:** **[Action:** PI & HOD, Dept. of FPT**]**

Number	**Particulars**
SARDARKRUSGNAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR	
20.5.1.29	**Title:** Design and development of hand operated electric power weeder. **Recommendation:** The Farmers are recommended to use electric rotary power weeder developed by Sardarkrushinagar Dantiwada Agricultural University for eco-friendly low cost weeding operation. ભલામણ: પર્યાવરણને અનુકૂળ તેમજ ઓછા ખર્ચે નીંદણ કામગીરી માટે સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી દ્વારા વિકસિત ઈલેક્ટ્રીક રોટરી પાવર વીડરનો ઉપયોગ કરવા ખેડૂતોને ભલામણ કરવામાં આવે છે. **House approved with following suggestions:** 1. Correct voltage of battery " 48 V" instead of "51 V" in report. 2. Keep data of "Petrol weeder" and "manual weeding" for comparison with "developed weeder". **[Action:** Principal, CREEE,Sardarkrushinagar]
20.5.1.30	**Title:** Development and optimization of carrot candy. **Recommendation:** Farmers/entrepreneurs are recommended to adopt the technology for making carrot candy developed by Sardarkrushinagar Dantiwada Agricultural University. In this method, 2.0 cm thick carrot slices are blanched at 100^0 C for 3 minutes in hot water. One kg of drained slices is then submerged in 1.5 kg sugar syrup of 60°Brix for 12 hours. Afterwards the slices are dried in a tray dryer at 65^0C till attaining the constant weight. The candy prepared in this way can be safely stored at room temperature in 80-micron polythene bags for six months. Developed carrot candy is giving highest return with highest benefit cost ratio. ભલામણ: ખેડૂતો /ઉદ્યોગ સાહસીકોને સરદાર કૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ ગાજરની કેન્ડી બનાવવા માટેની તજજ્ઞતા અપનાવવા ભલામણ કરવામાં આવે છે. આ પદ્ધતિમાં બે સેન્ટીમીટર જાડાઈની ગાજરની પતરીને ૧૦૦° સે. તાપમાને ૩ મિનિટ માટે ગરમ પાણીમાં બ્લાન્ચિંગ કર્યા બાદ ૧ કિ.ગ્રા. ગાજર પતરીને ૬૦° બ્રિક્સની ૧.૫ કિ.ગ્રા. ખાંડની ચાસણીમાં ૧૨ કલાક સુધી ડુબાડી રાખ્યા બાદ નિતારીને ટ્રે ડ્રાયરમાં ૬૫° સે. તાપમાને અચળ વજન પ્રાપ્ત થાય ત્યાં સુધી સુકવણી કરવી આ રીતે તૈયાર થયેલ કેન્ડી રૂમ તાપમાને ૮૦ માઇક્રોન પોલીથીન બેગમાં છ માસ સુધી સુરક્ષિત રીતે સાચવી શકાય છે. વિકસિત ગાજર કેન્ડી વધારે વળતર આપે છે તેમજ

	આનો લાભ-ખર્ચ ગુણોત્તર મહત્તમ મળે છે. **House approved:** **[Action:** Principal, CoH, Jagudan]
20.5.1.31	**Title:** Estimation of antioxidant potential of lemongrass extract incorporated herbal *lassi.* **House Differed with following Suggestions:** 1. PI is presented the wrong presentation. 2. Does the products meet with FSSAI standard for *lassi* check the data. **[Action:** PI & HOD, DC, GNPCDS, KU, Sardarkrushinagar**]**
20.5.1.32	**Title:** Assessment of antioxidant potential of herbal Greek yoghurt incorporated with Lemongrass (*Cymbopogan citratus*) extract. **Recommendation:** A technology for manufacture of herbal Greek yoghurt incorporated with concentrated lemongrass (*Cymbopogan citratus*) extract CLE has been developed by Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar and Kamdhenu University, Gandhinagar. The standardized process involves use of cow milk with 3.0% fat and 8.5% SNF, adding DVS starter culture @ 0.015% by wt. of milk, incubation at 42ºC till acidity reaches 0.6%LA, straining for 10–12 hours, addition of 3.0% CLE and 20% sugar powder. The developed product had enhanced antioxidant potential and shelf life of 35 days when stored at 7±1ºC. ભલામણ: સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી, સરદારકૃષિનગર અને કામધેનુ યુનિવર્સિટી, ગાંધીનગર દ્વારા લેમનગ્રાસ (***Cymbopogan citratus***) નો અર્ક ઉમેરી બનાવેલ હર્બલ ગ્રીક યોગર્ટ ઉત્પાદન માટેની પધ્ધતિ વિકસાવવામાં આવી છે. આ પ્રમાણિત કરેલી પધ્ધતિમાં ગાયના દૂધ ૩.૦% ફેટ અને ૮.૫% એસ એન એફ માં બેક્ટેરિયા @ ૦.૦૧૫ % દૂધના વજન પ્રમાણે ઉમેરી, ૪૨ ડીગ્રી સેલ્સિયસ તાપમાને ૦.૬% એસીડીટી આવે ત્યાં સુધી રાખી ત્યારબાદ મસ્લીન કપડામાં બાંધીને ૧૦-૧૨ કલાક લટકાવી વધારાનું પાણી દૂર કરી, લેમનગ્રાસ નો અર્ક ૩.૦% મુજબ અને ૨૦% મુજબ દળેલી ખાંડ ઉમેરવામાં આવે છે. આ રીતે બનાવેલ હર્બલ ગ્રીક યોગર્ટમાં એન્ટીઑક્સિડન્ટ ગુણોમાં વધારો થાય છે તથા તેને ૩૫ દિવસ સુધી ૭±૧ ડીગ્રી સેલ્સિયસ તાપમાને ખાવાલાયક સ્થતિમાં સંગ્રહિત કરી શકાય છે. **House approved with following suggestions:** 1. Add lemongrass composition data before and after drying on dry basis with essential oil content. 2. Mention the word 'product sourness' instead of 'product acidity'. **[Action:** PI & HOD, DC, GNPCDS, KU, Sardarkrushinagar**]**
20.5.1.33	**Title:** Preparation of coffee like beverage from roasted date seed powder (RDSP) and its evaluation for antioxidant potential. **Recommendation:** A process for preparation of coffee like powder with enhanced antioxidant properties has been developed by Kamdhenu University, Gandhinagar and Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar by roasting dried date seeds (50°C for 24 h) at 160°C for 30 min. The developed coffee like powder had Fat, Protein, Ash and Total carbohydrate content of 10.57 %, 12.38 %, 0.99 % and 73.43 % respectively. The antioxidant activity in terms of ABTS, DPPH

	and FRAP of the powder was 12.76, 0.95 and 8.93 mM TE/g. Coffee like beverage can be prepared by adding 4 g of roasted date seed powder (160°C/30 min) in 100 ml of water and boiled for 2 min. The beverage can also be consumed by adding 10 ml of milk (3.0 % Fat and 8.5 % SNF) at the end of the boiling before staining. ભલામણ: કામધેનુ યુનિવર્સિટી, ગાંધીનગર અને સરદારકૃષિનગર દાંતીવાડા એગ્રીકલ્ચરલ યુનિવર્સિટી, સરદારકૃષિનગર દ્વારા સૂકા ખજૂરના (૫૦ ડીગ્રી સેલ્સિયસ / ૨૪ કલાક) બીજને શેકીને (૧૬૦ ડીગ્રી સેલ્સિયસ /૩૦ મિનટ) સંવર્ધિત એન્ટિઓક્સિડન્ટ ગુણધર્મો સાથે કોફી જેવી પાવડર તૈયાર કરવાની પ્રક્રિયા વિકસાવવામાં આવી છે. પાઉડર જેવી વિકસિત કોફીમાં અનુક્રમે ૧૦.૫૭%, ૧૨.૩૮%, ૦.૯૯%, અને ૭૩.૪૩% ફેટ, પ્રોટીન, એશ અને કાર્બોહાઈડ્રેટનું પ્રમાણ હતું. પાવડરની એબીટીએસ, દીપીપીએચ અને એફઆરએપી ની દ્રષ્ટિએ એન્ટીઑક્સિડન્ટ પ્રવૃત્તિ ૧૨.૭૬, ૦.૯૫ અને ૮.૯૩ mM TE/g હતી. કોફી જેવા પીણાને ૧૦૦ મિલી પાણીમાં ૪ ગ્રામ શેકેલા ખજૂરના બીજનો પાવડર (૧૬૦ ડીગ્રી સેલ્સિયસ /૩૦ મિનટ) ઉમેરીને ૨ મિનિટ સુધી ઉકાળીને તૈયાર કરવામાં આવે છે. સ્ટેનિંગ પહેલાં ઉકાળવાના અંતે 10 મિલી દૂધ (૩.૦% ફેટ અને ૮.૫% એસ એન એફ) ઉમેરીને પણ પીણું પી શકાય છે. **House approved with following suggestions:** 1. Check the data in Table 2 for RDSP (%), (i.e. 5 gm or 5 %). **[Action:** PI & HOD, DC, GNPCDS, KU, Sardarkrushinagar**]**
20.5.1.34	**Title:** Technology development of Juice containing wheat grass and basil leaves. **Recommendation:** It is advised that businesses and food processors who are interested in producing fresh juice with wheat grass (Wheat Jawara) and basil leaves (Black Tulsi) use the technology created by Sardarkrushinagar Dantiwada Agricultural University. Use fresh juice made from wheat grass (Wheat Jawara) (5.2 ºBrix TSS): Fresh basil leaves (Black Tulsi) juice (3.8 ºBrix TSS): water in a ratio of 77:18:5%, respectively; add honey at a percentage of 10% to get a satisfactory sensory quality. This fresh juice has strong antioxidant qualities as well. ભલામણ: ફૂડ ઉદ્યોગ સાહસિકો માટે સરદારકૃષિનગર દાંતીવાડા કૃષિ યુનિવર્સિટી, સરદારકૃષિનગર ધ્વારા વિકસાવેલ પધ્ધતિથી ઘઉંના જવારાનો તાજો રસ (૫.૨ºબ્રિક્ષ ટીએસએસ), રામ તુલસીના પાનનો તાજો રસ (૩.૮ºબ્રિક્ષ ટીએસએસ) અને પાણી,અનુક્રમે ૭૭:૧૮:૫ નું પ્રમાણ રાખી તેમાં ૧૦% મધ ઉમેરવાની ભલામણ કરવામાં આવે છે. આ પદ્ધતિ થી વિકસાવેલ તાજો રસ એન્ટીઓકસીડેંટનો સારો ગુણધર્મ ધરાવે છે. **House approved with following suggestions:** 1. Check the experimental data and storage limit critically. 2. TSS data should be checked and added in report. 3. Add RSM design. 4. Ckeck FSSAI standard for this product. **[Action:** PI & HOD, FPT, CFT, SDAU, Sardarkrushinagar**]**

20.7.2 RECOMMEDATION FOR SCIENTIFIC COMMUNITY

<table>
<tr><th>Number</th><th>Particulars</th></tr>
<tr><td colspan="2">NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI</td></tr>
<tr><td>20.5.2.1</td><td>Title: Development of tractor hydraulic operated cone penetrometer.
Recommendation:
Scientist and engineer are informed to use tractor center drawbar point mounted and hydraulic operated, digital cone penetrometer with data acquisition system for data collection of cone index and soil moisture at maximum soil depth profile up to 60cm soil depth in 45seconds. The system is mounted with sensors for soil moisture, load cell and soil depth with accuracy of ±2%, ±40g and ±5mm, respectively.
House approved with following suggestions:
1. Title of the project should be check.
2. Include drawing of cone penetrometer in the report.
[Action: Research Scientist, SWMRU, NAU, Navsari]</td></tr>
<tr><td>20.5.2.2</td><td>Title: Identify maturity and harvesting indices as non-destructive index and relate with physico-chemical parameters of sonpari mango.
Recommendation:
Scientist, engineers, processors, and industry of supply chain business operators are informed to use the Table-A and B as well as C, for estimation of Sonpari mango fruit destructive parameters and fruit indices, as well as use of the parameters at various area of application, respectively.
Table-A: Relationship between Non-destructives to Destructive parameters.
<table>
<tr><th>Non-destructives X</th><th>Destructive Y</th><th>Regression Equations for Destructive Parameter</th><th>R^2 value</th></tr>
<tr><td>Weight, g</td><td>Acidity</td><td>y (Acidity, %) = $2E\text{-}05x^2$ - 0.002x + 0.2727</td><td>0.841</td></tr>
<tr><td>Ethylene, ppm</td><td>Ascorbic Acid,</td><td>y (Ascorbic Acid, mg/100g) = $0.742x^2$ - 16.05x + 116.3</td><td>0.855</td></tr>
<tr><td>Volume , mm^3</td><td>Carbohydrate,</td><td>y (Carbohydrate, %) = $0.003x^2$ – 0.160x + 0.971</td><td>0.986</td></tr>
<tr><td>Colour Index, b*</td><td>Carotene,</td><td>y Carotene (µg/100g) = $0.005x^2$ + 0.017x - 3.253</td><td>0.869</td></tr>
<tr><td>Weight, g</td><td>Moisture,</td><td>y (Mc, %) = $-0.0003x^2$ + 0.1701x + 60.685</td><td>0.845</td></tr>
<tr><td>Volume, mm^3</td><td>Phenol</td><td>y (Phenol, µg/100g) = $-3E\text{-}05x^2$ + 0.006x - 0.050</td><td>0.951</td></tr>
<tr><td>Length , mm</td><td>Pulp : Stone,</td><td>y (Pulp : Stone) = $-0.000x^2$ + 0.172x - 0.413</td><td>0.881</td></tr>
<tr><td>Colour Index, L</td><td>Sensory Score,</td><td>y (OA) = $0.000x^2$ + 0.172x - 5.888</td><td>0.905</td></tr>
<tr><td>Volume , mm^3</td><td>Starch,</td><td>y (Starch, %) = $0.001x^2$ - 0.076x + 0.492</td><td>0.876</td></tr>
<tr><td>Colour Index, b*</td><td>Sugar : Acid</td><td>y (Sugar : Acid) = $0.004x^2$ + 0.118x - 4.814</td><td>0.947</td></tr>
<tr><td>Colour Index, b*</td><td>Sugar,</td><td>y (Total Sugar, %) = $0.000x^2$ + 0.491x - 11.80
y (Reducing Sugar, %) = -</td><td>0.887
0.890</td></tr>
</table></td></tr>
</table>

		$0.003x^2 + 0.466x - 8.805$	
Respiration Rate, mg CO_2/kg.day	TSS,	y (TSS, ºBrix) = $-0.000x^2 + 0.185x + 1.956$	0.911

Table-B: Indices Related to Sonpari Mango Fruits.

Maturity Indices

- Weight, Range: 375 – 400g
- Size, Range: 110 – 120mm
- Fruit Shape-Sphericity, Range: 0.85 – 0.87
- Specific Gravity, Value: > 1.012
- Color indices; L, Range: 55 - 58
- Color indices; a*, Range: (-23) – (-23.5)
- Color indices; b*, Range: 25 – 35
- Respiration Rate, Value: > 103 ($mgCO^2$/kg·day)
- Ethylene, Value: > 0.1 ppm
- Sugar : Acid, Value: > 6.2
- TSS, Value: > 12.5 °Brix
- Depression of panicle end to shoulder, Range:2 – 8 mm
- Lenticel density, Range: 5 – 9 Nos/cm^2

Ripening Indices

- Color indices; L, Range: 60 - 68
- Color indices; a*, Range: (-10) – (+5)
- Color indices; b*, Range: 42 – 55
- Ethylene, Value: > 10 ppm
- Sugar : Acid, Value: > 12
- TSS, Value: > 18 °Brix
- Carotene, Value > 5 (µg/100g)
- Phenol, Value: > 0.3040 (µg/100g)
- Color of Skin: Golden Saffron to Yellow
- Color of Pulp: Golden Saffron
- Aroma: Sweet and Pleasant

Table-C: Non-Destructive Parameters of Sonpari for Various Area of Applications.

Destructive and Non-destructive Parameters	**Area of Application**
Weight, Length, Width, Thickness, Sphericity, Specific gravity, firmness.	Design and development of post
Weight, Length, Width, Thickness, Respiration rate, Ethylene, Sphericity.	Design and development
Weight, Length, Width, Thickness, Sphericity.	Design and development of fruit
Weight, Length, Width, Thickness, Sphericity, firmness.	Design and development
Weight, Length, Width, Thickness, Respiration rate, Ethylene, Sphericity, Color indices; L, a* and b* values.	Development of simulation and AI

	Weight, Length, Width, Thickness, Sphericity, Specific gravity, Color indices; L, a* and b* values, Respiration Rate, Ethylene, Sugar : Acid, TSS, Depression of panicle end, Lenticel density.	Use as maturity indices
	Respiration rate, Ethylene, Color indices; L, a* and b* values, Sugar : Acid, TSS, Carotene, Phenol, Sensory Parameters.	Use as ripening index,
	Color indices; L, a* and b* values, carotene, phenol.	Development of intellige
	Color indices; L, a* and b* values.	Management of fresh produce
	Respiration rate, Ethylene	Operation of MAP or
	TSS, Acidity, Ascorbic Acid, Starch, Sugar, Carbohydrate, Pulp : Fruit weight, Pulp : Stone weight, Sugar : Acid, moisture content, Color indices; L, a* and b* values.	Standardization of parameters for processed products.

House approved with following suggestions:

1. Check and include all locations (farms) data and add statistical analysis of all locations in the report and Exclude data given during release of variety.

