DIRECTORATE OF RESEARCH
ANAND AGRICULTURAL UNIVERSITY
UNIVERSITY BHAVAN, ANAND-388 110

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No. AAU/DR/RES/T-3/ 3178 **/2017** **Date :** 27 **- 06 - 2017**

To,

1. All University Officers, AAU, Anand
2. All Conveners AGRESCO Sub Committee, AAU, Anand
3. All Unit / Sub-Unit Officers

Sub: Proceedings of 13th Combined Joint Agresco Sub-Committee..... regarding

With reference to above cited subject, please find enclosed herewith Proceedings of 13th Combined Joint Agresco Sub-Committee meeting held during 5-7 April, 2017 at Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar.

Enclosed: As Above

Director of Research &Dean
Faculty of P.G. Studies

Copy to;

1. PS to Vice Chancellor, Anand Agricultural University, Anand for information.
2. Director, Information Technology, AAU, Anand for uploading on AAU website

PROCEEDING OF THE THIRTEENTH MEETING OF COMBINED JOINT AGRICULTURAL RESEARCH COUNCIL OF SAUs - 2016-17

ORGANIZED BY

S. D. AGRICULTURAL UNIVERSITY
SARDARKRUSHINAGAR – 385 506

(APRIL 05-07, 2017)



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

INDEX

XIII Meeting
of
Combined Joint AGRESCO of SAUs and Kamdhenu University of Gujarat

Date : April 5-7, 2017	**Organizer: Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar**

-:: INAUGURAL SESSION ::-

Date : 5.04.2017: Time 09.00 to 11.00

Venue :	V. R. Mehta Auditorium, SDAU, Sardarkrushinagar
Rapporteurs:	Dr. D.M.Korat, ADR, AAU Dr.R.K.Patel, ADR, SDAU Dr.S.K.Shah, Asstt. Res. Sci.(Soil), Castor-Mustard, SDAU

Lighting the Lamp	9.00	:	All Dignitaries
Welcome Address	9.00 to 9.05	:	Dr. S.Acharya, DoR, SDAU
Floral Welcome	9:05 to 9:10		
Address by Dignitaries	9:10 to 10:20	:	Dr. C. J. Dangaria Hon. VC, NAU Dr. N. C. Patel Hon. VC, AAU Dr. A. R. Pathak, Hon. VC, JAU Prof(Dr) Ashok A Patel Hon. VC, SDAU
Released of Publications	10:20 to 10:35		
Address by Chief Guest	10:35 to 10:55	:	Principle Secretary(Agri), GoG
Vote of Thanks	10:55 to 11:00	:	Dr. K. A. Thakkar, DEE, SDAU

High Tea: 11.00 to 11.30

Parallel Technical Sessions of 13th Combined Joint AGRESCO Sub- committees

Date:- 05.04.2017 Time : 11.30 to 19.00 Lunch : 13.00 to 14.00 Dinner: 20:00 to 21:00 ***Cultural Programme: 19:00 to 20:00***
Date:- 06.04.2017 Time : 09.00 to 19.00 Lunch : 13.00 to 14.00 Dinner: 19:30 to 20:30
Date:- 07.04.2017 Plenary Session Time : 09.00 to 13.00 Lunch : 13.00 to 14.00

Parallel Technical Sessions of 13th Combined Joint AGRESCO Sub- committees

Particulars	AGRESCO Sub Committees			
	Crop Improvement, Plant Physiology & Biotechnology	**Crop Production / Natural Resource Management**	**Plant Protection/ Crop Protection**	**Horticulture & Agro-Forestry/ Horticulture/ Forestry**
Technical Session- I : PRESENTATION OF RECOMMENDATIONS 11.30 ONWARDS, 5.04.2017				
Chairman	Dr. C. J. Dangaria, Hon. VC, NAU	Dr.A.R.Pathak, Hon VC, JAU	Prof. M. C.Varshneya, Hon. VC, KU	Prof(Dr) Ashok Patel, Hon VC, SDAU
Co – Chairman	Dr. K. B. Kathiria, DR, AAU Dr. S. Acharya, DR SDAU	Dr. K. P. Patel, Dean, AAU Dr. A. M. Patel, SDAU	Dr. A. M. Parakhia, DEE, JAU Dr. D. M. Korat, ADR, AAU	Dr.L.R.Verma, Dean, SDAU Dr. P.K.Kapadia, Mahuva, JAU
Rapporteurs	Dr.R.R.Acharya, RS(Veg.),AAU Dr.M.P.Patel, Prof & Head, SDAU Dr.Nishit Soni, SDAU	Dr.M.V.Patel, AAU Dr.N.B.Babaria, JAU Dr.Piyush Saras, SDAU	Dr.B.R.Patel, Prof& Head, SDAU Dr. R. N. Pandey, AAU Dr.P.S.Patel, SDAU	Dr. D.K.Varu, NAU Dr. Piyush Verma, SDAU Dr. Yogesh Pawar, SDAU
Statistician	Dr. B.H. Prajapati, SDAU	Dr. P.R. Vaishnav, AAU	Dr.G.K.Chaudhari, SDAU	Dr.J.K.Patel, SDAU
Presentation	Conveners of the AAU, JAU,NAU and SDAU	Conveners of the AAU, JAU,NAU and SDAU	Conveners of the AAU, JAU,NAU and SDAU	Conveners of the AAU, JAU,NAU and SDAU
Technical Session- II : PRESENTATION OF NEW TECHNICAL PROGRAMMES 6.04.2017				
Chairman	Dr. C. J. Dangaria, Hon. VC, NAU	Dr.A.R.Pathak, Hon VC, JAU	Prof. M. C.Varshneya, Hon. VC, KU	Prof(Dr) Ashok Patel, Hon. VC, SDAU
Co – Chairman	Dr. K. B. Kathiria, DR, AAU Dr. S. Acharya, DR SDAU	Dr. M. K. Arvadia, Dean, NAU Dr.R. B. Patel, AAU	Dr. A. M. Parakhia, DEE, JAU Dr. I. U. Dhruj, ADR, JAU	Dr. A. V. Barad, Dean, JAU Dr. R.R.Sankhela, SDAU
Rapporteurs	Dr.M.A.Patel, RS(M&AP), AAU Dr.R.K. Patel, NMCA, NAU Dr. Anujkumar Singh, SDAU	Dr.B. K. Sagarka JAU Dr.B.B.Patel, SDAU Sh. Ashok Saini, SDAU	Dr. K.A.Patel, ADR, NAU Dr. A. G. Desai, SDAU Sh. A Chattopadhyay, SDAU	Dr. A.N.Patel NAU Dr.M.J.Patel, AAU Sh.Vishal Vankhede, SDAU
Statistician	Dr. B.H. Prajapati, SDAU	Dr. P.R. Vaishnav, AAU	Dr.G.K.Chaudhari, SDAU	Dr.J.K.Patel, SDAU
Presentation	Conveners of the AAU, JAU, NAU and SDAU	Conveners of the AAU, JAU, NAU and SDAU	Conveners of the AAU, JAU, NAU and SDAU	Conveners of the AAU, JAU, NAU and SDAU
Venue	**Seminal Hall, Dept. of GPB, CPCA**	**Seminal Hall, Dept. of Agronomy, CPCA**	**Seminar Hall, Dept. of Ag. Entomology, CPCA**	**Meeting Hall, SSK**

Parallel Technical Sessions of 13th Combined Joint AGRESCO Sub- committees

Particulars	AGRESCO Sub Committees			
	Agril Engg & AIT/Agril. Engg, Dairy & Food Tech/ Dairy Sci. & FPT & BE/Agril. Engg.	**Social Science**	**Basic Science &Humanities / Basic Science / Plant Physiology, Bio-chemistry & Biotechnology**	**Animal Health/Animal Production/Animal Production & Fisheries/Animal Health and Animal Production & Fisheries / Animal Health**
Technical Session- I : PRESENTATION OF RECOMMENDATIONS 11.30 ONWARDS, 5.04.2017				
Chairman	Dr. N. C. Patel, Hon VC, AAU	Dr. V. P. Chovatia, DR, JAU	Dr. S. R. Chaudhari, DR, NAU	Dr.D.B.Patil, DR, KU
Co –Chairman	Dr. N. K. Gontiya, Dean, JAU Dr.R.Subbaiah, Dean Godhara	Dr. Arun Patel, DEE, AAU Dr. G. R. Patel, DEE, NAU	Dr. B. A. Golakia, JAU Dr.S.R.Vyas, Dean, SDAU	Dr.D.V.Joshi, Dean, SDAU Dr. P. H. Tank, Dean, JAU
Rapporteurs	Dr. R. Swarnkar, AAU Prof.D.M.Vyas, JAU Dr. Ashish Dixit, SDAU	Dr. P. R. Kanani, JAU Dr. K.P.Thakar, SDAU Dr.R.R.Prajapati, SDAU	Dr. A. D. Patel, AAU Dr.Chintan Kapadia, NAU Dr.Gaurav S. Dave, SDAU	Dr. M.K.Jhala. ADR, AAU Dr. R. S. Gupta, AAU Dr.H.C.Chauhan, SDAU
Statistician	Dr.M.K.Chaudhari, SDAU	Dr. B.K.Bhatt, NAU	--	--
Presentation	Conveners of the AAU, JAU, NAU and SDAU	Conveners of the AAU, JAU, NAU and SDAU	Conveners Of the AAU, JAU, NAU and SDAU	Conveners of the AAU, JAU, NAU, SDAU and Kamdhenu Uni
Technical Session- II : PRESENTATION OF NEW TECHNICAL PROGRAMMES 6.04.2017				
Chairman	Dr. N. C. Patel, Hon VC, AAU	Dr. V. P. Chovatia, DR, JAU	Dr. S. R. Chaudhari, DR, NAU	Dr.D.B.Patil, DR, KU
Co –Chairman	Dr. D. C. Joshi, Dean, AAU Dr. G.K.Sexena, Dean, SDAU	Dr.K.A.Thakkar DEE, SDAU Dr. P.H.Vataliya, KU	Dr. B. K. Golakia, JAU Dr.S.R.Vyas, Dean, SDAU	Dr. N. H. Kelaawala Dean, NAU Dr. A.M.Thakar, Dean, AAU
Rapporteurs	Dr. P. Mohanot, ADR, JAU Dr. R. V. Prasad, AAU Dr. A.D.Deshpande, SDAU	Dr.R.D.Pandya, NAU Dr. R. L. Shiyani JAU Dr.J.J.Mistry, SDAU	Dr.J.B.Patel, JAU Dr. K.K.Tiwari, SDAU Dr. Yogesh Patel, SDAU	Dr. P. V. Parikh, AAU Dr. P. U. Gajabhiye, JAU Dr. Amit Shrivastav, SDAU
Statistician	Dr.M.K.Chaudhari, SDAU	Dr. B.K.Bhatt, NAU	--	--
Presentation	Conveners of the AAU, JAU,NAU and SDAU	Conveners of the AAU, JAU,NAU and SDAU	Conveners of the AAU, JAU, NAU and SDAU	Conveners of the AAU, JAU, NAU and SDAU
Venue	**Conference Hall, College of Veterinary Sci. & AH**	**Conference Hall, VR Mehta Auditorium**	**Meeting Hall, VR Mehta Auditorium**	**Seminar Hall, College of Veterinary Sci. & AH**

PLENARY SESSION

Date: 7.04.2017 **Time: 09.00. hrs.**

Venue: V. R. Mehta Auditorium, SDAU, Sardarkrushinagar

- **Welcome address** : Dr. S.Acharya, DoR, SDAU
- **Lighting the lamp** : All Dignitaries
- **Floral Welcome** : All Dignitaries
- **Chairman** : Dr. Ashok Patel, Hon VC, SDAU
- **Co- Chairman** : Dr. C.J.Dangaria, Hon VC, NAU
  Dr. N. C. Patel, Hon VC, AAU
  Dr. A. R. Pathak, Hon VC, JAU
  Prof. M. C. Varshneya, Hon VC, KU
- **Rapporteurs** : Dr. R. K. Patel, ADR, SDAU
  Dr. D. M. Korat, ADR, AAU
  Dr. I. U. Dhruj, ADR, JAU
  Dr. K.A.Patel, ADR, NAU
- **Presentation Schedule:**

1.	Crop improvement	**:**	Dr. M. A. Vaddoria, JAU
2.	Crop Production and Natural Resource Management	**:**	Dr. B.D.Patel, AAU
3.	Plant Protection / Crop Protection	**:**	Dr. S.P.Saxena, NAU
4.	Horticulture & Agro-Forestry	**:**	Dr. R. R. Viradia, JAU
5.	Agricultural Engineering and AIT/ Agril. Engineering, Dairy and Food Technology / Dairy Science and FPT & BE/ Agril. Engineering	**:**	Dr. R. F.Suthar, AAU
6.	Basic Science & Humanities / Basic Science / Plant Physiology, Bio-chemistry and Biotechnology	**:**	Dr. Sarvesh Shah,SDAU
7.	Social Science	**:**	Dr. J.J.Makadia, NAU
8.	Animal Health /Animal Health and Fisheries/ Animal Production/ Animal Production and Fisheries/ Animal Science and Fisheries	**:**	Dr.B. N. Suthar, SDAU

- **Vote of Thanks** **:** Dr. R.N.Singh, ADR, SDAU, Sardarkrushinagar

PROCEEDINGS OF 13TH COMBINED JOINT AGRESCO MEETING OF STATE AGRICULTURAL UNIVERSITIES AND KANDHENU UNIVERSITY HELD AT SARDARKRUSHINGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

INAUGURAL SESSION

Venue: Dr V R Mehta Auditorium **Date: 05/04/2017**
Time: 9.00 to 11.00 hours

The 13TH Combined Joint Meeting of Agricultural Research Council (AGRESCO) of State Agricultural Universities and Kamdhenu University was organized at SDAU, Sardarkrushinagar during 5-7 April 2017. The function ushered in with lighting the lamp by dignitaries. Dr. Suresh Acharya, Director of Research & Dean PG Studies, Sardarkrushinagar Dantiwada Agricultural University extended welcome to all including dignitaries on the dais. He briefed the research activities carried out by the SAUs during the year 2016-17 that have culminated in 333 proposals of recommendations for the farmers' and scientific communities.

Dr. R. A. Sherasiya, Director of Horticulture, Govt. of Gujarat, Gandhinagar extoled the scientists for their farmers" centric innovations. He flagged different issues of horticultural crops in general and for protective horticulture in particular. He held out that horticultural crops like fennel, date palm, cumin, banana, coconut and papaya have great potentials for export from Gujarat.

Dr. C. J. Dangariya, Vice-Chancellor of Navsari Agricultural University, Navsari congratulated the scientists and teachers who have contributed in shaping the recommendations. He briefly touched up on the achievements of NAU in terms of number of students admitted, varieties released, other recommendations and new technical programs conducted during the year. He also mentioned the number of students who qualified the NET & JRF and conspicuous extension activities carried out during the year 2016-17.

Dr. N. C. Patel, Vice-Chancellor of Anand Agricultural University, Anand appreciated the bellwether collaboration among the SAUs of Gujarat in academic, extension and research activities to thwart duplication of activities and thereby inculcating most judicious use of available resources. He emphasized on the use of state of art technologies for finding solutions to problems that have afflicted the agriculture most. He advised the scientists to be wary of the transit state of cropping pattern, dissipating water resources, climate change, dwindling biodiversity, etc. He opined that the new research programmes be tweaked accordingly for screening suitable genotypes and assuring seed security by creating gene banks/seed bank for posterity. He also raised the issue of paucity of technical staff in many research projects of SAUs.

Dr. A. R. Pathak, Vice-Chancellor of Junagadh Agricultural University, Junagadh emphasized the economic returns of research carried out in crops like cumin (GC-4), castor (GCH 7), wheat (GW 451), rice (GR 11), etc. He was critical of the low investments in research in agriculture and desired it to increase in congruence to the importance of agriculture in economy. He conveyed that JAU has produced good

quality seed particularly the high volume crops like groundnut (G 20). Narrating his experience as Chairman of QRT, he said that varieties / hybrids of castor (GCH 7), cumin (GC 4) developed in Gujarat have defied the state boundaries and have become hot cakes in adjoining states like Rajasthan, Madhya Pradesh and Maharashtra. He focused on the severity of Pink Bollworm in cotton and the steps taken by SAUs to keep it in low ebb. He advised for concerted research on organic agriculture and recycling of agricultural waste, value addition, protective cultivation and increasing photosynthetic activity through biotechnological interventions.

Prof (Dr) Ashok A. Patel, Vice-Chancellor of Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar addressed the conspicuous achievements of SDAU in pedigree breeding of native cattle, Kankrej; developing models for integrated farming system for small and marginal farmers; production of field crops like castor, cotton, cumin etc; and emphasized on their importance in view of looming large adverse effects of climate change, reduced efficiency of farm production and pacing up dissipation of natural resource base. He was critical that large chunk of useful microbes have already become extinct and desired spurred research to rejuvenate them. Touching upon the low tree cover in North Gujarat, he opined that three tier system entailing medicinal crops, vegetables, fodder crops, horticultural crops and forest trees be exploited. He exhorted massive plantation of trees on farm boundaries after revamping boundary bunds.

Shri Sanjay Prasad, Chief Guest of the Function and Principal Secretary (Agri.) GOG, Gandhinagar informedthat the Government of Gujarat has given top priority to farmers' welfare and doubling their income by 2022. He flagged a number of issues like organic farming, use of low-cost technologies, biological control of pests, extensive use of urine and dung for resuscitating soil health, residues of agro-chemicals in food, micro irrigation, development of integrated farming system, etc for increasing farmers' income. He advised that all technologies should be farmers centric with small farmers at the focal point, they should be pragmatic and cost effective; and above all, they should meet the international standards. He emphasized to consider the value chain rather than production alone while planning new research projects. He further exhorted the scientists to reach out the farmers for adoption of post-harvest technologies including value addition. He congratulated the scientists for their excellent research work and developing massive number of technologies that could go a long way to enhance production and quality with concomitant reduction in cost of production. He also praised the work of SAUs in conservation of indigenous breeds like Kankrej, Gir, Mehasani, Banni, Jafrabadi, Surti, etc.

After the formal inaugural function, Dr. R. L. Shiyani, Professor and Head, Department of Agricultural Economics, JAU, Junagadh presented a mesmerizing talk on 'Total factor productivity and return to research investment'; where he delineated the returns of research in each crop.

Dr. K. A. Thakkar, Director of Extension Education, SDAU proposed a vote of thanks.

13.1. Crop Improvement, Plant Physiology & Biotechnology

13.1 RECOMMENDATIONS

Chairman : Dr. K. B. Kathiria, Director of Research, AAU, Anand

Co-chairman: Dr. S. Acharya, Director of Research and Dean PG studies, SDAU, Sardarkrushinagar

Rapporteur : Dr.R.R.Acharya, Research Scientist (Vegetable), MVRS, AAU, Anand,
Dr.M.P.Patel, Professor and Head, GPB, CPCA, SDAU, Sardarkrushinagar
Dr.Nishit Soni, Asstt. Prof., GPB, CPCA, SDAU, Sardarkrushinagar

SUMMARY

Name of University	No. of Recommendations			
	FarmingCommunity		ScientificCommunity	
	Proposed	Accepted	Proposed	Accepted
Anand Agricultural University, Anand	6	6	1	1
Junagadh Agricultural University, Junagadh	4	4	-	-
Navsari Agricultural University, Navsari	16	9	-	-
Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar	2	2	-	-
Total	28	21	1	1

13.1.1 RECOMMENDATION FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

13.1.1.1	**Durum Wheat: Gujarat Anand Durum Wheat-3 (GADW-3)**
	The proposed variety GADW-3 exhibited 1508 kg/ha grain yield under timely sown rainfed condition, which was 10.7 % higher than the check GW-1. It yielded 2336 kg/ha under restricted irrigation, with 19.3, 68.6 and 68.8 % higher grain yield than checks GW-1, GDW-1255 and GW-1139, respectively. It has long spike with long awnandis moderately resistant to black and brown rust under epiphytotic condition. The proposed genotype GADW-3 is recommended for release in *Bhal* and Coastal Agro climatic zone-VIII of Gujarat state with following suggestion. 1. Add IET data along with disease incidence in final proposal. **(Action :Asstt. Res. Sci., Agriculture Research Station, AAU, Dhandhuka)**
13.1.1.2	**Bottle Gourd: Gujarat Anand Bottle Gourd Hybrid-1 (GABGH-1)**
	The proposed hybrid GABGH-1(252.7 q/ha)exhibited 32.5, 44.1, 38.6 and 29.2 % higher fruit yield over the checks, ABG-1, Pusa Naveen, NDBG-104 and NDBGH-4, respectively. The hybrid has long vine growth habit with cylindrical fruits, attractive light green colour and long peduncle. It had low incidence of

	mosaic and downy mildew diseases than checks. The proposed hybrid is recommended for release in both *kharif* and summer seasons under irrigated condition in middle Gujarat and for *kharif* season in Saurashtra region with following suggestions. 1. Exclude data having CV% more than 20% and lower mean than national/state average. 2. Provide hybrid seed production technique. 3. Compare male, female and hybrid data in one table for GOT. **(Action : Res. Sci. (Vegetable),Main Vegetable Research Station, AAU, Anand)**
13.1.1.3	**Tomato: Gujarat Anand Tomato-5 (GAT-5)**
	The proposed variety GAT-5 gave higher fruit yield (400.3 q/ha), which was 45.9, 46.7 and 92.9% higher than the check varieties AT-3, DVRT-2 and JT-3, respectively. It has determinate growth habit with red coloured fruits. It has lower incidence of the TLCV (15.2%), leaf miner (14.0%) and fruit borer (12.1%) than checks. The proposed variety is recommended for release in middle Gujarat with following suggestion. 1. Pedigree details should be given in release proposal. **(Action : Res. Sci. (Vegetable), Main Vegetable Research Station, AAU, Anand)**
13.1.1.4	**Kuvarpathu: Gujarat Anand Kuvarpathu-1 (GAKP-1)**
	The proposed variety GAKP-1 recorded 106.4 t/ha fresh leaf yield which was 44.11 and 25.8 % higher than checks Anand Local and Kutch selection, respectively. The variety yielded 62.8 t/ha mucilage, which was 57.7 and 38.4 % higher than checks in that order. It has green leaf colour, long, thick and broad leaves. It has lower incidence of leaf spot disease than checks. The proposed variety is recommended for release in middle Gujarat with following suggestion. **1.** Point No. 5(a) and (b) of the proposal should be elucidated for source of material and breeding method. **(Action : Res. Sci. (M & AP), Medicinal & Aromatic Plant Res. Station, AAU, Anand)**
13.1.1.5	**Bidi Tobacco: - Gujarat Anand Bidi Tobacco Hybrid-2 (GABTH-2)**
	The proposed *Bidi* Tobacco hybrid GABTH-2 exhibited 3948 kg/ha cured leaf yield, which was 17.0% higher than check MRGTH-1 (3375 kg/ha). It has more number of leaves per plant with moderate spangling. The proposed hybrid is recommended for irrigated tobacco cultivated area of middle Gujarat with following suggestion. 1. Name of the trials may be added in Table 1. **(Action :Res. Scientist (Tobacco), Bidi Tobacco Research Station, AAU, Anand)**
13.1.1.6	**Soybean: NRC-37**
	The soybean variety NRC-37, proposed for endorsement, was found superior for seed yield (2283 kg/ha) by 17.8, 35.7 and 47.3 % to checks JS-335, GS-1 and GS-3, respectively. The proposed varietyis non-shattering with

	attractive seeds and tolerant to yellow mosaic virus. The proposed variety is recommended as endorsement for middle Gujarat. **(Action : Assoc. Res. Sci., TRTC, AAU, DevgadhBaria)**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

13.1.1.7	**Groundnut : Gujarat Junagadh Groundnut 32 (GJG-32)**
	The Spanish bunch groundnut variety, Gujarat Junagadh Groundnut 32 (GJG 32) recorded pod yield of 3392 kg/ha, which was 22.6, 22.6 and 15.4%higher than the check varieties GG 7 (2766 kg/ha), GJG 9 (2765 kg/ha) and TG 37A (2816 kg/ha), respectively. It has higher oil content (53.9%), oil yield (1253 kg/ha) and protein content (27.5 %) as compared to the check varieties GG 7 (48.9%, 945 kg/ha and 24.5%), GJG 9 (49.3%, 978 kg/ha and 24.5%) and TG 37A (49.9%, 993 kg/ha and 26.4%), respectively. It is more resistant to tikka and rust diseases than the check varieties. The proposed variety is recommended for release in *kharif* season in Gujarat with following suggestion. 1. The word endorsement may be replaced with “release”. **(Action: Research Scientist (Groundnut), JAU, Junagadh)**
13.1.1.8	**Castor: Gujarat Junagadh Castor Hybrid-9 (GJCH-9)**
	Gujarat Junagadh Castor Hybrid-9 (GJCH-9) gave seed yield of 3781 kg/ha, which was 10.9 % higher than check GCH-7 (3410 kg/ha). It is resistant to *Fusarium* wilt and *Macrophomina* root rot and tolerant to sucking pests. It is a medium duration hybrid having profuse branching habit and shallow cup shape leaves with medium plant stature and 48.3% seed oil content. The proposed variety is recommended for release under irrigated condition in Gujarat with following suggestion. 1. AICRP data of Gujarat state may be included in average. **(Action: Research Scientist (Groundnut), JAU, Junagadh)**
13.1.1.9	**Cotton: Gujarat Junagadh Hirsutum Hybrid-2 BG-II (GJHH-2 BG-II)**
	Gujarat Junagadh Hirsutum Hybrid-2 BG-II (GJHH-2 BG-II) recorded 2873 kg/ha seed cotton yield, which was 39.8, 7.3, 17.6, 25.7 and 19.8 % higher than BG-II check hybrids RCH-2, GTHH-49, G.Cot.Hy-6, G.Cot.Hy-8 and G.Cot.Hy-12, respectively. It gave 48.5, 7.0, 24.4, 26.9 and 31.5% higher lint yield (1016 kg/ha) than BG-II check hybrids RCH-2, GTHH-49, G.Cot.Hy-6, G.Cot.Hy-8 and G.Cot.Hy-12, respectively. It possesses 35.3 % ginning out turn. This hybrid is medium in maturity. It is found resistant to *Alternaria* leaf spot and bacterial leaf blight disease. The proposal was approved with following suggestions. 1. The approval for the GM crops should be sought as per norms. **2.** Brace up Point No. 10 of the proposal for petal/pollen colour of male, female and hybrid with photographs. **(Action: Research Scientist(Cotton),JAU,Junagadh)**
13.1.1.10	**Papaya: Gujarat Junagadh Papaya-1 (GJP-1)**
	Gujarat Junagadh Papaya-1 (GJP-1) recorded fruit yield of 84.5 t/ha,

	which was 59.1% higher than the check variety Pusa Dwarf (53.1 t/ha). It is earlier in flowering with more number of fruits per plant. The fruits are medium in size (1.650 kg) with pyriform shape. The fruit possesses higher pulp to seed ratio, pulp and sugar content and better organoleptic characters than check Pusa Dwarf. The proposed variety is recommended for release in Saurashtra region with following suggestions. 1. Write name of the trials in Table 1. 2. The data of shelf life of fruits may be verified in Table 16. 3. Breeding method and source material may be specified. 4. Remove table from Point No. 9(b) and write only distinguished traits. **(Action : Professor & Head, Dept. of Horticulture, JAU, Junagadh)**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

13.1.1.11	**Cotton : GISV-272 (GN.Cot.-24)**
	The proposal of this genotype was not accepted due to following reason 1. Both GISV-272 and GISV-267 genotypes were tested in same set of trials. The genotype GISV-272 was not found superior to GISV-267. **(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)**
13.1.1.12	**Cotton : GN.Cot.-26**
	The *Hirsutum* cotton genotype GN.Cot.-26 (GBHV 170) recorded 1640 kg/ha seed cotton yield, which was 22.4 and 40.2 % higher than G.Cot.16 and NH 615, respectively in rainfed condition. It was found resistant to Bacterial Leaf Blight. This genotype recorded lower population of sucking pests and bollworm. It is recommended for cultivation in rainfed areas of South Gujarat. **(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)**
13.1.1.13	**Cotton : GN.Cot.-32**
	The *Hirsutum* cotton genotype GN.Cot.-32 (GISV-267) recorded 2201 kg/ha seed cotton yield, which was 104.0, 33.6, 19.9, 23.7, 25.8 and 40.7% higher than G.Cot.10, G.Cot.16, G.Cot.18, G.Cot.20, GN.Cot.22 and LRA-5166, respectively under irrigated conditions. It possesses higher boll weight (4.7 g) as compared to checks. It was found moderately resistant to Bacterial Leaf Blight and had lower population of sucking pests as well as bollworms. It is recommended for cultivation in irrigated areas of Gujarat. **(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)**
13.1.1.14	**Cotton : GShv-497/10 (GN.Cot.-27)**
	The proposal was deferred due to following reason 1. Considering the data for seed cotton yield, lint yield and ginning %, the proposed genotype was not found significantly superior to checks. **(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)**
13.1.1.15	**Cotton : GN.Cot.-29**
	The *Arboreum* cotton variety GN.Cot.-29 (GBav-106) recorded 1630 kg/ha seed cotton yield, which was 16.2 % higher than G.Cot.19 under rainfed condition. It had below ETL population of sucking pests. It is recommended for

	cultivation in rainfed area of South Gujarat. **(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)**
13.1.1.16	**Cotton : GN.Cot.Hy-18**
	The *Hirsutum* hybrid GN.Cot.Hy-18 (GSHH-2759) recorded 2355 kg/ha seed cotton yield, which was 22.3, 24.4 and 15.2% higher than checks G.Cot.Hy-10, G.Cot.Hy-12 and GN.Cot.Hy-14, respectively under irrigated conditions across South Gujarat Zone-II and North Gujarat Zone-IV. It is resistant to the Bacterial Leaf Blight. Sucking pests infestation and damage to open boll and locule damage by bollworms complex was found below ETL. It is recommended for release in irrigated areas of South and North Gujarat. **(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)**
13.1.1.17	**Rice : GNR-7**
	The rice variety GNR-7 (NVSR-6128) gave 5740 kg/ha grain yield, which was 13.0, 22.8 and 12.4% higher than checks GNR-2, GR-11 and GAR-13, respectively. It has short slender grain, high productive tillers and number of grains per panicle with good quality characters. It is moderately resistant to bacterial leaf blight, grain discoloration and sheath rot. It is tolerant to BPH and moderately resistant to stem borer, leaf folder and sheath mite. It is recommended for cultivation in rice growing areas of South Gujarat. **(Action:- Assoc. Res. Scientist, MRRC, NAU, Navsari)**
13.1.1.18	**Rice : NVSR-H-1011 (GNRH-2)**
	The proposal was deferred due to following reasons. 1. Conduct the trial for one more year under multi-location trial. 2. Incorporate nursery screening data for important diseases and insects pests of the crop at Nawagam and NAU centre. **(Action:- Assoc. Res. Scientist, RRRS, NAU, Vyara)**
13.1.1.19	**Sugarcane : GNS-10**
	Sugarcane variety GNS-10 (CoN 13073) gave cane yield of 143.2 t/ha, which was 24.3, 33.3 and 13.0 % higher than checks Co 86032, CoN 04131 and CoN 05071, respectively. It has sugar yield of 18.4 t/ha, which is 22.0, 38.1 and 28.1% higher than the checks Co 86032, CoN 04131 and CoN 05071, respectively. It is non lodging and non-flowering cane. It is moderately resistant to wilt and red rot diseases. It is recommended for cultivation in sugarcane growing areas of South Gujarat. **(Action:- Research Scientist, Main Sugarcane Research Station, NAU, Navsari)**
13.1.1.20	**Indian Bean : GNIB-22**
	Indian bean variety GNIB-22 (NIBD-14-01) recorded green pod yield of 4507 kg/ha, which was 39.4, 8.7, and 6.9% higher than GNIB-21, Guj.wal-2 and GP-1, respectively. It has higher sugar (24.1 mg/g) and better organoleptic test. It is recommended for cultivation in South Gujarat under late *kharif* to *rabi* season. **(Action : Assoc. Res. Scientist, Pulses Res. Station, NAU, Navsari)**

13.1.1.21	**Mungbean : GNM-6**
	Mungbean variety GNM-6 **(**NMK-15-12) recorded 1098 kg/ha seed yield in summer season, which was 7.7, 41.1 and 15.6 % higher than checks Meha, GM-4 and GAM-5, respectively. In *kharif* season, it gave 894 kg/ha seed yield, which was 13.7 and 10.0 % higher than checks Meha and GAM-5, respectively. It possesses good marketable quality and cooking traits. It is resistant to MYMV disease. It is recommended for cultivation in Gujarat during *kharif* and summer seasons. **(Action : Assoc. Res. Scientist, Pulses Res. Station, NAU, Navsari)**
13.1.1.22	**Wheat : BDW-18 (GNW-1)**
	The proposal of this variety is deferred due to following reasons. 1. Lack of consistency in yield data 2. Insufficient data of rust disease. **(Action : Asstt. Res. Scientist, WRS, NAU, Bardoli)**
13.1.1.23	**Sorghum : SR 833-2-2 (GNJ-2R)**
	The proposal of this variety is deferred due to following reason. 1. Lack of consistency in grain yield and dry fodder yield. 2. Inadequate ancillary observations. 3. Lack of quality parameters. **(Action : Research Scientist (Sorghum), MSRS, NAU, Surat)**
13.1.1.24	**Tomato-NTL-12-07 (GN Tom-1)**
	The proposal was deferred because of following reasons. 1. In majority of the locations/trials, the genotype had yielded below state average yield. 2. It is suggested to conduct the trials for two more years to generate more data. 3. TLCV data of Junagadh, Anand and Navsari should be included. **(Action: Prof. & Head, Dept. of Veg. Sci., ACHF, NAU, Navsari)**
13.1.1.25	**Greater yam : NAUDa-1 (GNRGY-1)**
	The proposal was not accepted due to following reason. 1. Poor yield performance as compared to national check. **(Action : Prof. & Head, Dept. of Veg. Sci., ACHF, NAU, Navsari)**
13.1.1.26	**Sweet Potato: Bhukanti (CIP-440127)(Endorsement)**
	Sweet potato variety Bhukanti recorded 33.2 t/ha tuber yield, which was 84% higher than national check Gauri. This clone is rich in β-carotene content as compared to national check Gauri. It is recommended for endorsement in South Gujarat. **(Action : Prof. & Head, Dept. of Veg. Sci., ACHF, NAU, Navsari)**

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

13.1.1.27	**Castor : GUJARAT CASTOR HYBRID 8 (GCH 8)**
	Gujarat Castor Hybrid -8 (GCH-8) gave seed yield of 3680 kg/ha, which was 16.1% higher than check GCH-7 (3171 kg/ha).It evinced high oil content (49.7 %) than GCH 7 (48.9%). It is resistant to *Fusarium* wilt and moderately resistant to *Macrophomina* root rot as compared to GCH 7. It is a medium duration hybrid having profuse branching habit, long and semi compact spike, semi spiny capsules and flat leaves. The proposed hybrid is recommended for release in Gujarat with following suggestions. 1. Remove Appendix-III and add agronomical features at Point No. 9(g). 2. Coding of male and female parents should be done. **(Action : Res. Sci., C&M Research Station, S. D. Agricultural University, Sardarkrushinagar)**
13.1.1.28	**Coriander : GUJARAT CORIANDER 3 (GCo 3)**
	Gujarat Coriander -3 (GCo-3) recorded 1501 kg/ha seed yield, which was 72.5, 25.9 and 17.0 % higher than national check varieties RCr 728, Hisar Anand and local check GCo2, respectively. It has higher volatile oil yield (9.3 l/ha) than RCr 728 (5.1 l/ha), Hisar Anand (7.3 l/ha) and GCo2 (7.8 l/ha), respectively. It possesses excellent aroma in seed due to 8.4% higher linalool content in volatile oil i.e. 72.2 % v/s 66.6 % in GCo2. The proposed variety is recommended for release in Gujarat. **(Action : Res. Sci. (Seed spices), Seed Spices Research Station, SDAU, Jagudan)**

13.1.2. RECOMMENDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

13.1.2.1.	**Title of Recommendation:** Screening of wild germplasm of okra for YVMV resistance
	Among different species of okra including cultivated (*Abelmoschus esculentus*) and wild *(A.moschatus, A.moschatus*subsps. *tuberosus, A.manihot*var. *tetraphyllus, A.tuberculatus, A.angulosus*var. *grandiflorus* and *A.ficulneus*), two accessions of *A.moschatus* sub sps. *tuberosus*(IC 470750 and IC 413569) werefoundresistant to YVMV (Yellow Vein Mosaic Virus) disease.These accessions may be used in pre-breeding programme to introgress the desirable genes for YVMV resistance into the cultivated okra. **(Action: Res. Sci., Distant Hybridization, Dept. of Agril. Biotech., AAU, Anand)**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH : NIL

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI : NIL

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR: NIL

13.1.3 NEW TECHNICAL PROGRAMMES

Chairman :Dr. K. B. Kathiria, Director of Research, AAU, Anand

Co-chairman: Dr. S. Acharya, Director of Research and Dean PG studies, SDAU, Sardarkrushinagar

Rapporteur :Dr. M. A. Patel, Research Scientist (M &AP), AAU, Anand
Dr. R. K. Patel, (I/c) Prof. & Head, Dept. of G&PB, NMCA, NAU, Navsari,
Dr. Anuj Kumar Singh, Asstt. Prof. (Pl.Phy.), GPB, CPCA, SDAU, SKNagar,

SUMMARY

Sr. No.	University	No. of Technical Programmes	
		Proposed	Approved
1	Anand Agricultural University, Anand	4	4
2	Junagadh Agricultural University, Junagadh	2	2
3	Navsari Agricultural University, Navsari	8	5+1 (Feeler)
4	Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar	5	5
	Total	**19**	**16+1**

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr.	Title /centre	Suggestions
13.1.3.1.	Preliminary evaluation of red flesh guava hybrids.	Accepted with following suggestions 1. Experimental design should be RBD 2. Add observations *viz*. pectin content, shelf life, pericarp thickness and seed hardness. **(Action: Prof. & Head Deptt. of Hort. BACA, AAU, Anand)**
13.1.3.2.	Preliminary evaluation of white flesh guava hybrids.	Accepted with following suggestions 1. Experimental design should be RBD 2. Add observations viz. pectin content, shelf life, pericarp thickness and seed hardness. **(Action: Prof. & Head, Deptt. of Hort., BACA, AAU, Anand)**
13.1.3.3	Development of high yielding sesame (*Sesamum indicum* L.) genotypes with charcoal rot resistance.	Accepted with following suggestion 1. Modify the title as MAS for charcoal rot resistance in Sesamum **(Action: Prof. & Head, Dept. of Genetics & Plant Breeding , BACA, AAU, Anand)**
13.1.3.4	Breeding of marigold (*Tagetes* sp.) and peacock (*Caesalpinia*	Accepted with following suggestions 1. Change title as " Evaluation for superior quantitative & qualitative traits in marigold

	pulcherrima) flowers for superior quantitative & qualitative traits	(*Tagetes* sp.) and peacock (*Caesalpinia pulcherrima*) hybrids 2. Add observations regarding vase life and compactness. **(Action: Principal, College of Horticulture, AAU, Anand)**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr.	Title /centre	Suggestions
13.1.3.5	Evaluation of released and pre-released varieties of onion for its storability	Accepted with following suggestion 1. Add objective of weight loss of onion bulb **(Action: Research Scientist (G-O), JAU, Junagadh)**
13.1.3.6	Standardization of isolation distance for seed production of cumin. (AICRP-NSP trial)	Accepted with following suggestions 1. Include 10 m isolation distance 2. From next year onwards all the experiment related to seed science must be approved by Basic Science Committee, JAU, Junagadh **(Action: Research Scientist (Pearl Millet), JAU, Jamnagar)**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr.	Title /centre	Suggestions
13.1.3.7	Assessment of bush type French bean (*Phaseolus vulgaris*) varieties suitable for the Dangs district.	Not approved 1. As it is cultivated in very small area. **(Action: Assoc. Res. Sci., HMRS, Waghai)**
13.1.3.8	Genetic variability for quality traits in advanced breeding lines in Rice (*Oryza sativa* L.)	Not approved 1. Since it is a part of routine breeding program **(Action: Assoc. Res. Sci., RRRS, NAU, Vyara)**
13.1.3.9	Genetic improvement through hybridization in Adenium	Accepted with following suggestions 1. Crosses may be attempted after authentication of the characters of the parents as per objectives. 2. Experimental design must be RBD. **(Action: Assoc. Prof., Floriculture, NAU, ACHF, Navsari)**
13.1.3.10	Collection and evaluation of local spider lily germplasm of the South Gujarat region	Accepted with following suggestion 1. Maximum number of genotypes may be collected and evaluated. **(Action: Assoc. Prof., Floriculture, NAU, ACHF, Navsari)**
13.1.3.11	Hybridization in Gladiolus	Accepted with following suggestions

		1. Title must be modified as "Genetic improvement through hybridization in Gladiolus" 2. Vase life observation must be included **(Action: Asstt. Prof., Floriculture, NAU, ACHF, Navsari)**
13.1.3.12	Induction of variability in Spider lily (*Hymenocallis littorallis*) through chemical mutagens	Approved **(Action: Asstt. Prof., Floriculture, NAU, ACHF, Navsari)**
13.1.3.13	Induction of variability in Spider lily (*Hymenocallis littorallis*) through colchicines treatment	Accepted with following suggestion 1. Feeler trial must be conducted to verify the possibilities of ploidy changes. **(Action: Asstt. Prof., Floriculture, NAU, ACHF, Navsari)**
13.1.3.14	Collection and evaluation of local turfgrass germplasm of the South Gujarat region	Approved **(Action: Asstt. Prof., Floriculture, NAU, ACHF, Navsari)**

S.D. AGRICULTURAL UNIVERSITY, Sardarkrushinagar

Sr.	Title & Centre	Suggestions
13.1.3.15	Elucidation of genomic profile and evolutionary relatedness of Amaranthus genotypes.	Experiment was presented for the information of house as it was approved by Basic Science Sub Committee. **(Action: Professor and Head, Dept. of GPB, CPCA, SDAU, Sardarkrushinagar)**
13.1.3.16	Evaluation of plant growth regulators for development of quality parthenocarpic fruits of datepalm (*Phoenix dactylifera*L.).	Experiment was presented for the information of house as it was approved by Basic Science Sub Committee. **(Action: Professor and Head, Dept. of GPB, CPCA, SDAU, Sardarkrushinagar)**
13.1.3.17	Study of hybridization in sugar apple [Custard apple] (*Annona squamosa*L.) for high yield with good fruit quality.	Accepted with following suggestion **1.** Observations of the yield and fruit quality traits must be included **(Action: Professor and Head, Dept. of GPB, CPCA, SDAU, Sardarkrushinagar)**
13.1.3.18	Evaluation of Melia Species in arid and semi-arid region of Gujarat.	Accepted with following suggestion 1. Mention the name of Melia species included in the experiment. **(Action: Research Scientist, Agro forestry Research Station, SDAU, Sardarkrushinagar)**
13.1.3.19	Collection, conservation & evaluation of cacti spp. For Kutchh region.	Approved **(Action: Associate Res. Scientist, Regional Research Station, SDAU, Kothara)**

General suggestions:

1. DNA fingerprinting data may be incorporated for preparing proposals in future.
2. The format for the release proposal of variety should be strictly adhered.
3. The yield data of candidate entry should be considered for preparation of release proposal only if it is higher than the State/National average.
4. Looking to the area of *arboerium*cotton, trails on *arboerium*cotton should be discouraged.
5. Committee constituted for preparation of varietal release proposal.

Chairman	**:**	Dr. K. L. Dobaria, Research Sci.(Groundnut), JAU, Junagadh
Co-chairman	**:**	Dr. K. H. Dabhi, Research Sci. (Wheat), WRS, JAU, Junagadh
Members	**:**	Dr.S.D.Solanki, Assoc. Prof. (GPB),CPCA, SDAU, Sardarkrushinagar
		Dr.R.R.Acharya, Research Sci. (Veg.), MVRS, AAU, Anand
		Dr. D. A. Chauhan, Assoc. Res. Sci. (Pulses), NAU, Navsari.

13.2. CROP PRODUCTION AND NATURAL RESOURCE MANAGEMENT

Chairman : Dr. A. R. Pathak, Hon'ble VC, JAU, Junagadh
Co-chairman : Dr. K. P. Patel and Dr. A. M. Patel
Rapporteurs : Dr. M. V. Patel, Dr. N. B. Babaria and Shri. Piyush Saras

SUMMARY

Universities	Recommendations				New Technical Programmes	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	19	18+1* Conti.	02	02	18	18
JAU	14	13	04	04	23	23
NAU	21	20	05	5+1*	18	18
SDAU	15	10	01	1 + 2+ 5	24	24
Total	69	61	19	19+1*	83	83

* Concluded

13.2.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

13.2.1.1	**Assessment of premix broad spectrum herbicides for weed management in wheat**
	The farmers of middle Gujarat agro climatic zone growing wheat are recommended to apply premix broad spectrum herbicide clodinafop propargyl (15%) + metsulfuron methyl (1% WP) 64 g/ha or sulfosulfuron (75%) + metsulfuron methyl (5%) WG 32 g/ha (mix in 500 litres of water) as post emergence application (25-30 DAS) or carry out hand weeding at 20 and 40 days after sowing for effective management of complex weed flora and higher net return. No adverse effect of herbicides on succeeding crops was observed.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ઘઉંના પાકમાં બધા જ પ્રકારના નીંદણો (એકદળી તેમજ દ્વિદળી) ના અસરકારક અને અર્થક્ષમ નીંદણ વ્યવસ્થાપન માટે પૂર્વ મિશ્રિત બહોળી અસરકારકતા ધરાવતા નીંદણનાશક ક્લોડીનાફોપ પ્રોપારજીલ (૧૫%) + મેટસલ્ફ્યુરોન મિથાઇલ (૧%) ઓગાળી શકાય તેવી ભૂકી ૬૪ ગ્રામ/હેક્ટર અથવા સલ્ફોસલ્ફ્યુરોન (૭૫%) + મેટસલ્ફ્યુરોન મિથાઇલ (૫%) ઓગાળી શકાય તેવી દાણાદાર ૩૨ ગ્રામ/હેક્ટર (૫૦૦ લિટર પાણીમાં ઓગાળી) ને પાકની વાવણી બાદ ૨૫-૩૦ દિવસે છંટકાવ કરવો અથવા વાવણી બાદ ૨૦ અને ૪૦ દિવસે હાથ નીંદામણ કરવાની વધુ ચોખ્ખો નફો મેળવવા ભલામણ કરવામાં આવે છે. ઘઉં પછી વાવવામાં આવેલ પાકો પર નીંદણ નાશકોની કોઇ આડઅસર જોવા મળેલ નથી.
	(**Action:** Agronomist & PI, AICRP-Weed Management, AAU, Anand**)**

13.2.1.2	**Relay cropping of castor in legume crops**
	The farmers of middle Gujarat agro climatic zone are recommended to adopt soybean-castor relay cropping system for getting castor equivalent higher yield and net return. Soybean NRC 37 is to be sown 45 cm apart in first fortnight of July and castor GCH 7 in second fortnight of August wherein, skip one row for sowing of castor after two rows of soybean.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ખેડૂતોને દિવેલા સમકક્ષ વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે સોયાબીન-દિવેલા રિલે વાવેતર પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં સોયાબીનની એનઆરસી ૩૭ જાતનું વાવેતર ૪૫ સેમીના અંતરે જુલાઈ મહિનાના પ્રથમ પખવાડીયામાં અને દિવેલાની જીસીએચ ૭ નું વાવેતર ઓગષ્ટ મહિનાના બીજા પખવાડીયામાં કરવું. સોયાબીનની બે હાર બાદ દિવેલાનાં વાવેતર માટે એક હાર છોડી દેવી.
	Action: Research Scientist, Regional Research Station, AAU, Anand)
13.2.1.3	**To study the castor based intercropping system preceding *kharif* crop under middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone growing *rabi* castor (GCH 7) are recommended to grow three rows of chickpea (GG 1) for green pods at 30 cm spacing between two rows of castor sown at 150 cm spacing during 1st fortnight of October for getting castor equivalent higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળુ દિવેલાનું વાવેતર કરતા ખેડૂતોને દિવેલા સમકક્ષ વધારે ઉત્પાદન અને નફો મેળવવા માટે દિવેલા (જીસીએચ ૭) નું ૧૫૦ સેમી. અંતરે વાવેતર કરી તેની બે હાર વચ્ચે ચણાની જાત (જી જી ૧) ની ૩૦ સેમી. ના અંતરે ત્રણ હારનું લીલા ચણા (પોપટા) માટે ઓક્ટોબર માસના પ્રથમ પખવાડીયામાં વાવેતર કરવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Research Scientist, Regional Research Station, AAU, Anand)
13.2.1.4	**Response of castor (*Ricinus communis* L.) to N, P and K under middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone are recommended to apply 100 kg N/ha (50 kg as basal and 50 kg at 45 DAS) and 25 kg P_2O_5/ha as basal in soils having phosphorous availability medium to sufficient to castor grown in late *kharif* for getting higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચોમાસુ દિવેલાનું પાછોતરુ (મોડું) વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે હેકટરે ૧૦૦ કિ.ગ્રા. નાઈટ્રોજન (૫૦ કિ.ગ્રા. પાયામાં અને ૫૦ કિ.ગ્રા. વાવણી બાદ ૪૫ દિવસે) અને ૨૫ કિ.ગ્રા. ફોસ્ફરસ પાયાના ખાતર તરીકે ફોસ્ફરસનું પ્રમાણ મધ્યમથી પુરતુ હોય તેવી જમીનમાં આપવાથી વધુ ઉત્પાદન અને નફો મળે છે.
	(**Action:** Professor & Head, Department of Agronomy, BACA, AAU, Anand)

13.2.1.5	**Response of wheat (*Triticum aestivum* L.) to N, P and K under middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone growing wheat are recommended to apply 120 kg N/ha (60 kg as basal and 60 kg at tillering stage) and 30 kg P_2O_5/ha (soil having medium to high P status) as basal for getting higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ઘઉંનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ઘઉંનું વધુ ઉત્પાદન અને નફો મેળવવા માટે પ્રતિ હેક્ટરે ૧૨૦ કિ.ગ્રા. નાઇટ્રોજન (૬૦ કિ.ગ્રા. પાયામાં અને ૬૦ કિ.ગ્રા. ફૂટ અવસ્થાએ) તથા મધ્યમથી વધુ ફોસ્ફરસવાળી જમીનમાં ૩૦ કિ.ગ્રા. ફોસ્ફરસ પાયામાં આપવું.
	(**Action:** Professor & Head, Department of Agronomy, BACA, AAU, Anand)
13.2.1.6	**Response of N, P and bio-fertilizers on summer pearl millet (*Pennisetum glaucum* L.) under middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone growing summer hybrid pearl millet are recommended to apply 140 kg N/ ha (70 kg as basal + 70 kg at 30 DAS) and 40 kg P_2O_5/ha as basal for securing higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ સંકર બાજરીનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે બાજરીનું વધુ ઉત્પાદન અને નફો મેળવવા માટે ૧૪૦ કિ.ગ્રા. નાઇટ્રોજન/હેક્ટર (૭૦ કિ.ગ્રા. પાયામાં અને ૭૦ કિ.ગ્રા. વાવણી બાદ ૩૦ દિવસે) તથા ૪૦ કિ.ગ્રા. ફોસ્ફરસ/હેક્ટર મુજબ પાયામાં આપવું.
	(**Action:** Professor & Head, Department of Agronomy, BACA, AAU, Anand)
13.2.1.7	**Effect of cow dung and anubhav bio degrader bacterial consortium (ABBC) on composting of banana pseudostem or maize fodder (waste) for preparation of vermicompost**
	The farmers of middle Gujarat agro climatic zone are recommended to prepare vermicompost from banana pseudostem or maize fodder using anubhav bio degrader bacterial consortium @ 1 lit/t along with 5 % cow dung which gives high quality compost 15 days earlier than normal vermi composting method. **Method for preparation of vermicompost from banana pseudostem or waste maize fodder (100 kg)** 1. Make small pieces (5-10 cm) of banana pseudostem or maize fodder (waste) and dry it under sunlight. Put the dried pieces of banana pseudostem or maize fodder (waste) in plastic bed size (3.0 x 1.0 x 0.6 m). 2. Sprinkle water on pseudostem or maize fodder (waste) to get it wetted. 3. After one week, mix the anubhav bio degrader bacterial consortium 100 ml/10 l water & spread on materials kept in the bed. Similarly, spread the slurry prepared by mixing 5 kg cow dung in 10 l water. Release 400 g earthworms (*Eisenia fetida*) in 100 kg pieces of banana pseudostem or

	maize fodder (waste) in bed. 4. Cover the bed with old gunny bag till the compost is ready by sprinkling the water. 5. Sprinkling of water is discontinued when compost is ready. Vermicompost is collected after 8-10 days, there after sieve the material for use. 6. The vermicompost will be ready within 70 to 75 days.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ખેડૂતોને કેળના થડિયાં અથવા મકાઇના છોડના નકામા કચરામાંથી સારી ગુણવતા ધરાવતું ૧૫ દિવસ વહેલુ વર્મીકમ્પોસ્ટ બનાવવા માટે ટન દીઠ એક લિટર અનુભવ બાયોડિગ્રેડર બેક્ટેરીયલ કોન્સોર્ટીયમ અને ગાયના ૫ % છાણનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **<u>કેળના થડ/મકાઇના બિનઉપયોગી રાડાનાં ટુકડામાંથી વર્મીકમ્પોસ્ટ બનાવવાની પધ્ધતિ (૧૦૦ કિ.ગ્રા. ટુકડા માટે)</u>** ૧. કેળના થડ અથવા મકાઇના રાડાને કોયતાથી નાના નાના ટુકડા (૫-૧૦ સે.મી.) કરી, સૂર્યના તાપમાં સૂકવીને અથવા બિનઉપયોગી મકાઇનાં રાડાના સુકા ટુકડાંને પ્લાસ્ટીકના બેડ(સાઈજ: ૩x૧x૦.૬ મી.) માં ભરવા માટે ઉપયોગમાં લેવા. ૨. કેળના થડ અથવા મકાઇના રાડાના સુકા ટુકડા ભીંજાય તે પ્રમાણે પાણી છાંટવું. ૩. અઠવાડીયા બાદ અનુભવ બાયોડિગ્રેડર બેક્ટેરીયલ કોન્સોર્ટિયમ કલ્ચર (૧૦૦ મિ.લિ. ૧૦ લિટર પાણીમાં મેળવીને કેળ અથવા મકાઇના ટુકડામાંથી બનાવેલ પથારી ઉપર છાંટવું, તે જ પ્રમાણે ગાયના ૫.૦ કિ.ગ્રા. છાણની રબડી તેની ઉપર પાથરવી. ત્યાર બાદ ૧૦૦ કિ.ગ્રા. કેળ અથવા મકાઇના ટુકડામાં ૪૦૦ ગ્રામ જેટલાં અળસિયાં (જાત: ઈસીના ફેટીડા) મૂકવા. ૪. બેડ પર શણના જુના કોથળા/કંતાન પાથરી વર્મીકમ્પોસ્ટ તૈયાર થાય ત્યાં સુધી તેમાં ભેજ જળવાઈ રહે તે પ્રમાણે પાણી છાંટતા રહેવું. ૫. વર્મીકમ્પોસ્ટ તૈયાર થઇ જાય એટલે પાણી છાંટવાનું બંધ કરવું અને ત્યાર બાદ ૮ થી ૧૦ દિવસે બેડમાંથી બહાર કાઢી ચારણાથી ચાળી વર્મીકમ્પોસ્ટ ખાતર તરીકે ઉપયોગ કરવો. ૬. ઉપરોક્ત રીતથી લગભગ ૭૦ થી ૭૫ દિવસમાં વર્મીકમ્પોસ્ટ તૈયાર થઈ જાયછે.
	(**Action :** Assistant Research Scientist, ARS, AAU, Jabugam)
13.2.1.8	**Effect of irrigation intervals on dry biomass yield of *dodi* (*Leptadenia reticulate* W. & A.)**
	The farmers of middle Gujarat agro climatic zone growing *dodi* crop in *kharif* are recommended to irrigate the crop at 0.8 IW/CPE ratio (12 irrigations each at interval of 20-25 days in winter and 12-15 days in summer) after first cutting *i.e.* 90 DATP for securing higher dry biomass yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ચોમાસામાં ડોડી પાકનું વાવેતર

	કરતા ખેડૂતોને વધુ સૂકા દ્રવ્યનું ઉત્પાદન અને આર્થિક ફાયદો મેળવવા માટે પાકની ૯૦ દિવસે પ્રથમ કાપણી કર્યા બાદ ૧૨ પિયત, ૦.૮ આઇ ડબલ્યુ : સી. પી. ઇ ગુણોત્તર મુજબ શિયાળામાં ૨૦ થી ૨૫ દિવસે તથા ઉનાળામાં ૧૨ થી ૧૫ દિવસના ગાળે આપવાની ભલામણ કરવામાં આવે છે.
	(**Action**: Research Scientist, M&APRS, AAU, Anand)
13.2.1.9	**Effect of different date of planting and spacing on dry biomass yield of artemisia *(Artemisia annua* Linn.)**
	The farmers of middle Gujarat agro climatic zone cultivating artemisia in *rabi* season are recommended to transplant artemisia during 3rd week of November to 3rd week of December with the spacing of 60 x 60 cm for securing higher dry biomass yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં શિયાળુ ઋતુમાં આર્ટીમીસીયા (નાગ દમન) ની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને આર્થિક ફાયદો લેવા માટે આર્ટીમીસીયાની ફેરરોપણી નવેમ્બર માસના ત્રીજા અઠવાડીયા થી ડીસેમ્બર માસના ત્રીજા અઠવાડીયામાં ૬૦ X ૬૦ સે.મી.નું અંતર રાખીને કરવાની ભલામણ કરવામાં આવે છે.
	(**Action**: Research Scientist, M&APRS, AAU, Anand)
13.2.1.10	**Effect of different organic manures and nitrogen levels on yield of vernonia (Kalijiri); *Vernonia anthlmintica* (L) Willd under middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone growing vernonia are recommended to apply FYM 10 t/ha along with 50 kg N/ha (25 kg as basal and 25 kg as top dressing at 45 DAS) and 25 kg P_2O_5/ha as basal for securing higher seed yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં કાળીજીરી ઉગાડતા ખેડૂતોને દાણાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો લેવા માટે કાળીજીરીની વાવણી સમયે ૧૦ ટન/હે છાણિયું ખાતર અને ૫૦ કિ.ગ્રા નાઇટ્રોજન/હે (૨૫ કિ.ગ્રા. પાયામાં તેમજ ૨૫ કિ.ગ્રા. વાવણી બાદ ૪૫ દિવસે) અને પાયામાં ૨૫ કિ.ગ્રા. ફોસ્ફરસ/હે આપવાની ભલામણ કરવામાં આવે છે.
	(**Action**: Research Scientist, M&APRS, AAU, Anand)
13.2.1.11	**Assessment of cropping sequences for *bidi* tobacco growing area of middle Gujarat agro climate zone**
	The farmers of Middle Gujarat agro climatic zone are recommended to adopt prevailing *bidi* tobacco-pearl millet crop sequence for getting higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં બીડી તમાકુ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે પ્રચલિત તમાકુ-બાજરી પાક પદ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Research Scientist, BTRS, AAU, Anand)

13.2.1.12	**To revalidate the fertilizer recommendation of widely cultivated *bidi* tobacco varieties**
	The farmers of middle Gujarat agro climatic zone growing *bidi* tobacco (GT 7 and A 119) are recommended to apply 140 kg N/ha whereas, 180 kg N/ha to MRGTH 1 for getting higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં બીડી તમાકુની ગુજરાત ૭ અને આણંદ ૧૧૯ જાતો ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ૧૪૦ કિ.ગ્રા. નાઇટ્રોજન પ્રતિ હેક્ટર તથા સંકર જાત એમઆરજીટીએચ ૧ ને ૧૮૦ કિ.ગ્રા. નાઇટ્રોજન પ્રતિ હેક્ટર આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Research Scientist, BTRS, AAU, Anand)
13.2.1.13	**Performance of single cross hybrid maize in varying levels of nitrogen and phosphorus under rainfed condition**
	The farmers of middle Gujarat agro climatic zone growing rainfed maize hybrids GAYMH 1 and GAWMH 2 in Panchmahal district are recommended to fertilize the crop with 160 kg N and 20 kg P_2O_5 per hectare, while in Dahod district, farmers are recommended to fertilize the crop with 160 kg N and 60 kg P_2O_5 per hectare in soils having low P_2O_5 for getting higher yield and net return. The nitrogen should be applied in four equal splits i.e., at basal, 4 leaves, 8 leaves and tasseling stage while P_2O_5 as basal .
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં પંચમહાલ જિલ્લાના વરસાદ આધારીત ગુજરાત આણંદ પીળી સંકર મકાઇ ૧ અને ગુજરાત આણંદ સફેદ સંકર મકાઇ ૨ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પ્રતિ હેકટરે ૧૬૦ કિ.ગ્રા. નાઇટ્રોજન અને ૨૦ કિ.ગ્રા. ફોસ્ફરસ જયારે ઓછું ફોસ્ફરસ ધરાવતી દાહોદ જિલ્લાની જમીનમાં પ્રતિ હેકટરે ૧૬૦ કિ.ગ્રા. નાઇટ્રોજન અને ૬૦ કિ.ગ્રા. ફોસ્ફરસ આપવાની ભલામણ કરવામાં આવે છે. નાઇટ્રોજન ચાર સરખા હપ્તામાં એટલે કે વાવણી વખતે પાયામાં, ૪ પાન અવસ્થાએ, ૮ પાન અવસ્થાએ તથા ચમરી અવસ્થાએ તથા ફોસ્ફરસને પાયામાં આપવો.
	(Action: Research Scientist, MMRS, AAU, Godhra)
13.2.1.14	**Effect of intercropping pattern on soybean and maize yield in middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone are recommended to grow soybean (NRC 37) and maize (GM 6) as intercrop in 3:2 row ratio with distance of 45 cm during *kharif* season for getting higher yield and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં ખરીફ ઋતુમાં વધારે ઉત્પાદન અને નફો મેળવવા માટે આંતરપાક પધ્ધતિથી ૪૫ સે.મી. ના અંતરે ત્રણ હાર સોયાબીન (એનઆરસી ૩૭) અને બે હાર મકાઈ (જીએમ ૬) ની વાવણી કરવાની ભલામણ કરવામાં આવે છે.
	(Action: Research Scientist, TRTC, AAU, Devgadh baria**)**

13.2.1.15	**Response of different nitrogen levels and time of application through fertigation on green cob yield of sweet corn (*Zea mays* L. *Sachharata Strut*) under middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone growing sweet corn in *rabi* season are recommended to adopt drip irrigation at 0.8 PEF and fertilize the crop with 75% of RDN (90 kg/ha) in five equal splits (*i.e.* at basal, 20, 30, 40 and 50 DAS) through fertigation and 60 kg P_2O_5 as basal for getting higher yield and net return. **System details:** 1. Lateral spacing : 90 cm 2.. Dripper spacing : 45 cm 3. Dripper discharge : 4 lph 4. Operating pressure : 1.2 kg/cm^2 5. Operating frequency : Alternate day 6. Operating time : 55 minutes
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં રવી ઋતુમાં મીઠી મકાઇ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ટપક પધ્ધતિ દ્વારા ૦.૮ પીઇએફ એ પિયત આપવું અને ભલામણ કરેલ નાઇટ્રોજનો ૭૫% જથ્થો (૯૦ કિ.ગ્રા./હેક્ટર) પાંચ સરખા ભાગે એટલે કે પાયામાં તેમજ વાવણી બાદ ૨૦, ૩૦, ૪૦ અને ૫૦ દિવસે ટપક પિયત સાથે અને ૬૦ કિ.ગ્રા. ફોસ્ફરસ/હેક્ટર પાયામાં આપવાની ભલામણ કરવામાં આવે છે. **ટપક પદ્ધતિની વિગત:** ૧. બે લેટરલ પાઈપો વચ્ચેનું અંતર : ૯૦ સે.મી. ૨. બે ડ્રીપર વચ્ચેનું અંતર : ૪૫ સે.મી. ૩. ડ્રીપરમાંથી પાણી નીકળવાની ક્ષમતા : ૪ લિટર પ્રતિ કલાક ૪. સંચાલન માટે દબાણ : ૧.૨ કિ.ગ્રા. પ્રતિ ચોરસ સે.મી. ૫. ડ્રીપ સંચાલન પુનરાવર્તન : એકાંતરે દિવસે ૬. ડ્રીપ ચલાવવાનો સમય : ૫૫ મિનિટ
	(Action: Research Scientist, TRTC, AAU, Devgadh baria**)**
13.2.1.16	**Effect of different levels of nitrogen and phosphorous on yield of castor under supplementary irrigation in *Bhal* region**
	The farmers of *Bhal* and coastal agro climatic zone growing semi *rabi* castor (GCH 7) under conserved soil moisture condition are recommended to apply 37.5 kg N/ha and 50 kg P_2O_5/ha as basal and 37.5 kg N/ha in two equal splits after irrigation at 21 and 45 DAS for getting higher yield and net return.
	ભાલ અને દરિયાકાંઠા ખેત આબોહવાકીય વિસ્તારમાં સંગ્રહિત ભેજમાં અર્ધ શિયાળુ દિવેલા ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે દિવેલા (જીસીએચ ૭) ને પાયાના ખાતર તરીકે ૩૭.૫ કિ.ગ્રા. નાઈટ્રોજન અને ૫૦ કિ.ગ્રા. ફોસ્ફરસ/હે. તથા

	બાકીનો ૩૭.૫ કિ.ગ્રા. નાઈટ્રોજન/હે. બે સરખા હપ્તામાં વાવણી બાદ ૨૧ અને ૪૫ દિવસે પિયત આપ્યા બાદ ખાતર આપવાની ભલામણ કરવામાં આવે છે.
	(Action: Associate Research Scientist, ARS, AAU, Arnej**)**
13.2.1.17	**Nitrogen management in summer sesame (*Sesamum indicum* L.) under drip irrigation system in goradu soil of middle Gujarat condition**
	The farmers of middle Gujarat agro climatic zone growing summer sesame (Gujarat Sesame 2) are recommended to sow the crop adopting paired row (30-30 cm x 15 cm : 60 cm) in last week of February and adopt drip irrigation at 0.8 PEF and fertilize with 40 kg N/ha i.e. 10 kg N/ha as basal and 30 kg N/ha in 5 equal splits at weekly interval starting from 25 DAS and 25 kg P as basal and liquid biofertlizer, *Azispirilium* and PSB, *Bacillus coagulanse* @ 1 lit/ha for getting higher yield and net return. ***System details:*** 1. Lateral spacing : 90 cm 2. Dripper spacing : 45 cm 3. Dripper discharge : 4 lph 4. Operating pressure : 1.2 kg/cm^2 5. Operating frequency : Alternate day 6. Operating time : March-April 55 and May 90 minutes
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં જોડીયા હાર પદ્ધતિથી (૩૦-૩૦ સે.મી. X ૧૫ સે.મી. : ૬૦ સે.મી.)ઉનાળુ તલ (ગુજરાત તલ ૨) નું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા ફેબ્રુઆરીના છેલ્લા અઠવાડીયામાં પાયાના ખાતર તરીકે ૨૫ કિ.ગ્રા. ફોસ્ફરસ/હે. આપી વાવણી કરી પાકને ટપક પધ્ધતિથી પિયત સાથે પ્રતિ હેક્ટરે ૪૦ કિ.ગ્રા. નાઇટ્રોજન આપવો, જે પૈકી ૧૦ કિ.ગ્રા. પાયામાં અને ૩૦ કિ.ગ્રા. નાઇટ્રોજન પાંચ સરખા હપ્તામાં વાવણીના ૨૫ દિવસ બાદ અઠવાડિયાના ગાળે આપવા ભલામણ કરવામાં આવે છે. ફોસ્ફરસ અને બાયોફર્ટીલાઇજર્સ એઝોસ્પીરીલમ, પીએસબી, બેસીલસ કોગ્યુલેંસ ૧ લીટર પ્રતિ હેક્ટર મુજબ પાયામાં આપવુ. **ટપક પદ્ધતિની વિગત:** ૧. બે લેટરલ પાઈપો વચ્ચેનું અંતર : ૯૦ સે.મી. ૨. બે ડ્રીપર વચ્ચેનું અંતર : ૪૫ સે.મી. ૩. ડ્રીપરમાંથી પાણી નીકળવાની ક્ષમતા : ૪ લિટર પ્રતિ કલાક ૪. સંચાલન માટે દબાણ : ૧.૨ કિ.ગ્રા. પ્રતિ ચોરસ સે.મી. ૫. ડ્રીપ સંચાલન પુનરાવર્તન : એકાંતરે દિવસે ૬. ડ્રીપ ચલાવવાનો સમય : માર્ચ–એપ્રિલ માસ દરમ્યાન ૫૫ મિનિટ અને મે માસ દરમ્યાન ૯૦

	મિનિટ
	(Action : Associate Research Scientist, ARS, AAU, Thasra**)**
13.2.1.18	**To evaluate sowing time and varieties of chickpea for green pod yield in middle Gujarat agro climatic condition**
	The farmers of middle Gujarat agro climatic zone growing chickpea for green pods are recommended to sow variety GG 2 during 4th week of September to 2nd week of October for getting higher yield of green pods and net return.
	મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં લીલા પોપટા માટે ચણાની ખેતી કરતા ખેડૂતોને લીલા પોપટાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ચણાની જીજી ૨ જાતની વાવણી સપ્ટેમ્બર માસના ચોથા અઠવાડીયાથી ઓક્ટોબર માસના બીજા અઠવાડીયા દરમ્યાન કરવાની ભલામણ કરવામાં આવે છે.
	(Action : Senior Scientist & Head, KVK, AAU, Dahod**)**

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	AGRONOMY
13.2.1.19	**Integrated weed management in organically grown groundnut**
	The farmers of South Saurashtra Agro-climatic Zone growing *kharif* groundnut under organic farming are advised to adopt stale seedbed technique (pre-sowing irrigation + killing of weed flush by harrowing) and keep weed free condition throughout the crop growth period or carry out hand weeding and interculturing at 15, 30 and 45 days after sowing for effective control of weeds and securing higher net realization.
	દક્ષિણ સૌરાષ્ટ્ર ખેત-આબોહવાકીય વિસ્તારના ચોમાસુ મગફળીમાં સેન્દ્રિય ખેતી અપનાવતા ખેડૂતોને અસરકારક નીંદણ નિયંત્રણ તથા વધુ ચોખ્ખુ વળતર મેળવવા માટે વાસી કયારા પધ્ધતિ (ઓરવાણ પિયત + રાંપ ચલાવી નીંદણના ઉગાવાનો નાશ કરવો) અપનાવવી અને પાકને સમગ્ર વૃધ્ધિકાળ દરમ્યાન નીંદણમુકત રાખવો અથવા વાવેતર બાદ ૧૫, ૩૦ અને ૪૫ દિવસે હાથ નિંદામણ તથા આંતરખેડ કરવાની સલાહ આપવામાં આવે છે.
	(Action: Professor & Head, Department of Agronomy, JAU, Junagadh)
13.2.1.20	**Response of cumin to drip irrigation and integrated nutrient management**
	The farmers of South Saurashtra Agro-climatic Zone growing cumin are advised to irrigate the crop with drip system at 0.6 PEF for getting higher yield and net return which saves 12.4 % water. Farmers are also advised to apply 75% recommended dose of fertilizer (22.5-11.2-0 kg NPK/ha) along with FYM @ 5 t/ha for getting higher yield and net return. The system details are as under**:**

System details		**Operating time**	
		Month	**Minutes**

Lateral spacing: 60 cm		Dec. - Jan.	20
Dripper spacing: 45 cm		Feb.- March	30
Dripper discharge rate: 4 LPH			
Operating pressure: 1.2 kg/cm^2			
Operating frequency: Alternate day			

દક્ષિણ સૌરાષ્ટ્ર ખેત-આબોહવાકીય વિસ્તારના ખેડૂતોને જીરૂંનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ટપક પધ્ધતિથી ૦.૬ બાષ્પિભવનાંકે પિયત આપવાની ભલામણ કરવામાં આવે છે તેનાથી ૧૨.૪ ટકા પાણીનો બચાવ થાય છે. તદ્રઉપરાંત જીરૂંના પાકને ભલામણ કરેલ રાસાયણિક ખાતરના ૭૫% જથ્થો એટલે કે ૨૨.૫-૧૧.૨-૦ કિ.ગ્રા. ના.-ફો.-પો./હે સાથે ૫.૦ ટન છાણીયુ ખાતર આપવાની ખેડૂતોને સલાહ આપવામાં આવે છે. ટપક પધ્ધતિની વિગતો નીચે મુજબ છે.