[Action: Asst. Prof. , PHTC, NAU, Navsari***]***

Number	**Particulars**
JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH	
20.5.2.3	**Title:** River flow simulations integrating satellite data in a forested catchment. **Recommendation:** In assessing the spatial soil wetness condition of a catchment, microwave remote sensing proves to be an invaluable tool. However, it is advised the scientific community to exercise caution when applying scatterometer data for estimating river water levels in forested catchments. The presence of a dense forest canopy can lead to reduced radar backscatter, potentially affecting the accuracy of the estimates. **House approved with following suggestions:** 1. Correct the title of Table no. 4 in report. **[Action:** HoD, SWCE, CAET, JAU, Junagadh**]**
20.5.2.4	**Title:** River flow simulations integrating satellite data in a forested catchment. **Recommendation:** It is recommended to use the following power function relationship as a tool for estimating downstream discharge (outlet discharge) based on water level measurements. Y = a*X^b Where, a = 0.7501, b = 2.4511, X = river water level, meter and Y = discharge in cumec) This equation offers invaluable assistance to forest planners in effectively managing available water resources. By employing this relationship, planners can make informed decisions, ensuring sustainable and efficient water allocation within forested regions, thereby contributing to sound environmental stewardship and resource conservation. **House approved with following suggestions:**

	1. Mention the model validation results in report. **[Action:** HoD, SWCE, CAET, JAU, Junagadh**]**
20.5.2.5	**Title:** Detection and Classification of the Major Nocturnal Flying Insects Using Deep Learning. **Recommendation:** It is recommended to use Convolutional Neural Network (CNN)'s meta-architecture Faster Region-Convolutional Neural Network (Faster R-CNN) for the detection and classification through digital view of major nocturnal flying insects for better performance. In the case of addressing class imbalance issues, an augmentation technique with Faster R-CNN is recommended. **House approved:** ***[Action: Director, IT Cell, JAU, Junagadh]***

Number	**Particulars**
ANAND AGRICULTURAL UNIVERSITY, ANAND	
20.5.2.6	**Title:** Development of location specific synthetic hyetographs for Middle Gujarat. **Recommendation:** To mitigate the necessity of employing distinct sets of rainfall intensities for each drainage area or watershed, a set of synthetic rainfall distributions (hyetographs) has been developed based on study of empirical data of middle Gujarat Anand Agricultural University. These distributions can be an effective method for analyzing the hydrologic response of watersheds to rainfall events. It is recommended to scientists, hydrologists and decision-makers to utilize the developed hyetographs (synthetic rainfall distributions) AAU-6 h, AAU-12 h, and AAU-24 h for the districts of middle Gujarat to estimate runoff characteristics and design effective water management strategies for watersheds. **House approved:** **[Action: PI & HOD, Deptt. of AE, CAET, Godhara]**
20.5.2.7	**Title:** Modification and performance evaluation of heat pump assisted dryer (HPAD) for effective heat transfer. **Recommendation:** Modified Heat Pump Assisted Dryer (HPAD) increased the temperature by 24.72% and reduced relative humidity by 15.59% in no load condition within dryer cavity. After modifications, temperature and velocity profile became uniform throughout the dryer cavity (870 x 530 x 870 mm) with maximum temperature of 50.05 °C and average velocity of 1.03 m/s. The modified drying chamber achieved a time saving of 2 hours and 27 minutes compared to the unmodified dryer for complete drying of fenugreek leaves. **House approved:** **[Action:** PI & HOD, Dept. of FPE**]**
20.5.2.8	**Title:** Evaluation of decontamination efficacy of ozone on selected microorganisms. **Recommendation:** For non-thermal decontamination of strawberries and cherry tomatoes, treatment with aqueous ozone at a concentration of 3 ppm for 15 minutes decontaminates *Staphylococcus aureus* ATCC 25923 as well as *Escherichia coli* O157:H7 population by up to 6 logs. **House approved:**

	[Action: PI & HOD, Dept. of FSQA**]**
20.5.2.9	**Title:** Boric acid detection in wheat flour using "Tears of the wine" phenomenon. **Recommendation:** Boric acid adulteration in wheat flour can be detected using "Tears of Wine" phenomenon based method. This method can detect minimum level of 0.4% boric acid adulteration in wheat flour. **House approved:** **[Action:** PI & HOD, Dept. of FSQA**]**
20.5.2.10	**Title:** Classification of soil fertility for Anand district of Gujarat using Machine Learning techniques. **Recommendation:** The researchers and scientists are recommended to use a tree-based "Random Forest" Machine Learning algorithm for the classification of soil fertility using soil parameters viz., pH, EC, OC, OM, N, P, K, Zn, Fe, Cu, and Mn for the Anand District of Gujarat. **House approved:** **[Action:** PI & HOD, Dept. of Ag. Sci., CAIT**]**
20.5.2.11	**Title:** Estimating evaporation using artificial intelligence technique. **Recommendation:** The researchers and scientists are recommended to use Bagging Random Forest machine learning regression model developed by Anand Agricultural University, Anand for better prediction of weekly pan evaporation (mm) based on temperature °C (maxT&minT), bright sunshine hours (hr), wind velocity (km hr-1) and relative humidity (%) data for Anand district. **House approved with following suggestions:** 1. Unit of graphs and add evaporation data should be mentioned in the report. **[Action:** PI & HOD, Dept. of Ag. Sci., CAIT**]**
20.5.2.12	**Title:** *Brassicaceae* family ontology development. **Recommendation:** The scientific community is advised to develop information systems based on Fertilizer application ontology for Cabbage, Cauliflower and Mustard crops of Brassicaceae family developed by Anand Agricultural University, Anand and even extend it further. **House approved:** **[Action:** PI & HOD, Dept. of Ag. Stat., BACA**]**

20.7.3 NEW TECHNICAL PROGRAMMES

Number	Particular
	NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI
20.5.3.1	**Title:** Integration and evaluation of solar operated chaff cutter for green fodder. **House Differed with following Suggestions:** 1. Modify the tile as "Optimization of existing solar powered water pumping system for village level". 2. Modify the objectives and methodology of the experiment as per title. 3. Consider data on moisture content variation. 4. Take 3 seasons and different day duration like 8-10h, 10-12h, 12-14h, 16-16h and 16-18h in treatment. 5. Include observation of Torque. 6. Include other activities at village level and optimize the use of power. 7. Modify the experiment and present in next year as new technical program. ***[Action:*** Dr. Hitesh Sanchavat,Asst. Prof. , Dept. of FMPE, CAET, NAU, Dediapada***]***

20.5.3.2	**Title:** Development and evaluation of pyrolyser (kiln) for carbonization of locally available biomass for small farmer. **House approved with following suggestions:** 1. Include macro and micro nutrients content of the biomass and its bio-char. 2. Include, germination data of the papaya seeds in observation with addition of the bio-char in the soil. 3. Calculate the carbon sequestration of the soil after addition of bio-char by increasing duration of experiment. 4. Consult Dr. S V Kelaiya for formulating the experiment. ***[Action:*** Asso. Prof., Dept. of REE, CAET, NAU, Dediapada***]***
20.5.3.3	**Title:** Identification of Potential Soil Erosion Zones in Karjan Basin using Remote Sensing and GIS. **House approved with following suggestions:** 1. Recast objective 3. as; 'To suggest the suitable management practice for limiting the soil erosion'. 2. Consider weightage average and AHP. 3. Model used in the study should be calibrated and validated. 4. Compared with the develop model. 5. Consult Dr. R Subbaiah, Dean, FAE, CAET, Godhra for revising the experiment. **[Action:** Asst. Prof. , SWCE, CAET, NAU, Dediapada**]**
20.5.3.4	**Title:** Feasibility of concentrating solar cooker for water distillation. **House Differed with following Suggestions:** 1. No Research issue in this project. PI can take it as department development activity. 2. **Not Approved.** **[Action:** Asst. Prof. , CoA, NAU, Bharuch**]**
20.5.3.5	**Title:** Development and quality evaluation of carrot powder based fortified pasta. **House approved with following suggestions:** 1. Remove the 'fortified' word from the title as there is no fortification. 2. Standardize the carrot powder process and quality. 3. Rheological properties, cooking properties, storage study with different packaging materials, sensory analysis should be mentioned and added. 4. Process parameters of the pasta making machine is to be added. 5. Write 'Rehydration' instead of 'Dehydration' in the observation. **[Action:** Asst. Prof., PHTC, NAU, Navsari**]**
20.5.3.6	**Title:** Development of power operated *Mahua* seed decorticator. **House approved with following suggestions:** 1. Modified the tile as "Development of screening unit in existing power operated *Mahua* Seed Decorticator". 2. Modified the objective as per modified title. 3. Propose screening or separation unit design for existing machine. 4. Performance evaluation and comparison of developed machine including separation or screening unit with existing machine or method. **[Action:** Asst. Prof., PHTC, NAU, Navsari**]**
20.5.3.7	**Title:** Standardization of process technology for preservation of tender coconut water. **House approved with following suggestions:** 1. Work already done by TNAU / NIFTEM - Thanjavur, etc. Check their research study, compare the treatment with yours, mention the difference and modify the treatment.

	2. Define maturity stage of the tender coconut. 3. Thermal processing is not efficient change its time or temperature; go up to suitable Fo Value. 4. UV treatment after thermal processing in bottle is not feasible, remove it. Either go for direct exposure of UV light to tender water. 5. Include sensory evaluation parameters, turbidity, colour in observation. 6. Mention the adjustment of TSS during process in the report. 7. Record storage period weekly. 8. Modify the experiment design consulting statistician according to modified treatment and storage combinations. **[Action:** Professor and Head, PHT, ACH, NAU, Navsari]
20.5.3.8	**Title:** Standardization of process technology for preservation of sugarcane juice. **House approved with following suggestions:** 1. Work already done on sugarcane juice by PAU, Ludhiana and patented it for commercialization. Check their research study, compare the treatment with yours, mention the difference and modify the treatment. 2. Processing or additional treatments is to be added. 3. Reducing sugar, total sugar and colour of the juice before and after processing should be measured. 4. Mentioned the maturity/harvesting stage of the sugarcane. 5. Record storage period weekly. 6. Modify thermal processing condition treatments. **[Action:** Asst. Prof., PHT, ACH, NAU, Navsari**]**
20.5.3.9	**Title**: Standardization of process for freeze drying of baby corn slices. **House approved with following suggestions:** 1. Variety of the baby corn should be mentioned in the report. 2. Replace SPC/TPC in place of APC 3. Rehydration characteristics to be measured during storage study. 4. Yeast, Mould and E-coliform are to be measured. 5. Use freeze drying temperature as 40, 45, 50 and 55 as product is sensitive. 6. Storage study with different packaging materials is to be added. 7. Compare the developed product with conventional product available in market. 8. Cooking quality of baby corn after processing during study to be incorporated. 9. Mention days of picking of baby corn after silking. 10. First standardize the blanching temperature and then use freeze drying. [**Action**: **Action:** Asst. Prof., PHT, ACH, NAU, Navsari**]**
20.5.3.10	**Title:** Effect of Melatonin on Post Harvest life of Dragon fruit. **House approved with following suggestions:** 1. Factor A should be changed 2. Change dipping time 3. PI Should concerned the Scientists; Dr. S H Akabari, CoFPT-AAU, Anand and Dr. Chandegara, Dept. of PFE, CAET, JAU, Junagadh to modify the experiment. [**Action:** Asst. Prof., PHT, ACH, NAU, Navsari**]**
20.5.3.11	**Title:** Extraction and drying of pigments from Red Dragon Fruit Peel and Pulp. **House approved with following suggestions:** 1. Modify first objective 2. Measure Beta-Cyrene content. 3. PI Should concerned the Scientists; Dr. S H Akabari, CoFPT-AAU, Anand and Dr. M. N. Dabhi, Dept. of PFE, CAET, JAU, Junagadh to modify the experiment. [**Action:** Asst. Prof., PHT, ACH, NAU, Navsari**]**

20.5.3.12	**Title:** To standardize the formulation for preparation of turmeric Based Spice mix. **House Differed with following Suggestions:** 1. No Research issue in this project. PI can take it as department development activity. 2. **Not Approved.** **[Action**: Asst. Prof., CoPH, NAU, Navsari**]**

Number	**Particular**
JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH	
20.5.3.13	**Title:** Development of groundnut plant invert windrow attachment to the existing groundnut digger shaker. **House approved with following suggestions:** 1. Observation to be recorded to be check in the report. 2. Varying the converter speed to be recorded and mentioned in the report. 3. Develop and test for the various combinations of required levels of disc speed and rod angles as per the statistical design requiremnts. ***[Action:** HoD, FMPE, CAET, JAU, Junagadh**]***
20.5.3.14	**Title:** Design and Development of Pearl Millet De-husking Machine. **House approved with following suggestions:** 1. Losses of pearl millet during the processing should be added in the report. 2. Seed parameters should be added in the report. ***[Action:** HoD, PFE, CAET, JAU, Junagadh**]***
20.5.3.15	**Title:** Study on storage stability of pearl millet flour. **House approved with following suggestions:** 1. Recast title as 'Study on storage stability of pearl millet flour'. 2. Frame an objective for storage study. 3. Sticking properties, peroxide value, sensory parameters, and rancidity are to be added in the report. ***[Action:** HoD, PFE, CAET, JAU, Junagadh**]***
20.5.3.16	**Title:** Development of millet based extruded product supplemented with defatted peanut flour. **House approved with following suggestions:** 1. Frame an objective for storage study. 2. Storage study with different packaging material is to be included in study. 3. Incorporate; fiber content, 'crispiness', and sensory parameters in observations. ***[Action:** HoD, PFE, CAET, JAU, Junagadh**]***
20.5.3.17	**Title:** Pasteurization of kesar mango pulp through ohmic heating treatment. **House approved with following suggestions:** 1. Used factorial statistical design in the experiment instead of CRD. ***[Action:** HoD, PFE, CAET, JAU, Junagadh**]***
20.5.3.18	**Title:** Management of insect pest of storage wheat in bin by ozone. **House approved with following suggestions:** 1. Check statistical design in the experiment and correct it. 2. Check the AAU model of similar type bin and modify design as well as objectives for development of bin on different aspects of better one. ***[Action:** HoD, PFE, CAET, JAU, Junagadh**]***

20.5.3.19	**Title:** Identification of potential groundwater recharge zones in major river basins of *Saurashtra.* **House Approved with following Suggestions:** 1. Give the period of data going to be utilize in the experiment. ***[Action:** HoD, IDE, CAET, JAU, Junagadh]*
20.5.3.20	**Title:** Assessing Future Crop Water Requirement for Major Crops of *Saurashtra* in the Context of Climate Change. **House approved with following suggestions:** 1. Give name of the crops in experiment details. ***[Action:** Research Scientist (Agril. Engg.), RTTC, JAU, Junagadh]*
20.5.3.21	**Title:** Development of taluka scale precise crop yield prediction application for selected districts of Gujarat using remote sensing, AI and machine learning. **House approved with following suggestions:** 1. Use full form of AI in title, objective and report. ***[Action:** Research Scientist (Agril. Engg.), RTTC, JAU, Junagadh]*
20.5.3.22	**Title:** Synergistic impact of subsurface drainage, gypsum and green manure on reclamation of saline-sodic soils. **House approved with following suggestions:** 1. Mention dependent and independent factors in treatment combination. ***[Action:** Research Scientist, Horti-FRS, JAU, Mahuva]*
20.5.3.23	**Title:** Impact of different drip irrigation levels and organic mulch types on coconut seedlings. **House approved with following suggestions:** 1. Give IPDM requirement for coconut seedling. ***[Action:** Research Scientist, Horti-FRS, JAU, Mahuva]*
20.5.3.24	**Title:** Response of plastic mulching and land configuration techniques for Bt cotton under dryland condition. **House approved with following suggestions:** 1. Provide layout of experiment drawing. ***[Action:** Research Scientist (DFRS), JAU, Targhadia]*
20.5.3.25	**Title:** In-situ moisture conservation: Enhancing groundnut productivity through land configuration for dry land condition. **House approved with following suggestions:** 1. In place of "Open field (control)", write "Open field"**.** ***[Action:** Research Scientist (DFRS), JAU, Targhadia]*
20.5.3.26	**Title:** Development of modular water harvesting structure using plastic waste. **House approved with following suggestions:** 1. Provide type of the plastic in experiment. ***[Action:** HoD, REE, CAET, JAU, Junagadh]*
20.5.3.27	**Title:** Development of Agrivoltaic Greenhouse System. **House approved with following suggestions:** 1. In place of "Open field (control)", write "Open field" 2. Specify the types/size of solar panel and its spacing between row and panel. ***[Action:** HoD, REE, CAET, JAU, Junagadh]*

20.5.3.28	**Title:** Design and development of foldable plastic based evaporative cooling storage structure for fruit and vegetable. **House approved with following suggestions:** 1. Statistical/ experimental design should be corrected with desired degree of freedom in the report. 2. Varying the crop and air flow rate of the evaporative cooling storage structure. ***[Action:** HoD, REE, CAET, JAU, Junagadh**]***
20.5.3.29	**Title:** Design and Development of microwave pyrolyser for bio-char production from Agricultural residue. **House approved with following suggestions:** 1. Mention unit of temperature. ***[Action:** HoD, REE, CAET, JAU, Junagadh**]***
20.5.3.30	**Title:** Detection and classification of the major cotton foliar diseases from *Saurashtra* region using deep learning. **House approved with following suggestions:** 1. Mentioned the type of deep learning algorithm/model/method in the report. **[Action:** Director, IT Cell, JAU, Junagadh**]**

Number	**Particular**
	ANAND AGRICULTURAL UNIVERSITY, ANAND
20.5.3.31	**Title:** Study on agricultural drone spraying operational parameters for paddy crop. **House approved with following suggestions:** 1. Study related to phytotoxicity also included in the report 2. Use one specific nozzle and mention it's name and specification. 3. Levels of independent parameters should be mentioned. 4. Consider SOP of ICAR for drone operation 5. Keep Co-PI from entomology and redefine experiment 6. Consult entomologist for the use of pesticide 7. Decide the speed & height of drone. **[Action:** PI & HOD, Dept. of FMPE**]**
20.5.3.32	**Title:** Development of battery operated multicrop planter. **House approved with following suggestions:** 1. Mention the name of crops and its spacing separately in experiment details. 2. Take observation of accuracy and equality of planning accordingly. **[Action:** PI & HOD, Dept. of FMPE**]**
20.5.3.33	**Title:** Development of amaranth and millet based *farali dhokla* mix. **House approved with following suggestions:** 1. Mixture proportion/ratio of Little millet, sago and amaranth should be mentioned. 2. Compare the developed product with standard product of '*farali dhokala* mix' and normal '*dhokala* mix'. 3. Quality and textural analysis should be refined and mentioned clearly. 4. Keep storage study observation interval for 15 days. **[Action:** PI & HOD, Dept. of FPT**]**