ટપક પધ્ધતિની વિગત		પરીચાલનનો સમય	
		મહીનો	મિનિટ
પાણીની નળીઓનું અંતર : ૬૦ સે.મી.		ડીસેમ્બર - જાન્યુઆરી	૨૦
ટપકણીયાનું અંતર : ૪૫ સે.મી.			
ટપકણીયાનો સ્ત્રાવ ક્ષમતા : ૪ લીટર પ્રતિ કલાક		ફેબ્રુઆરી - માર્ચ	૩૦
પરીચાલનનું દબાણ : ૧.૨ કિગ્રા પ્રતિ ચો.સે.મી.			
પરીચાલનનું પુનરાવૃતિ : એકાંતરા દિવસે			

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

13.2.1.21 Drip irrigation and fertilizer in drilled *rabi* fennel

The farmers of South Saurashtra Agro-climatic Zone growing *rabi* drilled fennel are advised to irrigate the crop with drip system at 0.8 PEF and apply 120-45-0 NPK kg/ha out of which full dose of phosphorus and 25% nitrogen as basal and remaining 75% nitrogen in three equal splits at 20 DAS interval after sowing through drip for getting higher yield and net return. The system details are as under:

System details		**Operating time**	
		Month	**Minutes**
Lateral spacing: 120 cm (45-75-45 cm paired row)		December	58
Dripper spacing: 45 cm		January	62
Dripper discharge rate: 4 LPH		February	75
Operating pressure: 1.2 kg/cm^2		March	95
Operating frequency: Alternate day		April	120

દક્ષિણ સૌરાષ્ટ્ર ખેત-આબોહવાકીય વિસ્તારના ખેડૂતોને શિયાળુ વરીયાળીનુ વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે ૦.૮ બાષ્પિભવનાંકે પિયત અને ૧૨૦-૪૫-૦ કિ.ગ્રા. ના.-ફો.-પો./હે આપવાની ખેડૂતોને સલાહ આપવામાં આવે છે. આમાંનો બધોજ ફોસ્ફરસ અને ૨૫% નાઈટ્રોજન પાયાના ખાતર તરીકે અને બાકી રહેલ ૭૫% નાઈટ્રોજન ત્રણ સરખા હપ્તામાં વાવેતર બાદ ૨૦ દિવસના અંતરે ટપક પધ્ધતિથી આપવો. ટપક પધ્ધતિની વિગતો નીચે મુજબ છે.

ટપક પધ્ધતિની વિગત		પરીચાલનનો સમય	
		મહીનો	મિનિટ
પાણીની નળીઓનું અંતર : ૧૨૦ સે.મી. (૪૫-૭૫-૪૫ સે.મી. જોડકી હરોળ)		ડીસેમ્બર	૫૮
ટપકણીયાનું અંતર : ૪૫ સે.મી.		જાન્યુઆરી	૬૨
ટપકણીયાનો સ્ત્રાવ ક્ષમતા : ૪ લીટર પ્રતિ કલાક		ફેબ્રુઆરી	૭૫
પરીચાલનનું દબાણ : ૧.૨ કિગ્રા પ્રતિ ચો.સે.મી.		માર્ચ	૯૫
પરીચાલનનું પુનરાવૃતિ : એકાંતરા દિવસે		એપ્રિલ	૧૨૦

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

13.2.1.22 Evaluation of drip fertigation on castor productivity

The farmers of South Saurashtra Agro-climatic Zone growing castor are advised to irrigate the crop at 0.8 PEF through drip irrigation and apply nitrogen @ 90 kg/ha (20 kg N/ha as a basal and remaining 70 kg N/ha through drip in form of urea in five equal splits at an interval of 12 days starting after cessation of monsoon) along with recommended dose of phosphorus (50 kg/ha) as basal for obtaining higher yield and net return.

The system details as under:-

Details		Operating time	
		Month	Minutes
Lateral spacing:120 cm		October	110-125
Dripper spacing:60 cm		November	100-110
Dripper discharge rate: 4 lph		Dec.-Jan.	95-105
Operating pressure:1.2 kg/cm^2		-	-
Operating frequency: Every 3rd day irrigation		-	-

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં પિયત દિવેલા ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ૦.૮ બાષ્પિભવનાંકે દિવેલાનેં ટપક પધ્ધતિ થી પિયત આપવું અને ૯૦ કિ.ગ્રા. નાઈટ્રોજન પ્રતિ હેકટરે (૨૦ કિ.ગ્રા./ હે. પાયાના ખાતર તરીકે અને બાકી વધેલ ૭૦ કિ.ગ્રા. નાઈટ્રોજન યુરીયાના રૂપમાં ટપક પધ્ધતિ દ્વારા ચોમાસુ

પુર્ણ થયા બાદ પાંચ સરખા ભાગમાં ૧૨ દિવસના અંતરે ટપક પધ્ધતિથી આપવો તથા ફોસ્ફરસ (૫૦ કિ./ હે.) ને પાયામાં આપવો તેનાથી દિવેલાનુ વધુ ઉત્પાદન ચોખ્ખો નફો મેળવી શકાય છે. ટપક પધ્ધતિની વિગતો નીચે મુજબ છે.

ટપક પધ્ધતિની વિગત

વિગત		પરીચાલનનો સમય	
		મહિનો	મિનિટ
પાણીની નળીઓનું અંતર : ૧૨૦ સે.મી.		ઓકટોમ્બર	૧૧૦-૧૨૫
ટપકણીયાનું અંતર : ૬૦ સે.મી.		નવેમ્બર	૧૦૦-૧૧૦
ટપકણીયાનો સ્ત્રાવ ક્ષમતા : ૪ લીટર પ્રતિ કલાક		ડિસે.-જાન્યુઆરી	૯૫-૧૦૫
પરીચાલનનું દબાણ : ૧.૨ કિ.ગ્રા. પ્રતિ ચો.સે.મી.		-	-
પરીચાલનનું પુનરાવૃતિઃ ત્રીજા દિવસે		-	-

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

13.2.1.23 **Response of castor to potash at varying crop geometry**

The farmers of South Saurashtra Agro-climatic Zone growing irrigated castor in soil having medium status of potash are advised to sow castor at spacing of 150 cm x 60 cm with an application of potash @ 40 kg/ha as basal along with recommended dose of nitrogen and phosphorus (120-50 kg NP/ha) for obtaining higher seed yield and net return.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં મધ્યમ પોટાશ ધરાવતી જમીનમાં પિયત દિવેલા ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે દિવેલાનું વાવેતર ૧૫૦ સે.મી. × ૬૦ સે.મી. અંતરે કરવું અને ભલામણ કરેલ નાઈટ્રોજન અને ફોસ્ફરસ (૧૨૦-૫૦ કિ.ગ્રા./હે.)ની સાથે પોટાશ ૪૦ કિ.ગ્રા./હે. પાયામાં આપવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.

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

13.2.1.24 **Response of summer groundnut to fertilizer dose and plant population under drip and check basin method.**

The farmers of South Saurashtra Agro-climatic Zone growing summer groundnut are advised to apply initially two normal irrigations and remaining through drip at 0.8 PEF (20 DAS) and apply water soluble fertilizer (N-P-K:17-44-00) @ 75 % of RDF (18.75-37.50 kg NP/ha) in five equal splits through fertigation at an interval of 8 days starting from 20 DAS and maintain spacing 20 cm x 10 cm (plant population @ 5.00 lakh/ha) for higher yield and net return which gives 23 % water and 25 % fertilizer saving. The system details as under:

Details		**Operating time**	
		Month	**Minutes**
Lateral spacing : 60 cm		February	75-80
Dripper spacing : 45 cm		March	100-110
Dripper discharge rate : 4 lph		April	120-1258

Operation pressure : 1.2 kg/cm^2		May	130-135	
Operation frequency : Alternate day		-	-	

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ મગફળી ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, વાવેતરની શરૂઆતમાં બે સામાન્ય પિયત આપ્યા પછી વીસ દિવસ બાદ ટપક પધ્ધતિથી ૦.૮ બાષ્પિભવનાંકે પિયત આપવુ અને પાણીમાં દ્રાવ્ય ખાતર (ના.-ફો.-પો.:૧૭-૪૪-૦૦) ભલામણ કરેલ રાસાયણિક ખાતરનો ૭૫ % જથ્થો (૧૮.૭૫- ૩૭.૫૦ કિ. ના.ફો./હે.) ટપક પધ્ધતિ દ્વારા વાવેતરના વીસ દિવસથી શરૂ કરી પાંચ સરખા ભાગે આઠ દિવસના અંતરે આપવો અને ૨૦ સે.મી. × ૧૦ સે.મી. અંતર રાખી હેકટરે પાંચ લાખ છોડ ની સંખ્યા જાળવવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો તથા ૨૩ ટકા પાણી અને ૨૫ ટકા ખાતરની બચત થઈ શકે છે. ટપક પધ્ધતિની વિગતો નીચે મુજબ છે.

ટપક પધ્ધતીની વિગત :

વિગત	પરીચાલનનો સમય	
	મહિનો	મિનિટ
પાણીની નળીઓનું અંતર : ૬૦ સે.મી.	ફેબ્રુઆરી	૭૫-૮૦
ટપકણીયાનું અંતર : ૪૫ સે.મી.	માચ	૧૦૦-૧૧૦
ટપકણીયાનો સ્ત્રાવ ક્ષમતા : ૪ લીટર પ્રતિ કલાક	એપ્રિલ	૧૨૦-૧૨૫
પરીચાલનનું દબાણ : ૧.૨ કિ.ગ્રા. પ્રતિ ચો.સે.મી.	મે	૧૩૦-૧૩૫
પરીચાલનનું પુનરાવૃતિઃ એકાંતરા દિવસે	-	-

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

13.2.1.25 **Weed management practices in spring planted sugarcane–based intercropping system**

The farmers of South Saurashtra Agro Climatic Zone interested to grow spring–planted sugarcane with intercropping system are advised to grow one row of sesame or green gram or black gram as intercrop without fertilizer application in sugarcane planted at 90 cm row spacing for securing higher yield and net return. Weed control should be done with two hand weeding at 20 and 40 days after sowing of intercrop.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તાર-૭ માં શેરડી સાથે આંતરપાકનું વાવેતર કરવા ઈચ્છતા ખેડુતોને વધારે ઉત્પાદન અને નફો મેળવવા માટે ૯૦ સે.મી.ના અંતરે વાવેલ શેરડીમાં ખાતર વગર આંતરપાક તરીકે ઉનાળુ તલ અથવા મગ અથવા અડદની એક હારનુ વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આંતરપાક વાવણી બાદ ૨૦ અને ૪૦ દિવસે હાથ નિંદામણ કરીને નિંદણ નિયંત્રણ કરવું જોઈએ.

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

13.2.1.26	**Phosphorus management in sesame under rain fed condition**
	The farmers of North Saurashtra Agro climatic zone growing rainfed sesame are advised to fertilize the crop with 25 kg P_2O_5/ha as basal through SSP along with recommended dose of nitrogen (50 kg N/ha) for getting higher yield and net return.
	ઉતર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં વરસાદ આધારીત તલનુ વાવેતર કરતા ખેડુતોને ભલામણ કરવામા આવે છે કે પાકને ભલામણ કરેલ ૫૦ કિલો ગ્રામ નાઈટ્રોજન સાથે ૨૫ કિલોગ્રામ ફોસ્ફરસ પ્રતિ હેકટર સીંગલ સુપર ફોસ્ફેટના રૂપમાં પાયાના ખાતર તરીકે આપવાથીે વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.
	(**Action:** Research Scientist, Main Dry Farming Research station,JAU, Targhdia)
13.2.1.27	**Optimizing spacing for medium duration pigeonpea varieties under pigeonpea + urdbean inter cropping system**
	The farmers of South Saurashtra Agro Climatic Zone adopting pigeonpea + uradbean (without fertilizer) inter cropping system are advised to sow pigeonpea at 120 cm X 30 cm spacing and two rows of uradbean in between two rows of pigeonpea for getting higher yield and net return.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં તુવેર અને અડદ (ખાતર વિના) પાકનું આંતરપાક પધ્ધતિથી વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે તુવેર પાકનું ૧૨૦ સે.મી. × ૩૦ સે.મી. અંતરે વાવેતર કરી તુવેરની બે હાર વચ્ચે અડદની બે હાર લેવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.
	(**Action:** Research Scientist, Pulse Research Station, JAU, Junagadh)
13.2.1.28	**Suitability of pearl millet hybrids under varying time of sowing during *semi rabi* season**
	The farmers of North Saurashtra Agro-climatic Zone growing hybrid pearl millet during *semi rabi* season are recommended to sow the pearl millet early maturing variety GHB 538 during first week of October to obtain higher yield and net return.
	ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં અર્ધ શિયાળુ ઋતુમાં સંકર બાજરાનું વાવેતર કરતાં ખેડુતોને મહતમ ઉત્પાદન અને નફો મેળવવા બાજરાની વહેલી પાકતી જાત જી.એચ.બી. ૫૩૮ નું વાવેતર ઓકટોબર મહિનાના પ્રથમ અઠવાડિયામાં કરવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Research Scientist, Pearl millet Research station, JAU, Jamnagar)
13.2.1.29	**Effect of foliar fertilizer in Bt. cotton. G. Cot. Hy 8 (BG-II)**
	The farmers of South Saurashtra Agro Climatic Zone growing Bt cotton under irrigated condition are advised to apply reccommended dose of fertilizer (240:50:150 NPK kg/ha) and spray water soluble fertilizer 1 % (19-19-19 %

	NPK) at flowering, boll formation and boll development stages of the cotton to obtain higher seed cotton yield and net return.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં પિયત બી.ટી. કપાસનું વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન તથા ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ રાસાયણીક ખાતર (૨૪૦-૫૦-૧૫૦, ના.-ફો.-પો. કિ.ગા./હે.) ઉપરાંત કપાસની કુલ અવસ્થા, જીંડવાની અવસ્થા તેમજ જીંડવાના વિકાસની અવસ્થા દરમ્યાન ૧ % (૧૯-૧૯-૧૯, ના.-ફો.-પો.) નો છંટકાવ કરવાની સલાહ આપવામાં આવે છે.
	(**Action:** Research Scientist, Cotton Research Station, JAU, Junagadh)
	AGRIL. CHEMISTRY & SOIL SCIENCE
13.2.1.30	**Effect of multi-micronutrient formulations on tomato**
	The farmers of South Saurashtra Agro-climatic Zone growing tomato in medium black calcareous soil are recommended to apply micronutrients as per soil test value as basal in addition to recommended dose of fertilizers (75-37.5-62.5 N-P_2O_5-K_2O kg/ha) to tomato for getting higher yield and net return. **OR** Foliar spraying of multi-micronutrient formulation Grade IV (Fe-Mn-Zn-Cu-B, 4.0-1.0-6.0-0.5-0.5 %) is recommended @ 1% at 45, 60 and 75 DAS in addition to recommended dose of fertilizers (75-37.5-62.5 N-P_2O_5-K_2O kg/ha) to tomato for getting higher yield and net return.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં મધ્યમ કાળી ચુનાયુકત જમીનમાં ટમેટાનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ટમેટાના પાકમાં ભલામણ કરેલ રાસાયણિક ખાતર (૭૫-૩૭.૫-૬૨.૫ ના-ફો-પો કિ.ગ્રા./હે.) ઉપરાંત જમીન ચકાસણી મુજબ સૂ૧મતત્વોને પાયામાં આપવા. અથવા ટમેટાના પાકમાં ભલામણ કરેલ રાસાયણિક ખાતર (૭૫-૩૭.૫-૬૨.૫ ના-ફો-પો કિ.ગ્રા./હે.) ઉપરાંત મલ્ટીમાઈક્રોન્યુટ્રીઅન્ટ ગ્રેડ-૪ (લોહ-મેન્ગેનીઝ-ઝીંક-કોપર-બોરોન, ૪.૦-૧.૦- ૬.૦-૦.૫-૦.૫ ટકા) ના ૧ ટકા ના દ્રાવણનો ૪૫, ૬૦ અને ૭૫ દિવસે છંટકાવ કરવાથી ટમેટાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.
	(Action: Professor & Head, Dept. of Agril. Chemistry & Soil Science and Research Scientist, Vegetable Research Station, JAU, Junagadh)
13.2.1.31	**Effect of multimicronutrient formulations on garlic**
	The farmers of South Saurashtra Agro-climatic Zone growing garlic in medium black calcareous soil are advised to apply micronutrients as per soil test value as basal in addition to recommended dose of fertilizers (50-50-50 N-P_2O_5-K_2O kg/ha) for getting higher yield and net return. **OR** Soil application of multi-micronutrient formulation Grade V (Fe-Mn-Zn-Cu-B, 2.0-0.5-5.0-0.2-0.5 %) is recommended @ 40 kg ha^{-1} in addition to recommended dose of fertilizers (50-50-50 N-P_2O_5-K_2O kg/ha) to garlic for getting higher yield and net return. **OR** Apply foliar spray of multi-micronutrient formulation Grade IV (Fe-Mn-Zn-Cu-B, 4.0-1.0-6.0-0.5-0.5 %) @ 1% at 60, 75 and 90 DAS in addition to recommended dose of fertilizers (50-50-50 N-P_2O_5-K_2O kg/ha) to garlic for getting higher yield

	and net return.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં મધ્યમ કાળી ચુનાયુકત જમીનમાં લસણનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, લસણના પાકમાં ભલામણ કરેલ રાસાયણિક ખાતર (૫૦-૫૦-૫૦ ના-ફો-પો કિ.ગ્રા./હે.) ઉપરાંત જમીન ચકાસણી મુજબ સૂક્ષ્મતત્વોને પાયામાં આપવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. અથવા લસણના પાકમાં ભલામણ કરેલ રાસાયણિક ખાતર (૫૦-૫૦-૫૦ ના-ફો-પો કિ.ગ્રા./હે.) ઉપરાંત મલ્ટી માઈક્રોન્યુટ્રીઅન્ટ ગ્રેડ-૫ (લોહ-મેન્ગેનીઝ- ઝીંક-કોપર-બોરોન, ૨.૦-૦.૫-૫.૦-૦.૨-૦.૫ ટકા)ને ૪૦ કિ.ગ્રા. પ્રતિ હેકટર મુજબ જમીનમાં આપવાથી લસણનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે. અથવા લસણના પાકમાં ભલામણ કરેલ રાસાયણિક ખાતર (૫૦-૫૦-૫૦ ના-ફો-પો કિ.ગ્રા./હે.) ઉપરાંત મલ્ટી માઈક્રોન્યુટ્રીઅન્ટ ગ્રેડ-૪ (લોહ-મેન્ગેનીઝ-ઝીંક-કોપર-બોરોન, ૪.૦-૧.૦-૬.૦- ૦.૫-૦.૫ ટકા) ના ૧ ટકા ના દ્રાવણનો ૪૫, ૬૦ અને ૭૫ દિવસે છંટકાવ કરવાથી પણ લસણનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.
	(Action: Professor & Head, Dept. of Agril. Chemistry & Soil Science and Research Scientist, Vegetable Research Station, JAU, Junagadh)

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13.2.1.32	**Evaluating effect of banana pseudostem enriched sap (Foliar Spray) on hirsutum cotton**
	The farmers of South Gujarat heavy rainfall and South Gujarat, growing *Bt.* cotton are recommended to apply 240 N kg/ha along with either foliar spray of banana pseudostem enriched sap @ 1.0 % or KNO_3 @ 3%for getting higher seed cotton yield and net return. They should follow the following schedule of sprays: ➢ First at peak squaring ➢ Second at 20 days after first spray (Flower opening) ➢ Third at 20 days after 2nd spray (at boll formation) stages
	➢ દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તાર તેમજ દક્ષિણ ગુજરાત વિસ્તારમાં બીટી કપાસની ખેતી કરતા ખેડુતોને વધુ ઉત્પાદન તેમજ ચોખ્ખો નફો મેળવવા માટે પાકને ભલામણ કરેલ રાસાયણિક ખાતર (૨૪૦ કિગ્રા નાઈટ્રોજન/હે.) સાથે કેળનાં થડનાં રસમાંથી તૈયાર કરવામાં આવેલ એનરીચ સેપનું ૧ ટકાનું દ્રાવણ અથવા પોટેશિયમ નાઈટ્રેટના ૩%નું દ્રાવણ નીચે જણાવેલ વિગતે છોડ ઉપર છાંટવાની ભલામણ કરવામાં આવે છે. ➢ પ્રથમ છંટકાવ-ફુલ ભમરી અવસ્થાએ ➢ બીજો છંટકાવ પ્રથમ છંટકાવ પછી ૨૦ દિવસે (ફુલ ખિલવાની અવસ્થાએ) ➢ ત્રીજો છંટકાવ - બીજા છંટકાવ પછી ૨૦ દિવસે (ઝીંડવા બેસવાની અવસ્થાએ)

	(**Action:** Research Scientist, SWMRU, NAU, Navsari)
13.2.1.33	**Effect of different colour shade nets on biomass yield and quality of fenugreek, coriander and garlic**
	The farmers of South Gujarat heavy rainfall zone growing garlic, fenugreek and coriander for leafy vegetable purpose during summer season (April to May) under shade net house are advised to prefer red or green-black shade nets having 50% shading for getting higher fresh biomass yield and net return.
	દક્ષિણ ગુજરાતનાં વધુ વરસાદવાળા વિસ્તારમાં ઉનાળાની ઋતુ દરમ્યાન (એપ્રિલ-મે) લીલા શાકભાજીના પાકો જેવા કે લસણ, મેથી અને ધાણાનું વાવેતર કરતા ખેડુતોએ ૫૦ ટકા શેડીંગવાળા લાલ અથવા લીલા-કાળા રંગનાં શેડનેટમાં ઉછેરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.
	(**Action:** Research Scientist, SWMRU, NAU, Navsari)
13.2.1.34	**Comparative study of different sleeving materials in banana**
	The drip irrigated banana growing farmers of South Gujarat Heavy Rainfall Zone are advised to cover their fully emerged fruit bunch with either 16 micron plastics (transparent or blue plastic) or PP non-woven film to minimize bacteria and fungus for better quality of fruits.
	દક્ષિણ ગુજરાતનાં વધુ વરસાદવાળા વિસ્તારમાં ટપક પધ્ધતિ અપનાવી કેળની ખેતી કરતા ખેડુતોને કેળની લૂમ પુરેપુરી વિકસિત થાય ત્યારે કેળાને સુરક્ષિત રાખવા માટે લૂમ ઉપર ૧૬ માઈક્રોનનાં પ્લાસ્ટીક (પારદર્શક અથવા બ્લુ પ્લાસ્ટીક) અથવા પી.પી. નોન વુવન ફિલ્મ ઢાંકવાથી જીવાણું અને ફુગનું પ્રમાણ ઘટાડી સારી ગુણવતાયુકત કેળાનુ ઉત્પાદન મેળવી શકાય છે.
	(**Action:** Research Scientist, SWMRU, NAU, Navsari)
13.2.1.35	**Effect of irrigation and variety on fodder sugar beet grown under coastal salt affected soils**
	The farmers of coastal salt affected areas of South Gujarat heavy rainfall zone are advised to grow fodder sugar beet *var.* JK Kuber (paired row: 20 cm x 40 cm (2 row) x 60 cm, bed width: 60 cm, furrow top width: 40 cm) during *rabi* season and apply 13 irrigations in which first irrigation just after sowing, second irrigation at 10 DAS and remaining 11 irrigations at an interval of 10 to 12 days. By adopting these practices, farmers can get higher fresh biomass yield and net return.
	દક્ષિણ ગુજરાતનાં દરિયા કાંઠાના ક્ષારયુકત ભારે વરસાદવાળા વિસ્તારમાં રવિ ઋતુમાં લીલા ઘાસચારા માટે સુગર બીટનું વાવેતર (જોડીયા હારઃ ૨૦ સેમી X ૪૦ સેમી (૨ હાર) - ૬૦ સેમી, ગાદી કયારાની પહોળાઈ -૬૦ સેમી અને ચાસની પહોળાઈ - ૪૦ સેમી) કરતા ખેડૂતોએ સુગર બીટની ''જેકે કુબેર'' જાતની વાવણી કરવી અને પાકને કુલ ૧૩ પિયત આપવાની ભલામણ કરવામાં આવે છે. જે પૈકી પ્રથમ પિયત વાવણી બાદ તુરત જ બીજુ પિયત વાવણી બાદ ૧૦ દિવસે અને બાકીના ૧૧ પિયત ૧૦ થી ૧૨

	દિવસના ગાળે આપવા. આમ કરવાથી સુગર બીટના લીલા ઘાસચારાનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે.
	(**Action:** Research Scientist, SWMRU, NAU, Navsari)
13.2.1.36	**Evaluation of rice based crop sequence under aerobic and transplanted method of cultivation in South Gujarat condition**
	The rice growing farmers of South Gujarat heavy rainfall zone are advised to adopt transplanted method for variety GNR 3. They are also advised to grow greengram (CO 4) in *rabi* season for getting higher net return in rice based crop sequence.
	દક્ષિણ ગુજરાતના વધુ વરસાદવાળા વિસ્તારમાં રોપાણ ડાંગર કરવા ઈચ્છતા ખેડૂતોને ડાંગરની જી. એન. આર.૩ જાતની પસંદગી કરવાની ભલામણ કરવામાં આવે છે. વધુમાં ડાંગર - મગ પાક પધ્ધતિમાં રવિ ઋતુમાં મગ(સી.ઓ ૪)ની વાવણી કરવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.
	(**Action:** Research Scientist, SWMRU, NAU, Navsari)
13.2.1.37	**Effect of Fe on rice varieties under South Gujarat conditions**
	The transplanted rice growing farmers of South Gujarat heavy rainfall zone are advised to grow iron rich variety GNR 4, which gives higher yield and net return. Further they are advised to spray 1% banana pseudostem enriched sap at tillering stage for increasing iron content in rice grains of variety GNR 4 and GAR 13 through bio fortification of iron.
	દક્ષિણ ગુજરાતના વધુ વરસાદવાળા વિસ્તારમાં રોપાણ ડાંગર કરતા ખેડૂતોને વધુ ચોખ્ખી આવક મેળવવા માટે ડાંગરની લોહતત્વ સભરજાત જી. એન. આર. ૪ વાવેતર કરવાની ભલામણ કરવામાં આવે છે. વધુમાં ફુટ અવસ્થાએ ૧% બનાના સ્યુડોસ્ટેમ એનરીચ સેપનો છંટકાવ કરવાથી જીએનઆર ૪ અને જીએઆર ૧૩ ના ચોખામાં લોહતત્વની માત્રા બાયો ફોર્ટીફીકેશનથી વધારી શકાય છે.
	(**Action:** Research Scientist, SWMRU, NAU, Navsari)
13.2.1.38	**Spacing and nutrient management for pigeon pea *cv*. GT-102 during *rabi* season**
	Farmers of south Gujarat heavy rainfall zone, growing pigeon pea (GT 102) during *rabi* season are advised to sow the crop at 60 x 20 cm spacing and apply 10 t/ha FYM along with recommended dose of fertilizers *i.e*. 25:50:00 kg $N:P_2O_5:K_2O$/ha as basal for getting higher yield and net return.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં શિયાળુ તુવરનું વાવેતર કરતાં ખેડુતોને તુવેર (ગુજરાત તુવેર ૧૦૨) નું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પાકની વાવણી ૬૦×૨૦ સેમી નું અંતર રાખીને કરવાની તથા ૧૦ ટન છાણિયુ ખાતરની સાથે પાયામાં ૨૫:૫૦:૦ કિ.ગ્રા.ના.ફો.પો./હે. ખાતર આપવાની ભલામણ કરવામાં આવે છે.

	(**Action:** Associate Research Scientist, P&CRS, NAU, Navsari)
13.2.1.39	**Evaluation of drip fertigation on *rabi* castor productivity**
	Farmers of south Gujarat heavy rainfall zone growing irrigated castor during *rabi* season are advised to apply irrigation through drip system at 0.8 Epan and 75% RDN (90:25 kg N:P_2O_5/ha) fertilizer. They should apply full dose of phosphorus (25 kg P_2O_5/ha) and 30 kg/ha nitrogen as basal and remaining dose of nitrogen through fertigation in 5 equal splits (12 kg nitrogen /ha) at an interval of 9 days starting from 30 days after sowing for getting higher seed yield and net return which gives 25 per cent saving of nitrogen. Details of drip system 1 Lateral spacing : 1.2 m 2 Dripper spacing : 0.6 m 3 Dripper discharge : 4 liter per hour 4 Operating pressure : 1.2 kg/cm^2 5 Operating frequency : 3 days interval 6 Operating time : Oct. to Feb.- 1.40 hr and Mar. to April.- 2.0 hr.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં રવિ દિવેલા ઉગાડતા ખેડુતોને દિવેલા પાકમાં ટપક પધ્ધતિથી પિયત સાથે, ભલામણ કરેલ ખાતરના ૭૫ ટકા જથ્થો (૯૦ : ૨૫ કિ.ગ્રા/હે. નાઈટ્રોજન : ફોસ્ફોરસ) આપવાની ભલામણ છે. જેમાં ફોસ્ફોરસયુકત ખાતરનો સંપૂર્ણ જથ્થો અને ૩૦ કિ.ગ્રા/હે. નાઈટ્રોજન પાયાનાં ખાતર તરીકે તથા બાકીનો જથ્થો વાવણી બાદ ૩૦ દિવસ પછી પાંચ સરખા હપ્તામાં (૧૨ કિ.ગ્રા નાઈટ્રોજન/હે.) નવ દિવસના આંતરે ટપક સિંચાઈ પધ્ધતિ ધ્વારા આપવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળી શકે છે અને ૨૫% નાઈટ્રોજનની બચત થાય છે. પિયત પધ્ધતિ : - બે લેટરલ વચ્ચેનું અંતર : ૧.૨ મીટર - બે ટપકણિયા વચ્ચેનું અંતર : ૦.૬ મીટર - ટપકણિયાનો પ્રવાહ : ૪ લીટર / કલાક - પધ્ધતિ ચલાવવા માટેનો સમયગાળો : ત્રણ દિવસના આંતરે **પધ્ધતિ ચલાવવાનો સમય** ઓકટોબર થી ફેબ્રુઆરી : ૧.૪ કલાક અને માર્ચ થી એપ્રિલ : ૨.૦ કલાક
	(**Action:** Associate Research Scientist, P&CRS, NAU, Navsari)
13.2.1.40	**Response of different varieties of finger millet (Nagli) to integrated nutrient management under rainfed condition**
	The farmers of South Gujarat heavy rain fall zone growing finger millet variety GN 5 during *kharif* season are recommended to fertilize the crop with 75% of RDF (30:15:00 kg NPK/ha) and vermicompost 2 t/ha for getting higher yield and net return.

	દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા વિસ્તારમાં ચોમાસુ ગુજરાત નાગલી ૫ ની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન તથા ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ ખાતરના ૭૫% (૩૦:૧૫:૦૦ ના.ફો.પો. કિ.ગ્રા./હે.) અને વર્મીકમ્પોષ્ટ ૨ ટન પ્રતિ હે. આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Associate Research Scientist, HMRS, NAU, Waghai)
13.2.1.41	**Response of little millet (Vari) to nitrogen and phosphorus levels under rainfed condition**
	The farmers of South Gujarat heavy rain fall zone growing little millet (GV 2) during *kharif* season are advised to grow the crop with application of 20 kg N/ha and 20 kg P_2O_5/ha for getting higher yield and net income.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં ચોમાસામાં વરી (ગુ. વરી-૨) ની ખેતી કરતાં ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પાયામાં ૨૦ કિગ્રા. ના. અને ૨૦ કિગ્રા. ફો./હેકટર આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Associate Research Scientist, HMRS, NAU, Waghai)
13.2.1.42	**Refinement of sowing dates for *kharif* grain sorghum varieties/ promising lines under changing climate of South Gujarat**
	The farmers of South Gujarat Zone are advised to sow sorghum during onset of monsoon or within 15 days after onset of monsoon for getting higher yield and net return which also avoids the incidence of shoot fly and stem borer.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં જુવાર ઉગાડતાં ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા જુવારની વાવણી ચોમાસુ બેસતા અથવા તેના ૧૫ દિવસનાં સમયગાળામાં કરવાની ભલામણ કરવામાં આવે છે તેનાથી સાંઠાની માખી અને સાઠાંના વેધકનો ઉપદ્રવ અટકાવી શકાય છે.
	(**Action:** Research Scientist, MSRS, NAU, Surat)
13.2.1.43	**Real time nitrogen management through leaf colour chart in rice cultivar**
	The farmers of South Gujarat heavy rainfall zone are advised to fertilize the rice with 100 kg N/ha along with 30 kg P_2O_5/ha + 5 t biocompost as per the leaf colour chart panel number four (2/5 N basal + other two doses through leaf colour chart) for getting higher yield and net return.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારના ખેડૂતોને ડાંગરના પાકમાં વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ૧૦૦ કિ.ગ્રા. નાઈટ્રોજન/હે, ૩૦ કિ.ગ્રા. ફોસ્ફરસ/હે ૮ ૫ ટન બાયોકમ્પોષ્ટ લીફ કલર ચાર્ટના પેનલ નંબર-૪ પ્રમાણે (નાઈટ્રોજન ૨/૫ પાયામાં અને બીજા બે હપ્તામાં લીફ કલર ચાર્ટ પ્રમાણે) આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)

13.2.1.44	**Impact of summer green manure crops on succeeding *kharif* paddy under integrated nutrient management**
	The farmers of South Gujarat heavy rainfall zone growing *kharif* transplanted paddy are advised to adopt practice of preceeding green manuring with *dhaincha* (fertilized 20:40:00 kg NPK/ha) and apply 75% of RDF (75:22.5:00 kg NPK /ha) for succeeding paddy crop for getting higher yield and net return which can save 25% of fertilizer.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં ખેડૂતોએ ચોમાસુ ડાંગરનું નફાકારક ઉત્પાદન મેળવવા માટે ઉનાળામાં ઈકકડ (૨૦:૪૦:૦૦ કિગ્રા ના.ફો.પો./હે)નો લીલો પડવાશ કરી ડાંગરના પાકને ભલામણ કરેલા જથ્થાના ૭૫% (૭૫ : ૨૨.૫ : ૦૦ કિ.ગ્રા.ના.ફો.પો./હે) ખાતર આપવાની ભલામણ કરવામાં આવે છે જેનાથી ૨૫ ટકા રાસાયણિક ખાતરની બચત કરી શકાય છે.
	(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)
13.2.1.45	**Weed management in sugarcane *var.* Co 99004 under south Gujarat condition**
	The sugarcane growers of South Gujarat heavy rainfall zone are advised to manage the weeds by hand weeding at 30, 60 and 90 days after planting and interculturing at 45 and 90 DAP for securing higher yield and net return.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં શેરડીનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા તથા અસરકારક નિંદણ નિયંત્રણ માટે વાવણી બાદ બે આંતર ખેડ ૪૫ અને ૯૦ દિવસે તેમજ હાથથી નિંદામણ ૩૦ , ૬૦ અને ૯૦ દિવસે કરવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)
13.2.1.46	**Integrated weed management in *rabi* sorghum (*Sorghum bicolor* L.) under south Gujarat condition**
	The farmers of South Gujarat heavy rainfall zone growing *rabi* sorghum are advised to adopt two interculturing and hand weeding at 20 and 40 DAS for effective weed management, realizing higher grain and net return.
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં શિયાળુ જુવારનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન, ચોખ્ખો નફો મેળવવા તથા અસરકારક નિંદણ નિયંત્રણ માટે વાવણી બાદ બે આંતર ખેડ અને હાથથી નિંદામણ ૨૦ અને ૪૦ દિવસે કરવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)
13.2.1.47	**Weed and nitrogen management in aerobic rice**
	The farmers of South Gujarat heavy rainfall zone are advised to apply 120 kg N/ha in three splits (40% N as basal, 40% at tillering and 20% at panicle

	initiation) and 30 kg P_2O_5/ha as basal along with two hand weeding at 20 and 40 DAS for getting higher yield and net return with efficient weed management in arobic rice. Under crisis of labour and adverse condition due to continuous rainfall, farmers are advised to control weed by spraying of pretilachlor @ 0.75 kg/ha as pre-emergence and bispyribac sodium salt @ 0.050 kg/ha as post emergence after 20 DAS along with 120 kg N/ha in three splits (40% N as basal, 40% at tillering and 20% at panicle initiation).
	દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં ઓરાણ ડાંગર પકવતા ખેડૂતોને વધુ ઉત્પાદન તથા ચોખ્ખો નફો મેળવવા માટે પાકની વાવણી બાદ ૨૦ અને ૪૦ દિવસે હાથથી બે વાર નિંદામણ સાથે ૩૦ કિલો ફોસ્ફરસ પાયામાં અને ૧૨૦ કિલો નાઈટ્રોજન/હે ત્રણ હપ્તામાં (૪૦% પાયામાં, ૪૦% ફુટ અવસ્થાએ તથા ૨૦% જીવ પડે ત્યારે) આપવાની ભલામણ કરવામાં આવે છે. વધુમાં મજુરોની તંગી હોય અથવા સતત વરસાદને કારણે હાથથી નિંદામણ શકય ન હોય ત્યારે ઓરાણ ડાંગર ઉગ્યા પહેલાં પ્રેટીલાકલોર ૦.૭૫ કિ/હે પ્રમાણે તેમજ વાવણીના ૨૦ દિવસ બાદ બાયસ્પાયરીબેક સોડીયમ સોલ્ટ ૦.૦૫૦ કિ.ગ્રા./હે પ્રમાણે છાંટવી સાથે૧૨૦ કિલો નાઈટ્રોજન/હે ત્રણ હપ્તામાં (૪૦% પાયામાં, ૪૦% ફુટ અવસ્થાએ તથા ૨૦% જીવ પડે ત્યારે) આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)
13.2.1.48	**Study of critical period of crop-weed competition in cotton under rainfed condition of South Gujarat**
	The farmers of South Gujarat zone are advised to keep the cotton field weed free upto 80 days after sowing for getting lower weed competition index and profitable seed cotton yield.
	દક્ષિણ ગુજરાત વિસ્તાર માં ખરીફ ઋતુ દરમિયાન બિનપિયત કપાસ ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા કપાસના પાકને વાવણીથી ૮૦ દિવસ સુધી નિંદણ મુકત રાખવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Professor , Dept. of Agronomy, College of Agriculture, NAU, Bharuch)
13.2.1.49	**Response of sorghum varieties to different tillage practices under conserved moisture after *kharif* paddy (Drilled)** Differed and to be extended for one more year of experimentation.
	(**Action:** Programme Coordinator, KVK, NAU, Dadiyapada)
13.2.1.50	**Fertilizer management in *rabi* black moong under conserved soil moisture condition**
	Farmers of South Gujarat Zone growing *rabi* Black moong (GBM-1) under conserved moisture are advised to apply 1 t/ha vermicompost + 50% of recommended dose of fertilizer (10:20:0 kg N:P_2O_5:K_2O/ha) or 1 t/ha vermicompost + 50% RDF with biofertilizers (*Rhizobium* + PSB 10 ml/kg) for achieving higher yield and net return.

	દક્ષિણ ગુજરાત વિસ્તારમાં સંગ્રહિત ભેજમાં રવિ કાળા મગ ઉગાડતા ખેડુતોને કાળા મગ (જી.બી.એમ.૧) નું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા ૧ ટન વર્મીકમ્પોષ્ટ પ્રતિ હેકટર સાથે ૫૦% ભલામણ કરેલ ખાતર (૧૦:૨૦:૦૦ કિ.ગ્રા. ના.ફો.પો./હે.) અથવા ૧ ટન વર્મીકમ્પોષ્ટ પ્રતિ હેકટર સાથે ૫૦% ભલામણ કરેલ ખાતર (૧૦:૨૦:૦૦ કિ.ગ્રા. ના.ફો.પો./હે.) અને જૈવિક ખાતરો (રાઇઝોબિયમ અને પીએસબી ૧૦ મીલી/કિગ્રા બીજ) આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Asstt. Research Scientist, ARS, NAU, Tanchha)
13.2.1.51	**Title : Agronomic requirement of cotton varieties for high density planting systems under irrigated conditions**
	The farmers of South Gujarat Zone are recommonded to grow cotton variety suitable for high density planting system (HDPS) at spacing of 60 x 15 cm with application of 225 kg N/ ha in five equal splits at 30, 60, 75, 90 and 105 DAS for getting higher seed cotton yield and net return. દક્ષિણ ગુજરાત વિસ્તારમાં કપાસના ગીચ વાવેતર માટે અનુકુળ જાતનું વાવેતર કરતા ખેડૂતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ૬૦ × ૧૫ સેમીનું અંતર રાખી ૨૨૫ કિલો નાઈટ્રોજન/હે ના પાંચ સરખા ભાગ કરી ૩૦, ૬૦, ૭૫, ૯૦ અને ૧૦૫ દિવસે આપવાની ભલામણ કરવામાં આવે છે.
	(**Action:** Research Scientist, MCRS, NAU, Surat)

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13.2.1.52	**Diversification of cropping system as component of small holder farming systems**
	The farmers of North Gujarat agro climatic zone are recommended to adopt Greengram – Fennel cropping sequence for obtaining higher yield and net return. Under the system, fennel should be sown at 90 cm spacing and transplant cualiflower (1:1 inter crop) in middle of two lines of fennel at 10 DAS.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના ખેડૂતોને વધુ ઉત્પાદન અને નફો મેળવવા માટે ચોમાસુ મગ - શિયાળું વરીયાળી પાક પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. ખેડૂતોએ વરીયાળીનું વાવેતર ૯૦ સેમી ના અંતરે કરી ૧૦ દિવસ બાદ બે હાર વચ્ચે ફુલાવર (૧:૧ આંતરપાક)ની ફેરરોપણી કરવી.
	(Action: Research scientist, IFS, Sardarkrushinagar**)**
13.2.1.53	**Growth and yield of *kharif* groundnut (*Arachis hypogaea* L) under foliar application of *panchgavya* and *jivamrut*** The farmers of North Gujarat agro climatic zone growing *kharif* groundnut are recommended to apply panchgavya @ 2.0 % as foliar spray + jivamrut @ 500 lit/ha as soil application both at branching and flowering stages along with 5 t FYM/ha for securing higher pod yield, net return and maintaining soil fertility.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના ખેડૂતોનેચોમાસુ મગફળીનુ વધુ

	ઉત્પાદન અને ચોખ્ખો નફો મેળવવા તેમજ જમીનની ફળદ્રુપતા જાળવવા માટે પાકની ડાળી તેમજ ફૂલ બંને અવસ્થાએ પંચગવ્યનો ૨.૦ ટકા ફવણનો પાક ઉપર અને જીવામૃતનો ૫૦૦ લીટર મુજબ જમીન ઉપર છંટકાવ કરવો તથા ૫.૦ ટન છાણિયુ ખાતર પ્રતિ હેકટરે આપવાની ભલામણ કરવામાં આવે છે.
	(Action: Professor and Head, Agronomy Department, CPCA, Sardarkrushinagar**)**
13.2.1.54	**Relay/intercropping of castor in cotton**
	The farmers of North Gujarat agro climatic zone are recommended to adopt inter cropping of castor in cotton instead of sole cotton for obtaining higher cotton equivalent yield and net return. Under the system, cotton should be sown during 1st week of June with spacing of 180 cm x 60 cm and castor during 1st week of August between two rows of cotton keeping 60 cm distance between two plants.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના ખેડૂતોને બી ટી કપાસ સમકક્ષ વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે કપાસના પાકમાં દિવેલા આંતર પાક તરીકે વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ માટે કપાસની વાવણી જુનના પ્રથમ અઠવાડીયા દરમ્યાન ૧૮૦ સે.મી. × ૬૦ સે.મી. ના અંતરે કરી કપાસની બે લાઈન વચ્ચે ઓગષ્ટના પ્રથમ અઠવાડીયા દરમ્યાન દિવેલાની વાવણી બે છોડ વચ્ચે ૬૦ સે.મી. નું અંતર રાખી ને કરવી.
	(Action: Assistant Research Scientist (Agronomy), C & M, Sardarkrushinagar**)**
13.2.1.55	**Weed management in mungbean**
	The farmers of North Gujarat agro climatic zone are recommended to carry out two hand weeding at 20 and 35-40 DAS for obtaining higher seed yield of green gram and net return.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના ખેડુતોને મગના પાકનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પાકની વાવણી બાદ ૨૦ અને ૩૫ થી ૪૦ દિવસે હાથ નિંદામણ કરવાની ભલામણ કરવામાં આવે છે.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**
13.2.1.56	**Response of horse gram (*Macrotyloma uniformis* lam. Verdec.) to row spacing and fertilizer doses in *kharif* season**
	The farmers of North Gujarat agro climatic zone growing horse gram crop as rainfed are recommended to keep 45 cm row spacing with basal application of 10 kg N and 20 kg P_2O_5/ha for obtaining higher seed yield and net return.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના વરસાદ આધારીત કુલથીની ખેતી કરતા ખેડુતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પાકની બે હાર વચ્ચે ૪૫ સેમીનુ અંતર રાખી પ્રતિ હેકટર ૧૦ કિલો નાઇટ્રોજન અને ૨૦ કિલો ફોસ્ફરસ પાયામાં આપી વાવણી કરવાની ભલામણ કરવામાં આવે છે.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**

13.2.1.57	**Effect of different weed management practices on isabgul and their residual effect on succeeding crop**
	The farmers of North Gujarat agro climatic zone growing isabgul are recommended to carry out two interculturing followed by hand weeding at 25 and 40 DAS for obtaining higher yield and net return.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના ઈસબગુલનું વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ૨૫ અને ૪૦ દિવસે આંતરખેડ કર્યા બાદ હાથ વડે નિંદણ કરવાની ભલામણ કરવામાં આવે છે.
	(Action: Research Scientist, Centre for Seed Spices Research, Jagudan**)**
13.2.1.58	**Effect of ferrous and zinc enriched FYM on yield and quality of fennel**
	The farmers of North Gujarat agro climatic zone are recommended to apply RDF (90 + 30 kg NP/ha) to *rabi* fennel along with 200 kg FYM enriched with 3.0 kg Fe + 1.5 kg Zn/ha in furrow at the time of sowing in Fe and Zn deficient soil for obtaining higher yield and net return. The FYM (200 kg/ha) should be mixed with required quantities of Fe (15.7 kg $FeSO4.7H_2O$) and Zn (7.1 kg $ZnSO4.7H_2O$). The FYM is kept about 70 % moisture content for 40 days in a pit with weekly intermixing before its application.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગની લોહ અને જસતની ઉણપવાળી જમીનમાં શિયાળુ વરિયાળી ઉગાડતા ખેડૂતોને વરિયાળીનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પ્રતિ હેકટરે ભલામણ કરેલ રાસાયણિક ખાતર (૯૦:૩૦ કિ.ગ્રા. ના.ફો.) ની સાથે ૨૦૦ કિ.ગ્રા. છાણિયા ખાતરને ૩ કિ.ગ્રા. ફેરસ (લોહ) + ૧.૫ કિ.ગ્રા. ઝીંક (જસત) /હે. થી સમૃધ્ધ કરીને વાવણી વખતે ચાસમાં આપવાની ભલામણ કરવામાં આવે છે. આ માટે છાણિયા ખાતર (૨૦૦ કિલો/હે) ને જરૂરી લોહ (૧૫.૭ કિલો ફેરસ સલ્ફેટ) તથા જસત (૭.૧ કિલો ઝિંક સલ્ફેટ) તત્વો સાથે ભેળવી ૭૦ ટકા ભેજ જળવાય તે રીતે ખાડામાં ૪૦ દિવસ સુધી રાખી દર અઠવાડિયે ફેરવવું અને ત્યારબાદ તેનો ઉપયોગ કરવો.
	(Action: Research Scientist, Centre for Seed Spices Research, Jagudan**)**
13.2.1.59	**Scheduling of irrigation and fertility levels on summer vegetable cowpea**
	The farmers of North Gujarat agro climatic zone growing summer vegetable cowpea are recommended to apply 10 irrigations at 8 days interval during March, 7 days interval during April and 4 days interval during May with 60 mm depth along with application of 75% RDF (18.75 : 37.5 : 00 kg NPK/ha) + rhizobium + PSB (30 g/kg seed) for obtaining higher green pod yield and net return which gives saving of 25 % fertilizer.
	ઉત્તર ગુજરાત ખેત હવામાન વિભાગના ખેડૂતોને ઉનાળુ શાકભાજીની ચોળીની લીલી શીંગોનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા કુલ ૧૦ પિયત આપવાં જે પૈકી માર્ચ માસ દરમ્યાન ૮ દિવસના અંતરે, એપ્રિલ માસ દરમ્યાન ૭ દિવસના અંતરે

	અને બાકીના મે માસ દરમ્યાન ૫-૬ દિવસના અંતરે (૬૦ મી.મી. ઉંડાઈના) પિયત રેલાવીને આપવાં. તેમજ ભલામણ કરેલ ખાતર ના ૭૫% (૧૮.૭૫:૩૭.૫:૦૦ ના.:ફો.:પો./હે.) મુજબ ખાતર આપવું અને બીજને રાઈઝોબીયમ અને પીએસબી (દરેક ૨૫૦ ગ્રામ ૮ કિલો બિયારણ દિઠ) કલ્ચરનો પટ આપી વાવણી કરવાની ભલામણ કરવામાં આવે છે.
	(Action: Assistant Research Sci., (Agronomy), Agril. Research Station, Ladol**)**
13.2.1.60	**Nitrogen, phosphorus and sulphur management in rainfed mustard**
	The farmers of North West agro climatic zone are recommended to apply 50 : 50 N, P_2O_5 and 20 kg S /ha through gypsum to mustard under rainfed condition in salt affected soil for obtaining higher yield and net return.
	ઉત્તર પશ્ચિમ ખેત હવામાન વિભાગની ક્ષારીય જમીનમાં બીન પિયત રાઈની ખેતી કરતા ખેડુતોને વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે હેકટરે ૫૦ કિ.ગ્રા. નાઈટ્રોજન, ૫૦ કિ.ગ્રા. ફોસ્ફરસ પ્રતિ હેકટરે આપવો તેમજ ૨૦ કિ.ગ્રા. સલ્ફર પ્રતિ હેકટરે જીપ્સમ મારફતે આપવાની ભલામણ કરવામાં આવે છે.
	(Action: Assistant Research Sci., (Agronomy), Agril. Research Station, Adiya**)**
13.2.1.61	**Nutrient management in rainfed castor with different amendments in salt affected soils**
	The farmers of North West agro climatic zone are recommended to apply gypsum and castor cake each of 2 t/ha along with RDF (60+30+0 NPK kg/ha) to castor (GCH 2) under rainfed condition in salt affected soil for obtaining higher yield and net return.
	ગુજરાતના ઉત્તર પશ્ચિમ ખેત હવામાન વિભાગની ક્ષારીય જમીનમાં બીન પિયત દિવેલા (જીસીએચ ૨) ની ખેતી કરતા ખેડુતોને તેનું વધુ ઉત્પાદન તથા ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ ખાતરના (૬૦+ ૩૦+૦ કિ.ગ્રા. ના ફો.પો. પ્રતિ હેકટર) જથ્થાની સાથે જીપ્સમ અને દિવેલીનો ખોળ બંને ૨ ટન/હે મુજબ આપવાની ભલામણ કરવામાં આવે છે.
	(Action: Assistant Research Sci., (Agronomy), Agril. Research Station, Adiya**)**

13.2.2. RECOMMENDATION FOR SCIENTIFIC COMMUNITY
ANAND AGRICULTURAL UNIVERISITY, ANAND

13.2.2.1	**Influence of weed management practices on growth and seed yield of oat (*Avena sativa* L.)**
	Application of pendimethalin 0.90 kg/ha as pre emergence followed by hand weeding at 40 days after sowing of oat found effective for weed management with higher seed yield and net return.
	(Action : Associate Res. Scientist, Main Forage Research Station, AAU, Anand)
13.2.2.2	**Soil test based fertilizer prescriptions through inductive cum targeted yield model for rice**

	The ready recnor is developed on STCR basis for kharif rice grown in middle Gujarat condition for fertilizers alone or fertilizers with FYM 5 t/ha. The ready rekoners prepared on the basis of below mentioned targeted yield equations and soil test values for getting targeted yield. i) Sole use of chemical fertilizers FN = 51.37 T – 1.04 SN FP_2O_5 = 27.71 T – 3.24 SP FK_2O = 62.93 T – 0.98 SK ii) Conjoint use of chemical fertilizers and FYM 5 t/ha FN = 29.09 T – 0.62 SN – 0.10 FYM N FP_2O_5 = 26.45 T – 4.08 SP – 0.48 FYM P FK_2O = 38.93 T – 0.79 SK – 0.17 FYM K
	(**Action** : OSD, College of Agriculture, AAU, Jabugam)
13.2.2.3	**Long term effect of soil test based fertilizer use with and without organic manure on pearl millet (*kharif*)-wheat crop sequence** General Suggestions 1. Long term experiment should be continued. 2. Preveailing cropping system of the area to be taken. 3. A committee for long term experiment is constituted as under A. Professor and Head, Deptt. of Agronomy of all SAU's B. Professor and Head, Deptt. of Ag. Chem. and Soil Sci. of all SAU's C. Professor and Head, Deptt. of Ag. Stat., AAU, Anand Convener of the committee: Professor and Head, Deptt. of Agronomy, JAU, Junagadh **(Action:** Professor & Head, Department of Agron., BACA, AAU, Anand)

JUNAGADH AGRICULTURAL UNIVERISITY, JUNAGADH

	AGRONOMY
13.2.2.4	**Weed management practices in spring planted sugarcane–based intercropping system**
	It is for the knowledge of the scientific community that application of pendimethalin @ 0.90 kg/ha as pre-emergence followed by hand weeding at 30 days after sowing of sesame or green gram or black gram as intercrop in sugarcane planted at 90 cm row spacing gives higher yield and net return as well as it gives effective weed management.
	(**Action:** Research Scientist, Main Sugarcane Research Station, JAU, Kodinar)
13.2.2.5	**Yield maximization in medium duration pigeonpea crop**
	It is for the knowledge of the scientific community that grow pigeonpea by adopting full package of practices [INM (FYM 5t/ha + RDF (N-P-S-Zn: 25-50-20-15 kg/ha + IWM (Pendimethalin 30% EC @ 0.75 kg a.i /ha at 3 DAS + Imazethapyr @ 100 g a.i. /ha at 10-15 DAE of weeds + 1 HW at 50 DAS) + IPM (Indoxacarb 15.8% EC at flowering @ 375 ml/ha + chloraniliprole 18.5 SC at 15

	days after 1st spray @ 100 ml/ha)]. Among the production factors, maximum contribution was shown by INM (54.75 %) followed by IWM (43.83 %) and IPM (35.74 %).
	(**Action:** Research Scientist, Pulse Research Station, JAU, Junagadh)
	SOIL SCIENCE
13.2.2.6	**Establishment of critical limit of sulphur for pigeonpea crop in medium black calcareous soils**
	The critical limit for S application to pigeonpea crop grown on calcareous soils of Saurashtra has been fixed. the limit is noticed as 12.5 ppm (Heat soluble S) in soils and 0.455 % in pigeonpea plant at 60 DAS.
	(Action: Professor & Head, Dept. of Agril. Chem. & Soil Sci., JAU, Junagadh)
13.2.2.7	**Effect of saline irrigation water on onion (*Allium cepa*) crop**
	It is for the information of scientific community especially for plant breeder that onion variety Talaja Red recorded value of different salt tolerance criteria like higher mean salinity index (53.8), higher mean bulb yield (109 g), minimum yield decline in high salinity level at EC 6.80 dSm^{-1} for 50 %, minimum yield reduction (59.3 %) at 8.0 dSm^{-1} as well as lower Na/K ratio in straw. Onion variety Talaja red is found more salt tolerant compared to GWO-1, Pilipatti and Agri Found Light Red on the basis of salinity indices.
	(Action: Professor & Head, Dept. of Agril. Chem. & Soil Sci., JAU, Junagadh)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

13.2.2.8	**Estimation of Green House Gases (GHGs) emission from paddy fields**
	The rice grown under SRI method with 100 % RDN through urea retards the emission of CH_4 as well as total GHGs (CH_4 + N_2O as CO_2 eq.) which increases rice productivity. However, this superiority does not exist with respect to emission of N_2O. Rice cultivation with normal transplanting and direct seeded methods emitted the CH_4 gas to a greater extent and emission was more pronounced when Farm Yard manure added to the soil. Application of organics alone or in combination with inorganic fertilizers improves the rice yield and soil properties but favoured more emission of GHGs from the rice field.
	(**Action:** Professor, Dept. of NRM, ACHF, Forestry College, NAU, Navsari)
13.2.2.9	**Determination of correlation for various weather parameters over south Gujarat**
	Navsari District: Concluded
13.2.2.10	**Integrated Weed Management in Castor**
	Application of pendimethalin 1 kg/ha as pre-emergence + one hand weeding at 40 days after sowing was found effective in irrigated *rabi* casror (GCH 7) under South Gujarat heavy rainfall zone for profitable yield and effective weed management in irrigated castor (GCH 7). Residue analysis of these herbicides was carried out and were found below detected level in seed and soil.
	(**Action:** Associate Research Scientist, P&CRS, NAU, Navsari)

13.2.2.11 **Potash status in soil as affected by intensive cropping (paddy wheat–green gram) under medium and high fertility levels with and without application of potash**

(To be discussed with committee for farmers recommendation in next year)

Rice-wheat-green gram cropping sequence was found sustainable even after 28 crop cycles without addition of potassium in soil, but there was depletion of about 39 % and 36% of source-K (HNO_3 soluble K) in surface soil (0.0-22.5 cm) and sub-surface (22.5-45.0 cm) layer, respectively at the end of 28 crop cycles.

Recommendation for application of nitrogen fertilizer based on soil available nitrogen

Category	Available nitrogen (kg/ha)	Recommendation
Very low	< 140	Apply 50% more over recommended dose
Low	141 - 280	Apply 25% more over recommended dose
Normal	181 - 420	As per recommended dose
Normally high	421 - 560	As per recommended dose
High	561 - 700	Apply 25% less over recommended dose
Very high	> 700	Apply 50% less over recommended dose

Recommendation for application of Phosphorus fertilizer based on soil available Phosphorus

Category	Available phosphorus (kg/ha)	Recommendation
Very low	< 10	Apply 50% more over recommended dose
Low	11 - 20	Apply 25% more over recommended dose
Normal	21 - 30	As per recommended dose
Normally high	31 - 40	As per recommended dose
High	41 - 55	Apply 25% less over recommended dose
Very high	> 55	Apply 50% less over recommended dose

(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)

13.2.2.12 **Weed management in sugarcane *var.* Co 99004 under south Gujarat condition**

Apply either metribuzin 1 kg/ha or atrazine 2 kg/ha as pre-emergence followed by one hand weeding and one interculturing at 60 DAP for effective management of weed in sugarcane.

(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)

13.2.2.13 **Integrated weed management in *rabi* sorghum (*Sorghum bicolor* L.) under South Gujarat condition**

Application of atrazine @ 0.5 kg/ha as pre-emergence and one interculturing and one hand weeding at 20 DAS was found effective for weed management in *rabi* sorghum.

(**Action:** Professor , Dept. of Agronomy, NMCA, NAU, Navsari)

S.D.AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

13.2.2.14	**Enhancing WUE of Indian mustard under deficit and adequate irrigation scheduling with hydrogel**
	Mustard gives higher seed yield when irrigated at 0.8 IW/CPE ratio. Higher seed yield of mustard can also be obtained with an application of hydrogel but it is found economically not viable.
	(Action: Assistant Research Sci.,Castor-Mustard Research Station, S.K. Nagar**)**
13.2.2.15	**Chemical weed control in grain amaranths**
	Application of oxyfluorfen 50 g/ha PE followed by one hand weeding at 5 weeks after sowing or two hand weeding at 3 and 5 weeks after sowing control weeds effectively which gives higher seed yield of amaranths.
	(Action: Associate Research Scientist, (Agronomy),CCI, Sardarkrushinagar**)**
13.2.2.16	**Weed management in mungbean**
	Application of pendimethalin 30 EC followed by imazethapyr 2 EC (ready mixture) 0.75 kg/ha PE followed by hand weeding at 25-30 DAS or pendimethalin 1.0 kg/ha PE followed by quizalofop-ethyl 50 g/ha at 15-20 DAS to control weeds effectively in mungbean. No phytotoxic effect of herbicide was observed on succeeding crop.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**
13.2.2.17	**Integrated crop management in mungbean**
	Application of 20 kg N + 40 kg P_2O_5/ha as basal and seed innoculation with *Rhizobium* + PSB (250 g each/8 kg seed) to *kharif* greengram is found effective to give higher yield. Further, application of pendimethalin 30 EC + imazethapyr 2 EC (ready mixture) 0.75 kg/ha PE and carry out hand weeding at 35-40 DAS controls weeds to give higher seed yield and net return in mungbean.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**
13.2.2.18	**Integrated crop management in fieldpea**
	Application of 20 kg N + 40 kg P_2O_5/ha as basal and seed innoculation with *Rhizobium* + PSB (250 g each/8 kg seed) to fieldpea gives higher yield of the crop. Application of pendimethalin @ 1.0 kg/ha PE followed by one hand weeding at 30 days after sowing controls weeds and gives higher seed yield and net return.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**
13.2.2.19	**Integrated crop management in rajmash**
	Application of 50 kg N/ha + 40 kg P_2O_5/ha as basal and 50 kg N/ha 30 days after sowing and seed innoculation with *Rhizobium* + PSB (250 g each/8 kg seed) to rajmash gives higher yield. Application of pendimethalin @ 1 kg/ha PE followed by one hand weeding at 30 days after sowing control weeds and gives higher seed yield and net return.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**
13.2.2.20	**Integrated weed management in pigeonpea**
	Application of pendimethalin 0.75 kg/ha PE followed by imezathapyr 100 g/ha at 15-20 DAS or imezathapyr 100 g/ha at 10-15 DAS followed by 1 hand weeding on 50 DAS or pendimethalin @ 0.75 kg/ha on 3 DAS + imezathapyr @ 100 g/ha at 10-15 DAS or pendimethalin @ 0.75 kg/ha on 3 DAS + imezathapyr @ 100 g/ha at 10-15 DAS followed by intercultivation on 50 DAS or

	pendimethalin @ 0.75 kg/ha on 3 DAS + quizalofop ethyl @ 100 g/ha at 10-15 DAS followed by 1 intercultivation on 50 DAS is found effective for weed control in pigeonpea.
	(Action: Associate Res. Sci. (Agronomy), Pulse Research Station, S.K. Nagar**)**
13.2.2.21	**Effect of different weed management practices on isabgul and their residual effect on succeeding crop**
	Application of oxadiargyl @ 100/ha as PoE at 20 DAS followed by I. C. followed by hand weeding at 35 DAS or isoproturon 500 g/ha PE or isoproturon 500 g/ha PE + Oxadiargyl @ 100/ha as POE at 20 DAS in isabgul is found effective for weed control.
	(Action: Research Scientist, Centre for Seed Spices Research, Jagudan**)**

Response of groundnut to phosphorus in Saurashtra region

At the end of the technical session of the Crop Production Sub Committee meeting of 13th Combined Joint AGRESCO, Dr. B. K. Sagarka, Professor and Head, Department of Agronomy, JAU, Junagadh presented on 'Response of groundnut to phosphorus in Saurashtra region'. On the basis of the presentation, house has drawn the following conclusions:

Groundnut response to phosphorus has been evaluated with the support of 30 field trials and 40 years soil survey data regarding phosphorus status monitoring over the entire Saurashtra region. Out of 30 field trials on groundnut, response to phosphorus was significant in 29 field trials. The response of phosphorus is 10 to 30 % over nitrogen alone. The phosphorus is depleting at the rate of 12 kg P_2O_5/ha/decade. Looking to the scientific evidences the house clearly opined that phosphorus application is necessary and must not be withdrawn from the fertilizer package of groundnut in the Saurashtra region.

Further, it was resolved that the complete picture on P recommendation in groundnut will be cleared with completion of four locations trials after one more year. Also, Professor (Ag. Statistics), Anand Agricultural University, Anand will compile the results of long term experiments of Junagadh Agricultural University to finally conclude on P recommendation and the same will be communicated to the Government of Gujarat in due course.

General Suggestions for all long term experiments going on in all four SAU's

1. Long term experiment should be continued.
2. A committee for long term experiments is constituted as under
   A. Professor and Head, Deptt. of Agronomy of all SAU's
   B. Professor and Head, Deptt. of Ag. Chem. and Soil Sci. of all SAU's
   C. Professor and Head, Deptt. of Ag. Stat., AAU, Anand

Convener of the committee: Professor and Head, Deptt. of Agronomy, JAU, Junagadh

This committee will decide whether to continue / conclude / reframe the different long term experiments. The committee is formed to take decision on any of the above related issues for long term experiments being conducted by all four SAUs of Gujarat.