20.5.3.34	**Title:** Development and quality assessment of muffins prepared from jackfruit seed flour and sorghum flour. **House approved with following suggestions:** 1. Add textural profile analysis of the developed product. 2. Consult statistician for statistical design. **[Action:** PI & HOD, Dept. of FPT**]**
20.5.3.35	**Title:** Technology for production of unripe banana flour using vacuum drying techniques. **House approved with following suggestions:** 1. Title of the project should be modified as 'Technology for production of unripe banana flour using vacuum drying techniques'. 2. Modify objectives accordingly. 3. Add the 50, 55 and 60ºC drying temperature and air flow rate of the dryer should be measured. 4. Statistical design should be modified with additional drying temperatures. **[Action:** PI & HOD, Dept. of FPT**]**
20.5.3.36	**Title:** Standardization of drying technique for production of manure from biogas plant digested slurry. **House Differed with following Suggestions:** 1. PI is retiring in July 2024. It will be presented next year with new name of PI and team as New Technical Program. **[Action:** PI & HOD, Dept. of FPE**]**
20.5.3.37	**Title:** Determination of various properties of dragon fruit. **House Differed with following Suggestions:** 1. No Research issue in this project. PI can take it as department development activity. 2. **Not Approved,** **[Action:** PI & HOD, Dept. of FPE**]**
20.5.3.38	**Title:** Performance evaluation of selected grid-connected solar photovoltaic system. **House Differed with following Suggestions:** 1. No Research issue in this project. PI can take it as department development activity. 2. **Not Approved.** **[Action:** PI & HOD, Dept. of FPE**]**
20.5.3.39	**Title:** Evaluation of adulteration in groundnut oil. **House Differed with following Suggestions:** 1. Specify the detection methods should be mentioned in the report. 2. Statistical Design and treatments should be added. 3. Proportion/mixtures should be mentioned in the tabular form in the report. 4. It will be presented next year as New Technical Program. **[Action:** PI & HOD, Dept. of FSQA**]**
20.5.3.40	**Title:** Standardization of quality parameters for selected rice varieties. **House Differed with following Suggestions:** 1. Change title as "Detection of adulteration in Basmati Rice using marker assistant method" 2. Modify objectives accordingly. 3. Review search should be done before finalizing the treatments. 4. Methodology and statistical design should be mentioned in the report. 5. Expected outcome and users of the experiment should be mentioned in the report. 6. Present experiment next year with respect to above title as New Technical

	Program. **[Action:** PI & HOD, Dept. of FSQA**]**
20.5.3.41	**Title:** Supercritical fluid extraction of mango seed kernel oil. **House approved with following suggestions:** 1. Provide treatment details with statistical design. 2. Modify technical program treatments in light of with sufficient review. 3. Mention purity of CO_2. 4. Take more numbers of mango verities at least five (Kesar, Rajapuri, Totapuri, Alphonso, Langara, Banesan, etc.). **[Action:** PI & HOD, Dept. of FSQA**]**
20.5.3.42	**Title:** Development of rapid method for detection of *rhodamineb* in chili powder. **House approved with following suggestions:** 1. Add objective of "To develop strip for……". 2. Recast objectives as per methodology and observation. 3. Mention variety of chilly. 4. Mention proportion of powder of chilly varieties in methodology. 5. Statistical design should be modified in the report. 6. Observation parameters should be mentioned in the report. 7. Validate with market sample. **[Action:** PI & HOD, Dept. of FSQA**]**
20.5.3.43	**Title:** Visual classification model for procurement of maize kernel used for poultry feed. **House approved with following suggestions:** 1. Objective (1) and (2) should be removed and modified objective as "To identify the healthy and unhealthy maize kernels based on Artificial Intelligence assisted model". 2. Measure quality parameters of maize kernels for poultry feeding **[Action:** PI & HOD, Dept. of AIT, CAIT**]**
20.5.3.44	**Title:** Compartmentalization of Pigeon Pea (*Cajanuscajan* L.) varieties using computer vision 1. Add quality parameters of pigeon pea in the study **House approved** **[Action:** PI & HOD, Dept. of Ag. Stat., BACA**]**

Number	**Particular**
SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR	
20.5.3.45	**Title:** Performance evaluation of food waste based biogas plant installed at SDAU Campus, Sardarkrushinagar. **House approved with following suggestions:** 1. Title should be changed as "Performance evaluation of food waste based biogas plant installed at SDAU Campus, Sardarkrushinagar". 2. Revised objectives should be; 1. To evaluate the performance evaluation of food waste based biogas plant. 2. To analyze the techno- economics aspects of the biogas plant. 3. Include; methane quality and quantity, C:N ratio and cost economics in observation. 4. Mention operational and output parameters of study. **[Action:** Principal, CREEE, Sardarkrushinagar**]**

20.5.3.46	**Title**: Development of solar powered *jivamrut* preparation device. **House approved with following suggestions:** 1. Title should be changed as "Development of solar powered *jivamrut* preparation device". 2. Revised objectives should be; 1. To develop solar powered *jivamrut* preparation device. 2. To evaluate performance of developed *jivamrut* preparation device. 3. Mentioned capacity of a batch of existing unit. 4. Revised the treatments table. 5. Take performance evaluation and temperature in observations. 6. Take interval of 3, 4 and 5 days for nutritional and microbial analysis. 7. Change the experimental design with consultation of statistician. **[Action:** Principal, CREEE, Sardarkrushinagar**]**
20.5.3.47	**Title:** Development of technology for the production of date-mango fruit leather. **House Differed with following Suggestions:** 1. Mention; variety of mango and date, blending conditions, leather thickness, packaging material and TPA instrument name. 2. Specify the storage study with parameters. 3. Suggested to take as feeler trial and present NTP in the next year. **[Action:** PI & HOD, FPT, CFT, SDAU, Sardarkrushinagar**]**
20.5.3.48	**Title:** Development of *amaranthus* and pearl millet blended extruded product. **House approved with following suggestions:** 1. Title should be modified as "Development of *amaranthus* and pearl millet blended extruded product". 2. One of the objective should be, " To evaluate shelf life of extruded product after storage" 3. Statistical design should be changed. 4. Finalize treatment after discussion with Dr. H. Pandey, Associate Professor, FPTBE, AAU, Anand. 5. Self life of developed product should be analyzed using different packaging materials up to spoilage of products. 6. Measure the Hardness, crispiness, dietary fiber, iron and calcium components, rancidity, alcoholic acidity of developed products. **[Action:** PI & HOD, FPT, CFT, SDAU, Sardarkrushinagar**]**
20.5.3.49	**Title:** Development of pearl millet and finger millet flour blended *Khakhara*. **House approved with following suggestions:** 1. Title should be modified as "Development of pearl millet and finger millet flour blended *Khakhara*". 2. Merge the objective (1) and (2) in to one as "To optimize the process parameters of the developed pearl millet and finger millet flour blended *khakhara*. 3. Statistical design should be changed. 4. Finalize treatment after discussion with Dr. H. Pandey, Associate Professor, FPTBE, AAU, Anand. 5. Self life of developed product should be analyzed using different packaging materials up to spoilage of products or 90 days. 6. Measure the Hardness, crispiness, dietary fiber, iron and calcium components, rancidity, alcoholic acidity of products. **[Action:** PI & HOD, FPT, CFT, SDAU, Sardarkrushinagar**]**
20.5.3.50	**Title:** Preparation of bread using amaranth. **House approved with following suggestions:** 1. Title should be modified as "Preparation of bread using amaranth". 2. Merge the objectives (1) and (2) in to one as "To optimize the preparation level

	of bread using amaranth". 3. Remove the "&" symbol from the objectives. 4. Finalize treatment after discussion with Dr. H. Pandey, Associate Professor, FPTBE, AAU, Anand. 5. Add the amaranth flour in the process flow chart. 6. Correct the year of starting. 7. Consider dietary fiber, baking parameters, dough volume, bread qualities, crumb, degree of crumb, bread weight, bread volume, bread loaf volume and gluten study. 8. Shelf life study should be carried out in different packing materials upto specified storage period. 9. Take quality observation of bread during storage at an interval of two days. **[Action:** PI & HOD, FPT, CFT, SDAU, Sardarkrushinagar**]**

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20.6 BASIC SCIENCE & HUMANITIES

DATE: 15th – 17th May, 2024	
Chairman	Dr. M. K. Jhala, Director of Research, AAU, Anand
Co-Chairman-1	Dr. Sanjay Jha, Principal (ASBI), NAU, Surat
Co-Chairman-2	Dr. H. S. Bhadauria, Dean (Basic Sci.), SDAU, Sardarkrushinagar
Rapporteurs	1. Dr. A.V. Narwade, NAU, Navsari 2. Dr. U. K. Kandoliya, JAU, Junagadh 3. Dr. Amar Sakure , AAU, Anand 4. Dr. Kapil Tiwari, SDAU, Sardarkrushinagar
Statistician	Dr. Mayur Sitap, JAU, Junagadh

The 20th Combined AGRESCO Basic Science and Humanities Sub Committee meeting was held through a virtual platform hosted by NAU, Navsari from 15-17, May, 2024. At the outset, Dr. Rajkumar B. K., Convener, Basic Science, NAU, Navsari, welcomed Chairman Dr. M. K. Jhala, Director of Research, AAU, Anand; Co-Chairmen - Dr. Sanjay Jha, Principal (ASBI), NAU, Surat and Dr. H. S. Bhadauria, Dean (Basic Sci.), SDAU, Sardarkrushinagar; Statistician, Conveners, Rapporteurs and all the members SAUs.

Chairman, Dr. M. K. Jhala, Director of Research, AAU, Anand, expressed his satisfaction with the efforts made by the scientists of all four State Agricultural Universities to strengthen the basic Science research. He also highlighted the significance of Basic Science research to address food security, climate change and sustainable agriculture. He urged the scientists to use the cutting edge technologies in their research and also appreciated the members for their diverse NTPs ranging from natural farming to CRISPR/Cas. Conveners of the Basic Science and 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. J. J. Dhruv	Associate Professor & Head, Dept. of Biochemistry, BACA, AAU, Anand
2	Dr. H. P. Gajera	Professor & Head, Dept. of Biotechnology, JAU, Junagadh
3	Dr. Rajkumar Katagi	Assistant Research Scientist, Main Cotton Research Station, NAU, Surat
4	Dr. Anurag Yadav	Assistant Professor, Dept. of Microbiology, College of Basic Sci. & Humanities, SDAU, Sardarkrushinagar

Summary of the Recommendations

Name of University	No. of Recommendations				New Technical Programs	
	Farmers/Entrepreneurs/ Industry		Scientific			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	--	--	05	05	07	07
JAU	--	--	01	01	02+03**	02+03**
NAU	--	--	01+01*	01+01*	15	15
SDAU	--	--	04	04	04	04
Total	--	--	**11**+01*	**11**+01*	**28**+03**	**28**+03**

* One Scientific recommendation from Horticulture & Forestry AGRESCO Sub Committee was endorsed and approved in the house

**Three NTPs of Plant Pathology department were shifted from PPSC AGRESCO Sub Committee and were approved in the house

20.6.1 RECOMMENDATIONS FOR FARMING COMMUNITY: NIL

20.6.2 RECOMMEDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

20.6.2.1 **QTL mapping for wilt resistance in castor**

In castor, SSR markers namely, P-1014 and P-1015 located on LG1 found linked with *Fusarium* wilt resistance and can be used for the development of resistant varieties through backcross breeding and to screen the germplasm at seedlings stage.

Details of linked SSR markers identified for wilt resistance in castor

Sr. No	Marker name	Primer sequence (5'-3')	Product size (bp)	
			RP (48-1)	SP (JI-35)
1	P-1014	F:GGCCCATTTTGGCATTAAC R:TCCTTCAGATGGAAGGTTCA	250	215
2	P-1015	F:TTACCGATACCAAAAAGCAGG R:CAAGCTTTCATTCCCACACA	230	190

RP: Resistant product; SP: Susceptible product

Approved with following suggestion/s:

1. Add in Table 3 information of PCR amplicon size and primer sequences of resistant allele of markers in the recommendation text

*(**Action**: Associate Res. Scientist & Unit Officer, Department of Biotechnology, AAU, Anand)*

20.6.2.2 **Technology Development for Micropropagation of Indian sandalwood (*Santalum album* L.)**

The standardized protocol for micropropagation of Indian sandalwood (*Santalum album* L.) involves utilization of nodal segment explants collected during the month of June from 20 years mature tree for establishment on WPM basal media. Multiple shoot induction was successfully achieved on WPM

	medium supplemented with 10 mgl^{-1} IBA with highest number of multiple shoots (6.67 ± 0.67). For defoliation control, WPM with 10 mgl^{-1} IBA and 185 mgl^{-1} Magnesium sulphate was found best for defoliation control with highest number of leaves per explants (25.33 ± 1.99). The rooting of the *in vitro* shoots can be achieved on MS medium supplemented with 0.5 mgl^{-1} NAA and 0.5 mgl^{-1} IBA with highest rooting percentage (40 %). *In vitro* hardening with dipping in liquid MS basal medium for twelve months reported to produce maximum shoots (3.00 ± 0.00) with highest average length of 10.00 ± 0.57 cm and highest number of roots (2.00 ± 0.00), while in case of *ex vitro* hardening, these plantlets showed highest percentages of survival (93%) with least mortality (7 %). After successful hardening, the plantlets were transferred to soil bags in polyhouse with host Brazilian joyweed (*Alternanthera brasiliana*) for futher growth and development. **Approved with following suggestion/s:** 1. Modify and shorten the text of recommendation 2. Add scientific name of joyweed and relocate joyweed in the starting of recommendation 3. Mention age, stage and time of explant collection in the recommendation text *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*
20.6.2.3	**Technology development for mass multiplication using tissue culture and sex determination using molecular markers in papaya** Micropropagation protocol for mass multiplication of Arka Prabhat variety of Papaya (*Carica papaya* L.) has been standardized utilizing nodal segment explants collected from field grown 6 months old plant during July month for establishment on MS medium supplemented with 0.2 mgl^{-1} NAA and 0.1 mgl^{-1} Kinetin. Multiple shoot induction for large scale multiplication of cultures was successfully achieved on MS + 0.5 mgL^{-1} BAP + 0.01 mgL^{-1} IAA + 200 mgL^{-1}casein hydrolysate with highest number of shoot per explants of 2.05 and highest multiplication rate (1.62). The best rooting of the *in vitro* shoots has been achieved on MS + 4 mgL^{-1} IAA + 4 mgL^{-1} IBA + 200 mgL^{-1} casein hydrolysate with number of roots, length of roots, number of secondary roots, days to root induction and rooting (%) recorded were 5.67, 8.50 cm, 13.67, 30 days and 80%, respectively. DNA based marker, CPSM-90 (Forward primer: 5' TAGCCTAGTGTACCATCTCT 3', Reverse primer: 5'GAATTCATAGAATATGCATCC 3') produced 390 bp male specific bands in seed raised population of 'Madhubindu' and 'Arka Prabhat' varieties whereas; CPSM-31 (Forward primer: 5' TCCTCTCAATCCTAATAGCCTA 3', Reverse primer: 5'GAGTTAGTTGCTCTCAAGGAGT 3') produced 550 bp male specific bands in seed raised population of 'Madhubindu' variety. These markers can be used for the identification of male/hermaphrodite plants in seed raised population of 'Madhubindu' and 'Arka Prabhat' varieties. **Approved with following suggestion/s:**