13.2.3 NEW TECHNICAL PROGRAMME

Chairman :Dr. A. R. Pathak, Hon'ble VC, JAU, Junagadh
Co-chairman : Dr. M. K. Arvadia, Dean, NMCA, NAU, Navsari
Dr. R. B. Patel, AAU, Anand
Rapporteurs : Dr. B. K. Sagarka, Profesor, Deptt. of Agronomy, JAU, Junagadh
Dr. B. B. Patel, Prof., Deptt. of Ag. Chem. & Soil Sci., SDAU, Sardarkrushinagar
Shri. Ashok Saini, Asstt. Professor, SDAU, Sardarkrushinagar

SUMMARY

Name of Universy	**New Technical Programmes**	
	Proposed	**Approved**
Anand Agricultural University, Anand	**18**	**18**
Junagadh Agricultural University, Junagadh	**23**	**23**
Navsari Agricultural University, Navsari	**18**	**18**
Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar	**24**	**24**
Total	**83**	**83**

13.2.3 NEW TECHNICAL PROGRAMME

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	**Title**	**Suggestions**	**Remarks**
13.2.3.1	Effect of spacing and topping on yield of summer sesame (*Sesamum indicum* L.)	--	Approved
	Action: Professor and Head, Dept. of Agronomy, BACA, AAU, Anand		
13.2.3.2	Feasibility of cotton transplanting period under varying age of seedlings	Accepted with following suggestions 1. Seedlings should be raised in plug nursery	Approved
	Action: Professor and Head, Dept. of Agronomy, BACA, AAU, Anand		
13.2.3.3	Assessment of different organically managed cropping sequence in middle Gujarat condition	Accepted with following suggestions 1. Modified title as 'Assessment of organically managed different cropping sequences in middle Gujarat condition ' 2. Recycling of crop residue should be adopted	Approved
	Action: Professor and Head, Dept. of Agronomy, BACA, AAU, Anand		

13.2.3.4	Bio-efficacy of new molecules of herbicides for weed management in soybean (*Glycine max* L. Merrill)	Accepted with following suggestions 1. Add IC in T_1, T_2, T_3, T_5 and T_6 2. Add observation of soil microbial population count at 5 to 10 cm soil depth	Approved
	(**Action :** Agronomist & PI, AICRP-WM, AAU, Anand)		
13.2.3.5	Integrated weed management in summer groundnut (*Arachis hypogaea* L.)	Accepted with following suggestions 1. Add IC in T_1, T_4, T_5 and T_{10} 2. Add observation of soil microbial population count at 5 to 10 cm soil depth	Approved
	(**Action :** Agronomist & PI, AICRP-WM, AAU, Anand)		
13.2.3.6	Effect of integrated nutrient management on yield, chemical composition and soil status in *bidi* tobacco under middle Gujarat condition	Accepted with following suggestions 1. For RDF fertilizer should be applied in four equal splits i.e., at basal, 30, 60 and 90 DATP 2. For 75 % RDF fertilizer should be applied in three equal splits i.e., at 30, 60 and 90 DATP	Approved
	(**Action:** Research Scientist, BTRS, AAU, Anand)		
13.2.3.7	Feasibility of vegetable crops for intercropping in *rustica* tobacco (*Nicotiana rustica* L.) under middle Gujarat condition	--	Approved
	(**Action:** Research Scientist, BTRS, AAU, Anand)		
13.2.3.8	Effect of integrated nutrient management on yield, chemical composition and soil status in *rustica* tobacco under middle Gujarat condition	Accepted with following suggestions 1. Poultry manure 2 t/ha insted of 1 t/ha	Approved
	(**Action:** Research Scientist, BTRS, AAU, Anand)		
13.2.3.9	Effect of nitrogen and topping levels on yield and quality of *bidi* tobacco hybrid varieties	--	Approved
	(**Action:** Research Scientist, BTRS, AAU, Anand)		
13.2.3.10	Effect of different organic manures and Bio NPK consortium on yield and quality of isabgol (*Plantago ovata* Forsk) under middle Gujarat condition	Accepted with following suggestions 1. No of replication- 4 2. Variety Gujarat Isbgul 4 instead of Gujarat Isbgul 2 3. Delete method of sowing treatments 4. Design RBD (Factorial) instead of SPD 5. Add treatment neem cake 0.5 t/ha as M_4	Approved

		6. Remove observation regarding plant population for broad casting	
	(**Action:** Research Scientist, M&APRS, AAU, Anand)		
13.2.3.11	Effect of different period of transplanting and spacing on herbage yield and quality of basil (*Ocimum basilicum* L.) under middle Gujarat condition	--	Approved
	(**Action:** Research Scientist, M&APRS, AAU, Anand)		
13.2.3.12	Study of pigeon pea varieties under relay cropping system	--	Approved
	(**Action:** Research Scientist, PRS, AAU, Vadodara)		
13.2.3.13	Effect of integrated nitrogen management on yield and quality of mustard (*Brassica juncea* L.)	Accepted with following suggestions 1. Summer Greengram should be grown without any fertilizer application	Approved
	(**Action :** Principal, College of Agriculture, AAU, Vaso)		
13.2.3.14	Varietal performance of pearl millet under varying transplanting period in semi *rabi* season	--	Approved
	(Action : Assistant Research Scientist , ARS, AAU, Jabugam) **(Action :** Research Scientist, TRTC, AAU, Devgadh baria) **(Action :** Associate Research Scientist, ARS, AAU, Thasra) **(Action :** Senior Sci. & Head, KVK, Dethali) **(Action :** Professor, Department of Agronomy, BACA, Anand)		
13.2.3.15	Integrated weed management in blackgram (*Vigna mungo* L.)	Accepted with following suggestions 1.Add two treatments pendimethalin 1.0 kg/ha as PE and pendimethalin 0.5 kg/ha as PE *fb* IC + HW at 30 DAS	Approved
	(**Action:** Associate Research Scientist, ARS, AAU, Derol)		
13.2.3.16	Effect of paired row sowing on yield and fiber quality of *desi* cotton under rainfed condition	Accepted with following suggestions 1. T_4; 30-210-30	Approved
	Action: Assoc. Res. Sci., RCRS, AAU, Viramgam and Asstt. Res. Sci., ARS, AAU, Dhandhuka		
13.2.3.17	Nitrogen management for early maturing rice varieties in middle Gujarat	--	Approved
	(**Action:** Research Scientist, MRRS, AAU, Nawagam)		

13.2.3.18	Response of new castor variety to different sowing time and spacing in late *kharif* under irrigated condition	--	Approved
	(**Action:** Associate Research Scientist, ARS, AAU, Sansoli)		

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No	Title	Suggestions	Remarks
A	**AGRONOMY**		
13.2.3.19	Evaluation of various green manure crops under different time of sowing	Accepted with following suggestions 1. Keep the seed rate of clusterbean as 50 kg/ha	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		
13.2.3.20	Weed management in chickpea	Accepted with following suggestions 1. Keep variety GJG 3 of chickpea 2. Keep IC + HW at 20 DAS in treatment no T_5 to T_{10} 3. Keep T_4 as Pendimethalin 30 EC + Imazathapyr 2 EC @ 0.750 kg/ha (Pre mix) as pre emergence *fb* IC & HW at 30DAS	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		
13.2.3.21	Weed management in coriander	Accepted with following suggestions 1. Keep IC + HW at 20 DAS in treatment no T_6, T_7 and T_8 2. Keep dose of quizalofop 50 g/ha	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		
13.2.3.22	Weed management in summer guar	Accepted with following suggestions 1. Keep IC + HW at 20 DAS in treatment no T_5, T_6, T_7, T_8 and T_{10} 2. Keep dose of quizalofop 50 g/ha	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		
13.2.3.23	Weed management in *kharif* greengram	Accepted with following suggestions 1. Keep T_4 as Pendimethalin 30 EC + Imazathapyr 2 EC @ 0.750 kg/ha (Pre mix) as pre emergence *fb* IC & HW at 40DAS	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		

13.2.3.24	Weed management in *kharif* blackgram	Accepted with following suggestions 1. Keep T_4 as Pendimethalin 30 EC + Imazathapyr 2 EC @ 0.750 kg/ha (Pre mix) as pre emergence *fb* IC & HW at 40DAS	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		
13.2.3.25	Response of *rabi* onion (*Allium cepa L.*) to levels and application schedules of soluble fertilizers under drip irrigation	--	Approved
	(**Action:** Professor, Department of Agronomy, JAU, Junagadh)		
13.2.3.26	Evaluation of productivity of different *kharif* groundnut varieties under organic farming	Accepted with following suggestions 1. Design: lagre plot technique 2. Count nodule at 45 to 50 DAS	Approved
	(**Action:** Research Sci., Main Oil Seed Research Station, JAU, Junagadh)		
13.2.3.27	Influence of plant geometry and fertilizer levels on the productivity of semi-spreading groundnut	Accepted with following suggestions 1. Count nodule at 45 to 50 DAS	Approved
	(**Action:** Research Sci., Main Oil Seed Research Station, JAU, Junagadh)		
13.2.3.28	Response of bio fertilizers in pearl millet	Accepted with following suggestions 1. Modified title as Response of pearlmillet to biofertilizer 2. Add new treatment of T_9 i.e., 75 % NPK + sea weed 3 % spray at 30 and 50 DAS and T_{10} i.e., T_8+ sea weed 3 % spray at 30 and 50 DAS	Approved
	(**Action:** Research Scientist, Pearl millet Research station, JAU, Jamnagar		
13.2.3.29	Effect of land configuration and drip irrigation on productivity of Wheat	Accepted with following suggestions 1. Keep the replication: 4 2. Take energy budget in observation	Approved
	(**Action:** Research Scientist (Wheat), Wheat Research Station and Centre of Excellence on Soil & Water Management, RTTC, JAU, Junagadh)		
13.2.3.30	Nutrient and pest management in pigeon pea	--	Approved
	(**Action:** Research Sci., Pulses Research Station, JAU, Junagadh)		

13.2.3.31	Biofortification of Zn and Fe in chickpea through agronomic intervention	--	Approved
	(**Action:** Research Sci., Pulses Research Station, JAU, Junagadh)		
13.2.3.32	Effect of foliar spray of water soluble fertilizer on yield of Chickpea	Accepted with following suggestions 1. Delete objective No. 3 2. Keep 3 % sea weed spray instead of 19-19-19 NPK in T_6, T_9 and T_{12} 3. Add observation on protein content and pest and disease incidence	Approved
	(**Action:** Research Sci., Pulses Research Station, JAU, Junagadh)		
13.2.3.33	Method of sowing and Integrated Nutrient Management in green chilli	Accepted with following suggestions 1. Delete 1st objective 2. Keep silver plastic mulch in T_3 in main plot 3. Keep RDF 75 % instead of 100 % in T_2 to T_5 in sub plot treatment 4. Take yield picking wise	Approved
	(**Action:** Research Sci., Vegetable Research Station, JAU, Junagadh)		
	SOIL SCIENCE		
13.2.3.34	Effect of multi-micronutrient formulations on chickpea	Accepted with following suggestions 1. Keep T_6 as banana pseudo sap 1 % instead of GradeV	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Sci. & Research Scientist, Pulse Research Station, JAU, Junagadh)		
13.2.3.35	Effect of multi-micronutrient formulations on papaya	Accepted with following suggestions 1. Keep T_6 as banana pseudo sap 1 % instead of Grade V 2. Take new release papaya variety	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Sci. and Professor & Head, Department of Horticulture, JAU, Junagadh)		
13.2.3.36	Effect of N, P and K fertilizer on growth, yield and nutrients uptake by coriander	Accepted with following suggestions 1. Add observation on volatile oil	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Sci., & Research Scientist, Vegetable Research Station, JAU, Junagadh)		

13.2.3.37	Effect of foliar application of water soluble fertilizer on growth, yield and nutrients uptake by Bt. cotton	Accepted with following suggestions 1. Delete T_4, T_7, T_{10} and T_{13} 2. T_{11} - 75 % RDF + banana pseudo sap 1 % at 50 and 75 DAS 3. T_{12}- 75 % RDF + banana pseudo sap 1 % at 50, 75 and 100 DAS	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Sci., & Research Scientist, Vegetable Research Station, JAU, Junagadh)		
13.2.3.38	Establishment of critical limit of sulphur for greengram crop in medium black calcareous soils	--	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, Junagadh)		
13.2.3.39	Effect of nano boron on yield and nutrient uptake by *kharif* groundnut	Accepted with following suggestions 1. Add oil content in observation	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Sci., & Research Scientist, Main Oilseed Research Station, JAU, Junagadh		
13.2.3.40	Evaluation of salt tolerance of different onion (*Allium cepa*) genotypes	Accepted with following suggestions 1. Delete variety V_3 and V_5 in Factor A 2. Add FYM 0 t/ha and 10 t/ha in factor B 3. Keep design Factorial RBD 4. Modify title as 'Evaluation of salt tolerance of onion genotypes with and without FYM' 5. Modify objectives as (1)To study the effect of FYM on growth and yield of onion genotypes under saline condition (2) To study the effect of FYM on chemical properties of soils	Approved
	(**Action:** Professor & Head, Department of Agril. Chemistry & Soil Sci., JAU, Junagadh & Asst. Res. Sci. Fruit Res. Station, JAU, Mangrol)		
13.2.3.41	Response of wheat to neno fertilizer	(1)New technical programme was prensented. (2) Proposal of new technical programme will be submitted to Director of Research, JAU, Junagadh	Approved

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

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No	Title	Suggestions	Remarks
13.2.3.42	Spatial distribution of moisture and nutrient under different drip discharge rate and lateral placement in cabbage (*Brassica oleracea L*) grow on clay soil of South Gujarat	Accepted with following suggestions 1. Calculate energy requirement	Approved
	(**Action**: Research Scientist, SWMRU, NAU, Navsari)		
13.2.3.43	Effect of different methods of irrigation and tillage practices on sweet corn after *kharif* paddy	--	Approved
	(Action: Research Scientist, SWMRU, NAU, Navsari)		
13.2.3.44	Effect of green manuring and organic manure on rice based cropping system under coastal salt affected soils	Accepted with following suggestions 1. Add observation on green biomass and nodulation	Approved
	(**Action**: Research Scientist, SWMRU, NAU, Navsari)		
13.2.3.45	Efficiency of Neem Coated Urea (NCU) in irrigated rice eco-system	Accepted with following suggestions 1. Add observation on pest and disease	Approved
	(**Action**: Research Scientist, SWMRU, NAU, Navsari)		
13.2.3.46	Evaluation of the new herbicide product for weed control efficiency in puddled direct sown rice	Accepted with following suggestions 1. Take four replications instead of three	Approved
	(**Action**: Research Scientist, SWMRU, NAU, Navsari)		
13.2.3.47	Agronomic performance of elite sugarcane genotypes	--	Noted by house
	(**Action**: Research Scientist, MSRS, NAU, Navsari)		
13.2.3.48	Effect of integrated nutrient management on finger millet (Nagli) under rainfed conditions of hilly region	Accepted with following suggestions 1. Add observation on pest and disease	Approved
	(**Action**: Assoc. Research Scientist, HMRS, NAU, Navsari)		
13.2.3.49	Fertilizer requirement for Bt cotton hybrid (G. Cot Hy-10	--	Approved

	(BG-II) under irrigated condition		
	(**Action**: Research Scientist, MCRS, NAU, Surat)		
13.2.3.50	Evaluate the effect of different levels and frequency of K fertilizer application on yield and quality of cotton	Accepted with following suggestions 1. Write 'Bt cotton' instead of 'cotton' in title	Approved
	(**Action**: Research Scientist, MCRS, NAU, Surat)		
13.2.3.51	Effect of time of irrigation on yield and quality of cashew	Suggestions 1. Should be presented in Horticulture Sub Committee	Approved
	(**Action**: Assoc. Research Scientist, RFRS, NAU, Paria)		
13.2.3.52	Effect of spacing on the performance of sorghum varieties during summer season	Accepted with following suggestions 1. Add observation on pest and disease	Approved
	(**Action**: Research Scientist, MSRS, NAU, Surat)		
13.2.3.53	Response of summer sesamum (*Sesamum indicum* L.) to integrated nutrient management under south Gujarat condition	Accepted with following suggestions 1. Replace 'FYM' with 'biocompost' in treatment 2. Add obsrvations on Soil: OC	Approved
	(**Action:** Professor, Dept. of Agronomy, NMCA, NAU, Navsari)		
13.2.3.54	Response of cotton to tillage and different intercropping system under rainfed condition of south Gujarat condition	Accepted with following suggestions 1. Replace variety Meha with GNM 6 2. Add observation on periodical soil moisture content	Approved
	(**Action**: Professor, Dept. of Agronomy, CoA, NAU, Bharuch)		
13.2.3.55	Phytotoxic evaluation of facultative weed species	Accepted with following suggestions 1.Replace the word 'phytotoxic' with 'allelopathy' in title	Approved
	(**Action**: Professor, Dept. of Agronomy, CoA, NAU, Bharuch)		
13.2.3.56	Response of pigeonpea to spacing and fertility levels under rainfed condition of south Gujarat	Accepted with following suggestions 1. Spacing treatment should be 120 x 30 cm, 150 x 30 cm, 180 x 30 cm and 90 x 20 cm 2. Fertility level treatment should be: (i)100% RDF, (ii) Biocompost @ 2t/ha + seed treatment with	Approved

		rhizobiam and PSB and (iii) Biocompost @ 2t/ha + 1% foliar spary of banana pseudostem enriched sap at bud inititation and flowering	
	(**Action**: Professor, Dept. of Agronomy, CoA, NAU, Bharuch)		
13.2.3.57	Effect of boron and zinc application on growth, yield and quality of sugarcane (*Saccharum officinarum* L.*)* under South Gujarat condition. (In collaboration with College Farm, NAU, Navsari)	Accepted with following suggestions 1. Level of Zn should be 0, 5.0, 7.5 and 10.0 kg Zn/ha	Approved
	(**Action**: Professor, Dept. of SSAC, NMCA, NAU, Navsari)		
13.2.3.58	Studies on sowing dates and spacing on vegetable pigeonpea grown during pre-monsoon	--	Approved
	(**Action**: Assoc. Research Scientist, ARS, NAU, Achhalia)		
13.2.3.59	Rainy Days analysis by using binomial and normal distributions at Navsari district	--	Not accepted
	(**Action**: Asstt. Prof, Dept. of Meteorology, NMCA, NAU, Navsari)		

S.. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHUNAGAR

Sr. No.	Title	Suggestions	Remarks
13.2.3.60	Management of *orobanche* in mustard crop	Accepted with following suggestions 1. Add observation on bio assey with bajra crop (grow as succeeding crop) 2. Add one treatment glyphosate application at 25-30 DAS and 50 g glyphosate at 50-55 DAS 3. Residue analysis	Approved
	(**Action:** Professor, Department of Agronomy, CPCA, SDAU, S.K. Nagar)		
13.2.3.61	Effect of organic manures on productivity of wheat based cropping sequence under organic farming	Accepted with following suggestions 1. Take two different experiments i. greengram – wheat sequence and ii. ground nut - wheat sequence.	Approved

		2. Replications : 8 3. Take experiments on large plot technique 4. Take total microbial count	
	(**Action:** Professor, Department of Agronomy, CPCA, SDAU,S.K. Nagar)		
13.2.3.62	Agronomic approaches for biofortification of wheat grain with zinc and iron	Accepted with following suggestions 1. In treatments take tillering, flag leaf and flowering stage instead of boot, milk and dough stage.	Approved
	(**Action:**Professor, Dept. of Ag. Chem. & Soil Sci., CPCA, SDAU, S.K. Nagar)		
13.2.3.63	Integrated nitrogen management in mustard under salt affected soils	--	Approved
	(**Action:**Professor, Dept. of Ag. Chem. & Soil Sci., CPCA, SDAU, S.K. Nagar)		
13.2.3.64	Nutrient management in mustard	Accepted with following suggestions 1. Delete treatment N_3 : 100 from N levels 2. Add two potasium levels (kg/ha) P_1 : 25 and P_2 : 50	Approved
	(**Action:** Assistant Res. Sci. (Agronomy), Castor & Mustard Research Station, SDAU, Sardarkrushinagar)		
13.2.3.65	Effect of nutrient management practices and foliar nutrition for sustainable production of field pea (Co-ordinate trial-Mullarp)	--	Approved
	(**Action:**Assoc. Res. Sci.(Agronomy), Pulses Res. Station, SDAU, Sardarkrushinagar)		
13.2.3.66	Feasibility of high density planting system in pigeonpea	Accepted with following suggestions 1. Delete GT 100 variety and take only one experiment 2. Keep size of gross plot common for different spacing	Approved
	(**Action:**Assoc. Res. Sci.(Agronomy), Pulses Res. Station, SDAU, Sardarkrushinagar)		
13.2.3.67	Evaluation of different cow-based bio-enhancers for organic cultivation of green gram	Accepted with following suggestions 1. Modify treatments as under T_5 : T_1 + T_2 T_6 : T_1 + T_3 T_7 : T_1 + T_4	Approved

		T_8 : T_1 + T_2 + 20 kg N through FYM 2. Use urine of deshi cow 3. Change title of experiment as "Evaluation of cow based different bio enhancers in green gram"	
	(**Action:**Assoc. Res. Sci.(Agronomy), Pulses Res. Station, SDAU, Sardarkrushinagar)		
13.2.3.68	Herbicidal weed management in urdbean and its carry over effect on succeeding *rabi* crops (Co-ordinate trial- Mullarp)	--	Approved
	(**Action:**Assoc. Res. Sci.(Agronomy), Pulses Res. Station, SDAU, Sardarkrushinagar)		
13.2.3.69	Effect of different fortified FYM on growth, yield and quality of wheat and their residual effect on summer greengram	Accepted with following suggestions 1. Modify treatment as under T_1: No Fortification T_2: Biodrgrader Bacterial Consortium @ 1 lit./ton T_3: Fortification with fresh cow urine @ 3% T_4: Fortification with SSP @ 1.0% T_5: Fortification with multi micronutrient formulation Grade IV@ 2 lit/ton T_6: T_3 + Biodrgrader Bacterial Consortium @ 1 lit./ton T_7: T_4 + Biodrgrader Bacterial Consortium @ 1 lit./ton T_8: T_5 + Biodrgrader Bacterial Consortium @ 1 lit./ton **Effect of fortified FYM on Wheat** Total no. of treatments: 9 T_1 to T_8 treatments (Same as above) T_9: RDF (120-60-00 kg NPK/ha) 2. Recommended dose of green gram should be deleted	Approved
	(**Action:** Professor, CIL, SDAU, Sardarkrushinagar)		
13.2.3.70	Integrated weed management practices on coriander and their residual effect on green gram	Accepted with following suggestions 1. In treatment T_4 use pendimethalin 0.5 kg/ha instead of 1.0 kg/ha 2. In treatment T_6 use oxadiargyl 60 g/ha instead of 100 g/ha 3. In treatment T_9 use oxadiargyl 75 g/ha instead of 100 g/ha 4. Add observation on residual analysis of soil and seed	Approved

		5. Take phytotoxisity observation on both crops	
	(**Action:** Research Scientist, Seed Spices Research Station, SDAU, Jagudan)		
13.2.3.71	Effect of potash and sulphur on yield and quality of *rabi* fennel	Accepted with following suggestions 1. Keep sulphur levels 0, 20 and 40 kg/ha	Approved
	(**Action:** Research Scientist, Seed Spices Research Station, SDAU, Jagudan)		
13.2.3.72	Potassium requirement of potato under different irrigation methods	Accepted with following suggestions 1. Keep K levels 180, 220 and 260 kg/ha and apply in two splits 2. K should be applied in drip	Approved
	(**Action:** Assistant Res. Sci. (Agronomy), Potato Research Station, SDAU, Deesa)		
13.2.3.73	Production potential of groundnut under different plant spacing	--	Approved
	(**Action:** Asstt. Res. Sci. (Agronomy), Agril. Research Station, SDAU, Ladol)		
13.2.3.74	Integrated nutrient management in sweet corn	Accepted with following suggestions 1. Use vermicompost instead of FYM (2.5 t/ha) in treatments T_2, T_5 and T_7	Approved
	(**Action:** Asstt. Res. Sci. (Agronomy), Agril. Research Station, SDAU, Ladol)		
13.2.3.75	Feasibility of broad bed furrow (BBF) for cultivation of cumin in salt affected soils	--	Approved
	(**Action:** Asstt. Research Sci., Agricultural Research Station, SDAU, Adiya)		
13.2.3.76	Effect of herbicidal and mechanical methods of weed control in Bt cotton	--	Approved
	(**Action:**Assistant Res. Sci.(Agronomy), Agril. Research Station, SDAU, Talod)		
13.2.3.77	Effect of nitrogen, phosphorus and biofertilizer on yield of marvel grass (*Dichanthium annulatum*) under irrigated condition	Accepted with following suggestions 1. Keep levels of phosphorus 0, 20 and 40 kg/ha 2. Delete bio fertilizers from treatments	Approved
	(**Action:** Asstt. Res. Sci., Regional Research Station, SDAU, Kothara)		
13.2.3.78	Integrated weed management in cumin	Accepted with following suggestions 1. In treatment T_2 replace word “PE” by “early PoE”	Approved

		2. Change treatment T_8 : Weed free (20 and 40 DAS) 3. Add treatment T_{10} : Paraquate 0.5 kg/ha as early PoE	
	(**Action:** Assoc. Res. Sci., Regional Research Station, SDAU, Bhachau		
13.2.3.79	Phosphorus and sulphur management in moth bean under light textured soil of Kachchh	Accepted with following suggestions 1. In treatment take N levels instead of S levels 2. Instead of PSB take two levels of FYM 0 and 2.5 t/ha	Approved
	Action: Assoc. Res. Sci., Regional Research Station, SDAU, Bhachau)		
13.2.3.80	Response of different sources and levels of nitrogen on potato tuber yield through drip fertigation	Accepted with following suggestions 1. In treatment S_2 replace "ammonium sulphate" with "17-44+ micronutreint grade III (1.0%)" 2. Add observation on starch content and incidence of disease and pest	Approved
	(**Action:** Asstt. Research Sci., Agricultural Research Station, SDAU, Aseda)		
13.2.3.81	Effect of irrigations on the basis of IW/CPE under sprinkler system on growth and yield of potato-groundnut cropping sequence	Accepted with following suggestions 1. Take groundnut variety TG 37A 2. Delete I_1 treatment (0.6 IW/CPE) 3. Add treatment D_4 : 50 mm	Approved
	(**Action:** Asstt. Research Sci., Agricultural Research Station, SDAU, Aseda)		
13.2.3.82	Integrated nitrogen management in isabgul	Accepted with following suggestions 1. Add one treatment T_{10} Jivamrut 500 lit/ha as soil application in two equal splits 30 and 45 DAS	Approved
	(**Action:** Asstt. Research Sci., Agricultural Research Station, SDAU, Kholwad)		
13.2.3.83	Development of forewarning models for pests and diseases of cumin	Accepted with following suggestions 1. At least 30 years meteorological data should be used otherwise to be dropped	Approved
	(**Action:** Asstt. Professor (Agril. Meteorology), College of Horticulture, SDAU, Jagudan)		

13.3 PLANT PROTECTION/CROP PROTECTION

PRESENTATION OF RECOMMENDATIONS

Chairman : Dr. A. M. Parakhia, DEE, JAU

Co-Chairman : Dr. D.M. Korat, ADR, AAU

Rapporteurs: : Dr. B. R. Patel, Prof.& Head (Ento.), SDAU
Dr. R. N. Pandey, Prof. & Head (Pl. Path.), AAU
Dr. P. S. Patel, Assoc. Prof. (Ento.), SDAU

Venue : Seminar Hall, Department of Entomology, CPCA, SDAU

Summary of Recommendations and New Technical Programmes

Sr. No.	Name of University	Recommendations for Farming Community		Information for Scientific Community		New Technical Programmes	
		Presented	Approved	Presented	Approved	Presented	Approved
1	AAU	10	09	24	24	42	42
2	JAU	05	04	08	08	25	25
3	NAU	10	05	21	19	18	17
4	SDAU	02	02	02	02	18	18
Total		27	20	55	53	103	102

The details of recommendations and new technical programmes presented/ discussed and approved during the sessions are as under :

13.3.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

AGRICULTURAL ENTOMOLOGY

13.3.1.1 Bio-efficacy of some insecticides against Bihar hairy caterpillar, *Spilosoma obliqua* Walker on cowpea, *Vigna unguiculata* (Linnaeus) Walpers

For effective and economical control of Bihar hairy caterpillar, *Spilosoma obliqua* Walker in cowpea, farmers of middle Gujarat are recommended to apply one spray of any one of the following insecticides at the initiation of the pest.

1) Thiodicarb 75 WP, 0.15% (20 g/10 litre of water)
2) Indoxacarb 15.8 EC, 0.0158%(10 ml/10 litre of water)
3) Emamectin benzoate 5 SG, 0.0025% (5 g/10 litre of water)

Recommendation for PHI as per CIB guidelines

Year	Crops	Pest	Pesticides with formulation	Dosage/ha				Appl. schedule	Waiting period/PHI (Days)
				g. a.i.	Quantity of formulation (g/ml)	Conc. (%)	Dilution in water (litre)		
2017	Cowpea	Hairy Cater pillar	Thiodicarb 75% WP	750	1000	0.15	500	One spray at flowering stage	17
			Indoxacarb 15.8% EC	79	500	0.0158	500		12

			Emamectin benzoate 5% SG	12.50	250	0.0025	500		14

કાતરાના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ચોળી ઉગાડતા મધ્ય ગુજરાતના ખેડૂતોને નીચે દર્શાવેલ પૈકી કોઇપણ એક કીટનાશકનો એક છંટકાવ ઉપદ્રવની શરૂઆત થયે કરવાની ભલામણ કરવામાં આવે છે:

1. થાયોડીકાર્બ ૭૫ ડબલ્યુપી, ૦.૧૫% (૨૦ ગ્રામ/૧૦ લિટર પાણી)
2. ઈન્ડોક્ષાકાર્બ ૧૫.૮ ઈસી, ૦.૦૧૫૮% (૧૦ મિ.લિ/. ૧૦ લિટર પાણી)
3. એમામેકટીન બેન્ઝોએટ ૫ એસજી, ૦.૦૦૨૫% (૫ ગ્રામ/૧૦ લિટર પાણી)

Suggestions:

1. Approved

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

13.3.1.2 Integrated management of termite in wheat

The farmers of middle Gujarat growing irrigated wheat are recommended to apply cake before sowing and sow the seeds air dried for 12 hours after treating with any one of the following insecticides diluted in 5 litre of water for the management of termite.

1. Castor cake @ 1 ton/ha and fipronil 5 SC 500 ml/100 kg seeds
2. Castor cake @ 1 ton/ha and chlorpyriphos 20 EC 400 ml/100 kg seeds
3. Neem cake @ 1 ton/ha and fipronil 5 SC 500 ml/100 kg seeds

મધ્ય ગુજરાતમાં પિયત ઘઉંની વાવણી પહેલા ખોળ જમીનમાં આપ્યા બાદ નીચે દર્શાવેલ પૈકી કોઇપણ એક કીટનાશકને ૫ લિટર પાણીમાં મેળવીને ૧૦૦ કિલોગ્રામ બીજને માવજત આપી ૧૨ કલાક સુધી સુકવ્યા બાદ વાવણી કરવાની ભલામણ કરવામાં આવે છે.

1. દિવેલીનો ખોળ ૧ ટન/હે અને ફિપ્રોનિલ ૫ એસ સી ૫૦૦ મિ.લિ./૧૦૦ કિ.ગ્રા. બીજ
2. દિવેલીનો ખોળ ૧ટન/હે અને કલોરપાયરીફોસ ૨૦ ઈસી ૪૦૦ મિ.લિ/૧૦૦ કિ.ગ્રા. બીજ
3. લીમડાનો ખોળ ૧ ટન/હે અને ફિપ્રોનિલ ૫ એસ સી ૫૦૦ મિ.લિ/૧૦૦ કિ.ગ્રા. બીજ

Suggestions:

1. Approved

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

13.3.1.3 Bio-efficacy of selected insecticides against pink bollworm in *Bt* cotton

The farmers of Gujarat growing *Bt* cotton are recommended to apply any one of the following insecticides alternatively, first spray at 75 days after sowing and second at 15 days of first spray for effective management of pink bollworm.

1. Indoxacarb 15.8 EC, 0.0079 % (5 ml/ 10 litre of water)
2. Emamectin benzoate 5 SG, 0.0025 % (5 g/10 litre of water)
3. Spinosad 45 SC, 0.014 % (3 ml/10 litre of water)

Year	Crop	Pest	Pesticides with formulation	Dosage/ha				Appl. schedule	Waiting period /
				g. a.i.	Quantity of	Conc.	Dilution		

					formulation (g/ml)	(%)	in water (litre)		PHI (Days)
2017	Cotton	Pink boll worm	Indoxacarb 15.8 EC	39.5	500	0.0079	500	75 and 90 DAS	14
			Emamectin Benzoate 5 SG	12.5	500	0.0025			10
			Spinosad 45 SC	67.5	300	0.014			10

ગુજરાતના બીટી કપાસ ઉગાડતા ખેડૂતોને ગુલાબી ઇયળના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે નીચે પૈકી કોઇપણ એક કીટકનાશકનો વારાફરતી છંટકાવ કરવો, જેમાં પ્રથમ છંટકાવ વાવણી બાદ ૭૫ દિવસે અને બીજો છંટકાવ ત્યારબાદ ૧૫ દિવસે કરવાની ભલામણ કરવામાં આવે છે.

૧. ઇન્ડોકક્ષાકાર્બ ૧૫.૮ ઇ સી, ૦.૦૦૭૯% (૫ મિ. લિ. /૧૦ લિટર પાણી)

૨. એમામેકટીન બેન્ઝોએટ ૫ એસજી, ૦.૦૦૨૫% (૫ ગ્રામ/૧૦ લિટર પાણી)

૩. સ્પીનોસાડ ૪૫ એસસી, ૦.૦૧૪% (૩ મિ. લિ. /૧૦ લિટર પાણી)

Suggestions:

1. Approved

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

13.3.1.4 Impact of sowing periods on incidence of pest complex in pigeon pea

Farmers of middle Gujarat are advised to sow pigeon pea variety Anand Gujarat Tur-2 (AGT-2) from 25th June to 1st July (26th std week, onset of monsoon) to minimize the incidence of pod borers and thereby increase the seed yield.

મધ્ય ગુજરાતના તુવેર ઉગાડતા ખેડૂતોને શિંગો કોરી ખાનાર જીવાતોનો ઉપદ્રવ ઓછો રહે અને દાણાનું વધુ ઉત્પાદન મળે તે માટે આણંદ ગુજરાત તુવેર-૨ (એજીટી-૨) જાતની વાવણી ૨૫ જૂનથી ૧લી જુલાઇ દરમ્યાન (ચોમાસાની શરૂઆત થયેથી) કરવાની ભલામણ કરવામાં આવે છે.

1. Approved with following Suggestions:

- Add seed in English recommendation

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

13.3.1.5 Bio-efficacy of microbial insecticides against sucking pests in *Bt* cotton

The farmers of middle Gujarat growing *Bt* cotton are advised to spray *Lecanicillium lecanii* 2 x 10^8 cfu/g (1% WP) @ 40 g /10 litre water) or *Beauveria bassiana* 2 x 10^8 cfu/g (1% WP) @ 40 g /10 litre water) at fortnightly interval for three times starting from initiation of sucking pests for the effective biological control.

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule	Waiting period/ PHI (days)	Remarks
				a.i/ ha	quantity of formulation /ha	Conc (%)	Dilution in water			
2016 -17	*Bt* Cotton	Sucking pests (Aphid, jassid, whitefly,	*Lecanicillium lecanii* (1% WP) (2 x 10^8 cfu/g)	---	1.8 kg	--	450 liter	Spray of *Lecanicillium lecanii* (1% WP) @ 40 g /10 litres water)/	---	---

		thrips)	**or** *Beauveria bassiana* (1% WP) (2 x 10^8 cfu/g)					*Beauveria bassiana* (1% WP) @ 40 g /10 litres water) at fortnightly interval for three times starting from initiation of sucking pests		

મધ્ય ગુજરાતના બીટી કપાસની ખેતી કરતા ખેડૂતોને ચૂસીયાં પ્રકારની જીવાતોનાં જૈવિક નિયંત્રણ માટે લેકાનીસીલિયમ લેકાની ૨ x ૧૦^{૮} સીએફયુ/ગ્રામ (૧ % વેપા) ૪૦ ગ્રામ/૧૦ લિટર પાણી અથવા બ્યુવેરિયા બેસિયાના ૨ x ૧૦^{૮} સીએફયુ/ગ્રામ (૧ % વેપા) ૪૦ ગ્રામ પ્રતિ ૧૦ લિટર પ્રમાણે ઉપદ્રવની શરુઆત થાય ત્યારથી ૧૫ દિવસના અંતરે ત્રણ છંટકાવ કરવાની ભલામણ કરવામાં આવે છે પ્રથમ છંટકાવ ઉપદ્રવની શરૂઆત થાય ત્યારે અને બાકીનાં બે છંટકાવ પંદર દિવસનાં ગાળે કરવા.

Approved with following suggestions:

- Add cfu 2x10 ^{8}/g in *Lecanicillium lecanii* and *Beauveria bassiana*

(Action : Principal Research Scientist, AICRP on Biocontrol, AAU, Anand)

13.3.1.6 Bio-efficacy of insecticides against stem borer (*Chilo partellus*) infesting maize

Farmers of the middle Gujarat growing *kharif* maize for grain purpose are advised to apply whorl application of carbofuran 3 G @ 10 kg/ha two times at 30 and 40 days after germination for the effective and economical management of stem borer.

Year	Crop	Pest	Pesticides with formulation	Dosage			Application schedule	Waiting period/ PHI (days)	Remarks
				g a.i./ ha	quantity of formulation /ha	Dilution in water (10 lit.)			
2017	Maize (*Kharif*)	Stem borer (*Chilo partellus*)	Carbofuran 3G	300	10 kg		Two whorl application at 30 and 40 days after germination.	60 days	-

મધ્ય ગુજરાતના ખેડૂતોને દાણાના હેતુસર ચોમાસુ મકાઈમાં ગાભમારાની ઈયળના અર્થક્ષમ અને અસરકારક નિયંત્રણ માટે ઉગાવા પછી ૩૦ અને ૪૦ દિવસે કાર્બોફયુરાન ૩ જી, ૧૦ કિ.ગ્રા./હેકટર પ્રમાણે છોડની ભૂંગળીમાં આપવાની ભલામણ કરવામાં આવે છે.

Approved with following suggestions:

- Add for grain purpose

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

13.3.1.7 Bio-efficacy of insecticides against girdle beetle *Oberea brevis* Swedenbord of soybean

Farmers of middle Gujarat growing soybean are recommended to treat the seeds with imidacloprid 600 FS @ 9 ml/ kg seeds and spray twice with chlorantraniliprole 18.5 SC, 0.006% (3 ml/ 10 litre of water) at 40 and 55 days after sowing for effective management of stem borer(girdle beetle).

Year	Crops	Pest	Pesticides with formulation	Dosage/ha				Appl. schedule	Waiting period /PHI (Days)	Remark
				g. a.i.	Quantity of formulation g/ml)	Conc. (%)	Dilution in water (litre)			
2017	Soybean	Girdle beetle, *Oberea brevis* Swedenbord	Seed treatment with imidacloprid 600 FS @ 9 ml/ kg seeds and spray twice chlorantraniliprole 18.5 SC @ 0.006% (3 ml/ 10 litres of water)	5.4 g/kg seed & 30 g	150	0.006	500	At the time of sowing And 40 and 55 DAS	22	--

મધ્ય ગુજરાતના સોયાબીન ઉગાડતા ખેડૂતોને કાતરા અને પાન ખાનારી ઇયળના અસરકારક નિયંત્રણ માટે ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી, ૦.૦૦૬%, ૩૦ ગ્રામ સ.ત./હે., (૩ મિ.લિ./૧૦ લિટર પાણી) અથવા ઇન્ડોક્ષાકાર્બ ૧૫.૮ એસસી ૦.૦૦૭૯ %૩૯.૫ ગ્રામ સ.ત./હે., (૫ મિ.લિ./૧૦ લિટર પાણી)ના વારાફરતી બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે, જેમાં પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૫ દિવસ બાદ કરવો.

Suggestions :

- Approved

(Action : Scientist(Plant Protection), KVK, AAU, Dahod)

13.3.1.8 Bio-efficacy of different insecticides against major lepidopteran pests of soybean

Farmers of middle Gujarat growing soybean are advised to apply two sprays (first at initiation of pest and second at 15 days after first spray) of chlorantraniliprole 18.5 SC, 0.006 % (3 ml/10 litre of water, 30 g.a.i./ha) or indoxacarb 15.8 EC, 0.0079 %(5 ml/ 10 litre of water, 39.5 g.a.i./ha) alternatively for effective control of lepidopteran pests *viz; Spilosoma obliqua* (Walker) and *Spodoptera litura* Fab.

Year	Crop	Pest	Pesticides with Formulations	Dosage/ha				Appl. schedule	Waiting period /PHI (Days)
				g.a.i.	Quantity of formulation g/l	Conc. (%)	Dilution in water (10 lit)		
2017	Soybean	Bihar hairy caterpillar, *Spilosoma oblique* (Walker) and leaf	Chlorantraniliprole 18.5 SC	30	0.3	0.006	3 ml	First spray at initiation of pest and second	22

		eating caterpillar, *Spodoptera litura* Fab.	indoxacarb 15.8 EC	39.50	0.5	0.0079	5 ml	at 15 days after first spray	

મધ્ય ગુજરાતના સોયાબીન ઉગાડતા ખેડૂતોને કાતરા અને પાન ખાનારી ઇયળના અસરકારક નિયંત્રણ માટે ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી, ૦.૦૦૬%, ૩૦ ગ્રામ સ.ત./હે., (૩ મિ.લિ./૧૦ લિટર પાણી) અથવા ઇન્ડોક્ષાકાર્બ ૧૫.૮ એસસી ૦.૦૦૭૯ %૩૯.૫ ગ્રામ સ.ત./હે., (૫ મિ.લિ./૧૦ લિટર પાણી)ના વારાફરતી બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે, જેમાં પ્રથમ છંટકાવ જીવાતના ઉપદ્રવની શરુઆત થાય ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૫ દિવસ બાદ કરવો.

Suggestions :

- Approved

(Action : Assistant Professor(Ento), COA, AAU, Jabugam)

Plant Pathology

13.3.1.9 Impact of Agro-Shade Net on Damping-Off Disease in Bidi Tobacco Nursery

Farmers of middle Gujarat growing bidi tobacco nursery are recommended to raise the nursery by covering the nursery beds either with green agro-shade net of 75% or 90% shade about 60 cm height from soil and spray drench with azoxystrobin 23 SC, 0.023% (10 ml/10 litre water/ 100 m^2) as and when required to minimize damping-off disease and thereby getting more number of healthy seedlings

Year	Crop	Pest	Pesticide with formula-tion	Dosage				Application schedule	Waiting period/ PHI (days)
				g. a.i./ ha	Quantity of formula-tion/ ha	Conc (%)	Dilution in water (10 lit.)		
2017	Bidi Tobacco (Nursery)	Damping-off	Azoxystrobin 23 SC	230	1 lit.	0.023	10 ml	Spray drench at the initiation of the disease and as and when required thereafter.	--

મધ્ય ગુજરાતના બીડી તમાકુનું ધરુવાડીયુ ઉછેરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ધરુવાડીયાને ૭૫% અથવા ૯૦% લીલી નેટ નું આવરણ જમીનથી આશરે ૬૦ સેમી જેટલી

	ઉંચાઇએ કરી સાથે એઝોક્સીસ્ટ્રોબીન ૨૩ એસસી ૦.૦૨૩% (૧૦ મિલિ/૧૦ લિ પાણી/૧૦૦ ચો.મી) પ્રમાણે જરુરીયાત મુજબ રેલાવીને છંટકાવ કરવાથી ધરુ મૃત્યુનુ પ્રમાણ ઘટાડી રોપવાલાયક તંદુરસ્ત ધરુ વધુ મેળવી શકાય છે. **Suggestions :** • Approved **(Action : Res. Sci. (Pl. Path.), BTRS, AAU, Anand)**
13.3.1.10	**Bioefficacy of fungicides against powdery mildew of clusterbean**
	Farmers of middle Gujarat growing cluster bean in *kharif* season are recommended to spray Hexaconazole 5 SC, 0.005% (10 ml/ 10 lit. water) twice to manage powdery mildew. The first spray is to be applied at the time of initiation of the disease and second at 15 days of first spray. મધ્ય ગુજરાતના ખરીફ ઋતુમાં ગુવારની ખેતી કરતા ખેડૂતોને ભૂકી છારાના નિયંત્રણ માટે હેક્ઝાકોનાઝોલ ૫ એસ.સી, ૦.૦૦૫ % (૧૦ મિ.લિ./૧૦ લિટર પાણી) નાં બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. પ્રથમ છંટકાવ રોગની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ તેના ૧૫ દિવસ પછી કરવો. **Suggestions:** 1. Approved as scientific recommendation 2. fungicide is not in CIB **(Action : Asstt. Res. Sci. (Ento.), ARS, AAU, Derol)**

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AGRICULTURAL ENTOMOLOGY	
13.3.1.11	**Bioefficacy of different insecticides against castor shoot and capsule borer**
	Recommendation paragraph in English The farmers of South Saurashtra Agro-climatic Zone growing castor in *kharif* season are advised to apply two sprays of spinosad 45 SC 0.009% (2 ml/10 lit. water) or chlorantraniliprole 20 SC 0.006% (3 ml/10 lit. water) at fifteen days interval starting from pest infestation for effective and economical management of castor capsule borer. Castor is non edible crop hence no need of CIB and RC દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસું દીવેલાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે, દીવેલાના પાકમાં ડોડવા કોરીખાનાર ઈયળના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે સ્પીનોસાડ ૪૫એસ.સી ૦.૦૦૯% (૨મિ.લિ./ ૧૦ લીટર પાણીમાં) અથવા ક્લોરાનટ્રેનેલીપ્રોલ ૨૦ એસ.સી. ૦.૦૦૬% (૩મિ.લિ./૧૦ લીટર પાણીમાં)ના બે છંટકાવ, પ્રથમ જીવાતનો ઉપદ્રવ શરૂ થયે અને બીજો છંટકાવ ત્યારબાદ ૧૫દિવસ પછી કરવાની ભલામણ છે. **Suggestions:** **1**. Approved for scientific community 2. Insecticides are not recommended in CIB

	(Action : Professor & Head, Department of Entomology, JAU, Junagadh)
13.3.1.12	**Field efficacy of different insecticides against citrus pests**
	The farmers of South Saurashtra Agro-climatic Zone growing citrus are advised to apply two sprays of imidacloprid 17.8 SL 0.0072% (4 ml/10 lit. water), first spray at starting of pests infestation and second 15 days after the first spray for effective management of leaf miner and black fly. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં લીંબુ ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે કે, લીબુના પાનકોરીયા અને કાળીમાખીના અસરકારક નિયંત્રણ માટે ઈમીડાક્લોપ્રાઈડ ૧૭.૮ એસએલ ૦.૦૦૭૨% (૪ મિ.લિ./૧૦ લીટર પાણી) ના બે છંટકાવ કરવા, પ્રથમ છંટકાવ જીવાતોનો ઉપદ્રવ શરૂ થયે અને બીજો છંટકાવ ત્યારબાદ ૧૫ દિવસ પછી કરવાની ભલામણ છે. **Suggestions :** • Approved **(Action : Professor & Head, Department of Entomology, JAU, Junagadh)**
13.3.1.13	**Evaluation of botanicals, bio-pesticides and insecticides against gram pod borer.**
	The farmers of South Saurashtra Agro-Climatic Zone growing chickpea are advised to apply alternate spray of *HaNPV* 2 x 10^9 POBs/ml (5 ml/10 lit. water) and chlorantraniliprole 18.5 SC 0.004% (2 ml/10 lit. water) for effective and economic control of pod borer (*Helicoverpa armigera*) in chickpea crop. First spray to be started at 50% flowering and second at 15 days after first spray. The PHI for chlorantraniliprole 18.5 SC is 11 days. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને ચણાનાં પાકમાં લીલીઇયળનાં અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે એચ.એન.પી.વી. ૨×૧૦^{૯} પી.ઓ.બી./મિલી (૫ મિલી/૧૦લીટર પાણીમાં) અને ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી ૦.૦૦૪ (૨ મિલી/૧૦લીટર પાણીમાં) નાં વારા ફરતી છંટકાવ કરવાની ભલામણ છે. પ્રથમ છંટકાવ ૫૦ ટકા ફૂલ અવસ્થાએ અને બીજો છંટકાવ પ્રથમ છંટકાવ બાદ ૧૫ દિવસે કરવો. (ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસસી દવાનો છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમયગાળો ૧૧ દિવસનો જાળવવો). **Suggestions :** • Approved • Spray of spinosad 45 SC 0.009% (2 ml/10 lit. water) for scientific community **(Action : Research Scientist (Chickpea), Pulse Research Station, JAU, Junagadh)**
13.3.1.14	**Integrated cotton crop management with emphasis on biotic stress**
	The farmers of South Saurashtra Agro-climatic Zone growing cotton are advised to apply the following Integrated Pest Management module for control of mealy bug and conservation of lady bird beetle. However, IPM module also reduced the population of aphids, jassid, thrips, whitefly, mite, mirid bug and maintain population of predators i.e. chrysopa and spider as compared to CFP module but they were non-significant.

	1. Seed treatment with *Pseudomonas fluorescens* @ 10g / kg of seed 2. Sowing of Castor as a trap and Maize as a border crop (10:1) 3. Sowing of Black gram as intercrop 4. Fertilizer application of FYM 10 t/ha + 180-37.50-112.50 NPK kg/ha in three split at basal, 30 DAS and 60 DAS 5. Need based application of insecticides in sequence *viz.,* Acephate 75 SP (0.113%) 750 g a.i/ha (20 g /10 lit. water), Flonicamid 50 WG (0.015%) 75g a.i/ha (3 g /10 lit. water), Fipronil 5 SC (0.008%) 40 g a.i/ ha (16 ml /10 lit. water) and Buprofezin 25 SC (0.05%) 250 g a.i/ha (20 ml /10 lit. water). 6. Pre-emergence application of pendimethalin 30 EC (0.20%) @ 1000 g a. i./ha (67 ml/10 lit of water) and Quizalofop ethyl 5 EC (0.01%) @ 50g a. i./ha (20 ml/10 lit of water) 30 DAS for weed control. 7. Installation of yellow sticky trap @ 5 traps/ha for monitoring of white fly 8. Installation of pheromone traps @ 5 traps/ha for monitoring of all bollworms 9. Need based application of copper oxychloride 50% WP 0.2% (40 g/10 lit. water) and Carbendazim 50% WP (0.05%) (10g /10 lit. water) for disease control. ૧. રોગોના નિયંત્રણ માટે બીજને સ્યુડોમોનસ ફ્લુંરોસન્સ ૧૦ ગ્રામ/કિગ્રા પ્રમાણે દવાનો પટ આપવો. ૨. કપાસની ફરતે દીવેલાને પિંજર પાક તરીકે અને કપાસની દસ હાર પછી મકાઈની એક હાર વાવવાથી પરભક્ષી અને પરજીવીઓનું સંરક્ષણ કરી શકાય છે. ૩.કપાસના પાકમાં આંતર પાક તરીકે અડદનું વાવેતર કરવું. ૪. સેન્દ્રીય ખાતર ૧૦ ટન/હેક્ટર તથા રાસાયણિક ખાતર ૧૮૦-૩૭.૫૦-૧૧૨.૫૦ ના.ફો.પો. કિલો/હેક્ટર ત્રણ હપ્તામાં પાયામાં વાવેતરના ૩૦ દિવસ અને ૬૦ દિવસ પછી આપવું. ૫. ક્ષમ્ય માત્રાને ધ્યાને લઇ જરૂર જણાય ત્યારે એસીફેટ ૭૫ એસ.પી. (૦.૧૧૩%) (૨૦ ગ્રામ / ૧૦ લિટર પાણીમાં), ફ્લોનીકામીડ ૫૦ ડબ્લ્યુ જી (૦.૦૧૫%) (૩ ગ્રામ / ૧૦ લિટરપાણીમાં), ફીપ્રોનીલ ૫ એસ સી (૦.૦૦૮%) (૧૬ મિલી/ ૧૦ લિટર પાણીમાં) અને બ્રુપ્રોફેઝીન ૨૫ એસ સી (૦.૦૫%) (૨૦ મિલી/ ૧૦ લિટર પાણીમાં) છટકાવ કરવો. ૬.નિદામણના નાશ માટે પાક ઉગતા પહેલા પેન્ડીમીથાલીન ૩૦ ઇસી (૦.૨૦%) ૧૦૦૦ ગ્રામ સક્રિય તત્વ (૬૭ મિલી/ ૧૦ લિટરપાણીમાં) અને ૩૦ દિવસ પછી ક્વિઝાલોફોપ ઈથાઈલ ૫ ઇસી (૦.૦૧%) ૫૦ ગ્રામ સક્રિય તત્વ (૨૦ મિલી/ ૧૦ લિટરપાણીમાં) પ્રમાણે આપવું. ૭.સફેદ માખીની મોજણીમાં ખેતરમાં પીળા રંગના સ્ટીકી ટ્રેપ હેક્ટર દીઠ ૫ લગાડવા. ૮.ઈયળ વર્ગની જીવાતોની મોજણીમાં ખેતરમાં ફેરોમોન ટ્રેપ હેક્ટર દીઠ ૫ લગાડવા. ૯. રોગના નિયંત્રણ માટે જરૂર જણાય તો કોપર ઓકઝી ક્લોરાઇડ ૫૦ ડબ્લ્યુ પી (૦.૨%) (૪૦ ગ્રામ/ ૧૦ લિટર પાણીમાં) અને કાર્બેન્ડાઝીમ ૫૦% ડબ્લ્યુ પી (૦.૦૫%) (૧૦ ગ્રામ/ ૧૦ લિટર પાણીમાં) છટકાવ કરવો. **Suggestions :** • Approved **(Action : Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)**

PLANT PATHOLOGY	
13.3.1.15	**Biological control of soil borne diseases of sesame**
	The farmers of North Sauraushtra Agro-climatic Zone growing sesame are advised to treat seed with *Trichoderma harzianum* 1% WP 5 g / kg seed or *Pseudomonas fluorescens* 1% WP 5 g/kg seed along with soil application of *Trichoderma harzianum* 1% WP 2.5 kg/ha with 300 kg FYM or castor cake at the time of sowing were found effective and economical for management of soil borne diseases (Macrophomina stem rot and Phytophthora blight) of sesame. ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના તલ ઉગાડતા ખેડૂતોને મૂળખાઈ (મેક્રોફોમીના રૂટ રોટ) અને સુકારા (ફાઈટોપ્થોરા બ્લાઈટ) ના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ટ્રાઈકોડર્મા હરજીયાનમ ૧% વેપા ૫ ગ્રામ/કિલો બીજ અથવા સ્યુડોમોનાસ ફ્લુરોસન્સ ૧% વેપા ૫ ગ્રામ/કિલો બીજ માવજતની સાથે ૨.૫ કિગ્રા ટ્રાઈકોડર્મા હરજીયાનમ ૧% વેપા ૩૦૦ કિગ્રા દીવેલાનો ખોળ અથવા ગળતિયા ખાતરમાં મિશ્ર કરી વાવણી સમયે આપવાની ભલામણ કરવામાં આવે છે. **Suggestions : Merged two scientific recommendations** 1. Biological control of soil borne diseases of sesame and 2. Efficacy of bio agent and organic cake against macrophomina root rot and phytophthora blight of sesame. • Approved for farming community • Add formulation of *Trichoderma harzianum* 1% WP • *Pseudomonas fluorescens* 1% WP **(Action : Research Scientist (Pl. Br.), ARS, JAU, Amreli)**
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AGRICULTURAL ENTOMOLOGY	
13.3.1.16	**Suppression of Rice Sheath Mite, *Steneotarsonemus spinki* Smiley (Acari: Tarsonemidae) infestation by using different acaricides**
	The paddy growers of south Gujarat are advised to apply two sprays of fenpyroximate 5 SC @ 0.005% (10 ml/10 liter of water) or difenthiuron 50 WP @ 0.05% (10 g/10 liter of water) or chlorfenapyr 10 SC @ 0.015% (15 ml/10 liter of water) for the effective control of rice sheath mite. The first spray should be given at appearance of sheath mite (at flag leaf stage) and the second spray at 15 days after first spray. **Suggestions:** • Approved for scientific community **(Action : Prof & Head, Dept. of Ento; NMCA; Navsari)**
13.3.1.17	**Bioefficacy of some pesticides against *Polyphagotarsonemus latus* (Banks) infesting Sesamum**
	The sesamum growers of south Gujarat are advised to apply fenpyroximate 5 SC @ 0.006% (1.2 ml/ 10 litre of water) at the time of 50 per cent flowering for effective control of the yellow mite. **Suggestions:** • Approved for scientific community **(Action : Prof & Head, Dept. of Ento; NMCA; Navsari)**
13.3.1.18	**Chemical Control of carnation mite, *Tetranychus urticae* under polyhouse condition**
	The carnation growers of south Gujarat are advised to apply three sprays of Propargite 57 EC 0.1% (17.5 ml/10 litre of water) for the effective management of two spotted

red spider mite and to harvest higher number of marketable flowers under polyhouse. The first spray should be given at appearance of spider mite and remaining sprays at 15 days interval.

As per CIBRC Format:

Year	Crop	Pest	Pesticide with Formulation	Doses			Waiting period (days	Remark Residue
				Quantity of Formulation	Conc. (%)	Dilution in water		
2017	Carnation	Red spider mite	Propergite 57 EC	500 ml	0.1%	500 lit.	7	BDL

દક્ષિણ ગુજરાતમાં પોલીહાઉસમાં કારનેશનની ખેતી કરતા ખેડૂતોને લાલ કથીરીના અસરકારક નિયંત્રણ માટે અને વધુ ઉત્પાદન તથા ફૂલની સારી ગુણવતા મેળવવા માટે પ્રોપરગાઇટ ૫૭ ઇસી ૦.૧% (૧૭. ૫ મી. લી. પ્રતિ ૧૦ લીટર પાણી) નાં ત્રણ છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. પહેલો છંટકાવ પાન કથીરીના ઉપદ્રવની શરૂઆત થાય ત્યારે કરવો તથા બીજો અને ત્રીજો છંટકાવ પહેલા અને બીજા છંટકાવના ૧૫ દિવસ બાદ કરવાની ભલામણ કરવામાં આવે છે.

સી. આઈ. બી. આર. સી. પ્રફોર્મા પ્રમાણે:

વર્ષ	પાક	જીવાત	જંતુનાશક	માત્રા			વેઇટીંગ પીરીયડ (દિવસ)	રિમાર્કસ (દવાના અવશેષો)
				સક્રિય તત્વ/હેક્ટર	સાંદ્રતા %	પાણીમાં મિશ્રણ		
૨૦૧૭	કારનેશન	લાલ કથીરી	પ્રોપરગાઇટ ૫૭ ઇસી	૫૦૦ મી.લી.	૦.૧	૫૦૦ લી.	૭	શોધી મર્યાદા નીચે

Suggestions :

- Approved

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

13.3.1.19 Bioefficacy of some pesticides against red spider mite, *Tetranychus urticae* (Koch) infesting brinjal

The farmers of south Gujarat growing brinjal are advised to apply two sprays of Fenazaquin 10 EC 0.01% (10 ml/10 lit of water) for the effective control of red spider mite. The first spray should be given at the time of appearance of red spider mite and second spray at 15 days interval.

As per CIBRC Format:

Year	Crop	Pest	Pesticide with Formulation	Doses			Waiting period (days)	Remark Residue
				Quantity of Formulation	Conc. (%)	Dilution in water		
2017	Brinjal	Red spider mite	Fenazaquin 10 EC	500 mi.	0.01	500 liter	7	BDL

દક્ષિણ ગુજરાતમાં રીંગણની ખેતી કરતા ખેડૂતોને લાલ કથીરીના અસરકારક નિયંત્રણ અને વધુ

	ઉત્પાદન મેળવવા માટે ફેનાજાક્વિન ૧૦ ઈ.સી. 0.૦૧% (૧૦ મી.લી. પ્રતિ ૧૦ લીટર પાણી) ના બે છંટકાવ કરવા. પહેલો છંટકાવ પાન કથીરીના ઉપદ્રવની શરૂઆત થાય ત્યારે અને બીજો છંટકાવ પહેલા છંટકાવના ૧૫ દિવસ બાદ કરવાની ભલામણ કરવામાં આવે છે. **સી. આઈ. બી. આર. સી. પ્રફોર્મા પ્રમાણે:**

વર્ષ	પાક	જીવાત	જંતુનાશક	માત્રા			વેઈટીંગ પીરીયડ (દિવસ)	રિમાર્કસ (દવાના અવશેષો)
				સક્રિય તત્વ/હેક્ટર	સાંદ્રતા %	પાણીમાં મિશ્રણ		
૨૦૧૭	રીંગણ	લાલકથીરી	ફેનાજાક્વિ	૫૦૦ મી.લી.	0.૦૧	૫૦૦લી.	૧૦	શોધી મર્યાદા નીચે

Suggestions :

- Approved

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

13.3.1.20	**Role of antibiotics in mulberry silkworm *Bombyx mori* L. rearing**
	The mulberry silkworm rearing farmers are advised to dip the chopped mulberry leaves for five minutes in the aqueous solution of chloramphenicol 500 mg 0.05 per cent (5g/10 liter water) and dried at room temperature then fed to the fifth instar larvae (immediately after fourth moult) once a day as a last feeding during evening time found suitable and exhibited the highest effective rate of rearing with maximum denier and minimum renditta of mulberry silkworm. શેતુરના રેશમના કીડાનો ઉછેર કરતા ખેડૂતોને ભલામણ કરવામાં આવેછે કે, ટુકડા કરેલ શેતુરના પાનને ક્લોરામ્ફેનિકોલ ૫૦૦ મી.ગ્રા. ૦.૦૫ ટકા (૫ ગ્રામ/ ૧૦ લીટર પાણી)ના દ્રાવણમાં પાંચ મિનીટ સુધી ડુબાડી, ખુલ્લામાં સુકવીને પાંચમી અવસ્થાના શેતુરના કીડાને (ચોથા નીર્મોચન બાદ તુંરત) દિવસમાં એક વાર સાંજના સમયે છેલ્લા ખોરાકમાં ખવડાવાથી શેતુરના રેશમના કીડાનો સફળ ઉછેર કરી શકાય છે. તેમજ કીડાના ઉછેર કરવાના દરમાં અસરકારક વધારો થાય છે અને વધુમાં વધુ ડેનીયર અને ઓછામાં ઓછા રેન્ડીટા મેળવી શકાય છે. **Suggestions :** • Approved • Add formulation of chloramphenicol **(Action : Prof & Head, Dept. of Ento; NMCA; Navsari)**
13.3.1.21	**Role of antibiotics in eri silkworm, *Samia cynthia ricini* Hutt rearing**
	The eri silkworm rearing farmers are advised to dip the castor leaves for five minutes in the aqueous solution of streptomycin 0.05 per cent (5 g/10liter water) and dried at room temperature then fed to the fifth instar larvae (immediately after fourth moult) once a day as a last feeding during evening time found suitable and exhibited the

highest effective rate of rearing of eri silkworm.

દિવેલાના રેશમના કીડાનો ઉછેર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, દિવેલાના પાનને સ્ટ્રેપ્ટોમાયસીન ૦.૦૫ ટકા (૫ ગ્રામ / ૧૦ લીટર પાણી)ના દ્રાવણમાં પાંચ મિનીટ સુધી ડુબાડી, ખુલ્લામાં સુકવીને પાંચમી અવસ્થાના દિવેલાના કીડાને (ચોથા નીર્મોચન બાદ તુંરત) દિવસમાં એક વાર સાંજના સમયે છેલ્લા ખોરાકમાં ખવડાવાથી દિવેલાના રેશમના કીડાનો સફળ ઉછેર કરી શકાય છે તેમજ કીડાના ઉછેર કરવાના દરમાં અસરકારક વધારો થાય છે.

Suggestions :

- Approved
- Add formulation of streptomycin

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

13.3.1.22 Bio-efficacy of insecticides against rice stem borer, *Scirpophaga* spp

The Paddy growers of south Gujarat are advised to apply two sprays of flubendiamide 20 WG 0.005% (2.5 gm/10 litre) or chlorantraniliprole 18.5 SC 0.006% (3 ml/10 liter) first at the apparence of pest and second at 15 days after the first application for effective control of rice stem borer.

As per CIBRC Format:

Year	Crop	Pest	Pesticide with Formulation	Doses			Waiting period (days)	Remark Residue
				Quantity of Formulation	Conc. (%)	Dilution in water		
2017	Rice	Stem borer	Flubendiamide 20 WG	125 gm	0.005 %	500 L	30	Below BDL (Grain)
			Chlorantraniliprole 18.5 SC	150 ml	0.006 %	500 L	47	Below BDL (Grain)

MRL Value

Sr. No.	Pesticide with Formulation	MRL Value (mg/kg)
1.	Flubendiamide 20 WG	0.5 mg/kg (Unpolished rice grain)
2.	Chlorantraniliprole 18.5 SC	0.4 mg/kg (Unpolished rice grain)

ખેડૂતોપયોગી ભલામણ:

દક્ષિણ ગુજરાતમાં ડાંગર ઉગાડતા ખેડૂતોને ડાંગરની ગાભમારાની ઇયળના અસરકારક નિયંત્રણ માટે ફલ્યુબેન્ડીયામાઇડ ૨૦ ડબલ્યુ. જી. ૦.૦૦૫% (૨.૫ ગ્રામ પ્રતિ ૧૦ લિટર પાણી) અથવા ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫ એસ.સી.૦.૦૦૬% (૩.૦ મી.લી. પ્રતિ ૧૦ લિટર પાણી) બે છંટકાવ કરવા. પહેલો છંટકાવ ગાભમારાનો ઉપદ્રવ દેખાય ત્યારે અને બીજા છંટકાવ પ્રથમ છંટકાવ પછી ૧૫ દિવસ બાદ કરવાની ભલામણ કરવામાં આવે છે.

સી.આઈ.બી.આર.સી.પ્રફોર્માપ્રમાણે:

વર્ષ	પાક	જીવાત	જંતુનાશક	માત્રા			વેઈટીંગ પીરિયડ (દિવસ)	રિમાર્ક્સ (દવાના અવશેષ)
				સક્રિય તત્વહેક્ટર	સાંદ્રતા %	પાણીમાં મિશ્રણ		
૨૦૧૭	ડાંગર	ગાભમારા	ફલ્યુબેન્ડીયામાઇડ	૧૨૫	૦.૦૦૫	૫૦૦	૩૦	શોધી

			ની ઇયળ	૨૦ ડબલ્યુ. જી.	ગ્રામ		લી.		મર્યાદાનીચે
				ક્લોરાન્ટ્રાનીલીપ્રોલ ૧૮.૫એસ.સી.	૧૫૦ મી.લી.	૦.૦૦૬	૫૦૦ લી.	૪૭	શોધી મર્યાદાનીચે

Suggestions :

- Approved
- Mention waiting period as per CIB

(Action: Assoc. Res. Scientist (Ento.) MRRC; Navsari)

13.3.1.23	**Bio-efficacy of Selected Insecticides against Pink Bollworm in *Bt* cotton**
	Cotton farmers of south Gujarat cultivating *Bt* cotton in Agro-climatic zone II are advised to control pink bollworm by two sprayings of any one of the following insecticide, first spray at 75 days after sowing and second after 15 days of the first spray for effective control of pink bollworm. 1. Indoxacarb 15.8 EC @ 0.0079% (5 ml/10 lit. of water) or 2. Emamectin benzoate 5 SG @ 0.0025% (5 g/10 lit. of water) or 3. Spinosad 45 SC @ 0.014% (3 ml/10 lit. of water) **Suggestions:** **1.** Approved and merged with AAU recommendation No. 13.3.1.3 **(Action: Assoc. Res. Scientist (Ento.) MCRS; Surat)**
13.3.1.24	**Efficacy of fungicides and bioagent as seed treatment as well as foliar spray for the control of blast disease of finger millet**
	Finger millet growers of south Gujarat (AES I) are advised to treat the seed with *Pseudomonas fluorescence* (CFU- 10^8/ml) @ 10ml/kg and two sprays of *P. fluorescence* @ 6ml/l first at initiation of disease and second after 15 days after the first spray for effective management of blast. **Suggestions:** **1.** Approved as scientific community 2. Add formulation and cfu 2x10^8 /ml 3. Mention dose in 10 lit. of water **(Action: Asstt. Prof. (Pl. Path.), COA-Waghai)**
13.3.1.25	**Efficacy of fungicides and bioagent as seed treatment as well as foliar spray for the control of blast disease of finger millet**
	Farmers of AES-I are advised to give seed treatment with carbendazim 50 WP @ 2g/kg seed and two sprays of tricyclazole 75 WP @ 0.6g/l of water or tebuconazole 25.9 EC @ 1ml/l first immediately after the appearance of disease and second 15 days after the first spray for the management of finger millet blast. **Suggestions:** 1. Approved as scientific community 2. Mention fungicides dose in 10 lit. of water **(Action: Asstt. Prof. (Pl. Path.), COA-Waghai)**

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

AGRICULTURAL ENTOMOLOGY	
13.3.1.26	**Management of termite in fenugreek through intercropping**
	Farmers of North Gujarat Agro-Climatic Zone (IV) growing fenugreek for seed purpose are advised to grow ajwain as an inter crop in fenugreek in (1:1 ratio) for effective management of termite. ઉત્તર ગુજરાત ખેત- હવામાન વિભાગના બીજ માટે મેથી ઉગાડતા ખેડૂતોને ઉધઈના અસરકારક નિયંત્રણ માટે મેથીના પાકમાં અજમાને આંતરપાક તરીકે (૧:૧ ગુણોત્તર) વાવવાની ભલામણ કરવામાં આવે છે. **Suggestions :** • Approved **[Action: Assoc. Res. Sci.(Ento.), Seed Spices Res. Station, SDAU, Jagudan]**
13.3.1.27	**Management of thrips in capsicum in polyhouse**
	Farmers are advised to apply two sprays of spinosad 45 SC 0.0143% (3.2 ml/10 lit. water) for the effective management of thrips in capsicum in natural ventilated polyhouse. Apply the first spray when thrips exceed five per leaf and second spray at 15 days after first spray for getting the maximum capsicum production and net return. નેચરલ વેંટીલેટેડ પોલીહાઉસમાં કેપ્સીકમ મરચાં ઉગાડતા ખેડૂતોને થ્રીપ્સના અસરકારક નિયંત્રણ માટે સ્પીનોસાડ ૪૫ એસસી ૦.૦૧૪૩ % (૩.૨ મી.લી./૧૦ લીટર પાણી)ના બે છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. પ્રથમ છંટકાવ એક પાન દીઠ થ્રીપ્સની સંખ્યા પાંચ કરતાં વધારે હોય ત્યારે અને બીજો છંટકાવ ત્યાર બાદ ૧૫ દિવસે કરવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Suggestions :** • Approved **[Action : Associate professor (Ento.), CPCA, SDAU, Sardarkrushinagar]**

13.3.2 RECOMMENDATION FOR SCIENTIFIC COMMUNITY/INFORMATION

ANAND AGRICULTURAL UNIVERSITY, ANAND

AGRICULTURAL ENTOMOLOGY	
13.3.2.1	**Bio-efficacy of different insecticides against mealy bug infesting custard apple**
	Two sprays of profenophos 50% EC 0.05% (10 ml/10 lit of water) starting from appearance of the pest proved effective in the management of mealybug in custard apple. **Suggestions :** • Approved **(Action : Asstt. Prof. (Ento.), COH, AAU, Anand)**
13.3.2.2	**Bio-efficacy of insecticidal molecules against cucumber leaf miner,**