	1. Replace the word "developed" with "standardized" in the recommendation text 2. Mention the age of explant, source tree and time of collection of explant in the recommendation text 3. Perform appropriate transformation for confirmation of CV and CD in Tables 9 to 11 4. Perform DMRT analysis for Table10 data *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*
20.6.2.4	**Physiological and molecular responses of zinc (bulk and nano) particles on seedling growth of wheat (*Triticum aestivum* L.)** Zinc oxide nanoparticles were synthesized from the analytical grade zinc sulphate by pH mediated size reduction method as recommended earlier for synthesis of nanoparticles having desirable hydrodynamic size (72.76 nm), pdi (0.33) and zeta potential (-24mV). Seed priming by zinc using conventional and nano form on wheat found beneficial to seedling at physiological and biochemical level with promotory effect on seed germination, seedling growth, vigour and chlorophyll and protein content and lower IAA oxidase activity at a very lower concentration of 50 ppm. For gene expression study, eleven reference genes were evaluated for their stability in nano and normal treated seedling at two leaf stage. Among these reference genes, 18s rRNA endogenous gene was found to be highest stable transcript in all the treated seedlings. Further, IAA biosynthesis related gene study reveals that at 50 ppm, highest expression of YUCCA9 (flavin mono oxygenase like protein) and ARF (auxin response factor) and AUX1 (auxin cellular influx carrier) confirms the biochemical and physiological observation and results into normal growth of seedlings under exposed nano particles concentration. **Approved with following suggestion/s:** 1. Insert word "hydrodynamic" in L3 2. Remove "bulk" from recommendation text 3. Remove last sentence "IAA metabolite……growth of seedlings" 4. Add standard deviation in the nanoparticle size in the recommendation text 5. Mention physiological parameters along with IAA oxidase, bulk and nano particle concentration in the recommendation text. *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*
20.6.2.5	**Green synthesis of iron oxide nanoparticles and evaluation of its nano-priming activity in rice** Green synthesis of iron oxide nanoparticles using neem leaves extract and ferric chloride has been developed by Anand Agricultural University. Analytical grade ferric chloride was found to be more efficient as source of iron compared to sulphate for the iron oxide nanoparticle synthesis. Among the two approaches, room temperature mediated synthesis was found to be more effective in conversion of normal to nanoparticle. However, larger

	particle synthesis needs to be reduced using high energy 60 amplitude frequency source i.e. sonication for 10 mins at 60% amplitude frequency was found optimum for overcoming particle aggregation. The size of iron nanoparticles synthesized at room temperature for 12 hrs followed by sonication, recorded least 12.79 nm size with 0.24 PDI. Seed priming with iron oxide nanoparticle proves to be beneficial for the enhancement of rice physiological parameters like germination (%), vigour index I and II *etc* along with better biochemical response compared to bulk treatment. **Approved with following suggestion/s:** 1. Mention green source used for nanoparticle preparation in the recommendation text. 2. Replace "iron nanoparticle" in last sentence with "iron oxide" 3. Add scale bar in figure 4 in SEM photograph 4. Reanalyze the statistical analysis for Table 2 and remove mean data 5. Add details about season/timing for sunlight and room temperature parameters 6. Incorporate power of sonication in the recommendation text *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.6.2.6	**Improvement of Groundnut oil quality for high oleic acid through CRISPR/Cas gene editing technology** The scientific community involved in groundnut improvement through genome editing technology is recommended to use the optimized tissue culture protocol using de-embryonated cotyledone as explants (multiple shoot formation: MS + 25.0 mg/l 6-benzylaminopurine, shoot elongation: MS + 3.0 mg/l 6-benzylaminopurine, + 1.0 mg/l gibberellic acid, root induction: MS + 1.0 mg/l naphthalene acetic acid), CRISPR/Cas9 technology and binary vector for successfully editing the gene of interest (*AhFAD2B*) in groundnut for achieving high O/L ratio (8.52). A single guide RNA sequence (5'TGTGGTCTATGATCTGTTAATGG3'), designed by using CHOPCHOP, was utilized to guide the Cas nuclease for precise editing. **Approved with following suggestion/s:** 1. Remove vector name from the recommendation text and use word "binary vector" 2. Add AGRESCO approval number in the recommendation 3. Recast the recommendation *(**Action**: Professor and Head, Department of Biotechnology, JAU, Junagadh)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.6.2.7	**Optimization of physiochemical parameters for protease production by bacterial isolate under solid state fermentation (SSF)** *Bacillus subtilis* strain VSP11 produced maximum protease (468.73 U/gds) under solid state fermentation (SSF) using 5 g wheat bran (size: 160 µm) supplemented with 0.5 g of yeast extract, 0.5 g of peptone with 20 ml of water using salt media pH 8 after 70 hrs of incubation at 40^{o}C. **Approved with following suggestion/s:** 1. Add salt media word in the recommendation text 2. Remove unit (mm) from table 1 in column listing ratio 3. Mention particle size of wheat bran in recommendation text 4. Provide bootstrapping value for dendrogram analysis 5. Correct sentence tense in introduction part 6. Replace word 'moisture' with 'water' across the text 7. Flag maximum and minimum value in Figure 9 8. Correct the unit of enzymes ***(Action:** Principal, ASBI, NAU, Surat)*
*** Recommendation of Horticulture & Forestry AGRESCO Sub Committee received for Endorsement from Basic Science & Humanities**	
20.4.2.1	**Rapid multiplication of *Dendrocalamus hamiltonii* through *in vitro* regeneration techniques from nodal explants** In bamboo species *Dendrocalamus hamiltonii,* contamination control by Absolute Alcohol (70%) for 30 Sec + Mercuric Chloride (0.1%) for 5 Min followed by shoot multiplication in MS + 4.0 mg/l BAP and rooting in 3mg/l IBA + 3mg/l IAA + 2% Sucrose and final acclimatization in Soil + sand + Vermicompost (1:1:1) media results in rapid multiplication through *in vitro* regeneration techniques from nodal explant. **Approved with following suggestion/s:** 1. Recast the recommendation text 2. Add bamboo species in recommendation text. (***Action:** PI & HOD, Silviculture and Agroforestry Department, CoF, ACHF, NAU, Navsari*)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

20.6.2.8	**Screening of pomegranate (*Punica granatum*) extracts for its phytochemical and antimicrobial properties** Among the various parts (leaves, male flowers, peel, aril with seeds, offshoot and twig) of bhagva variety of pomegranate and solvents (ethyl acetate, chloroform, methanol, acetone and water) used for extraction, the highest antimicrobial activity and various phytochemical contents recorded are as follows:

Extract used	Antimicrobial activity against test organism (Zone of inhibition in mm)
Methanolic extract of leaves	*Staphylococcus aureus* MTCC 3160 (24.00±0.82)

	Methanolic extract of peel	*Proteus vulgaris* (22.00±0.82)
	Methanolic extract of leaves	*Bacillus cereus* MTCC 9017 (19.25±1.50)
	Methanolic extract of offshoot	*Xanthomonas sp.* (12.75±1.71)
	Acetone extract of offshoot	*Escherichia coli* MTCC 739 (22.75±1.50)
	Methanolic extract of offshoot	*Fusarium oxysporum* f. sp. *ricini* (16.00±0.82)
	Methanolic extract of peel	*Alternaria spp.* (25.50±1.29)
	Acetone extract of male flower	*Fusarium udum* (14.00±1.41)
		Phytochemical content
	Methanolic extract of twig	Total phenol content (148.64±8.03 mg GAE/100g DW)
	Water extract of male flower	Total flavonoid content (415.39±19.22 mg QE/100g DW)
	Methanolic extract of male flower	Total anthocyanin content (9.52±0.39 mg CGE/100 g DW)
	Methanolic extract of leaves	Total antioxidant activity (8.73±0.8 milimole Fe2+ reduction/g DW)
	Approved with following suggestion/s: 1. Mention the name and legend captions in all shown figures 2. Provide the values in tabular form in recommended text 3. Improve the photograph of figures 1 and 2 as per the result shown *(**Action**: Head, Dept. of Microbiology, CBSH, SDAU, Sardarkrushinagar)*	
20.6.2.9	**Physicochemical and biochemical characterization of Jeevamrut prepared with buffalo and horse dung** The *Jeevamrut* prepared using dung of *Banni* buffalo contains higher amount of total N (372.335 ppm), Fe (5.916 ppm), Zn (0.938 ppm), Mn (1.592 ppm) and Cu (0.124 ppm) compared to *Mehsani* buffalo and *Kathiawari* horse, whereas jeevamrut preparations using *Mehsani* buffalo dung possessed higher level of total P (116.863 ppm) compared to other two animals. Also, the *Jeevamrut* prepared using *Kathiawari* horse dung recorded higher K content (467.463 ppm) and IAA (7.193 ppm). The *Jeevamrut* formulated during winter season recorded higher level of average N, P K, Cu and IAA compared to summer and monsoon seasons, whereas preparation of summer season possessed higher amount of Fe and Mn compared to other two seasons. **Approved with following suggestion/s:** 1. Correct the statistical data by consulting with statistician 2. Mention the breed of horse in recommendation text 3. Correct the title of the Table with free amino acid instead of free fatty acid wherever it is mentioned 4. Recast the recommendation text *(**Action**: Head, Dept. of Biochemistry, CBSH, SDAU, Sardarkrushinagar)*	
20.6.2.10	**Physicochemical and biochemical evaluation of Jeevamrut prepared with Kankrej and H.F. cross cow dung** *Jeevamrut* preparation in winter season recorded higher N, P and K content whereas higher Zn, Mn and Fe content observed in summer season and higher IAA content recorded in monsoon season. *Jeevamrut* prepared using dung of Kankrej cow possessed higher amount of total N (437.11 ppm), total K (463.87	

ppm), total Zn (1.58 ppm), total Mn (2.29 ppm) and total Cu (0.203 ppm) whereas Jeevamrut prepared from dung of Gir cow possessed higher total P (135.26 ppm) and dung of H.F cross cow possessed more Fe (9.78 ppm) and IAA (6.15 ppm) content.

Approved with following suggestion/s:

1. Reanalyze the statistical data by consulting statistician
2. Remove the word 'storage' from recommendation text
3. Verify the Table 4 for CV per cent
4. Recast the recommendation text

*(**Action**: Unit Head, BSRC, SDAU, Sardarkrushinagar)*

20.6.2.11 **Development of sex chromosome specific gene based multiplex PCR for differentiation of male and female genotypes in date palm**

Sex chromosome specific gene based multiplex PCR using dpBGPAT with Dp-Penta-59 marker is useful for male and female differentiation in mature and seedling stage of date palm. For amplification of multiplex PCR, 56°C annealing temperature is appropriate along with standard cycling condition and PCR reaction component.

Sr. No.	Primer name	Primer F	Primer R	Amplicon Size
1	dpBGPAT	AGAAAACCTGATATGCTCTCTG	TGTGATGCACTTGGTAACTACT	450 bp
2	Dp-Penta-59	AAAGAGGAACTACGCCAGCA	GCACAAGCATTGAGGAGACA	794 bp

Approved with following suggestion/s:

1. Mention PCR product size in the recommendation text and modify the language
2. Add word 'mature and seedlings' of the data palm in the recommendation text
3. Recast the recommendation text

*(**Action**: Unit Head, BSRC, SDAU, Sardarkrushinagar)*

20.6.3 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action
20.6.3.1	Comparative Phytochemical study of different flowers of Okra	**Approved with following suggestion/s:** 1. Modify the title as "Comparative phytochemical study of flowers of different okra varieties" 2. Add total carotenoid in observation *(**Action**: Research Scientist and Head, Department of Biochemistry, AAU, Anand)*
20.6.3.2	*De-novo* whole genome	**Approved with following suggestion/s:**

	sequencing of Saffron (*Crocus sativus* L.) through next generation sequencing technology	1. Remove objectives 1 and 2 and add one objective "SSR marker amplification and validation" *(**Action**: Associate Res. Sci. & Unit Officer, Department of Biotechnology, AAU, Anand)*
20.6.3.3	Development of heat tolerant tomato cultivar through genome editing	**Approved with following suggestion/s:** 1. Place moisture (%) and RWC under physiological observation 2. Rectify the treatment of heat stress 3. Use water content instead of moisture in biochemical observation *(**Action**: Associate Res. Sci. & Unit Officer, Department of Biotechnology, AAU, Anand)*
20.6.3.4	Optimization of Tissue Culture Protocol in Parthenocarpic Type Genotypes of Papaya	**Approved with following suggestion/s:** 1. Remove name of Co-PI Dr. Bhavesh Gajera from the experiment *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*
20.6.3.5	Development of micropropagation protocol in Ivy gourd (*Coccinia grandis* L.).	**Approved with following suggestion/s:** 1. Add the name of crop in the objective *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*
20.6.3.6	Effect of different Nano urea formulation on agriculturally important microorganisms	**Approved with following suggestion/s:** 1. Add the name of microbial source 2. Add control urea sample in the RTPCR study 3. Write formulation of nano urea in percentage only, no need to disclose name of company/brand name in the experiment. *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*
20.6.3.7	Evaluation of surfactant types on the properties and stability of oil in water neem nanoemulsion and its potential as antifungal agent	**Approved with following suggestion/s:** 1. Add observation on LD50 with the microbes 2. Correct the data on ratio mentioned in the experiment details under neem oil to surfactant ratio 3. Mention storage study duration 4. Check the stability of nanoemulsion at

		different interval. *(**Action**: Asst. Res. Scientist & Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand)*

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title	Suggestion/s and Action
20.6.3.8	Comparative study of nutritional composition and non-targeted metabolites (volatile compounds) among different cultivars and indigenous genotypes of Mango (*Mangifera indica*)	**Approved** *(**Action**: Professor and Head, Department of Biotechnology, JAU, Junagadh)*
20.6.3.9	Functional validation of genes controlling flowering time in groundnut (*Arachis hypogaea* L.) through CRISPR/Cas9	**Approved with following suggestion/s:** 1. Remove 3rd objective 2. Remove the RT-PCR analysis from methodology 3. Third point of experimental detail is not required *(**Action**: Professor and Head, Department of Biotechnology, JAU, Junagadh)*

**** Three NTPs of PPSC Sub-committee shifted to Basic Science Humanities Sub-committee**		
20.6.3.10	Impact of NPK consortia on wheat under field condition	**Approved with following suggestions** 1. Add one treatment (75% RDF + NPK 2l/ha) and take data on straw yield (The NTP was presented in presence of Chairman of NRM group Hon. Vice Chancellor, AAU, Anand) *(**Action**: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)*
20.6.3.11	Isolation and testing of potash mobilizing bacteria under *in vitro* and *in vivo* (Pot) conditions	**Approved with following suggestions** 1. Mention pot size and soil volume for experiment; include morphological data of groundnut in pot experiment 2. Add observation regarding number nodule formation and morphological data 3. Add molecular identification of isolates by sequencing 4. Include a known isolate as a standard to compare with identified isolates of

		bacteria. *(**Action**: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)*
20.6.3.12	Isolation and testing of sulphur oxidizing bacteria under *in vitro* and *in vivo* (Pot) conditions	**Approved with following suggestion/s:** 1. Add Isolation, characterization and identification of bacteria as a new objective 2. Mention pot size and soil volume for experiment 3. Include morphological data of groundnut in pot experiment 4. Add observation regarding number of nodule formation and morphological data 5. Add molecular identification of isolates by sequencing; add recommended fertilizer dose in experiment 6. Add oil per cent in observation *(**Action**: Professor & Head, Department of Plant Pathology, CoA, JAU, Junagadh)*

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Item No.	Title	Suggestion/s and Action
20.6.3.13	Exploring the protective potential of PQQ against lead-induced stress in Mung bean (*Vigna radiata* L.)	**Approved with following suggestion/s:** 1. Mention the source of the lead used in the MS media 2. Mention factors in the methodology 3. Add absolute control of the PQQ under the treatment details 4. List out the enzymes under the methodology 5. Add parameters regarding determination of the lead content at the seedlings stage. 6. Add per cent germination, root length and shoot length as a new observation 7. Mention "seedling stage" in the title of experiment *(**Action**: Principal, ASBI, NAU, Surat)*
20.6.3.14	Molecular barcoding of sorghum *Spodoptera frugiperda*	**Approved with following suggestion/s:** 1. Modify the title "Molecular barcoding of *Spodoptera frugiperda* affecting sorghum crop" 2. Mention location details for the collection of *Spodoptera frugiperda*

		3. Correct the year and season mentioned in the experimental methodology *(**Action**: Principal, ASBI, NAU, Surat)*
20.6.3.15	*In vitro* response of promising Finger millet (*Eleusine coracona*) cultivars for salt stress tolerance	**Approved with following suggestion/s:** 1. Modify the title as "*In vitro* response of Finger millet (*Eleusine coracona*) cultivars for salt stress tolerance" 2. Remove cited salt concentration from objectives 3. Add different levels of salt under treatment details 4. Mention details about *in vitro* and stage of seedling for analysis 5. Add membrane stability index under observation to be recorded 6. Experiment should be performed with seed instead of callus 7. Increase number of genotypes 8. Tissue culture stage of treatment should be mentioned *(**Action**: Principal, ASBI, NAU, Surat)*
20.6.3.16	Genome analysis and functional charactrization of *Bacillus subtilis* VSP4 using WGS approach	**Approved with following suggestion/s:** 1. Mention the instrument platform for WGS ***(Action:** Principal, ASBI, NAU, Surat)*
20.6.3.17	Effect of PQQ against NaCl induced stress in Tomato plants	**Approved with following suggestion/s:** 1. Mention the levels and factors for NaCl 2. Use sensitive promising genotype of tomato 3. Increase number of genotypes in the experiment 4. Mention the NaCl concentration across the range for determining NaCl toxicity *(**Action**: Principal, ASBI, NAU, Surat)*
20.6.3.18	Screening of photosynthetic microbes as single cell protein source	**Approved with following suggestion/s:** 1. Modify the title as "Isolation and screening of photosynthetic microbes as single cell protein source" 2. Give details of the methodology as per objectives 3. Add statistical design for biochemical related parameters

		4. Mention source of collection of microbes 5. Add morphological and growth characteristics under observation 6. Mention source of positive control 7. Mention unit on dry weight basis for all parameters ***(Action:** HOD, FQTL, NMCA, NAU, Navsari)*
20.6.3.19	Metabolic profiling of damaged and healthy petal tissue of the infested cotton flower by pink bollworm (*Pectinophora gossypiella*)	**Approved with following suggestion/s:** 1. Add name of the crop in objective 2. Add flower color in observation 3. Mention source of extraction method used in the experiment 4. Write flavanoid instead of flavonol in observation ***(Action:** Research Scientist (Cotton), MCRS, NAU, Surat)*
20.6.3.20	Molecular profiling of Sweet Potato [*Ipomoea batatas* (L.) Lam.] Germplasm	**Approved with following suggestion/s:** 1. Recast the objectives 2. Prefer SSR markers over ISSR markers 3. Add PIC and molecular related parameters under the observation ***(Action:** HOD, Dept. of Basic Sciences, ACH, NAU, Navsari)*
20.6.3.21	*In vitro* regeneration studies in Tuberose (*Polianthus tuberosa* L.)	**Approved with following suggestion/s:** 1. Add per cent contamination parameters under observation 2. Mention hardening process (primary and secondary hardening) in the methodology *(**Action**: HOD, Dept. of Basic Sciences, ACH, NAU, Navsari)*
20.6.3.22	Application of limonene on yield and quality of turmeric	**Approved with following suggestion/s:** 1. Modify the title as **"**To study the effect of crude extract of lemon peel and bael leaf on yield and quality of turmeric rhizome after harvest**"** 2. Mention the recovery per cent of limonine under observation 3. Mention instrument platform for quantification of limonine and curcumin 4. Add crude extract word in all text under treatment and mention Factor II details 5. Rectify the objective as "To study the effect of crude extract of lemon peel and

		bael leaf on yield and biochemical composition of rhizome after harvest" 6. Add one or two treatment between 0.1 % to 0.01% 7. Mention the extraction procedure of limonine and elaborate the treatments details (procedure) of the experiment 8. Mention extraction method for oleoresin with size of particle, temperature and column etc. in the methodology 9. Mention type of rhizome for the observation 10. Mention yield parameters details along with unit in the observation 11. Instead of "limonene" use "crude extract of lemon peel and bael leaf" in the experiment *(**Action:** HOD, Soil Sci & Agri Chem, NMCA, NAU, Navsari)*
20.6.3.23	Transcriptome profiling of wild rice [*Oryza coarctata* (Roxb.)] under different salt regimes	**Approved with following suggestion/s:** 1. Remove word "irrigated" from the methodology 2. Mention media of culture to be used in the experiment *(**Action:** HoD, Basic Sci. Dept., COF, NAU, Navsari)*
20.6.3.24	Study on chemical composition of Sapota seeds	**Approved with following suggestion/s:** 1. Add anti-nutritional factors and total oil content per cent under observation 2. Add followings parameters for estimation of 1) Total alkaloids, 2) Total glycosides, 3) Saponin per cent 3. Increase the number of germplasm in the study, if possible 4. Remove parameter tocopherol 5. Add crop name in the objective *(**Action**: HOD, Dept. Soil Science, NMCA, NAU, Navsari)*
20.6.3.25	Study on physicochemical and antioxidant properties of turmeric leaf oil	**Approved with following suggestion/s:** 1. Add oil recovery per cent parameter under observation and remove viscosity from parameter 2. Mention the name of the varieties of turmeric under the study 3. Add additional number of variety, if possible