	***Liriomyza trifolii* (Burgress)**
	Seed treatment either with thiamethoxam 30 FS or imidacloprid 600 FS @ 10 ml/kg seed followed bytwo foliar sprays of thiamethoxam 25 WG (0.01%; 4 g/10 lit water; 50 g.a.i/ha) first at 30 days after sowing and second at 15 days after first spray for effective control of cucumber leaf miner, *Liriomyzatrifolii*. **Suggestions :** • Approved **(Action:Asstt.Prof.(Ento.), S.M.C. Polytechnic in Agriculture, AAU, Anand)**
13.3.2.3	**Bio-efficacy of different insecticides against stem borer infesting durum wheat**
	For effective and economical management of stem borer in *durum* wheat, apply foliar spray of chlorantraniliprole 18.5 SC 0.006 % (3 ml/ 10 liters of water) at 50th days of sowing. OR seed treatment of chlorpyriphos 20 EC, 4 ml in 50 ml water/ kg seeds (0.8 g a.i./kg seeds) + foliar spray of chlorantraniliprole 0.006% (3 ml/ 10 liters of water) at 50th days of sowing. **Suggestions :** • Approved **(Action : Sci. (Pl. Protection), KVK, AAU, Arnej)**
13.3.2.4	**Residues and persistence of triazophos 40 EC in/on cucumber**
	Two foliar sprays of triazophos 40 EC in cucumber at 10-day interval @ 300 g a.i./ha at fruiting stage resulted in its residue below the limit of quantitation of 0.05 µg/g in cucumber fruits if harvested from 10th day after the last application. Therefore, PHI of 10-day could be suggested if triazophos 40 EC is recommended in cucumber with MRL of 0.05 µg/g. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.5	**Residues and persistence of chlorpyriphos 20 EC in/on cucumber**
	Two foliar sprays of chlorpyriphos 20 EC in cucumber at 10-day interval @ 300 g a.i./ha at fruiting stage resulted in its residue below the MRL 0.2 µg/g (by FSSAI) in cucumber fruits if harvested from 7th day after the last application. Therefore, PHI of 7-day could be suggested if chlorpyriphos 20 EC is recommended in cucumber**.** **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.6	**Residues and persistence of quinalphos 25 EC in/on cucumber**
	Two foliar sprays of quinalphos 25 EC in cucumber at 10-day interval @ 300 g a.i./ha at fruiting stage resulted in its residue below the limit of quantitation of 0.05 µg/g in cucumber fruits if harvested from 7th day after the last application. Therefore, PHI of 7-day could be suggested if quinalphos 25 EC is recommended in cucumber with MRL of 0.05 µg/g. **Suggestions :** • Approved

	(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)
13.3.2.7	**Residues and persistence of ethion 50 EC in/on cucumber**
	Two foliar sprays of ethion 50 EC in cucumber at 10-day interval @ 500 g a.i./ha at fruiting stage resulted in its residue below the MRL 1.0 µg/g (by FSSAI) in cucumber fruits if harvested from 1st day after the last application. Therefore, PHI of 1-day could be suggested if ethion 50 EC is recommended in cucumber. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.8	**Residues and persistence carbendazim 50 WP in/on cucumber**
	Two foliar sprays of carbendazim 50 WP in cucumber at 10-day interval @ 150 g a.i./ha at fruiting stage resulted in its residue below the MRL 0.5 µg/g (FSSAI) in cucumber fruits if harvested from 1st day after the last application. Therefore, PHI of 1-day could be suggested if carbendazim 50 WP is recommended in cucumber. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.9	**Residues and persistence of profenophos 50 EC in/on cucumber**
	Two foliar sprays of profenophos 50 EC in cucumber at 10-day interval @ 500 g a.i./ha at fruiting stage resulted in its residue below the limit of quantitation of 0.05 µg/g in cucumber fruits if harvested from 10th day after the last application. Therefore, PHI of 10-day could be suggested if profenophos 50 EC is recommended in cucumber with MRL of 0.05 µg/g. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.10	**Residues and persistence of cypermethrin 25 EC in/on cucumber**
	Two foliar sprays of cypermethrin 25 EC in cucumber at 10-day interval @ 50 g a.i./ha at fruiting stage resulted in its residue below the MRL 0.07 µg/g (by CODEX) in cucumber fruits if harvested from 3rd day after the last application. Therefore, PHI of 3-day could be suggested if cypermethrin 25 EC is recommended in cucumber. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.11	**Residues and persistence of spiromesifen 22.9 SC in/on chilli**
	Two foliar sprays of spiromesifen 22.9 SC in chilli at 10-day interval @ 96 g a.i./ha at fruiting stage resulted in its residue below the MRL (0.50 µg/g by EU/UK & 0.45 µg/g by US) in chilli fruits if harvested from 15th day after the last application. Therefore, PHI of 15-day could be suggested if spiromesifen 22.9 SC is recommended in chilli. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**

13.3.2.12	**Residues and persistence of lambda-cyhalothrin 5 EC in/on chilli**
	Two foliar sprays of lambda-cyhalothrin 5 EC in chilli at 10-day interval @ 15 g a.i./ha at fruiting stage resulted in its residue below the MRL (0.10 µg/g by EU/UK, 0.2 µg/g by US & 1.0 µg/g by Japan) in chilli fruits if harvested from 1st day after the last application. Therefore, PHI of 1-day could be suggested if lambda-cyhalothrin 5 EC is recommended in chilli. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.13	**Residues and persistence of bifenthrin 10 EC in/on chilli**
	Two foliar sprays of bifenthrin 10 EC in chilli at 10-day interval @ 50 g a.i./ha at fruiting stage resulted in its residue below the MRL (0.50 µg/g by CODEX) in chilli fruits if harvested from 1st day after the last application. Therefore, PHI of 1-day could be suggested if bifenthrin 10 EC is recommended in chilli. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.14	**Residues and persistence of triazophos 40 EC in/on bitter gourd**
	Two foliar sprays of triazophos 40 EC in bitter gourd at 10-day interval @ 300 g a.i./ha at fruiting stage resulted in its residue below the limit of quantitation of 0.05 µg/g in bitter gourd fruits if harvested from 7th day after the last application. Therefore, PHI of 7-day could be suggested if triazophos 40 EC is recommended in bitter gourd with MRL of 0.05 µg/g. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.15	**Residues and persistence of profenophos 50 EC in/on bitter gourd**
	Two foliar sprays of profenophos 50 EC in bitter gourd at 10-day interval @ 500 g a.i./ha at fruiting stage resulted in its residue below the limit of quantitation of 0.05 µg/g in bitter gourd fruits if harvested from 7th day after the last application. Therefore, PHI of 7-day could be suggested if profenophos 50 EC is recommended in bitter gourd with MRL of 0.05 µg/g. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.16	**Residues and persistence of ethion 50 EC in/on bitter gourd**
	Two foliar sprays of ethion 50 EC in bitter gourd at 10-day interval @ 500 g a.i./ha at fruiting stage resulted in its residue below the MRL 1.0 µg/g (by FSSAI) in bitter gourd fruits if harvested immediately after the last application. Therefore, PHI of 1-day could be suggested if ethion 50 EC is recommended in bitter gourd. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.17	**Residues and persistence of cypermethrin 25 EC in/on bitter gourd**
	Two foliar sprays of cypermethrin 25 EC in bitter gourd at 10-day interval @ 50 g a.i./ha at fruiting stage resulted in its residue below the MRL (0.20 µg/g by EU &

	2.0 µg/g by Japan) in bitter gourd immediately after the last application. Therefore, PHI of 1-day could be suggested if cypermethrin 25 EC is recommended in bitter gourd. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.18	**Residues and persistence of quinalphos 25 EC in/on bitter gourd**
	Two foliar sprays of quinalphos 25 EC in bitter gourd at 10-day interval @ 250 g a.i./ha at fruiting stage resulted in its residue below the limit of quantitation of 0.05 µg/g in bitter gourd fruits if harvested from 3rd day after the last application. Therefore, PHI of 3-day could be suggested if quinalphos 25 EC is recommended in bitter gourd with MRL of 0.05 µg/g. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.19	**Residues and persistence of chlorpyriphos 20 EC in/on bitter gourd**
	Two foliar sprays of chlorpyriphos 20 EC in bitter gourd at 10-day interval @ 300 g a.i./ha at fruiting stage resulted in its residue below the MRL of 0.20 µg/g (by FSSAI) in bitter gourd from 3rd day after the last application. Therefore, PHI of 3-day could be suggested if chlorpyriphos 20 EC is recommended in bitter gourd. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.20	**Residue and persistence of carbendazim 50 WP in/on bitter gourd**
	Two foliar sprays of carbendazim 50 WP in bitter gourd at 10-day interval @ 150 g a.i./ha at fruiting stage resulted in its residue below the MRL of 0.50 µg/g (by FSSAI) in bitter gourd from 3rd day after the last application. Therefore, PHI of 3-day could be suggested if carbendazim 50 WP is recommended in bitter gourd. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
13.3.2.21	**Residues and persistence of imidacloprid 17.8 SL in/on bitter gourd**
	Two foliar sprays of imidacloprid 17.8 SL in bitter gourd at 10-day interval @ 20 g a.i./ha at fruiting stage resulted in its residue below the MRL (1.0 µg/g by EU, 0.40 µg/g by Japan and 0.50 µg/g by US) in bitter gourd immediately after the last application. Therefore, PHI of 1-day could be suggested if imidacloprid 17.8 SL is recommended in bitter gourd. **Suggestions :** • Approved **(Action : Residual Analyst, AINP on Pesticide Residues, AAU, Anand)**
	Plant Pathology
13.3.2.22	**Incidence and severity of frog eye spot disease on bidi tobacco in relation to agro-meteorological parameters**
	1. The weather parameters RDAY, MINT and VP1 were responsible for FES in tobacco nursery.

	The logistic regression model developed for FES in nursery is as under. $\mathbf{FES_{code}(1,0) = \log\left(\frac{Pi}{1} - Pi\right)}$ = - 27.0169 + 0.7352*RDAY + 3.0285*MINT – 2.0776**VP1 2. The weather parameters BSS, MAXT, MINT and TOTRF were responsible for FES in tobacco field. The logistic regression model developed for FES in field is as under. $\mathbf{FES_{code}(1,0) = \log\left(\frac{Pi}{1} - Pi\right)}$ =9.2280 +0.5272**BSS – 0.5321**MAXT + 0.3275 **MINT – 0.00305** TOTRF **Suggestions :** • Approved **(Action : Res. Sci. (Pl. Path.), BTRS, AAU, Anand)**
13.3.2.23	**Screening of blackgram germplasm against Yellow mosaic disease**
	VUG-14-1 genotype of blackgram found resistant against yellow mosaic disease under high disease pressure in field conditions. **Suggestions :** • Approved **(Action : Asstt. Res. Sci. (Ento.), Agril. Res. Station, AAU, Derol)**
13.3.2.24	**Bio-efficacy of fungicides against powdery mildew of clusterbean**
	Spray Hexaconazole 5 SC, 0.005% (10 ml/ 10 lit. water) twice to manage powdery mildew in kharif clusterbean. Apply first spray at the time of initiation of the disease and second at 15 days of first spray. **Suggestions :** • Approved **(Action : Asstt. Res. Sci. (Ento.), ARS, AAU, Derol)**
JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH	
	AGRICULTURAL ENTOMOLOGY
13.3.2.25	**Field efficacy of different insecticides against citrus pests**
	Two sprays of spinosad 45 SC 0.0135% (3 ml/10 lit. water) and difenthiuron 50 WP 0.05% (10 ml/10 lit. water) at 15 days interval starting from pests infestation was found effective for management of leaf miner and black fly in South Saurashtra Agro climatic Zone. **Suggestions :** • Approved **(Action : Professor & Head, Department of Entomology, JAU, Junagadh)**
13.3.2.26	**Survey of various insect-pests of pomegranate in Saurashtra region**
	The incidence of anar butterfly and thrips were found enormous during the month of January to April and September to December respectively. The maximum population of anar butterfly was noticed in Junagadh region, while thrips was found maximum in Kalawad region. **Suggestions :** • Approved **(Action : Professor & Head, Department of Entomology, JAU, Junagadh)**

13.3.2.27	**Evaluation of some newer insecticides against the leaf weber, *Antigastra catalaunalis* (Duponchal) infesting sesame under rain fed condition**
	Two sprays of insecticides *i.e*. indoxacarb 14.5 SC 0.007% (4 ml/10 lit. water) or spinosad 45 SC 0.009% (2 ml/ 10 lit. water) or emamectin benzoate 5 SG 0.002% (4 g/10 lit water) or profenophos 50 EC 0.05% (10 ml/ 10 lit. water) or chlorantraniliprole 20 EC 0.006% (3 ml/ 10 lit water) (first at ETL of the pest 5 larvae/ 20 plant and second at 15 days after first spray) found effective for management of sesame leaf weber in North Saurashtra Agro climatic Zone. There was no problem of residue of all the insecticides in sesame seeds at 30 days after second (last) spray application. **Suggestions :** • Approved **(Action : Research Scientist, Dry Farming Research Station, JAU, Targhadia)**
13.3.2.28	**Initiation and development of aphid, jassid and thrips in relation to different weather parameters on groundnut crop under rainfed condition**
	The incidence of thrips in groundnut commenced in 26th SW and reached to a peak in 33rd SW. The influence of wind speed was found significant on thrips population. While, other abiotic factors has no significant effect. All the abiotic factors had non-significant effect on aphid and jassids population in groundnut crop. **Suggestions :** • Approved **(Action : Research Scientist, Dry Farming Research Station, JAU, Targhadia)**
13.3.2.29	**Testing of insecticides against major pests of sesame**
	Two sprays of lamda cyhalothrin 5 EC 0.005% (10 ml/10 lit. water) or emamectin benzoate 5 SG 0.0035% (7g/10 lit. water) (1st spray at ETL of 0.25 larva/plant and 2nd spray at 15 days after 1st spray) found effective and economic for management of leaf weber of sesame in *Kharif* in North Saurashtra Agro climatic Zone. Two sprays of dicofol 18.5 EC 0.037% (20 ml /10 lit. water), 1st spray at appearance of mite and 2nd spray at 15 days after 1st spray found effective and economical. Residues of above pesticides in sesame seed were not detected at 30 days after 2nd spray. **Suggestions :** • Approved **(Action: Research Scientist (Pl. Br.), Agril. Research Station, JAU, Amreli)**
13.3.2.30	**Evaluation of botanicals, bio-pesticides and insecticides against gram pod borer**
	Two spray of profenofos 50 EC 0.13% (26 ml/10 lit. water) and chlorantraniliprole 18.5 SC 0.004 % (2 ml/10 lit. water) were found effective and economical management of pod borer (*Helicoverpa armigera*) in chickpea crop. First spray should be started at 50% flowering and second at 15 days after first spray. The PHI for chlorantraniliprole 18.5 SC and profenofos 50 EC are 11 and 27 days, respectively.

	Suggestions : • Approved **(Action:Res. Scientist (Chickpea), Pulse Research Station, JAU, Junagadh)**
13.3.2.31	**Bioefficacy of different insecticides against castor shoot and capsule borer**
	Two sprays of spinosad 45 SC 0.009% (2 ml/10 lit. water) or chlorantraniliprole 18.5 SC 0.006% (3.2 ml/10 lit. water) at fifteen days interval starting from pest infestation found effective and economical for the management of castor shoot and capsule borer. **Suggestions :** • Approved **(Action :** Professor & Head, Department of Entomology, JAU, Junagadh)
PLANT PATHOLOGY	
13.3.2.32	**Wilt disease development in popular cultivars as influenced by different dates of sowing under changing climate in chickpea**
	The popular chickpea cultivars *viz.* JG 16, GG-1, GJG 3 and GG 5 exhibited low wilt incidence and high grain yield as compared to JG 62 (susceptible cultivar). The lowest wilt incidence was recorded in JG 16. In case of date of sowing, no significant differences in wilt incidence and grain yield were found. The low wilt incidence was recorded in normal date of sowing (5th November). Therefore; it was determined that popular cultivars possessed resistance against wilt disease till today in South Saurashtra Agro-climatic Zone. **Suggestions :** • Approved **(Action: Research Scientist(Chickpea), Pulse Research Station, JAU, Junagadh)**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

AGRICULTURAL ENTOMOLOGY	
13.3.2.33	**Survey of ecto-parasitic *Varroa* mite infesting honey bees (*Aphis* sp.)**
	The Varroa mite, *Varroa destructor* was found infesting worker rock bee (*Apis dorsata*) and its infestation was higher during 15th to 18th , 22nd to 26th , 37th to 40th and 47th to 49th Standard Week. **Suggestions :** • Approved **(Action : Prof & Head, Dept. of Ento; NMCA; Navsari)**
13.3.2.34	**Evaluation of insecticides against pod bug, *Clavigralla gibbosa* Spinola in pigeon pea cv. Vaishali**
	Two sprays of any of the following insecticide at an interval of 15 days commencing at pod formation stage are effective to control pod bug, *Clavigralla gibbosa* Spinola in pigeon pea. Imidacloprid 17.8 SL @ 0.005 % Acetamiprid 20 SP @ 0.004% Thiacloprid 24 SC @ 0.024%

Suggestions :

- Approved

(Action: Asstt. Prof Ento; COA-NARP Bharuch)

13.3.2.35 Survey and surveillance of major insect pests of pigeon pea at College Farm, Bharuch as well as Narmada district

The pigeon pea pests were active round the year under Agro climatic zone II, AES V with higher activity period mentioned as under with standard meteorological week (SMW).

Suggestions :

Pest	**Higher activity period**
Aphid	36, 38, 39, 45 and 46th SMW
Jassid	37, 38, 39, 43 , 47 and 48th SMW
PSB	49th to 2nd SMW
MBDR	45th SMW
Helicoverpa sp.	47 to 50th SMW
Maruca sp.	48 and 49th SMW
Leaf Roller	41st to 43rd SMW

- Approved

(Action: Asstt. Prof Ento; COA-NARP Bharuch)

13.3.2.36 Biochemical changes in sorghum genotypes against shoot fly, *Atherigona soccata*

The genotypes *viz.,* IS 18551, SR 2879 and IS 2205 showed lowest shoot fly oviposition and incidence. Sorghum genotypes (DJ 6514, Swarna, SR 2872 & SR 1904) with high amount of hydrocyanic acid and total soluble sugar showed susceptibility to shoot fly while genotypes (IS 18551, IS 2205, SR 2879 & SR 2812) with high tannin, silica and phenol contents showed moderate resistance to shoot fly.

Suggestions :

- Approved

(Action: Asstt. Prof. Ento; ASABI Surat)

13.3.2.37 Dissipation and Persistence of combi-product of Profenofos 40 % + Cypermethrin 4 % in Sapota and its distribution in edible parts of fruits

A] Waiting period of profenofos and cypermethrin in/on sapota fruits

Observation of 14 days waiting period provides residue free unripe sapota fruits when pre-mix formulation of profenofos 40% and cypermethrin 4 % EC applied twice at 15 days interval on sapota bearing trees at the rate of 0.044 % (1ml/l) to control the sapota bud borer.

B] Distribution pattern of profenofos and cypermethrin in peel and pulp of sapota fruits

The residues of profenos and cypermethrin were arrested in peel of unripe sapota fruits while trans-peel movement of these residues to pulp was observed in ripe sapota fruit when pre-mix formulation of profenofos 40 % and cypermethrin 4% EC sprayed twice at 15 days interval at the rate of 0.044 % (1ml/l) to control the

	sapota bud borer on sapota bearing trees. **Suggestions :** • Approved **(Action: Asstt. Res. Scientist (Pesticide residue), FQTL; Navsari)**
13.3.2.38	**Disssipation and persistence of combi-product of chlorpyrifos 50 % + cypermethrin 5 % in sapota and its distribution in edible parts of fruit**
	A] Waiting period of chlorpyrifos and cypermethrin in/on sapota fruits Observation of 4 days waiting period provides residue free unripe sapota fruits when pre-mix formulation of chlorpyrifos 50 % and cypermethrin 5 % EC sprayed twice at the rate of 0.055 % (1ml/l) sprayed twice at 15 days interval on sapota fruit bearing trees to control the sapota bud borer. **B] Distribution pattern of chlorpyrifos and cypermethrin in peel and pulp of sapota fruits** The residues of chlorpyrifos and cypermethrin arrested in peel of unripe sapota fruits when pre-mix formulation of chlorpyrifos 50 % and cypermethrin 5% EC sprayed twice at 15 days interval at the rate of 0.055 % (1ml/l) to control the sapota bud borer on sapota bearing trees. **Suggestions :** • Approved **(Action: Asstt. Res. Scientist (Pesticide residue), FQTL; Navsari)**
13.3.2.39	**Screening of sugarcane varieties for early shoot borer resistance**
	Sugarcane genotypes *viz*., CoN 14071, CoN 14072, Co 09007, CoN 14073 and Co 10033 were found less susceptible against early shoot borer. **Suggestions :** • Approved **(Action: Asstt. Res. Scientist (Ento.), MSRS, Navsari)**
13.3.2.40	**Screening of recommended varieties for resistance against stem borer of rice**
	Rice varieties *viz.,* Dandi, Masuri and Jaya were found to have resistance reaction against rice stem borer and varieties like NAUR-1, GNR-2, 3, Gurjari and GR-5, 7, 8, 10, 104 and Narmada were found to have moderate resistance reaction against rice stem borer under natural field conditions. Whereas varieties GNR-4, GR-4, 6, 9 and 103 have moderately susceptible reactions against stem borer under natural field conditions. **Suggestions :** • Approved **(Action: Assoc. Res. Scientist (Ento.) MRRC; Navsari)**
13.3.2.41	**Evaluation of insecticides against rice gundhi bug, *Leptocorisa acuta* (Thunberg)**
	Spray emamectin benzoate 5 WSG 0.015 % or imidacloprid 17.8 SL 0.005 % twice, first at the appearance of pest and second at 15 days after the first application is suggested for the effective control of rice gundhi Bug**.** **Suggestions:** • Approved **(Action: Assoc. Res. Scientist (Ento.) MRRC; Navsari)**
13.3.2.42	**Screening of *Gossypium hirsutum* cotton genotypes/varieties against**

	sucking pests under rainfed conditions.
	Cotton genotypes/varieties of *Gossypium hirsutum viz*., GSHV 159, GBHV 170, 177, 180, 183 and NH 615 were found moderately resistant to jassids. However, GSHV 159 and GBHV 170 were found resistant to aphids and thrips. GBHV 180 was found resistant to thrips whereas, GBHV 183 was found resistant to whitefly and mealybug under rainfed conditions. **Suggestions :** • Approved **(Action: Asstt. Res. Scientist (Ento), RCRS Bharuch)**
13.3.2.43	**Screening of *Gossypium hirsutum* cotton genotypes/varieties against bollworms under rainfed conditions**.
	Gossypium hirsutum cotton genotype GSHV 159 was found resistant whereas, GBHV 170, 180, 183, CCH 12-3 and BGDS 1063 were found moderately resistant to bollworms under rainfed conditions. **Suggestions:** **1.** Not approved as the bollworms spp. are not mentioned **(Action: Asstt. Res. Scientist (Ento), RCRS Bharuch)**
13.3.2.44	**Survey of stone weevil of mango and their natural enemies**
	The infestation of stone weevil was 0.036% in mango growing areas of Valsad district. **Suggestions:** **1.** Not approved as the variety of mango and other related information are not properly mentioned **(Action: Asstt. Res. Scientist (Ento), NARP, AES; Paria)**
13.3.2.45	**Screening of *Gossypium arboreum* cotton genotypes/varieties against insect pests under rainfed conditions.**
	Fourteen cotton genotypes/varieties of *Gossypium arboreum viz.,* GBav 106, 107, 111, 123, 124, 125, 128, 131, 133, 135, 136, 137, 138 and G. Cot. 19 were found moderately resistant to jassids under rainfed conditions. GBav 128 was found resistant against aphid,thrips and whitefly, whereas GBav 124 was found moderately resistant against mealybug. GBav 135 was found resistant to aphids and thrips. However, GBav 111 and 135 were found resistant to mealybug, while moderately resistant to whitefly. GBav 138 was found resistant to whitefly and mealybug. **Suggestions :** • Approved **(Action: Asstt. Res. Scientist (Ento), RCRS Bharuch)**
13.3.2.46	**Suppression of Rice Sheath Mite, *Steneotarsonemus spinki* Smiley (Acari: Tarsonemidae) infestation by using different acaricides**
	Two sprays of fenpyroximate 5 SC @ 0.005% (10 ml/10 liter of water) or difenthiuron 50 WP @ 0.05% (10 g/10 liter of water) or chlorfenapyr 10 SC @ 0.015% (15 ml/10 liter of water) were found effective for the control of rice sheath mite. The first spray be given at appearance of sheath mite (at flag leaf stage) and the second spray at 15 days after first spray.

As per CIBRC Format:

Year	Crop	Pest	Pesticide with Formulation	Doses			Waiting period (days)	Remarks Residue
				Quantity of Formulation	Conc. (%)	Dilution in water		
2017	Rice	Sheath mite	Fenpyroximate 5 SC	500 ml	0.005	500	7	BDL (Grain & Straw)
			Difenthiuron 50 WP	1000 ml	0.05	500	3-7	BDL (Grain & Straw)
			Chlorfenapyr 10 SC	750 ml	0.015	500	5	EU codex 0.02PPM

Suggestions :

- Approved

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

13.3.2.47 Bioefficacy of some pesticides against *Polyphagotarsonemus latus* (Banks) infesting Sesamum

Apply fenpyroximate 5 SC @ 0.006% (1.2 ml/ 10 litre of water) at the time of 50 per cent flowering for effective control of the yellow mite of sesamum.

As per CIBRC Format:

Year	Crop	Pest	Pesticide with Formulation	Doses			Waiting period (days)	Remark Residue
				Quantity of Formulation	Conc. (%)	Dilution in water		
2017	Sesamum	Yellow mite	Fenpyroximate 5 SC	600 ml	0.006	500 lit.	7	BDL

Suggestions :

- Approved

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

Plant Pathology

13.3.2.48 Mapping the mycogeography of the macromycetes from Dangs

Biodiversity in fleshy fungi exists in Dangs district. A total no. of 192 fleshy fungi were identified. Out of them 171 belong to Basidiomycotina, 15 belonged to Ascomycotina and 6 to Mycetozoa. The no. of edible fleshy fungi were found 70 out of 186. The major genus of edible fungi were *Pleurotus*, *Ganoderma*, *Agaricus*, *Lepiota*, *Auricularia*, *Termitomyces*, *Volvariella*, *Clitocybe*, *Cantharellus*, *Fistulina*, *Calocybe* etc. From the study of various morphological characteristics, key to the fleshy fungi of Dangs is generated for the identification purpose.

Suggestions :

- Approved

(Action: Prof. & Head, Deptt. of Pl. Pathology NMCA; Navsari)

13.3.2.49 Evaluation of finger millet (*Eleusine coracana* L. Gaertn.) germplasms for resistance to blast disease on the basis of biochemical parameter.

The finger millet genotypes/varieties *viz;* GN-5, GPU-28, GPU-48, KOPN-235, KMR-204 and MR-6 having higher amount of total phenols were found resistant to the blast disease.

Suggestions :

- Approved

(Action: Asstt. Prof. (Pl. Path.), COA-Waghai)

13.3.2.50 Screening of sugarcane varieties for wilt resistance

Sugarcane genotypes *viz;* Co 10005, Co 10006, Co 10027, CoT 10367, Co 09004, Co 09009, Co 10015, Co 10031, CoT 10368, PI 10132, CoN 14071, CoN 14072, CoN 14073 and CoN 14074 showed moderately resistant reaction against wilt disease in sick soil and artificial inoculation.

Suggestions :

- Approved

(Action: Asstt. Res. Scientist (Pl. Path), MSRS; Navsari)

13.3.2.51 Screening of mango germplasm against powdery mildew

Mango accession *viz;* Ostin, Lily and Sensation are found resistant against powdery mildew whereas, Mankurad and Kishanbhog are highly susceptible.

Suggestions :

- Approved

(Action: Assoc. Res. Sci.(Pl. Path.), AES; Paria)

13.3.2.52 Efficacy of fungicides and bioagent as seed treatment as well as foliar spray for the control of blast disease of finger millet

Treat the seed of finger millet with *Pseudomonas fluorescence* (10^8 cfu/ml) @ 10 ml/kg and two sprays of *P. fluorescence* @ 6ml/l first at initiation of disease and second after 15 days after the first spray for effective management of blast.

Suggestions :

- Approved

(Action: Asstt. Prof. (Pl. Path.), COA-Waghai)

13.3.2.53 Efficacy of fungicides and bioagent as seed treatment as well as foliar spray for the control of blast disease of finger millet

Give seed treatment with carbendazim 50 WP @ 2g/kg seed followed by two sprays of tricyclazole 75 WP @ 6g/10 lit. of water or tebuconazole 25.9 EC @ 10ml/10 lit. First spray be given immediately after the appearance of disease and second 15 days after the first spray for the management of finger millet blast.

As per CIBRC Format:

Year	Crop	Disease	Fungicide with Formulation	Dose			Waiting period (Days)	Remarks Residue
				Quantity of formulation	Conc (%)	Dilution in water		
2017	Finger millet	Blast	Tricyclazole 75 WP	300g	0.045	500	7	BDL
			Tebuconazole 25.9 EC	500ml	0.026	500	7	BDL

Suggestions :

- Approved

(Action: Asstt. Prof. (Pl. Path.), COA-Waghai)

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR	
	AGRICULTURAL ENTOMOLOGY
13.3.2.54	**Evaluation of different insecticides and botanicals against sucking pest infesting fenugreek**
	Two foliar sprays of thiamethoxam 25 WG 0.0084% (3.36 g/10 lit. water) or acetamiprid 20 SP 0.004% (2 g/10 lit. water) for effective and economical management of aphid and leafhopper in fenugreek. First foliar spray at 1.5 aphid index and second after 10 days of the first spray with the PHI for both the insecticides as 28 days. **Suggestions :** • Approved **[Action : Assoc. Res. Sci. (Ento.), Seed Spices Res. Station, SDAU,Jagudan]**
13.3.2.55	**Management of blight in cumin**
	Three sprays of kresoxim- methyl 44.3 SC 0.044 % (First spray at 35 days after germination and subsequent two spays at 10 days interval after first spray) were found effective for getting the maximum yield with minimum disease intensity of blight in cumin. **Suggestions :** • Approved **[Action : Assoc. Res. Sci. (Pl. Patho.), Seed Spices Res. Station, SDAU, Jagudan]**

13.3.3 NEW TECHNICALPROGRAMMES

Chairman	Dr A. M. Parakhia, DEE, JAU
Co-chairman	Dr. I. U. Dhruj, ADR, JAU
Rapporteurs	Dr. K. A. Patel, ADR, NAU Dr. A. G. Desai, Professor(Pl.Path.),SDAU Sh. A. Chattopadhyay(Astt.Prof.), SDAU
Venue	Seminar Hall, Dept. of Ag. Entomology, CPCA

ANAND AGRICULTURE UNIVERSITY

AGRICULTURAL ENTOMOLOGY		
Sr. No.	**Title/centre**	**Suggestions**
Dept. of Agril. Entomology, AAU, Anand		
13.3.3.1	Evaluation of pre-harvest spray of insecticides for control of pulse beetle, *Callosobruchus* sp. in green gram	**Approved with following suggestions** 1. Correct 'spraying at initiation of pod maturity and before harvesting stage'. **(Action:** Prof. & Head, Dept. of Agril. Entomology, AAU, Anand**)**

13.3.3.2	Bio- efficacy of insecticides against thrips, *Scirtothrips dorsalis* Hood in pomegranate	**Approved with following suggestions** 1. Remove the treatment No.3 as Trizophos is going to be banned. **(Action:** Prof. & Head, Dept. of Agril. Entomology, AAU, Anand**)**
AICRP on Biocontrol, AAU, Anand		
13.3.3.3	Biological Supression of Mustard Aphid, *Lipaphis erysimi* Kaltenbach	**Approved** **(Action**: Principal Res. Sci., AICRP on Biological control, AAU, Anand**)**
Ornithology, AAU, Anand		
13.3.3.4	Impact of mustard crop as intercrop for management of *H. armigera* through birds in chickpea	**Approved** **(Action**: Ornithologist, Agril. Ornithology, AAU, Anand**)**
13.3.3.5	Establishment of set-aside field for conservation of insectivorous birds	**Approved** **(Action:** Ornithologist, Agril. Ornithology, AAU, Anand**)**
AINP on Pesticide Residues, AAU, ANAND		
13.3.3.6	Residues and persistence of lambda-cyhalothrin 5 EC in/on cucumber	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.7	Residues and persistence of acephate 75 SP in/on cucumber	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.8	Residues and persistence of imidacloprid 17.8 SL in/on cucumber	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.9	Residues and persistence of spiromesifen 22.9 SC in/on cucumber	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.10	Residues and persistence of lambda-cyhalothrin 5 EC in/on cauliflower	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.11	Residues and persistence of imidacloprid 17.8 SL in/on cauliflower	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.12	Residues and persistence of spiromesifen 22.9 SC in/on cauliflower	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.13	Residues and persistence of cypermethrin 25 EC in/on capsicum	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.14	Residues and persistence of ethion 50 EC in/on capsicum	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**

13.3.3.15	Residues and persistence of lambda-cyhalothrin 5 EC in/on capsicum	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.16	Residues and persistence of imidacloprid 17.8 SL in/on capsicum	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.17	Residues and persistence of spiromesifen 22.9 SC in/on capsicum	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.18	Residues and persistence of acephate 75 SP in/on tomato	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.19	Residues and persistence of lambda-cyhalothrin 5 EC in/on cabbage	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.20	Residues and persistence of spiromesifen 22.9 SC in/on cabbage	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.21	Residues and persistence of imidacloprid 17.8 SL in/on cabbage	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.22	Residues and persistence of acephate 75 SP in/on bitter gourd	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.23	Residues and persistence of lambda-cyhalothrin 5 EC in/on bitter gourd	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.24	Residues and persistence of spiromesifen 22.9 SC in/on bitter gourd	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.25	Residues and persistence of lambda-cyhalothrin 5 EC in/on brinjal	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.26	Residues and persistence of spiromesifen 22.9 SC in/on okra	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.27	Residues and persistence of lambda-cyhalothrin 5 EC in/on okra	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
13.3.3.28	Residues and persistence of ethion 50 EC in/on chilli	**Approved** **(Action:** Residue Analyst, AINP on Pesticide Residues ICAR unit-9, AAU, Anand**)**
Bidi Tobacco Research Station, AAU, Anand		
13.3.3.29	Evaluation of spraying schedule of insecticides for the manageme the leaf eating caterpillar,	**Approved** **(Action:** Res. Sci., BTRS, AAU, ANAND**)**

	Spodoptera litura (F) in bidi tobacco nursery	
Main Vegetable Research Station, AAU, Anand		
13.3.3.30	Bio-efficacy of insecticides against South American tomato moth, *Tuta absoluta* (Meyrick)	**Approved** **(Action:** Asstt. Res. Sci.,(Ento.) MVRS, AAU, Anand, Res. Sci., BTRS, AAU, ANAND and Prin. Res. Sci., AICRP on Biological Control, AAU, Anand **)**
Regional Research Station, AAU, Anand		
13.3.3.31	Efficacy of seed treatment against sucking pests and root rot of desi cotton	**Approved with following suggestions** Mention formulation of biocontrol agent **(Action:** Asstt. Res. Sci.,(Ento.) RRS, AAU, Anand, Asso.Res. Sci., AAU, Arnej and Prof. & Head, Pl. Path., AAU, Anand**)**
13.3.3.32	Bio-efficacy of insecticides against pest complex in Green gram	**Approved** **(Action:** Asstt. Res. Sci.,(Ento.) RRS, AAU, Anand**)**
Sheth M. C. Polytechnic In Agriculture, AAU, Anand		
13.3.3.33	Integrated Pest Management of leaf miner, *Liriomyza trifolii* (Burgess) in cucumber	**Approved** 1.Specify farmer's practices to be adopted **(Action:** Asstt. Prof. (Ento.) Sheth M. C. Polytechnic in Agriculture, Anand**)**
College Of Agriculture And Polytechnic In Agriculture, AAU, Vaso		
13.3.3.34	Efficacy of seed treatment against sucking pests and root rot disease of Bt cotton	**Accepted with following suggestions** 1. Mention the formulation of biocontrol agent **(Action:** Asstt. Prof. (Ento.) College of Agriculture And Polytechnic In Agriculture, Vaso**)**
PLANT PATHOLOGY & NEMATOLOGY		
Department Of Plant Pathology, AAU, Anand		
13.3.3.35	Detection of seed borne nature of MYMV and BCMV of urd bean and mung bean	**Accepted with following suggestions** **1.** Mention different parts of the seed to be used for DNA/ RNA extraction in methodology for the confirmation of virus localization. **(Action:** Prof. & Head, Pl. Path., AAU, Anand **)**
13.3.3.36	Survey of viral diseases of pulse crops and characterization of viruses infecting urdbean, mungbean, mothbean, soybean, clusterbean and pigeon pea in Kheda, Vadodara, Panchmahals and Ahmedabad districts	**Approved** **(Action:** Prof. & Head, Pl. Path., BACA, AAU, Anand **)**
13.3.3.37	Effects of different substrates on the growth and yield of	**Approved**