		4. Add total oil content and composition in the observation 5. Mention the stage of sample collection 6. Change title & objective mentioning different varieties of turmeric leaf oil in the title ***(Action:** HOD, Dept. Soil Science, NMCA, NAU, Navsari)*
20.6.3.26	Physicochemical, essential oil yield, and volatile profile quality changes in turmeric genotypes under drying methods	**Approved with following suggestion/s:** 1. Modify the title as " Physical properties and chemical composition influenced by drying methods in turmeric" 2. Separate out the parameters as per physical, chemical and oil per cent parameters under different headings 3. Mention method for determination of oleoresin 4. Estimate oil and curcumin content in fresh and dry sample 5. Mention the name of the varieties of turmeric under the study 6. Record the sun time and temperature duration in the observation *(**Action**: HOD, Dept. Soil Science, NMCA, NAU, Navsari)*
20.6.3.27	Transcriptomics based molecular dissection of photoperiod responsive flowering in Indian bean (*Lablab purpureus* L. Sweet)	**Approved with following suggestion/s:** 1. Specify the sampling part and time *(**Action**: HOD, Dept. Genetics and Plant Breeding, NMCA, NAU, Navsari)*

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title	Suggestion/s and Action
20.6.3.28	Effect of Jeevamrut and Ghanjeevamrut on growth, yield and quality of summer Mung Bean [*Vigna radiata* (L.)]	**Approved with following suggestion/s:** 1. Provide the formulation details of Jeevamrut and Ghanjeevamrut 2. Add unit in quality parameters 3. Correct the year in the technical program 4. Discuss with Dr. C. K. Patel for treatment finalization *(**Action**: Head, Dept. of Biochemistry, CBSH, SDAU, Sardarkrushinagar)*
20.6.3.29	Development and validation of an analytical method for the multiresidue analysis of	**Approved with following suggestion/s:** 1. List out the different parameters undertaken in method development

	pesticides in cumin (*Cuminum cyminum* L.) using LC-MS/MS and GC-MS/MS	*(**Action**: Unit Head, BSRC, SDAU, Sardarkrushinagar)*
20.6.3.30	Effect of Gibberellic acid (GA_3) and varying photoperiods on growth and flowering behavior of Chrysanthemum	**Approved with following suggestion/s:** 1. Mention about the methodology for control treatment 2. Apply spray after 45 days instead of 30 days of transplanting *(**Action**: Head, Department of Basic Science, College of Horticulture, SDAU, Sardarkrushinagar)*
20.6.3.31	Genetic analysis for resistance to leaf curl disease in chili (*Capsicum annuum*)	**Approved with following suggestion/s:** 1. Specify the statistical design to be used for field screening, detailing the inclusion of check genotypes in the analysis 2. Specify the number of genotypes and markers to be used in the study 3. Change the objectives as per suggestion, 1) Screening of germplasm for LCV and yield related traits 2). Designing of SSR markers for LCV related resistant genes 4. Add the number of polymorphic markers in the observation *(**Action**: Head, Dept. of Genetics and Plant Breeding, CPCA, SDAU, Sardarkrushinagar)*

At the end of meeting, Chairman, Dr. M. K. Jhala, Director of Research, AAU, Anand congratulated all the Scientists and team members, whose recommendations and NTPs got approved. He also appreciated the members for their detailed deliberations on recommendations and for providing appropriate inputs for improvements in NTPs. The meeting ended with a vote of thanks from Dr. Rajkumar B. K, Convener, NAU, Navsari.

20.7 SOCIAL SCIENCE SUB COMMEETTEE

Particulars	Social Science
Dates	10-12, May (online) and 10-12 June, 2024 (off-line)
Chairman	Dr. R. M. Chauhan, VC, SDAU, Sardarkrushinagar
Co- Chairmen	1. Dr. N. B. Jadav, DEE, JAU, Junagadh 2. Dr. R.S. Pundir, Principal & Dean, IABMI, AAU, Anand
Rapporteurs	1. Dr. Vishal Thorat, NAU, Navsari 2. Dr. B. Swaminathan, JAU, Junagadh 3. Dr. J. B. Patel, AAU, Anand 4. Dr. J. J. Mistry, SDAU, Sardarkrushinagar
Statistician	Dr. Yogesh Garde, NAU, Navsari
Venue	• Seminar Hall, Bio-fertilizer Unit, Dept. of Pathology, NAU, Navsari • Sardar Smruti Kendra, SDAU, Sardarkrushinagar
Presentation	Respective Conveners of NAU, JAU, AAU and SDAU

Summary of Farmer and Scientific Recommendation

Name of University	No. of Recommendations						New Technical Programs	
	Farmers/Entrepreneurs/ Industry			Scientific/Policy Makers/Message				
	Proposed	Approved	With-Held*	Proposed	Approved	With-Held*	Proposed	Approved
NAU	01	00	00	10	05	02	15	13
JAU	01	00	01	11	07	02	19	19
AAU	00	00	00	05	05	00	35	31
SDAU	00	00	00	18	13	03	06	05

** The study extended for the next year (2024-25)

At the outset, Dr. Narendra Singh, Professor & Head and Convener of Social Science Sub Committee welcomed Honorable Vice-Chancellor of SDAU, Dr. R. M. Chauhan and all the dignitaries, Co-Chairman, conveners, rapporteurs and members of this sub-committee of SAUs.

In his introductory remarks, Honorable Vice-Chancellor of SDAU, Dr. R. M. Chauhan, welcomed all of the distinguished members present at the sub-committee meeting. He praised the members of the social science sub-committee for their efforts and commended them on the successful transmission of agricultural technologies to farmers. He also emphasized the importance of social science group in the well-being of the farming community. He further points out that according to the study, every rupee invested in agricultural research generates approximately 14 rupees in return. Thus, agricultural research is extremely fruitful and profitable. He also urged members to make recommendations based on the results of their research projects, which should have a meaningful impact on society.

The technical session began with a discussion of the NAU-Navsari recommendations. Conveners from each university presented their recommendations for the respective SAUs.

Presentation of recommendations and New Technical Programs by the Conveners of SAUs

Sr. No.	Name and Designation	University
1.	**Dr. Narendra Singh** Professor and Head, Dept. of Agricultural Economics, N. M. College of Agriculture, NAU, Navsari	NAU
2.	**Dr. V. V. Prajapati** Senior Scientist & Head, Krushi Vigyan Kendra, S. D. Agricultural University, Deesa	SDAU
3.	**Dr. V. D. Tarpara** Professor & Head, Department of Agricultural Economics, College of Agriculture, Junagadh Agricultural University, Junagadh	JAU
4.	**Dr. A.D. Kalola** Associate professor & Head, Department of Agricultural Statistics, B.A. College of Agriculture, Anand Agricultural University, Anand	AAU

Summary of the Farmer & Scientific Recommendations

Name of University	Number of Recommendations							
	Farmers/Entrepreneurs/ Industry				Scientific community/policy makers			
	Proposed	Approved	With-held	Dropped	Proposed	Approved	With-held	Dropped
NAU	01	00	00	01	10	05	02	03
JAU	01	00	01	00	11	07	02	02
AAU	00	00	00	00	05	05	00	00
SDAU	00	00	00	00	18	13	03	02
Total	02	00	01	01	44	30	07	07

20.7.1 RECOMMENDATIONS FOR FARMING COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.7.1.1	**Knowledge and Adoption of Oyster Mushroom production technologies by Farmers in Tapi district of South Gujarat**
	Dropped (Action: Senior Scientist & Head, KVK, NAU, Tapi)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.7.1.2	**Export cost estimation and mileage of major commodities of Saurashtra**
	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 દ્વારા 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. **Withheld with following suggestions:** 1. Validate the program by collecting and analyzing feedback from farmers as well as exporters and present in next AGRESCO. (Action: Principal, PGIABM, JAU, Junagadh)

ANAND AGRICULTURAL UNIVERSITY, ANAND – Nil

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S. K. NAGAR – Nil

20.7.2 RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY/ POLICYMAKERS/ MESSAGE FOR EXTENSION FUNCTIONARIES

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

20.7.2.1	**Awareness about agricultural azard among the farmers of south Gujarat.**
	Through training and mass media usage, efforts should be made to make the farmers aware about appropriate use of insecticides, pesticides, herbicides, chemical fertilizers, their residual and hazardous effects and safety measures to be taken while making their application. **Approved** (Action: Head, Dept. of Agril. Extn. & Communication, NMCA, NAU, Navsari)
20.7.2.2	**Knowledge of farmers about organic farming in Navsari District.**
	Policy makers and scientific community are advised to organize extensive and intensively extension programmers like trainings, awareness campaigns, advertisement, advisory services, organic product fares, demonstrations for enhance the knowledge of organic farming among farmers and motivate and facilitate them for adoption of organic farming practices. Moreover, make timely & adequately of available organic input at subsidized rate, providing support price of organic processing of organic products, establish seed hub for production and sale of organic seeds control of take organic produce /product in market through appropriate monitoring mechanism and facility to establishment of more umbers of FPC/FPO/FIG/CIG **Withheld with following suggestions:** 1. Revise the components of organic farming 2. Include practice wise knowledge and adoption and present in next AGRESCO (Action: Senior Scientist & Head, KVK, NAU, Navsari)
20.7.2.3	**Role of farm women in decision making of agricultural activities in Navsari district.**
	Dropped (Action: Senior Scientist & Head, KVK, NAU, Navsari)

20.7.2.4	**Knowledge and adoption of improved maize production technology in Narmada district**
	Farmers are facing constraints of non-availability of hybrid maize varieties to mitigate climate change risk and technical guidance about plant protection measures. There is need to develop climate resilient maize varieties suitable for climatic conditions of South Gujarat Zone –II. **Approved** (Action: Senior Scientist & Head, KVK, NAU, Dediyapada)
20.7.2.5	**Knowledge of tribal women towards sickle cell anemia in Tapi district.**
	Majority of the tribal women have very low to low level of knowledge about sickle cell anemia and do not take medical consultancy despite they know the information about sickle cell anemia is an inherited disease, its types and symptoms. Therefore, there is need to increase sickle cell screening, health camps, awareness programmes and training programmes in tribal area for prevention of sickle cell anemia disease. **Approved** (Action: Senior Scientist & Head, KVK, NAU, Tapi)
20.7.2.6	**Trade Performance of Wood Products of India.**
	Indian veneer wood and plywood are found more competitive in world market than industrial round wood and swan wood. To remain competitive in the trade, export of veneer wood and plywood should be increased by encouraging exporters and production through different programs and schemes. **Approved** (Action: Associate Professor & Head. Dept. of Social Science, ACH, NAU, Navsari)
20.7.2.7	**Growth performance and decomposition analysis of nutri-cereals in India.**
	A high negative area effect on the growth of nutri-cereals production over two decades suggests the need to expand its area through adequate nutri-cereals centric policy incentives and extension support. **Approved** (Action: Assistant Professor, Dept. of Agril. Economics COA, Bharuch)
20.7.2.8	**Small and marginal member farmers' participation and their attitude towards Farmer Producer Organizations in South Gujarat.**
	There is need to focus on providing comprehensive and diversified service offering across marketing, inputs, processing, value addition, and access to government subsidies. To enhance FPO effectiveness, members satisfaction and the participation of small and marginal farmers there is need to strengthen collaborative networking, fostering policy support and stakeholders' participation, reinforcing inclusivity and accountability through transparent decision making. **Withheld with following suggestions:** 1. Consider sample size of 15 functionally active FPOs that established before 2020 and present in next AGRESCO. (Action: Principal AABMI, Navsari)
20.7.2.9	**Dynamics of Wholesale Prices and Arrivals of Pointed Gourd in Major Markets of Gujarat.**

	Dropped (Action: Principal AABMI, Navsari)
20.7.2.10	**Application of different statistical tools for survey data analysis**
	Dropped (Action: Head, Dept. of Agril. Statistics, NMCA, NAU, Navsari)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

20.7.2.11	**Changing Cost Structure and Total Factor Productivity Growth of Onion in Gujarat**
	It is suggested to the policymakers that since the onion yield growth rate during the last three decades in Gujarat could not outpace the growth in labour, seed and plant protection costs, the negative growth in total factor productivity (TFP) and higher growth of real cost of production (RCP) over farm harvest prices (FHP) need to be countered with the promotion of large-scale mechanisation in farm operations, proper management of agronomical practices and optimal seed rate. **Approved** (Action: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)
20.7.2.12	**Credit flow and its utilization behaviour among farmers in Saurashtra region, Gujarat**
	The institutional lending agencies are informed to consider the localized factors such as the share of cropping expenditure to total income, capital formation, landholding size, and income from crop production while risk rating the loan applications of farmers and for making *a priori* distinction between potential defaulters and non-defaulters. Since the lack of awareness of loan products is a major constraint for farmers in utilizing loans, steps such as regular organizing of loan *melas* at taluka places, publishing literature on finance products, and conducting trainings on farm loan utilization may be taken up to improve banking efficiency. **Withheld with following suggestions:** 1. Include repayment capacity of farmers and present in next AGRESCO (Action: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)
20.7.2.13	**Performance and determinants of Plant Varietal Protection (PVP) behaviour in Indian agriculture with special reference to Gujarat**
	It is recommended that targeted sensitization drives through training and workshops be scaled up to increase the grassroots awareness of PPVFRA and enhance the registration of farmers' varieties. In addition, it is also recommended for promoting location-specific hand-holding sessions for filing the applications of farmers to address the imbalances in crop-wise and region-wise registrations. Both public and private agencies should also be encouraged to share their infrastructure and technical knowledge, leading to the enhanced prospects of registration and commercialization of improved varieties/hybrid cultivars. **Approved** (Action: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)
20.7.2.14	**India's balance of trade in agriculture with SAARC nations**
	Dropped

	(Action: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)
20.7.2.15	**Hectarage Prediction Models for Major Oilseed Crops of Gujarat: An Empirical Investigation**
	It is recommended to the scientific community that area under selected crops can be precisely predicted using the single equation models rather than simultaneous equation models as single equation model gives maximum R^2 and $\overline{R}^2$ with low values of MAPE, RMSE and MAE. **Approved** (Action: Professor & Head, Dept.of Agril. Statistics, CoA, JAU, Junagadh)
20.7.2.16	**Development of Statistical Analysis Programme using Python Machine Learning and Data Visualization**
	The scientists/researchers of SAUs are recommended to use new computer programs developed by the Junagadh Agricultural University which are requirement specific, unique, user friendly with the important features of descriptive auto conclusion and auto data visualization for Individual, pooled, control vs rest CRD, RBD, FCRD and FRBD analysis respectively, simple linear, multiple linear and polynomial regression as well as one, two and pair sample T tests. It is also recommended to JAU to develop & design open source user interface, so SAUs of the Gujarat can be used these computer programs without any charges. **Approved** (Action: Professor & Head, Dept.of Agril. Statistics, CoA, JAU, Junagadh)
20.7.2.17	**Farmers adoption of cotton production technologies recommended by JAU, Junagadh**
	The extension functionaries are advised to conduct training programmes, field demonstrations and exhibitions of pest and disease samples for cotton growing farmers in line with the recommended cotton production technologies of Junagadh Agricultural University to ensure their maximum adoption by farmers. **Approved** (Action: Professor & Head, Dept.of Agril. Ext. Edu., CoA, JAU, Junagadh)
20.7.2.18	**Export cost estimation and mileage of major commodities of Saurashtra**
	In order to enhance international trade of agricultural commodities, the scientific community is recommended to use "Online Export Cost Estimation Program" developed by Junagadh Agricultural University. This program aids in predicting export costs and distances for key agricultural commodities, enabling users to strategize and refine their preparations before initiating the export process. **Withheld with following suggestion:** 1. Validate the program by collecting and analyzing feedback from farmers as well as exporters and present in next AGRESCO. (Action: Principal, PGIABM, JAU, Junagadh)
20.7.2.19	**Value chain analysis of Kesar mango in Saurashtra region**
	Stakeholders and policymakers involved in the Kesar mango value chain in the Saurashtra region are advised to strengthen crop management system, develop post-harvest infrastructure and improve post-harvest operations to maintain better quality of Kesar mango for the remunerative farming and consumer satisfaction. **Approved** (Action: Principal, PGIABM, JAU, Junagadh)
20.7.2.20	**Effect of micro irrigation system on livelihood in Saurashtra region**
	Extension functionaries are recommended to advise farmers of the Saurashtra region to adopt and use micro irrigation system in their farm to reduce their poverty

	level and increase the financial and overall livelihood. **Approved** (Action: Principal, PGIABM, JAU, Junagadh)
20.7.2.21	**Knowledge of farm women about kitchen gardening in Jamnagar and Devbhumi Dwarka districts** **Dropped** (Action: Senior Scientist & Head, KVK, JAU, Jamnagar)

ANAND AGRICULTURAL UNIVERSITY, ANAND

20.7.2.22	**Evaluation and development of yardstick of CV % for Vegetable crops experiments**
	The yard stick of CV% for accepting the results of the vegetable crops experiment is recommended as 16.72, i.e. 17 per cent for yield character. **Approved** (Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)
20.7.2.23	**Evaluation and development of yardstick of CV% for forage crops experiments**
	The yard stick of CV% for accepting the results of the forage crops experiment is recommended as 13.50, i.e. 14 per cent for yield character. **Approved** (Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)
20.7.2.24	**Detection of late blight and early blight diseases of potato using deep learning**
	It is recommended that the custom Convolutional Neural Network (CNN) architecture developed for detection of late blight and early blight diseases of potato can be utilized for disease identification based on its proven high accuracy rate of 97%, along with its computational efficiency, with reduced number of parameters relative to established models like VGG 16 and AlexNet. **Approved** (Action: Assistant Professor and Head, Dept. of Basic Science, College of Horticulture, AAU, Anand)
20.7.2.25	**Development and standardization of a scale to measure attitude of youth towards Agri- startup programmes**

The scale is recommended for those researchers who want to measure the attitude of youth towards Agri startup programmes.

A. Final statements for scale to measure attitude of youth towards Agri startup programmes

Sr. No.	Statement	SA	A	UD	DA	SDA
1	Agri-startup initiative helps in addressing India's unemployment problems. (+) ભારતમાં બેરોજગારીના પ્રશ્નનું નિરાકરણ કરવા માં એગ્રીસ્ટાર્ટઅપ કાર્યક્રમ મદદરૂપ થશે.(+)	5	4	3	2	1
2	It is complicated to obtain financial aid through Agri-startup programmes. (-) એગ્રીસ્ટાર્ટઅપ કાર્યક્રમ માટે નાણાકીય સહાય મેળવવી જટિલ છે. (-)	1	2	3	4	5
3	Agri-startup programmes are helpful to give a contribution to the community by developing a successful business. (+) એગ્રીસ્ટાર્ટઅપ કાર્યક્રમો સફળ વ્યાપાર/ધંધાના વિકાસ દ્વારા સમાજને મદદરૂપ થાય છે.(+)	5	4	3	2	1
4	Agri-startup programmes help to achieve a high standard of living. (+) લોકોના જીવન ધોરણ ઊંચા લાવવામાં એગ્રીસ્ટાર્ટઅપ કાર્યક્રમો મદદરૂપ થાય છે.(+)	5	4	3	2	1
5	Agri-startup programmes help in building self-reliance among youth. (+) એગ્રીસ્ટાર્ટઅપ કાર્યક્રમો યુવાનોને સ્વનિર્ભર બનાવવામાં મદદરૂપ થાય છે.(+)	5	4	3	2	1
6	Agri-startup programmes promote versatility in the business. (+) એગ્રીસ્ટાર્ટઅપ કાર્યક્રમો વ્યાપાર/ધંધાના વૈશ્વિકરણને પ્રોત્સાહન આપે છે. (+)	5	4	3	2	1
7	Agri-startup programmes face a lot of problems due to a lack of market access. (-) એગ્રીસ્ટાર્ટઅપ કાર્યક્રમો ચલાવવામાં બજાર વ્યવસ્થાના અભાવને લીધે ઘણા પ્રશ્નો જોવા મળે છે.(-)	1	2	3	4	5
8	Starting an Agri-start up is not a practical approach for all the youth. (-) બધા જ યુવાનો માટે એગ્રી સ્ટાર્ટઅપ કાર્યક્રમ શરૂ કરવો એ વ્યાવહારિકરીતે (પ્રેક્ટીકલી) અનુકૂળ અભિગમ નથી.(-)	1	2	3	4	5

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

Approved

(Action: Professor and Head, Dept. of Agril. Extn. & Com., AAU, Anand)

20.7.2.26	**Development of a scale to measure attitude of the trainees towards online training programmes**

The scale is recommended for those researchers who want to measure the attitude of the trainees towards online training programmes.

A. Final statements for scale to measure attitude of the trainees towards online training programmes.

Sr. No.	Statement	SA	A	UD	DA	SDA
1	Online training is best alternative in situation like Covid (+) Covid-19 જેવી પરિસ્થિતિમાં ઓનલાઈન તાલીમ એ ઉત્તમ વિકલ્પ છે(+) .	5	4	3	2	1
2	Online training saves resources (+) ઓનલાઈન તાલીમ, તાલીમ માટેના સ્ત્રોતની બચત કરે છે.	5	4	3	2	1
3	It is most convenient to me as I can turn anywhere with Internet access and electricity (+) ઓનલાઈન તાલીમ મારા માટે સૌથી અનુકૂળ છે, જેમાં હું ઈન્ટરનેટ અને વિજળીની ઉપલભ્ધતાથી ગમે ત્યાંથી તાલીમમાં ભાગ લઈ શકું છું.	5	4	3	2	1
4	Online training increases workload (-) ઓનલાઈન તાલીમ કામનું ભારણ વધારે છે.(-)	1	2	3	4	5
5	I prefer online training as it is hassle free (+) હું ઓનલાઈન તાલીમને પ્રાધાન્ય આપું છું કારણ કે પ્રમાણમા સરળ છે.(+)	5	4	3	2	1
6	It is difficult to connect with other participants in online training (-) ઓનલાઈન તાલીમમાં અન્ય સહભાગીઓ સાથે જોડાવું મુશ્કેલ છે.(-)	1	2	3	4	5
7	Trainees are less responsive in online training class (-) ઓનલાઈન તાલીમ વર્ગમાં તાલીમાર્થીઓ ઓછા પ્રતિ ભાવ આપે છે.(-)	1	2	3	4	5
8	Skill training is impossible through online training (-) કૌશલ્યયુક્ત તાલીમ ઓનલાઈન માધ્યમ દ્વારા અશક્ય છે.(-)	1	2	3	4	5
9	Online training lacks practical learning (-) ઓનલાઈન તાલીમમાં પ્રાયોગિક શિક્ષણનો અભાવ છે.	1	2	3	4	5

Approved

(Action: Director, EEI, AAU, Anand)

20.7.2.27	**Rural livelihood sustainability and diversification in Kutch district of Gujarat**
	Policymakers should focus on improving female literacy, health, enhancing irrigation, providing skills through training and education and promoting social organization membership to enhance overall livelihood sustainability in Kutch district. પોલીસી મેકર એ કચ્છ જિલ્લામાં એકંદરે આજીવિકા ટકાઉપાણું વધારવા માટે સ્ત્રીસાક્ષરતા, આરોગ્ય, સિંચાઈ વધારવા, તાલીમ અને શિક્ષણ દ્વારા કૌશલ્ય પ્રદાન કરવા અને સામાજિક સંસ્થાના સભ્યપદને પ્રોત્સાહન આપવા પર ધ્યાન કેન્દ્રિત કરવું જોઈએ. **Approved** (Assistant Research Scientist, RRS, SDAU, Bhachau, Kutch)
20.7.2.28	**Utilization of Pradhan Mantri Ujjwala Yojana (PMUJ) by Rural Women**
	To promote LPG stove use and reduce reliance on unclean cooking fuels among rural women, it's recommended to either lower cylinder refill prices or increase government subsidies. Furthermore, awareness should be created among rural women in their local dialect to promote the optimal use of Ujjwala LPG stoves. એલપીજી ચુલ્હાના ઉપયોગને પ્રોત્સાહન આપવા અને ગ્રામીણ મહિલાઓમાં પ્રદુષણ ફેલાવતુંરસોઈંધણ પર નિર્ભરતા ઘટાડ વા માટે, સિલિન્ડર ફરી ભરાવવાના ભાવ ઘટાડવા અથવા સરકારી સબસિડી વધારવાની ભલામણ કરવામાં આવે છે. વધુમાં, ઉ જ્જવલા એલપીજી સ્ટવના શ્રેષ્ઠ ઉપયોગને પ્રોત્સાહન આપવા માટે ગ્રામીણ મહિલાઓમાં તેમની સ્થાનિક બોલીમાં જાગૃતિ ઊભી કરવી જોઈએ. **Approved** (Action: Assistant Professor, Department of Extension Education and Communication Management, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)
20.7.2.29	**Knowledge and Adoption Level of Date Palm Growers of Banaskantha and Patan Districts**
	Dropped (Action: Scientist (Horticulture), KrishiVigyan Kendra, Tharad, SDAU, Banaskantha-II)
20.7.2.30	**Effect of Social networking Sites on adolescent rural girls of Dantiwada taluka**
	Dropped (Action: Assistant Professor, Department of Extension Education and Communication Management, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)
20.7.2.31	**Assessment of stress and its management strategies among working women.**
	Women's workforce participation boosts economy and self recognition, but balancing work and family induces stress. Strong social support and society valuing women's contributions are crucial for stress relief. **Withheld with following Suggestions:** **1.** Extended for one more year 2. The sample size will be 300 respondents (Action: Assistant Professor, Department of Human Development and family

	studies, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar
20.7.2.32	**Traditional post-natal dietary practices followed by tribal women in Banaskantha district**
	The study recommends that the government should promote traditional postnatal foods such as Rab, Sounth, Halwa, JeeraOthami, Sukadi, MethiLaddoo, and Ukala and provide education on the safe consumption of traditionally restricted foods, like green leafy vegetables and fruits, during the postnatal period. These foods help mitigate nutritional loss and enhance postpartum health of women. Additionally, it suggests extending financial assistance for up to six months after child birth to support the health of both mothers and newborns, especially considering the tendency of many tribal mothers to return to work within 1 to 3 weeks after giving birth. અભ્યાસમાં ભલામણ કરવામાં આવી છે કે સરકારે રબ, સાઉથ, હલવો, જીરા ઓથામી, સુકડી, મેથીના લાડુ અને ઉકાળા જેવા પરંપરાગત પ્રસૂતિ પછીના ખોરાકને પ્રોત્સાહન આપવું જોઈએ અને લીલા પાંદડાવાળા શાકભાજી અને ફળો જેવા પરંપરાગત રીતે પ્રતિબંધિત ખોરાકના સલામત વપરાશ અંગે શિક્ષણ આપવું જોઈએ. જન્મ પછીનો સમયગાળો આ ખોરાક પોષણની ખોટ ઘટાડવામાં અને સ્ત્રીઓના પ્રસૂતિ પછીના સ્વાસ્થ્યને વધારવામાં મદદ કરે છે. વધુમાં, તે માતાઓ અને નવજાત શિશુ બંનેના સ્વાસ્થ્યને ટેકો આપવા માટે બાળકના જન્મ પછી છ મહિના સુધી નાણાકીય સહાય લંબાવવાનું સૂચન કરે છે, ખાસ કરીને ઘણી આદિવાસી માતાઓ જન્મ આપ્યા પછી 1 થી 3 અઠવાડિયાની અંદર કામ પર પાછા જવાનું હોય છે. **Approved** (Action: Assistant Professor, Department of Extension Education and Communication Management, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)
20.7.2.33	**Adoption of natural farming practices by the farmers of Banaskantha district**
	Knowledge about natural farming practices in Banaskantha was found to be medium and level of adoption was medium to low. The farmers got low yield during initial period.Trainings are required regarding the natural farming practices and creating awareness about preparation of formulation and its use in natural farming. Government should provide marketing facilities and remunerative price for natural farming product. બનાસકાંઠા જિલ્લાના ખેડૂતોમાં પ્રાકૃતિક ખેતી વિશેની જાણકારી મધ્યમ કક્ષાની અને તેને અપનાવવાનો દર ઓછો છે.પ્રાકૃતિક ખેતીની જાણકારી અને અપનાવવાનો દર વધે તે માટે વિસ્તરણ સંસ્થાઓએ પ્રાકૃતિક ખેતી વિશે વધુ તાલીમ આપવીતેમજ તાલીમમાં રોગ અને જીવાત વિષે વધુ ભાર મૂકવો અને પ્રાકૃતિક કૃષિમાં જુદી જુદી બનાવટો (ઈનપુટસ) વિશે જાગૃતતાલાવવા માટે પદ્ધતી નિદર્શન ગોઠવવા. તદઉપરાંત સરકારી સંસ્થાઓ દ્વારા પ્રાકૃતિક પેદાશોના ભાવ વધુ મળે તે માટે અલગબજારની વ્યવસ્થા ઉભી કરવી તેમજ શરૂઆતના તબક્કામાં પ્રાકૃતિક ખેતી કરતા ખેડુતોને સહાય પુરી પાડવી જોઈએ. **Approved** (Action: Senior Scientist and Head, KrishiVigyan Kendra, SDAU, Deesa, Banaskantha-I)
20.7.2.34	**Adoption of natural farming practices by the farmers of Mahesana district**
	Knowledge about natural farming practices in Mahesana district was found to be medium and level of adoption was medium to low. The farmers got low yield during initial period. Trainings are required regarding the natural farming practices and creating awareness about preparation of formulation and its use in natural

	farming. Government should provide marketing facilities and remunerative price for natural farming product. મહેસાણા જિલ્લાના ખેડૂતોમાં પ્રાકૃતિક ખેતી વિશેની જાણકારી મધ્યમ કક્ષાની અને તેને અપનાવવાનો દર ઓછો છે.પ્રાકૃતિક ખેતીની જાણકારી અને અપનાવવાનો દર વધે તે માટે વિસ્તરણ સંસ્થાઓએ પ્રાકૃતિક ખેતી વિશે વધુ તાલીમ આપવીતેમજ તાલીમમાં રોગ અને જીવાત વિષે વધુ ભાર મૂકવો અને પ્રાકૃતિક કૃષિમાં જુદી જુદી બનાવટો (ઈનપુટસ) વિશે જાગૃતતાલાવવા માટે પદ્ધતી નિદર્શન ગોઠવવા. તદઉપરાંત સરકારી સંસ્થાઓ દ્વારા પ્રાકૃતિક પેદાશોના ભાવ વધુ મળે તે માટે અલગબજારની વ્યવસ્થા ઉભી કરવી તેમજ શરૂઆતના તબક્કામાં પ્રાકૃતિક ખેતી કરતા ખેડુતોને સહાય પુરી પાડવી જોઈએ. **Approved** (Action: Assistant Professor (Agril. Economics), Department of Social Science, College of Horticulture, SDAU, Jagudan, Mahesana)
20.7.2.35	**Adoption of natural farming practices by the farmers of Patan district**
	The knowledge about natural farming practices in Patan district was found to be high to medium and level of adoption of natural farming practices was medium to low. To increase knowledge and adoption of natural farming, it is suggested to extension functionaries to conduct more number of training programmes focused on pest and disease management 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 periods of natural farming adoption. પાટણ જિલ્લાના ખેડૂતોમાં પ્રાકૃતિક ખેતી વિશેની જાણકારી વધુ થી મધ્યમ કક્ષાની અને તેને અપનાવવાનો દર મધ્યમ થી ઓછો છે.પ્રાકૃતિક ખેતીની જાણકારી અને અપનાવવાનો દર વધે તે માટે વિસ્તરણ સંસ્થાઓએ પ્રાકૃતિક ખેતી વિશે વધુ તાલીમ આપવીતેમજ તાલીમમાં રોગ અને જીવાત વિષે વધુ ભાર મૂકવો અને પ્રાકૃતિક કૃષિમાં જુદી જુદી બનાવટો (ઈનપુટસ) વિશે જાગૃતતાલાવવા માટે પદ્ધતી નિદર્શન ગોઠવવા. તદઉપરાંત સરકારી સંસ્થાઓ દ્વારા પ્રાકૃતિક પેદાશોના ભાવ વધુ મળે તે માટે અલગબજારની વ્યવસ્થા ઉભી કરવી તેમજ શરૂઆતના તબક્કામાં પ્રાકૃતિક ખેતી કરતા ખેડુતોને સહાય પુરી પાડવી જોઈએ. **Approved** (Action: Assistant Research Scientist, Dry Farming Research Station, SDAU, Radhanpur)
20.7.2.36	**Adoption of natural farming practices by the farmers of Sabarkantha district**
	The knowledge about natural farming practices in Sabarkantha district was found to be medium to high and level of adoption of natural farming practices was also medium to high. To increase knowledge and adoption of natural farming, it is suggested to extension functionaries to conduct more number of training programmes focused on pest and disease management 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 periods of natural farming adoption. સાબરકાંઠા જિલ્લાના ખેડૂતોમાં પ્રાકૃતિક ખેતી વિશેની જાણકારી મધ્યમ થી વધુ કક્ષાની અને તેને અપનાવવાનો દર પણ મધ્યમ થી વધુ કક્ષાનો છે.પ્રાકૃતિક ખેતીની જાણકારી અને અપનાવવાનો દર વધે તે માટે વિસ્તરણ સંસ્થાઓએ પ્રાકૃતિક ખેતી વિશે વધુ તાલીમ આપવીતેમજ તાલીમમાં રોગ અને જીવાત વિષે વધુ ભાર મૂકવો અને પ્રાકૃતિક કૃષિમાં જુદી જુદી બનાવટો (ઈનપુટસ) વિશે જાગૃતતાલાવવા માટે પદ્ધતી નિદર્શન ગોઠવવા. તદઉપરાંત સરકારી સંસ્થાઓ દ્વારા પ્રાકૃતિક પેદાશોના ભાવ વધુ મળે તે માટે અલગબજારની વ્યવસ્થા ઉભી કરવી તેમજ શરૂઆતના તબક્કામાં પ્રાકૃતિક ખેતી કરતા ખેડુતોને સહાય પુરી પાડવી જોઈએ. **Approved** (Action: Senior Scientist and Head, KrishiVigyan Kendra, SDAU,Khedbrahma Dist.: Sabarkantha)

20.7.2.37	**Adoption of natural farming practices by the farmers of Aravalli district**
	Knowledge about natural farming practices in Aravalli district was found to be medium and level of adoption was medium to low. The farmers got low yield during initial period. Trainings are required regarding the natural farming practices and creating awareness about preparation of formulations and its use in natural farming. Government should provide marketing facilities and remunerative price for natural farming product. અરવલ્લી જિલ્લાના ખેડૂતોમાં પ્રાકૃતિક ખેતી વિશેની જાણકારી મધ્યમ કક્ષાની અને તેને અપનાવવાનો દર મધ્યમ થી ઓછો છે.પ્રાકૃતિક ખેતીની જાણકારી અને અપનાવવાનો દર વધે તે માટે વિસ્તરણ સંસ્થાઓએ પ્રાકૃતિક ખેતી વિશે વધુ તાલીમ આપવીતેમજ તાલીમમાં રોગ અને જીવાત વિષે વધુ ભાર મૂકવો અને પ્રાકૃતિક કૃષિમાં જુદી જુદી બનાવટો (ઈનપુટસ) વિશે જાગૃતતાલાવવા માટે પદ્ધતી નિદર્શન ગોઠવવા. તદઉપરાંત સરકારી સંસ્થાઓ દ્વારા પ્રાકૃતિક પેદાશોના ભાવ વધુ મળે તે માટે અલગબજારની વ્યવસ્થા ઉભી કરવી તેમજ શરૂઆતના તબક્કામાં પ્રાકૃતિક ખેતી કરતા ખેડુતોને સહાય પુરી પાડવી જોઈએ. **Approved** (Action: Assistant Research Scientist, Wheat Research Station, SDAU,Vijapur, Dist.: Mahesana)
20.7.2.38	**Adoption of natural farming practices by the farmers of Kachchh district**
	The Knowledge and adoption of natural farming in Kachchh district was found to be from moderate to medium level. To increase knowledge and adoption of natural farming, it is suggested to extension functionaries to conduct more number of training programmes focused on pest and disease management 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 periods of natural farming adoption. કચ્છ જિલ્લાના ખેડૂતોમાં પ્રાકૃતિક ખેતી વિશેની જાણકારી અને તેને અપનાવવાનો દર મધ્યમ કક્ષાનો છે.પ્રાકૃતિક ખેતીની જાણકારી અને અપનાવવાનો દર વધે તે માટે વિસ્તરણ સંસ્થાઓએ પ્રાકૃતિક ખેતી વિશે વધુ તાલીમ આપવીતેમજ તાલીમમાં રોગ અને જીવાત વિષે વધુ ભાર મૂકવો અને પ્રાકૃતિક કૃષિમાં જુદી જુદી બનાવટો (ઈનપુટસ) વિશે જાગૃતતાલાવવા માટે પદ્ધતી નિદર્શન ગોઠવવા. તદઉપરાંત સરકારી સંસ્થાઓ દ્વારા પ્રાકૃતિક પેદાશોના ભાવ વધુ મળે તે માટે અલગબજારની વ્યવસ્થા ઉભી કરવી તેમજ શરૂઆતના તબક્કામાં પ્રાકૃતિક ખેતી કરતા ખેડુતોને સહાય પુરી પાડવી જોઈએ. **Approved** (Action: Associate Research Scientist, Date Palm Research Station, SDAU,Mundra Dist.: Kutch)
20.7.2.39	**Adoption of natural farming practices by the farmers of Gandhinagardistrict**
	Withheld with following suggestion: Recommendation was withheld for the ensuing year (Action: Assistant Professor (Agril. Extension), Department of Social Science, College of Horticulture, SDAU, Jagudan, Mahesana)
20.7.2.40	**Analysis of nutritional status and its associated factors among under five year children in Amirgadh taluka, Banaskantha, Gujarat**
	It is recommended that for accurate estimate of nutritional status of children, Composite Index of Anthropometric Failure (CIAF) as metric measurement is to be followed. **Approved** (Action: - Assistant Professor (Agril. Stat.), College of Basic Science and Humanities, SDAU, Sardarkrushinagar)

20.7.2.41	**Estimation of optimum plot size and shape from uniformity trial data of ajwain (Trachyspermumamimi)**
	A plot of 13.5 m^2 size having 6 rows each of 5 m length (2.7 m × 5 m) found optimum (net plot) with minimum 4 replications at 5 per cent standard error is recommended for field experiments on ajwain. **Approved** (Action: - Assistant Professor (Agril. Stat.), Department of Social Science, College of Horticulture, SDAU, Jagudan, Mahesana)
20.7.2.42	**Export performance of major seed spices from India**
	Exporters of cumin and coriander should focus on export to China and Malaysia, respectively since these countries are the most loyal importers besides these commodities fetched higher prices also. **Withheld with following suggestion:** 1. Include instability analysis and competitiveness measures to check the destination wise export and present in next AGRESCO. (Action: Assistant Professor, Department of Agril. Economics, C. P. College of Agriculture, SDAU, Sardarkrushinagar)
20.7.2.43	**Comparison of different forecast models for predicting area, production and productivity of sorghum in Banaskantha district**
	Prediction of production and productivity under sorghum crop in Banaskantha district, cubic model with five year moving average data approach is recommended: Model for production: $\hat{Y} = 6.437^{**} - 0.860\ t + 0.124^{*}\ t^2 - 0.004^{*}\ t^3$ ($R^2 = 70.90\%$) Model for productivity: $\hat{Y} = 761.157^{**} - 107.287^{*}\ t + 18.590^{**}\ t^2 - 0.685^{**}\ t^3$ ($R^2 = 83.00\%$) In above mentioned polynomial models, Y corresponds to original value of production or productivity or their moving average, t corresponds to time. **Approved** (Action: Assistant Professor, Department of Agril. Statistics, C. P. College of Agriculture, SDAU, Sardarkrushinagar)
20.7.2.44	**Gain and retention of knowledge of input dealers training organized by S.D. Agricultural University**
	It is recommended that a provision for refresher training within six months is necessary to refresh/upgrade the trained input dealers. પ્રશિક્ષિત ઈનપુટ ડીલરના જ્ઞાનને તાજું કરવા અથવા અપ ગ્રેડ કરવા માટે છ માસની અંદર રીફ્રેશર તાલીમ આપવાની જોગવાઈ માટે ભલામણ કરવામાં આવે છે. **Approved**

	(Action: Professor and Head, Department of Agril. Extension and Communication, C. P. College of Agriculture, SDAU, Sardarkrushinagar)

Summary of the New Technical Programmes

University	New Technical Programmes	
	Proposed	**Approved**
NAU	15	13
JAU	19	19
AAU	35	31
SDAU	06	05
Total	**75**	**68**

20.7.3 NEW TECHNICAL PROGRAMMES

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.1	Internet utilization behavior of students of Navsari Agricultural University, Navsari	1. Add fifth objective as 'to study the educational consequences on account of internet utilization'. 2. Improve the interview schedule as per suggestions. (Action: Professor & Head, Dept. of Agril. Extn. & Communication, NMCA, NAU, Navsari)	**Approved**
20.7.3.2	Awareness of farm women towards kitchen gardening in Bharuch district	1. Change the title as "Attitude of farm women towards kitchen gardening in Bharuch district" 2. Modify the interview schedule as per title. (Action: Head, Dept. of Agril. Extn. &Communication, CoA, NAU, Bharuch)	**Approved**
20.7.3.3	Utilization of Indigenous Technical Knowledge among tribal farm families in Tapi district	1. Reduce the study period to 2 years. 2. Replace second objective as 'to identify ITK and its documentation in agriculture and allied sector'. 3. Frame one additional objective regarding 'association of ITK with respondent's characters.' 4. Use word 'randomly' in sample selection. 5. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, NAU, Vyara)	**Approved**
20.7.3.4	Training needs of tribal farmers in finger millet cultivation of the Dangs	1. Reframe the fourth objective as 'find out the constraints faced by the tribal farmers in adoption of finger millet	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
	district	cultivation technology and seek their suggestions to overcome them'. 2. Reduce the study period to 2 years. 3. Improve the interview schedule as per suggestions. (Action: I/c Principal & Head, Polytechnic in Agriculture, NAU, Waghai)	
20.7.3.5	An evaluation of recreational value of National Salt Satyagrah Memorial, Dandi by travel cost method	The proposed study was dropped by the house. (Action: Professor & Head, Dept. of Agril. Economics, NMCA, NAU, Navsari)	**Dropped**
20.7.3.6	Economic Impact of Solarisation of Agricultural well in the South Gujarat	1. Modify title as 'Economic impact of Solar Water System of irrigation in Narmada district'. 2. Reframe the first objective as 'To study socio- Economic impact of Solar Water System in solar pump'. 3. Improve the interview schedule as per suggestions. (Action: Professor & Head, Dept. of Agril. Economics, NMCA, NAU, Navsari)	**Approved**
20.7.3.7	Impact Assessment of Per Drop More Crop scheme in South Gujarat	1. Change the sample size as 150 micro irrigation beneficiary and 150 non-beneficiary farmers. 2. Improve the interview schedule as per suggestions. (Action: Associate Professor & Head, Dept. of Social Sciences, ACH, NAU, Navsari)	**Approved**
20.7.3.8	Effectiveness of agricultural price policy for crops production in Gujarat state	1. Modify title as 'Effectiveness of agricultural price policy for major pulse crops production in Gujarat state' (Action: Associate Professor & Head, Dept. of Social Sciences, ACH, NAU, Navsari)	**Approved**
20.7.3.9	Value Chain Management of Mango by FPOs of South Gujarat	1. Reframe 5th objective as 'To study stakeholders' perceptions in mango value chain' 2. Improve the interview schedule as per suggestions. (Action: I/c Principal, AABMI, NAU, Navsari)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.10	Governance and Management of Farmer Producer Organizations (FPOs) in South Gujarat	1. Consider all the FPOs those are functional since more than one year out of entire 52 FPOs in South Gujarat. 2. Change the sample size of CEOs and BoDs accordingly. 3. Improve the interview schedule as per suggestions. (Action: I/c Principal, AABMI, NAU, Navsari)	**Approved**
20.7.3.11	Market mechanism and socio-economic implications in rural periodic markets (Haats) in South Gujarat	1. Remove the word 'tribal' from sampling design 2. Reduce the study period to 2 years. 3. Improve the interview schedule as per suggestions. (Action: I/c Principal, AABMI, NAU, Navsari)	**Approved**
20.7.3.12	Temporal dynamics of cost structures and profitability trends of major oilseed crops in Gujarat	1. Reduce the study period to 1 year. (Action: I/c Principal, AABMI, NAU, Navsari)	**Approved**
20.7.3.13	Comparative growth performance and decomposition analysis of major nutri-cereals in Gujarat	The proposed study was dropped by the house. (Action: Assistant Professor, Dept. of Agril. Economics, CoA, NAU, Bharuch)	**Dropped**
20.7.3.14	Comparative advantage analysis and export competitiveness of Indian basmati and non-basmati rice	The proposed study was approved by the house. (Action: I/c Principal & Head, Polytechnic in Agriculture, NAU, Waghai)	**Approved**
20.7.3.15	Trends and Geostatistical Interpolation of Spatio-Temporal Variability of Precipitation in Gujarat	The proposed study was approved by the house. (Action: Professor & Head, Dept. of Agril. Statistics, NMCA, NAU, Navsari)	**Approved**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.16	Decomposition and Supply Response Analysis of Cotton Production in Major Districts of Gujarat	1. Categorize the study period into pre- and post-Bt cotton. 2. Estimate growth and instability indices for the newer districts as much as possible, without merging them with the older districts from which they were apportioned.	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
		(Action: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)	
20.7.3.17	Resource use efficiency and demand-supply scenario analysis of fodder in Saurashtra region, Gujarat	1. Include 'fodder wastage' as a variable. 2. Include both organized and unorganized farmer categories in the sample. 3. Improve the interview schedule as per suggestions. (Action: Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)	**Approved**
20.7.3.18	Time series forecasting of area and production of vegetable crops in Gujarat	1. Mention the study period. 2. List out the vegetable crops under study. (Action: Professor & Head, Dept. of Agril. Statistics, CoA, JAU, Junagadh)	**Approved**
20.7.3.19	Strengthening Statistical Analysis Programmes using Python Machine Learning and Data Visualization	The proposed study was approved by the house. (Action: Professor & Head, Dept.of Agril. Statistics, CoA, JAU, Junagadh)	**Approved**
20.7.3.20	Emerging opportunities for the application of Blockchain in agriculture	1. Widen the sample base to include agri-finance institutions using blockchain. 2. Include quantitative variables as well along with the qualitative ones. 3. Improve the interview schedule as per suggestions. (Action: Principal, PGIABM, JAU, Junagadh)	**Approved**
20.7.3.21	Financial inclusion among rural women in Junagadh district	1. Include the government schemes for financial inclusion. 2. Improve the interview schedule as per suggestions. (Action: Principal, PGIABM, JAU, Junagadh)	**Approved**
20.7.3.22	Role of SHGs in promoting financial literacy among rural women in selected districts of Saurashtra region	1. Include only the trainings given for financial inclusion/literacy and not any other training. 2. Include the questions on awareness to fulfill the second objective. 3. Improve the interview schedule as per suggestions. (Action: Principal, PGIABM, JAU, Junagadh)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.23	Assessing the effectiveness of the financial literacy programme for the students of Junagadh Agricultural University	1. Improve the interview schedule as per suggestions. (Action: Principal, PGIABM, JAU, Junagadh)	**Approved**
20.7.3.24	Adoption of natural farming in Saurashtra region	1. Drop the second objective. 2. Revise the methodology part to include the sampling method and proper selection of respondents. 3. Improve the interview schedule as per suggestions. (Action: Professor & Head, Dept. of Agril. Ext. Edu., CoA, JAU, Junagadh)	**Approved**
20.7.3.25	Perception of farmers towards agri-drones technology in Saurashtra region	1. Among respondents, include the farmers who benefitted from the NAMO Drone Didi scheme. 2. Improve the interview schedule as per suggestions. (Action: Professor & Head, Dept.of Agril. Ext. Edu., CoA, JAU, Junagadh)	**Approved**
20.7.3.26	Socio-Economic Impact Analysis and RoI (Return on Investment) of Groundnut Cultivars Released by Junagadh Agricultural University	The proposed study was approved by the house. (Action: Directorate of Extension Education, JAU, Junagadh)	**Approved**
20.7.3.27	Awareness regarding programmes broadcast by Community Radio Station, Junagadh Agricultural University, Junagadh	1. Reframe the title as: Listening behaviour of farmers to programmes broadcast by the Community Radio Station, Junagadh Agricultural University, Junagadh. 2. Use the scale developed for 'listening behaviour' of farmers. 3. Change the interview schedule in line with the title. 4. Modify the objectives as per the changes suggested by the house. (Action: Directorate of Extension Education, JAU, Junagadh)	**Approved**
20.7.3.28	Assessment of large scale demonstration of best practices to enhance cotton productivity in Rajkot district	1. Modify the title as: Assessment of the large-scale demonstration of best practices to enhance cotton productivity project in Rajkot district. 2. Add an objective to study the knowledge of the farmers. 3. Improve the interview schedule as per	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
		suggestions. (Action: Senior Scientist & Head, KVK, JAU, Targhadia)	
20.7.3.29	Assessment of large scale demonstration of best practices to enhance cotton productivity in Amreli district	1. Modify the title as: Assessment of the large-scale demonstration of best practices to enhance cotton productivity project in Amreli district. 2. Add an objective to study the knowledge of the farmers. 3. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, JAU, Amreli)	**Approved**
20.7.3.30	Impact of Krishi Vigyan Kendra's trainings on knowledge of recommended cotton production technologies	1. Change the title as: Impact of Krishi Vigyan Kendra's trainings on knowledge of farmers about the recommended cotton production technologies. 2. Drop the third objective. 3. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, JAU, Amreli)	**Approved**
20.7.3.31	Impact of plant protection training programmes on knowledge level of groundnut growers	1. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, JAU, Pipalia)	**Approved**
20.7.3.32	Impact of plant protection training programmes on knowledge level of Groundnut growers in Porbandar district	1. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, JAU, Khapat)	**Approved**
20.7.3.33	Assessment of large scale demonstration of best practices to enhance cotton productivity in Surendranagar district	1. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, JAU, Nana Kandhasar)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.34	Impact of KVK trainings on promotion of scientific dairy farming in Surendranagar district of Gujarat	1. Improve the interview schedule as per suggestions. (Action: Senior Scientist & Head, KVK, JAU, Nana Kandhasar)	**Approved**

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.35	An economic analysis of cow based natural farming of wheat in Anand and Kheda districts of Middle Gujarat	**1**.Remove word cow based from title. 2.Add 'Ghan jivamrut' in introduction 3. Add 'a list of farmers received from ATMA project of respective district and in case of selection of sample size only those farmers will be selected who have adopted all five components of natural farming' in methodology i.e. selection of area and respondents. 4. Remove objective I and item no 16 from the interview schedule (Components of Natural farming followed by farmers) and subsequently change the serial no. of both. 5. Change the objective No. 1 as "To study the profile of natural farming practices adopted farmers" . 6. Add the objective of comparison. 7. Replace wheat crop instead of mixed crop from production and returns from mixed cropping table. (Action: Professor & Head, Department of Agril. Econ., BACA, AAU, Anand)	**Approved**
20.7.3.36	Export potential of Ready to Eat (RTE), Ready to Cook (RTC) and Ready to Serve (RTS) products in India	1. Modify title as 'Export potential of Ready to Eat, Ready to Cook and Ready to Serve products in India'. (Action: Professor & Head, Department of Agril. Econ., BACA, AAU, Anand)	**Approved**
20.7.3.37	Crop diversification in Ahmedabad district	The proposed study was approved by the house. (Action: Assistant Professor & Head, Department of Social Science., College of Horticulture, AAU, Anand)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.38	Perception of farmers towards off season and seasonal cultivation of vegetables in Gujarat	1. Modify title as 'Perception of farmers towards off season and seasonal cultivation of vegetables in North and South Gujarat'. (Action: Principal, IABMI, AAU, Anand)	**Approved**
20.7.3.39	Status of Nano urea usage in bidi tobacco in Middle Gujarat	**1.** Add 'a list of nano urea using farmers will be collected from IFFCO / GSFC depots and cooperatives' in methodology i.e. selection of area and respondents **2.** Replace the objective No. 2 and title of Part II of interview schedule as 'To study the comparative usage of the nano urea and urea'. (Action: Principal, IABMI, AAU, Anand)	**Approved**
20.7.3.40	Problems and prospects of agrotourism in Middle Gujarat	**1.** Replace 'purposive sampling design and respondents will be selected randomly' in methodology i. e. sampling design **2.** Add word 'and services' after facilities in the objective No. 2 and title of part-II **3.** Improve the interview schedule as per suggestions. (Action: Principal, IABMI, AAU, Anand)	**Approved**
20.7.3.41	Awareness and utilization of PM Kisan Samman Nidhi Yojana among the farmers in Anand and Dahod districts of Middle Gujarat	1. Remove 'delayed payments' from objective no.4 table 2. Improve the interview schedule as per suggestions. (Action: Principal, IABMI, AAU, Anand)	**Approved**
20.7.3.42	Supply chain and post-production losses of milk in Middle Gujarat	1. Replace 'variable cost concept' instead of cost concept (CACP approach) in statistical tools for analysing the data (calculation of cost and return). (Action: Principal, IABMI, AAU, Anand)	**Approved**
20.7.3.43	Challenges and opportunities of business incubation in Gujarat	**1.** Take agri. and allied sectors for selection of incubators and incubates. (Action: Associate Professor and Head, Dept. of FBM, CFPTBE, AAU, Anand)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.44	Forewarning of insect-pests incidence in rice crop based on weather variables using statistical methods	1. Duration of study will be of 2 years 2. The validation of data will be in the year 2026-27. (Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)	**Approved**
20.7.3.45	Evaluation and development of yardstick of CV % for wheat crop experiments	1. Modify title as **'**Evaluation and development of yardstick of Coefficient of variation for wheat crop experiments'. (Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)	**Approved**
20.7.3.46	Efficiency of Variance Balanced Design Over Randomized Complete Block Design for diallel crosses of okra crop	1. Remove second objective (Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)	**Approved**
20.7.3.47	Efficiency of Variance Balanced Design Over Randomized Complete Block Design for diallel crosses of brinjal Crop	The proposed study was dropped by the house. (Action: Professor and Head, Dept. of Agril. Statistics, BACA, AAU, Anand)	**Dropped**
20.7.3.48	Machine Learning Approaches to irrigation water quality parameters prediction	1. Include source of underground water, independent and dependent variables and specific machine learning technique in methodology section. (Action: Assistant Professor & Head, Department of Basic Science, College of Horticulture, AAU, Anand)	**Approved**
20.7.3.49	Developing image database of major insect-pests and diseases infecting rice and wheat in Middle Gujarat	The proposed study was approved by the house. (Action: Professor & Head, Department of Basic Sciences and Humanities, BACA, Anand)	**Approved**
20.7.3.50	Study on attitude of UG students of Anand Agricultural University towards Agri startup programmes	1. Remove 'Study on' from title. 2. Replace carrier aspiration categories as 'Govt. job, Private job and Agri-start up' instead of 'Will improve, remain the same and will decline' in interview schedule item no. 12. 3. Add ANOVA in statistical tools. (Action: Professor & Head, Dept. of Agril. Extn. &Com BACA, AAU, Anand)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.51	Horizontal spread of Gujarat Anand Duram Wheat-3 among the wheat growers	Add 'in Bhal region' in the title **2.**Remove 'in comparison with private varieties' from introduction. 3 The sample size will be 300 4 Remove 1000 grain weight from interview schedule Part III . (Action: Professor & Head, Dept. of Agril. Extn. &Com BACA, AAU, Anand)	**Approved**
20.7.3.52	Impact assessment of sponsored farm telecast in Gujarat	1. Modify title as 'Impact assessment of farm telecast in Gujarat'. 2. Remove FM stations of Akashwani (AIR)' from introduction. 3. Remove 'change in and sponsored' word from attitude table. (Action: Director, EEI, AAU, Anand)	**Approved**
20.7.3.53	Impact assessment of sponsored farm broadcast in Gujarat	1. Modify title as 'Impact assessment of farm broadcast in Gujarat'. 2. Remove 'change in and sponsored' word from attitude table (Action: Senior Scientist & Head, KVK, JAU, Nana Kandhasar)	**Approved**
20.7.3.54	Awareness among the secondary school teachers regarding the polytechnic courses run by AAU	The proposed study was dropped by the house. (Action: Director, Institute of Distance Education, AAU, Anand)	**Dropped**
20.7.3.55	Usefulness of the Krushigovidhya farm magazine as perceived by the readers	The proposed study was dropped by the house. (Action: Director, EEI, AAU, Anand)	**Dropped**
20.7.3.56	Adoption of climate resilient technologies among paddy growers in Kheda district	1. Correct the introduction and remove the paragraph written twice 2. Add the purpose for selection of area in methodology. 3. Mark positive and negative sign in psychological variables. 4. Remove partial adoption column. 5. Remove 'application of neem coated urea' from interview schedule part II (soil fertility management). 6. Replace word 'after' instead of under in interview schedule part II (soil fertility management last sentence). (Action: Professor & Head, Department of Agricultural Science, CAIT, AAU, Anand)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.57	Impact assessment of trainings on banana growers	1. Add objective **'**To measure the effectiveness of training programme on banana growers'. **2.**Remove word symbolic from objectives **3.**Replace 'simple random sampling' instead of 'purposive random sampling' in methodology. **4.** Replace 'statistical methods' instead of 'statistical tools' in methodology. **5.** Add 'coefficient of correlation' along with 'descriptive statistics' in methodology. 6.Add word 'know 'along with 'Do you' in interview schedule part-II (Knowledge question no.8). (Action: Principal, College of Agriculture, AAU, Jabugam)	**Approved**
20.7.3.58	Perception of the paddy growers about Nano fertilizer	1. Modify title as 'Perception of the paddy growers about Nano fertilizer**s**'. 2. Replace 'purposive random sampling by 'multistage random sampling' in methodology. (Action: Principal, Department of Agril. Extn. & Commu. College of Agriculture, AAU, Vaso)	**Approved**
20.7.3.59	Awareness and utility perception about AAU among the farmers	1. Replace word 'five villages' instead of 'villages'. (Action: Associate Research Scientist, ARS, AAU, Derol)	**Approved**
20.7.3.60	Adoption of IPM technologies in castor crop in Panchmahals district	The proposed study was approved by the house. (Action: Research Scientist, Main Maize Research Station, AAU, Godhara)	**Approved**
20.7.3.61	Impact analysis of demonstrations conducted by KVK	1. Modify title as 'Impact analysis of chick pea demonstration conducted by KVK, Ahmedabad'. 2. Conduct study only for chick pea crop and drop wheat crop. Accordingly make change in interview schedule. 3. Replace 'statistical tools' by 'statistical methods' in methodology. 4. Use 'correlation' as analytical tool along with 'descriptive statistics' for data analysis. (Action: Sr. Scientist and Head, KVK,	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
		AAU, Di. Ahmedabad)	
20.7.3.62	Impact analysis of training organized by KVK	1. Modify title as 'Impact analysis of animal husbandry training organised by KVK, Anand'. 2. Replace 'statistical tools' by 'statistical methods' in methodology. 3. Use 'correlation' as analytical tool along with 'descriptive statistics' for data analysis. (Action: Sr. Scientist and Head, KVK, AAU, Devataj, Di. Anand)	**Approved**
20.7.3.63	Problematic soil reclamation practices adopted by the farmers of Anand district	1. Put title of table after part II in interview schedule. (Action: Sr. Scientist and Head, KVK, AAU, Devataj)	**Approved**
20.7.3.64	Technological capabilities of the input dealers about agro services in Chhotaudepur district of Gujarat	1. Recast the whole technical programme as per suggestions and put it in next year . (Action: Sr. Scientist and Head, KVK, Mangalbharti, Vadodara-Chhotaudepur)	**Dropped**
20.7.3.65	Attitude of the farmers towards i-Khedut portal in Kheda district	1. Include only those the respondents in the sample who have availed benefit from i-Khedut portal. (Action: Sr. Scientist and Head, KVK, (ICAR) Dethali-Kheda)	**Approved**
20.7.3.66	Impact analysis of Cluster Frontline Demonstration (CFLD) on chickpea growers	1. Replace 'statistical methods' instead of 'statistical tools' in methodology. **2.**Add 'coefficient of correlation' along with 'descriptive statistics' in methodology. **3.** Correct the independent variable 'education' subcategories as primary (1^{st} to 8^{th}Std.) and secondary (9^{th} to 10^{th} Std.). **4**. Make only two categories in adoption i.e. adopted and not adopted in interview schedule part-III. (Action: Sr. Scientist and Head, KVK, AAU, Dahod)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.67	Impact of training on knowledge and adoption of castor growers	1. Make only two categories in adoption i.e. adopted and not adopted in interview schedule part-III. (Action: Head, FTTC, AAU, Sansoli-Nenpur)	**Approved**
20.7.3.68	Effectiveness of training programme on cultivation practices and value addition of finger millet	1. Remove word 'and value addition' from title and interview schedule. (Action: Head, TRTC & TFWTC, AAU, Devgadhbaria)	**Approved**
20.7.3.69	Farm mechanization adopted by the farmers of Dahod district	1. Make only two categories in adoption i.e. adopted and not adopted in interview schedule part-III. 2.Remove the animal drawn implements from interview schedule part III. (Action: Head, Agri. - Polyclinic & TFTC, Muvaliya Farm, AAU, Dahod)	**Approved**

SARDAR KRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S. K. NAGAR

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.70	Dietary awareness and practices during menstruation among girl students of SDAU	1. The sampling design should be stratified proportionate random sampling. 2. Add stress management as a variable. 3. Use Chi Square to measure the association. (Action: Assistant Professor (Food Science and Nutrition), ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)	**Approved**
20.7.3.71	Development and standardization of a scale to measure the knowledge level of diabetic patients regarding diet in diabetes	1. Modify the title as 'Development of knowledge test for diabetic patients regarding diet in diabetes. 2. The modified objectives of the study will be a. To develop a knowledge test for diabetic patients regarding diet in diabetes b. To measure the knowledge of diabetic patients regarding diet in diabetes. 3. Take sample of 300 respondents using random sampling. 4. Modify the methodology as per the title. (Action: Assistant Professor (Food Science and Nutrition), ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)	**Approved**

Sr. No.	Title	Suggestion/s and Action	Remarks
20.7.3.72	Price spread and marketing efficiency of Brinjal in Mehsana district	The proposed study was approved by the house. (Action: Assistant Professor, Department of Social Science, College of Horticulture, SDAU, Jagudan, Mahesana)	**Approved**
20.7.3.73	Comparison of different forecast models for predicting area, production and productivity of fennel in Banaskantha district	The proposed study was approved by the house. (Action: Assistant Professor, Department of Agril. Statistics, C. P. College of Agriculture, SDAU, Sardarkrushinagar)	**Approved**
20.7.3.74	Prevalence of stone disease and associated risk factors amongst rural people of Deesa and Dantiwada Taluka	1. Modify the title as 'Prevalence of stone disease among rural people of Deesa and DantiwadaTaluka'. 2. Remove the objective No. 4 and 5. (Action: Assistant Professor and Head, RMCS, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)	**Approved**
20.7.3.75	Assessment of Oral Presentation Skills among the students of SDA University	The proposed study was dropped by the house. (Action: Assistant Professor, Department of Extension Education and Communication Management, ASPEE College of Nutrition and Community Science, SDAU, Sardarkrushinagar)	**Dropped**

General Suggestions: as per the discussion in the session of 20th Combined Agresco meeting following suggestions are specified by the members

1. All the members of social science subcommittee shall follow the following standard categorization for variables viz Age, Education, family size and landholding.

1) Age

Sr. No.	Categories	Years
1	Young	Up to 35
2	Middle	36 to 50
3	Old	51 and above

2) Education

Sr. No.	Categories	Score
1	Illiterate	0
2	Can read and write	1
3	Primary (1st to 8th standard	2
4	Secondary (9th to 10th standard)	3
5	Higher secondary (11th to 12th standard)	4
6	Graduate	5
7	Postgraduate and above	6

3) Family size

Sr. No.	Categories	Years
1	Small	Up to 4 members
2	Medium	5 to 8 members
3	Big	Above 8 members

4) Landholding

Sr. No.	Categories	Years
1	Marginal	Up to 1.00 ha.
2	Small	1.01 to 2.00 ha.
3	Semi-medium	2.01 to 4.00 ha
4	Medium	4.01 to 10.00 ha.
3	Large	Above 10.00 ha.

5) All the members of the group should be present NTP with the questioner.

6) The Convener of the respective university should present the Recommendation, NTP and status of the previous AGRESCO's approved programmme.

7) The Convener of the respective university mention the NTP number, in which AGRESCO, it was sanctioned.

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Proceeding of Plenary Session of 20th Combined AGRESCO meeting of SAUs of Gujarat held through Video Conferencing, hosted by Navsari Agricultural University (NAU), Navsari on June 7, 2024

Plenary Session

Venue: V.C. Conference Hall, NAU, Navsari **Date: 7.06.2024**

Time: 09:30 to 2:30 Hrs

Plenary session of 20th Combined AGRESCO meeting of SAUs Gujarat was chaired by **Dr. Z. P. Patel**, Hon. Vice Chancellor of NAU, Navsari and Co-chaired by **Dr. R. M. Chauhan**, Hon. Vice Chancellor, SDAU, S. K. Nagar, **Dr. K. B. Kathiria,** Hon. Vice Chancellor, AAU, Anand and **Dr. V. P. Chovatia**, Hon. Vice Chancellor, JAU, Junagadh.

Dr. Z. P. Patel, Hon. Vice Chancellor, NAU, Navsari 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 who joined the meeting through online mode. He expressed immense pleasure and great satisfaction over the successful organization of Combined AGRESCO of all the SAUs of Gujarat as well as meaningful discussion and deliberations on NTPs and recommendation of all the sub-committees.

Proceedings of all the sub-committees by the respective conveners were presented, where in recommendations and new technical programmes of different sub-committees were discussed and approved. Dr. Lalit Mahatma, Associate Director of Research, NAU, Navsari; Dr. V. D. Tarpara, Associate Director of Research, JAU, Junagadh, Dr. S. N. Shah, Associate Director of Research, AAU, Anand and Dr. C. K. Patel, Associate Director of Research, SDAU, S. K. Nagar were the rapporteurs for this session.

Dr. B. K. Davda, Convener, Crop Improvement AGRESCO sub-committee, NAU, Navsari presented release proposals of varieties and recommendations of Crop Improvement AGRESCO sub-committee. Out of 28 release proposals of improved crop varieties/hybrids, 23 entailing 6, 5, 11 and 1 from AAU, JAU, NAU and SDAU were approved. Three recommendation for farmers one from NAU and two from SDAU, one each recommendation for scientific information from AAU and JAU and 8 new technical programmes, entailing 6, 1and 1 from AAU, JAU and SDAU were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. Sonal Tripathi, Convener, Crop Production sub-committee of NAU, Navsari presented the proceeding of Crop Production sub-committee. Fifty-nine farming community recommendations, of which 18, 19, 16 and 6 from NAU, SDAU, AAU and JAU were approved.

Further, 21 scientific recommendations and 75 new technical programmes of SAU's were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. Hemant Sharma, Convener, Plant Protection AGRESCO sub-committee, NAU, Navsari presented proceeding of the Plant Protection AGRESCO sub-committee. Forty-four farming community recommendations, of which 9, 3, 6 and 4 from NAU, JAU, AAU and SDAU respectively were approved. Seventy-six scientific information and 73 new technical programmes entailing 27, 18, 21 and 7 from NAU, JAU, AAU and SDAU respectively were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. Dev Raj, Convener, Horticulture AGRESCO sub-committee, NAU, Navsari presented proceeding of the Horticulture and Agro-forestry AGRESCO sub-committee of SAUs. Out of thirty-five farming community recommendations, 33 entailing 12, 9, 9 and 3 from NAU, SDAU, AAU and JAU respectively were approved. The house approved 12 scientific information and 60 new technical programmes entailing 31, 13, 8 and 8 from NAU, SDAU, AAU and JAU respectively were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. Parag Pandit, Convener, Agricultural Engineering, NAU, Navsari presented proceeding of Agriculture Engineering AGRESCO sub-committee. Thirty-one recommendations for the farming community, of which 10, 10, 6 and 5 from NAU, JAU, AAU and SDAU respectively were approved. Twelve scientific information and 41 new technical programmes entailing 9, 18, 9 and 5 from NAU, JAU, AAU and SDAU respectively were also approved.

Dr. Rajkumar Katagi, Convener, Basic Science AGRESCO sub-committee, NAU, Navsari presented the proceeding of Basic Science AGRESCO sub-committee. Twelve scientific information and 31 new technical programmes entailing 7, 5, 15 and 4 from AAU, JAU, NAU and SDAU, respectively were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

Dr. Narendra Singh, Convener, Social Science AGRESCO sub-committee, NAU, Navsari presented the proceeding of Social Science AGRESCO sub-committee. Thirty scientific information were approved. Sixty-eight new technical programmes entailing 13, 19, 31 and 5 from NAU, JAU, AAU and SDAU, respectively were also approved.

(Action: Concerned Director of Research and Scientist of SAUs)

CONCLUDING REMARKS:

All the Honorable Vice Chancellors' of different SAU's congratulated scientists for the release of varieties, farmers recommendations and scientific information. All were of the opinion to organize such events in future through offline mode to facilitate better deliberations.

Dr. R. M. Chauhan, Hon. Vice Chancellor, SDAU, S. K. Nagar emphasized the preparation of slides in a clearly visible manner. He also encouraged the scientific fraternity to explore new ideas and methods in research.

Dr. K. B. Kathiria, Hon. Vice Chancellor, AAU, Anand discussed about furthering research on crop sequences and emphasized the need for a separate meeting on it.

Dr. V. P. Chovatia, Hon. Vice Chancellor, JAU, Junagadh discussed about Global warming and diversification of pests and disease and consequently resurgence of black thrips, fruit borer in date plam whiteflies and white grub in groundnut and other crops. Disturbance in different seasons and elevation of winter temperate resulted in a mere 20 per cent flowering in mango and coconut crop. He also emphasized the use of Artificial Learning, Machine Learning and Robotics in agricultural sciences.

Dr. Z. P. Patel, Hon. Vice Chancellor, NAU, Navsari thanked all the Hon Vice Chancellors of SAUs of Gujarat, scientists, conveners, Chairman and rapporteurs of different sessions, Director of Research & Dean PGS, Director of Extension Education, Associate Director of Research and all involved for the cooperation in the successfully organization 20thCombined AGRESCO different technical and plenary sessions. He expressed his satisfaction on the timely completion of the different sessions.

The session ended with Vote of Thanks by Dr. T. R. Ahlawat, Director of Research, NAU, Navsari.

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