	Oyster Mushroom.	**(Action:** Prof. & Head, Pl. Path., BACA, AAU, Anand **)**
13.3.3.38	Evaluation of efficient *T. asperellum* (Ta1 AAU isolate) against wilt and root rot in chickpea	**Accepted with following suggestions** 1. Mention full name of the bioagent in title **(Action:** Prof. & Head, Pl. Path., BACA, AAU, Anand **)**
13.3.3.39	Management of root rot caused by *Macrophomina phaseolina* in mungbean through seed treatment of *Trichoderma viride* and *Glomus intraradices*	**Accepted with following suggestions** 1. Blanket application of seed treatment using 2. *Macrophomina phaseolina* culture @ 50ml/ kg seed should be included. **(Action:** Prof. & Head, Pl. Path., BACA, AAU, Anand **)**
Bidi Tobacco Research Station, AAU, Anand		
13.3.3.40	Efficacy of different oils for the management of damping-off disease caused by *Pythium aphanidermatum* in bidi tobacco nursery	**Approved** **(Action:** Res. Sci., (Pl. Path.) BTRS, AAU, Anand**)**
College Of Horticulture, AAU, Anand		
13.3.3.41	Bio-efficacy of agrochemical against bacterials canker (*Xanthomonas axonopodis* pv. *citri*) in citrus.	**Accepted with following suggestions** 1. Treatments to be placed in tabular form 2. Mention the spraying period 3. Spray schedule as per recommended check 4. Add observation of disease intensity on branches 5. Correct the formulation of copper hydroxide 53.8 DF **(Action:** Asstt. Prof. (Pl. Path.) College Of Horticulture, AAU, Anand**)**
College Of Agriculture And Polytechnic In Agriculture, AAU, Vaso		
13.3.3.42	Effect of transplanting dates of rice and nitrogen levels on incidence of pests and diseases	**Approved** **(Action:** Asstt. Prof. (Pl. Path.) College of Agriculture and Polytechnic In Agriculture, Vaso**)**

JUNAGADH AGRICULTURE UNIVERSITY

AGRICULTURAL ENTOMOLOGY		
Department of Entomology, JAU, Junagadh		
13.3.3.43	Evaluation of new pheromone based mating disruption technology for pink bollworm in cotton.	**Approved with following suggestions** 1. Minimum 500 m isolation distance between plots is to be maintained 2. Use two sample t-test, instead of paired t-test

		(Action: Deptt. of Entomology, JAU,Junagadh**)**
13.3.3.44	Evaluation of new pheromone based mating disruption technology for fruit and shoot borer in brinjal.	**Approved with following suggestions** **1.** Use two sample t-test, instead of paired t-test **(Action:** Deptt. of Entomology, JAU,Junagadh**)**
13.3.3.45	Evaluation of new pheromone based mating disruption technology for fruit fly in mango.	**Approved with following suggestions** 1.Instead of sex pheromone, use methyl euginol 2.Install minimum 5 traps/ha 3. More than 1000 m isolation distance between plots is to be maintained **(Action:** Deptt. of Entomology, JAU,Junagadh**)**
Main Oilseed Research Station, JAU, Junagadh		
13.3.3.46	Management of root-feeders in groundnut (AICRP).	**Approved with following suggestions** 1.Add new seed treatment with chlorpyriphos 20EC@25ml/kg 2.Add new seed treatment with imidachlorprid 600FS@4ml/kg 3.Add new seed treatment with Clothianidin 50WDG@4g/kg 4.Add new soil drenching with Chlorpyriphos 20EC@20ml/10 lit of water **(Action:** Main Oilseed Research Station, JAU, Junagadh**)**
Cotton Research Station, JAU, Junagadh		
13.3.3.47	Evaluation of pheromone traps and lures against cotton pink bollworm through mass trapping (AICCIP).	**Approved** **(Action:** Cotton Research Station, JAU, Junagadh**)**
13.3.3.48	Evaluation of mating disruption pheromone for the cotton pink bollworm (AICCIP).	**Approved** **(Action:** Cotton Research Station, JAU, Junagadh**)**
13.3.3.49	Evaluation of egg parasitoid, *Trichogramma bactrae* through inundative release in cotton crop (AICCIP).	**Approved** **(Action:** Cotton Research Station, JAU, Junagadh**)**
Pulse Research Station, JAU, Junagadh		
13.3.3.50	Phenology based application of selective insecticides/ bio-pesticide combinations for *Spodoptera exigua* and *Helicoverpa armigera* in chickpea.	**Approved** **(Action:** Pulse Research Station, JAU, Junagadh**)**

13.3.3.51	Management of mung bean sucking pests in summer condition.	**Approved with following suggestions** 1. Mention period of sowing(week) instead of specific sowing dates 2. Replace Dimethoate with Flonicamid 50 WG@ 3 g/10lit of water in treatment T_2 &T_3 **(Action:** Pulse Research Station, JAU, Junagadh**)**
Wheat Research Station, JAU, Junagadh		
13.3.3.52	Survey and surveillance of stem borer (*Sesamia inferens*) in wheat crop around coastal belt of Porbandar and Gir Somnath districts.	**Approved with following suggestions** 1.Add Junagadh district as one more location for survey. 2.Include sample size and survey methods as random survey in methodology **(Action:** Wheat Research Station, JAU, Junagadh**)**
Department of Processing & Food Engg., CAET, JAU, Junagadh		
13.3.3.53	Testing of ozonization against storage insect pest of wheat.	**Approved with following suggestions** 1. Write FCRD as CRD with factorial concept as per suggestion of statistician 2. Observation on grain damage (pest wise) is to be recorded. 3. Sample size for pest population is to be mentioned **(Action:** Department of Processing & Food Engineering., CAET, JAU, Junagadh**)**
Main Pearl Millet Research Station, JAU, Jamnagar		
13.3.3.54	Testing of IPM modules with farmers practice against pest complex of pearl millet.	**Approved** **(Action:** Main Pearl Millet Research Station, JAU, Jamnagar**)**
Grassland Research Station, JAU, Dhari		
13.3.3.55	Management of pest complex in okra.	**Approved with following suggestions** 1. Concentration of *B. bassiana* @2×10^8 cfu/g is to be mentioned instead of 0.007% in treatment S_2 2. Observation of number of larvae/plant, instead of 'count' 3. Number of fruit damage/ plant observation 4. Ancillary observation of Bhendi yellow vein mosaic disease is to be recorded. **(Action:** Grassland Research Station, JAU, Dhari**)**
PLANT PATHOLOGY AND NEMATOLOGY		
Department of Plant Pathology, JAU, Junagadh		
13.3.3.56	Chemical control of early and late leaf spot and rust diseases of groundnut	**Approved with following suggestions** 1. Delete in note (a) Need based spray, 2. Mention first spray at 50 days after sowing

		3. Check the formulation and concentration of T4 treatment **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.57	Management of leaf spot of custard apple.	**Approved** **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.58	Management of root knot nematode (*Meloidogyne* sp.) of guava (Filler Trial)	**Approved with following suggestions** 1. Add new treatment Carbosulfan 25EC@ 1L a.i. /ha 2. Add another new treatment Carbosulfan 25EC@ 2L a.i. /ha 3. All treatments is to be applied thrice at the interval of 4 months. **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.59	Isolation and identification of agriculturally important soil microflora of Saurashtra.	**Approved with following suggestions** 1. Isolation and identification of different species of *Trichoderma,* Actinomycetes and *Pseudomonas* is to be done using selective media **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.60	Efficacy of bio-agents against wilt of pigeon pea (Filler/ pot trial).	**Approved** **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.61	Viability of SAWAJ-Trichoderma under different storage conditions in Nitrogen packing and commercial packing.	**Approved with following suggestions** 1. Specify the storage temperature at 10^0C 2. Remove " refrigerator" 3. Monthly observation of viability is to be taken continuously for 2years **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.62	Viability of SAWAJ-Brand Biofertilizers, Azotobacter, Rhizobium and PSM under different storage conditions in commercial packing	**Approved with following suggestions** 1. Remove the term " refrigerator". 2. Storage temp. 10^0 3. Cysts formation to be recorded **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.63	Isolation and testing of Potash mobilizing bacteria under *in vitro* and *in vivo* (pot).	**Approved with following suggestions** 1. Mention the random sample in methodology 2. Replace the term *in vitro* and *in vivo* ,write lab trial and field trial. **(Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
13.3.3.64	Isolation and testing of	**Approved with following suggestions**

	Sulphur oxidizing bacteria under *in vitro* and *in vivo* (pot).	1. Delete "Wheat " crop from observation. 2. Replace the term *in vitro* and *in vivo,*write lab trial and field trial. **Action:** Deptt. of Pl. Pathology, JAU, Junagadh)
Mai Oilseeds research Station, JAU, Junagadh		
13.3.3.65	Development of technologies for management of soil borne diseases of groundnut.	**Approved** **(Action:** Main Oilseeds Research Station, JAU, Junagadh**)**
13.3.3.66	Management of major foliar diseases of groundnut.	**Approved** **(Action:** Main Oilseeds Research Station, JAU, Junagadh**)**
13.3.3.67	Evaluation of different IPDM modules for management of major insect-pest and diseases in groundnut.	**Approved with following suggestions** 1.Replace IPM with IPDM in title **(Action:** Main Oilseeds Research Station, JAU, Junagadh**)**

NAVSARI AGRICULTURAL UNIVERSITY

AGRICULTURAL ENTOMOLOGY		
Dept. of Entomology, NMCA, NAU, Navsari		
13.3.3.68	Monitoring of resistance levels in *Tetranychus urticae* (Koch) on okra to fenazaquin and propargite	**Approved** **(Action:** Prof & Head, Dept. of Ento; NMCA, Navsari**)**
13.3.3.69	Evaluation of different substrates for mass culturing of *Beauveria bassiana*	**Approved** **(Action:** Prof & Head, Dept. of Ento; NMCA, Navsari**)**
13.3.3.70	Diversity of weevils (Coleoptera: Curculionidae) under South Gujarat	**Accepted with following suggestions** 1. Mention sampling size and adopt multistage random sampling technique. 2. Mention all 37 taluakas of 7 districts and 5 villages/ taluka in methodology **(Action:** Prof & Head, Dept. of Ento; NMCA, Navsari**)**
13.3.3.71	Effect of Pollination by Stingless bees on yield and quality of musk melon fruits.	**Not approved** because the data of earlier Ph.D. work is not presented. **(Action:** Prof & Head, Dept. of Ento; NMCA,Navsari**)**
13.3.3.72	Survey of beekeepers and identifying their problems in Gujarat	**Approved** **(Action:** Prof & Head, Dept. of Ento; NMCA,Navsari**)**

Food Quality Testing Laboratory, NAU, Navsari		
13.3.3.73	Status of pesticide residues in/on seasonal green leafy vegetables in South Gujarat	**Accepted with following suggestions** 1. Replace the word "market yards" with "vegetable market" 2. Five samples will be collected from each site. **(Action:** Asstt. Res. Scientist (Pesticide residue), FQTL, Navsari**)**
Main Sorghum Research Station, NAU, Surat		
13.3.3.74	Evaluation of different oils against sorghum shoot fly	**Accepted with following suggestions** 1.Remove treatment T10 (Naffatia 5%) **(Action:** Asstt. Res. Scientist (Ento), MSRS, Surat**)**
Agriculture Experimental Station, NAU, Paria		
13.3.3.75	Survey of mango stone weevil in south Gujarat	**Accepted with following suggestions** 1. Observation from the canning industries to be removed **(Action:** Asstt. Res. Scientist (Ento.)(NARP), AES, Paria**)**
Fruit Research Station, NAU, Gandevi		
13.3.3.76	Management of seed borer in sapota	**Approved** **(Action**: Asstt. Res. Scientist (Ento), FRS, Gandevi**)**
Krishi Vigyan Kendra, NAU, Navsari		
13.3.3.77	Survey and surveillance of different species of mango hoppers in Navsari district	**Approved** **(Action:** SMS (Plant Protection), KVK, Navsari**)**
Krishi Vigyan Kendra, NAU, Vyara		
13.3.3.78	Pesticides use pattern of Okra growers' in controlling insect-pests and diseases in Tapi district of south Gujarat	**Approved** **(Action:** SMS (Plant Protection), KVK, Vyara**)**
PLANT PATHOLOGY & NEMATOLOGY		
College of Agriculture, NAU, Bharuch		
13.3.3.79	Isolation, characterization and identification of *Rhizobium* spp. from the different varieties of Pigeon pea	**Approved** **(Action:** Asstt. Prof. (Pl. Path.), COA, Bharuch**)**
College of Agriculture, NAU, Waghai		
13.3.3.80	Biological management of chickpea wilt	**Accepted with following suggestions** 1. Formulation is to be mentioned 2. Use FYM @ 250 kg/ha in treatment No.T_2, T_3,T_5,T_6 3. Record inoculum load of biocontrol agent after harvest **(Action:** Asstt. Prof. (Pl. Path.), COA-Polytechnic, Waghai**)**

13.3.3.81	Biological management of foot rot in finger millet	**Accepted with following suggestions** 1. Formulation is to be mentioned 2. Use FYM @ 250kg/ha in treatment No. T_2, T_3,T_5,T_6 3. Record inoculum load of biocontrol agent after harvest **(Action:** Asstt. Prof. (Pl. Path.), COA-Polytechnic, Waghai**)**
Regional Rice Research Station, NAU, Vyara		
13.3.3.82	Management of rice seedling rot caused by *Sclerotium rolfsi*	**Accepted with following suggestions** 1. The observation of seedling mortality is to be recorded at 21DAS 2. Add inoculums of fungus before sowing **(Action:** Asstt. Res. Sci.(Pl. Path.), RRRS, Vyara**)**
13.3.3.83	Management of stem rot disease of groundnut under rice based cropping system	**Accepted with following suggestions** 1. Isolation and identification of *Sclerotium* species infecting groundnut seeds is to be done. **(Action:** Asstt. Res. Sci.(Pl. Path.), RRRS, Vyara**)**
Main Cotton Research Station,NAU, Surat		
13.3.3.84	Developing IDM modules for the management of cotton diseases (ACRIP)	**Approved** **(Action:** Asstt. Res. Sci.(Pl. Path.), MCRS, Surat**)**
Main Sorghum Research Station, NAU, Surat		
13.3.3.85	Isolation and variability study of different isolates of *Colletotrichum* causing anthracnose of sorghum under area of south Gujarat	**Approved** **(Action:** Asstt. Res. Sci.(Pl. Path.), MSRS, Surat**)**

SARDARKRUDHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

AGRICULTURAL ENTOMOLOGY		
Seed Spices Research Station, S.D.A.U., Jagudan		
13.3.3.86	Bio-efficacy of various molecules of insecticides against coriander aphid, *Hydaphis coriandri* (Das)	**Approved with following suggestions** 1. Additional observation to be recorded after 10 days 2. Ancillary observations of other sucking pests is to be recorded (if observed) 3. Observation of Predatory population is to be recorded. **(Action:** Assoc. Res. Scientist(Ento.)**)**
Agricultural Research Station, S. D. A.U., Ladol		
13.3.3.87	Eco-friendly management of fruit borer, *Helicoverpa armigera* infesting tomato	**Approved with following suggestions** 1. Remove treatment T_8(Spinosad 45 SC) 2. Remove pesticide residue analysis

		3. Mention formulation of *B. bassiana* and *Bt* powder; 4. Correct the unit (gm) to (g) 5. Observation of larval population before and after each spray to be recorded. 6. Remove "mean" form observation 7. Instead of 'per cent' use word 'total' **(Action**: Asstt. Res. Scientist (Ento.)**)**
Polytechnic in Agriculture, S. D. A.U. Khedbrahma		
13.3.3.88	Management of leaf miner, *Tuta absoluta* (Meyrick) in Tomato	**Approved with following suggestions** 1. Mention formulation of *B. bassiana* and *Bt* powder; 2. Correct the dose in T_1(as 3.0 ml), and T_2(3.0) and change the concentration accordingly. 3. Observation to be record on the number of mines on leaves. 4. Dissipation of pesticide residue is to be analysed at 0,1,3,5, 7, and 10 days after last spray 5.Correcet the formulation of Chlorantraniliprole as 20 SC and accordingly concentration as 0.006% **(Action:** Asstt.Professor (Ento.)**)**
KVK, S.D.A.U., Tharad		
13.3.3.89	Study the status of insect pests and diseases of pomegranate in mrig bahar	**Approved with following suggestions** 1. Specify the sampling method- multistage random sampling is to be adopted. 2. Observation is to be recorded on major sucking pests, i.e., aphids, thrips, whitefly and other predatory population 3. Revise disease rating scale and specify for each disease **(Action**: Scientist, Plant Protection**)**
Dept. of Entomology, C. P.C.A., S. D. A.U. SKNagar		
13.3.3.90	Management of lepidopterous pests infesting cabbage	**Approved with following suggestions** 1.Add treatment of HaNPV with recommended formulation 2. Add observations on *Helicoverpa* larvae **(Action:** Assistant Professor (Ento.)**)**
13.3.3.91	Evaluation of cow urine enriched botanicals against fruit fly infesting muskmelon	**Approved** **(Action**: Assoc. Professor (Ento.)**)**
PLANT PATHOLOGY AND NEMATOLOGY		
College of Horticulture, S. D. A.U.,Jagudan		
13.3.3.92	Management of chilli anthracnose/die-back or fruit rot by systemic acquired resistance	**Approved**

	activators	**(Action:** Assoc. Professor (Pl.Path.)**)**
Pulses Research Station, S. D. A.U., SKNagar		
13.3.3.93	Survey and identification of major nematodes in pulses in Banaskantha District.	**Approved with following suggestions** 1. Specify the sampling method- multistage random sampling is to be adopted. **(Action:** Asstt. Res. Scientist (Nematology)**)**
13.3.3.94	Screening of pigeonpea genotypes/germplasms against root knot nematode (*Meloidogyne incognita*) in pot.	**Approved** (**Action:** Asstt. Res. Scientist (Nematology)**)**
Wheat Research Station, S. D. A.U. Vijapur		
13.3.3.95	Morphological and pathological characterization of foliar blight pathogen(s) of wheat	**Approved with following suggestions** Record the name of variety, condition of cultivation(rainfed / irrigated) and time of sowing **(Action:** Asstt. Res. Scientist (Pl.Path.)**)**
Seed Spices Research Station, S. D. A.U., Jagudan		
13.3.3.96	Management of wilt and root rot in cumin	**Approved with following suggestions** 1. Mention formulation of biocontrol agents 2. Balnket application of seed treatment using carboxin +thiram **(Action**: Assoc. Res. Scientist (Pl.Path.)**)**
Arid Horticulture Research Station, S. D. A.U., SKNagar		
13.3.3.97	Management of collar rot and stem rot in groundnut through bio-agents.	**Approved with following suggestions** 1. Use formulation of *Trichoderma* $2x10^6$ cfu/g 2. In treatment number T5, Use Bijamrut 50ml/kg instead of 300ml/kg for seed treatment 3. Remove the term solid from treatments **(Action:** Asstt. Res. Scientist (Pl.Path.)**)**
Agricultural Research Station, S. D. A.U., Ladol		
13.3.3.98	Management of Anthracnose of chilli (*Capsicum annum* L.) through chemicals.	**Approved with following suggestions** 1. Dissipation of pesticide residue is to be analysed at 0,1,3,5, 7, and 10 days after last spray 2. Record the observation of disease intensity using standard rating scale, both on leaf as well as fruit. **(Action:** Asstt. Res. Scientist (Pl.Path.)**)**
Regional Research Station, S. D. A.U. ,Bhachau		
13.3.3.99	Survey and isolation of major diseases of pomegranate in kutch area	**Approved** **(Action:** Asstt. Res. Scientist (Pl.Path.)**)**
13.3.3.100	Survey and isolation of diseases in date palm (*Phoenix dactylifera* L.)	**Approved** **(Action:** Asstt. Res. Scientist (Pl.Path.)**)**

13.3.3.101	Integrated management approaches for *Apergillus flavus* in groundnut	**Approved with following suggestions** 1. Mention formulations of biocontrol agent. 2. Correct the dose of Gypsum after discussion with concerned Head of department of Agril. Chemistry/Agronomy 3. Delete 10 and 11 treatment 4. Germination percentage should be recorded 5. Per cent seed infection after one month of harvest should be recorded 6. Observation of yield of pod and haulm is to be recorded. **(Action**: Asstt. Res. Scientist (Pl.Path.)**)**
Dept. of Plant Pathology, C.P.C.A., S. D. A.U., SKNagar		
13.3.3.102	Exploring seasonal dynamics of *Trichoderma* spp. in semi arid ecosystem of North Gujarat	**Approved with following suggestions** 1.Methodology of isolation, identifying and morphological study is to be mentioned **(Action:** Asstt. Professor (Pl.Path.)**)**
13.3.3.103	Management of Mango malformation	**Approved with following suggestions** 1. Taken as filler trial with correct formulation 2. NAA@ 200 ppm is to be added as a new treatment. 3. Phytotoxicity data to be recorded, if appear. 4. Disease incidence is to be record on inflorescence 5. Mite observation is to be recorded. 6. Correct the design: CRD **(Action:** Asstt. Professor (Plant Breeding)**)**

General suggestions : <u>Plant Protection/Crop Protection group</u>

1. As per the Insecticide Act 1968, recommendations of pesticides to the farmers is issued by the Central Insecticide Board and Registration Committee (CIBRC) and SAUs can not recommend insecticides/ fungicides/ plant growth regulators/ herbicides/ biopesticides to the farmers. However, there are following short-comings with CIBRC recommendations which are required to be resolved at state/ central level.
   a). Many commercial crops of Gujarat have not been included in the list of CIB, which need immediate inclusion so as to benefit large number of farmers and researchers.
   b). In CIBRC recommendations, number of spray, stage of application and resistance management points are grossly ignored.
   c). Over the years, SAUs have evaluated number of pesticides on different crops for which CIBRC has no recommendations. Such recommendations can be submitted to the CIBRC for approval.
2. Year wise data of insect pest, diseases and nematode etc. of the recommendations need to be presented for more clarity of the treatments
3. Common format of the recommendation and new technical programmes are to be followed uniformly.
4. Mention formulations of bioagents
5. Price of commodity/pesticides and labour should be considered during last year of experiment.
6. Analysis of experimental data should be done in DNMRT test

7. Scientists conduct various experiments either in state plan schemes or AICRP. In Plant Protection discipline, there is an issue that findings of AICRP need not be considered as recommendations for farming community. Majority of the scientists are of the opinion that the AICRP experiments should be approved in respective sub-committee without addition / deletion of treatments, and the outcome / findings of AICRP trials should be considered as recommendations for the benefit of farming community.

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13.4. HORTICULTURE AND AGRO-FORESTRY

Technical Session-I: Recommendations for Farmers and Scientific Community

Chairman	Prof (Dr.) Ashok. A. Patel, Hon. Vice Chancellor, S. D. Agricultural University, Sardarkrushinagar
Co-Chairman	1. Dr. L. R. Varma, Principal and Dean, College of Horticulture S. D. Agricultural University, Jagudan 2. Dr. P. K. Kapadiya, Res. Sci., Agriculture Res. Station (FC), JAU, Mahuva
Rapporteurs	1. Dr. D. K. Varu, Associate Professor, Dept. of Horti., College of Agriculture, JAU, Junagadh
	2. Dr. PiyushVerma, Associate Professor, Dept. of Horti., C. P. College of Agri., S. D. Agri. University, Sardarkrushinagar
	3. Dr. YogeshPawar, Scientist, KrishiVigyan Kendra, S. D. Agri. University, Deesa

Technical Session-II: New Technical Programs

Chairman	Prof (Dr.) Ashok. A. Patel, Hon. Vice Chancellor, S. D. Agricultural University, Sardarkrushinagar
Co-Chairman	1. Dr. A. V. Barad, Principal and Dean, College of Agriculture, JAU, Junagadh 2. Dr. R. R. Sankhela, Research Scientist (Agroforestry), SDAU, Sardarkrushinagar
Rapporteurs	1. Dr. A. N. Patel, Res. Sci., NAU, Navsari
	2. Dr. M. J. Patel, Assoc. Prof., AAU, Anand
	3. Sh. Vishal R. Wankhade, Assistant Professor, CPCA, SDAU, Sardarkrushinagar

University	**RECOMMENDATION**					
	Proposed		**Accepted**		**Not approved**	
	For Farmers	**For Scientist**	**For Farmers**	**For Scientist**	**For Farmers**	**For Scientist**
AAU	04	00	04	00	00	00
JAU	08 +1*	01	06+1*	01	02	00
NAU (Horti)	14	03	08	03	06	00
NAU Forestry	04	02	04	02	00	00
SDAU	02	00	02	00	00	00
TOTAL	**32 + 1***	**06**	**24+1***	**06**	**08**	**00**

*Varietal proposal of GJP-1 which is covered under Crop Improvement sub-committee.

NEW TECHNICAL PROGRAMMES

University	**Proposed**	**Accepted**	**Not accepted**	**Remarks**
AAU	06	06	-	-

JAU	13	12	01	-
NAU (Horti)	31	29	02	-
NAU (Forestry)	21	21	-	-
SDAU	16	15	01	-
Total	**87**	**83**	**04**	-

13.4.1 RECOMMENDATION FOR FARMING COMMUNITY
ANAND AGRICULTURAL UNIVERSITY, ANAND

13.4.1.1	Effect of chemical fertilizers and organic manures in high density planting system on growth, yield and quality of banana cv. Grand Naine
	The farmers of middle Gujarat Agro climatic zone are interested to grow banana (*cv*. Grand Naine) are recommended to plant at 1.2 X 1.2 X 2.0 m paired row system to get higher yield and net return. To obtain consistent yield the organic manure as basal dose (10 kg FYM) and chemical fertilizers (300-100-200 g NPK per plant) should be given through drip in six equal splits at 90, 105, 120, 135, 150 and 165 days after planting. Apply irrigation through drip at alternate day @ 0.8 PEF (October to February 2 hours 30 minutes and March to June 5 hours) and system should be laid out with 2 drippers (4 lph capacity) for each plant. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં કેળ (ગ્રાંડ નેઇન) ની ખેતી માં રસ ધરાવતા કે કેળ ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે કેળની રોપણી ૧.૨ X ૧.૨ X ૨.૦ મીટર જોડીયા હાર પધ્ધતિથી કરવાથી વધું ઉત્પાદનઅને નફો મળે છે. એકધારુ ઉત્પાદન મેળવવા માટે છાણિયું ખાતર (૧૦ કિ.ગ્રા.) પાયામાં અને રાસાયણિક ખાતરને(૩૦૦-૧૦૦-૨૦૦ ગ્રા. નાફોપો/છોડ) ટપક પધ્ધતિ દ્વારા ૬ સરખા હપ્તામાં રોપણી પછી ૯૦, ૧૦૫, ૧૨૦, ૧૩૫, ૧૫૦ અને ૧૬૫ દિવસે આપવું.ટપક પધ્ધતિમાં પિયત એકાંતરે દિવસે ૦.૮ પીઇએફ (ઓક્ટોબર થી ફેબ્રુઆરી સુધી ૨ ક્લાક ૩૦ મિનિટ અને માર્ચ થી જૂન સુધી ૫ ક્લાક) અને ૨ (બે) ડ્રીપર (૪ લિટર/કલાક ક્ષમતા વાળા) પ્રતિ છોડ રાખી ચલાવવી. **Suggestions:** **1. Approved.** **(Action :** Professor & Head, Department of Horticulture, BACA, AAU, Anand)
13.4.1.2	Assessment of Natural Organic Liquid (NOL) and inorganic nutrient supply system on yield and quality of banana cv. Grand Naine
	The farmers of middle Gujarat Agro climatic zone are interested to grow banana (*cv*. Grand Naine) are advised to apply recommended dose of fertilizer (10 kg FYM and 300-100-200 g NPK per plant) and AAU PGPR (Plant Growth Promoting Rhizobacteria) bio NPK consortium @ 1 ml/plant near root zone after one month of planting. **OR** Recommended dose of fertilizer (10 kg FYM and 300-100-200 g NPK per plant) and AAU PGPR (Plant Growth Promoting Rhizobacteria) bio NPK

consortium @ 1 ml/plant after one month of planting along with drenching of NOL @ 500 l/ha near root zone of plant each at 30 and 45 days after planting for getting higher yield and net return.

NOL preparation

Materials required	**Quantity of materials required for soil application**
Water	500 lit
Cow dung	50 kg
Cow urine	25 lit
Jaggery / Molasses	5 kg
Butter milk	5 lit
Pulse flour	5 kg
Soil under banyan tree	2.5 kg
Period	7 days

- Mix the above materials in barrel or tank and keep it for 7 days
- The above mixture should be stirred two times daily

મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં કેળ (ગ્રાંડ નેઈન) ની ખેતીમાં રસ ધરાવતા કે કેળ ઉગાડતા ખેડૂતોને સલાહ આપવામાં આવે છે કે, કેળના પાકમાં વધુ ઉત્પાદન અને નફો મેળવવા માટે ભલામણ કરેલ ખાતર (૧૦ કિ.ગ્રા. છાણિયું ખાતર અને ૩૦૦-૧૦૦-૨૦૦ ગ્રા. નાફોપો/છોડ) તથા ૧ મિ.લિ./છોડ એએયુ પીજીપીઆર બાયો એનપીકે કન્સોર્ટિયમ રોપણી પછી એક મહિને છોડનાં મૂળ વિસ્તારની નજીક રેડવું.

અથવા

ભલામણ કરેલ ખાતર (૧૦ કિ.ગ્રા. છાણિયું ખાતર અને ૩૦૦-૧૦૦-૨૦૦ ગ્રા. નાફોપો/છોડ) તથા ૧ મિ.લિ./છોડ એએયુ પીજીપીઆર બાયો એનપીકે કન્સોર્ટિયમ રોપણી પછી એક મહિને છોડની નજીક રેડવું તથા રોપણી પછી ૩૦ અને ૪૫ દિવસે દરેક વખતે પ્રતિ હેકટરે ૫૦૦ લિટર કુદરતી પ્રવાહી સજીવ ખાતર છોડના મૂળ વિસ્તારની નજીક રેડવું.

કુદરતીપ્રવાહીસજીવખાતરબનાવવાનીપધ્ધતિ

સામગ્રી	**જમીનમાંઆપવાસામગ્રીનાજથ્થાનીજરૂરીયાત**
પાણી	૫૦૦લિ.
ગાયનુછાણ	૫૦કિ.ગ્રા.
ગાયનુમૂત્ર	૨૫લિ.
ગોળ/મોલાસીસ	૫કિ.ગ્રા.
છાસ	૫લિ.
કઠોળનોલોટ	૫કિ.ગ્રા.
વડનાઝાડનીચેનીમાટી	૨.૫કિ.ગ્રા.
સમય	૭દિવસ

	• સમગ્રસામગ્રીનેદર્શાવેલમાત્રામાંપીપઅથવાટાંકીમાં મિશ્રણ કરી૭ દિવસરાખીમૂકવુ • ઉપરોકતમિશ્રણનેદિવસમાંબેવારહલાવવું **Suggestions:** **1. Approved.** **(Action : Professor & Head, Department of Horticulture, BACA, AAU, Anand)**
13.4.1.3	Influence of different spacing and plant growth regulators on growth and flower yield of spider lily under middle Gujarat Agro-climatic conditions
	The farmers of middle Gujarat Agro climatic zone are recommended to grow spider lily at spacing of 60 x 60 cm with recommended dose of fertilizer (20 t FYM, 300 + 200 + 200 kg NPK/ha) and 2 spray of gibberellic acid @ 200 mg/liter of water for getting higher yield and net return. Apply spray of gibberellic acid at 45 and 60 days after planting of bulbs in first year and from second year onwards, spray at 45 and 60 days after cutting of leaves. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને ભલામણ કરવામાં આવે છે કે સ્પાઈડર લીલીને ૬૦ x ૬૦ સે.મી.ના અંતરે વાવેતર કરી ભલામણ પ્રમાણે ખાતર (૨૦ ટન છાણિયું ખાતર, ૩૦૦ – ૨૦૦ - ૨૦૦ કિ. ગ્રા. નાફ્રોપો/હેક્ટર) અને જીબ્રેલીક એસીડને બે વખત ૨૦૦ મિ.ગ્રા./લિટર પાણીમાં ઓગળી છંટકાવ કરવાથી વધુ ઉત્પાદન અને નફ્રો મેળવી શકાય છે. જેમાં પ્રથમ વર્ષે જીબ્રેલીક એસીડનો છંટકાવ લીલીના કંદના વાવેતર પછી ૪૫ અને ૬૦ દિવસે કરવો તથા બીજા વર્ષથી છંટકાવ લીલીના પાનની કાપણી કર્યા પછી ૪૫ અને ૬૦ દિવસે છંટકાવ કરવો. **Suggestions:** **1. Approved.** (**Action :** Professor &OSD, Horticulture College, AAU, Anand)
13.4.1.4	Evaluation of the possibility of inter-cropping system with banana cultivation in tribal area of Chhotaudepur region of middle Gujarat
	The farmers of middle Gujarat Agro climatic zone are recommended to grow banana (*cv*. Grand Naine) at 1.8 × 1.8 m spacing and adopt intercropping with cauliflower or cabbage (30 × 30 cm) at the row ratio of 1:4 to get the additional yield and income without affecting the yield of banana. મધ્ય ગુજરાત ખેત આબોહવાકીય વિસ્તારમાં કેળ (જાતગ્રાન્ડ નેઇન) ૧.૮ x ૧.૮ મીટર અંતરે ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે આંતરપાક તરીકે કોલીફ્લાવર અથવા કોબીજ (૩૦ x ૩૦ સેમી) ૧:૪ હારના પ્રમાણમાં લેવાથી કેળના ઉત્પાદનને અસર કર્યા સિવાય વધારાનું ઉત્પાદન અને આવક મેળવી શકાય છે. **Suggestions:** **1. Approved.** (**Action :** Assistant Research Scientist, ARS, AAU, Jabugam)

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

13.4.1.5	**Proposal for release of papaya variety: Gujarat Junagadh Papaya-1 (GJP-1)**
	The farmers of Suarashtra region growing papaya are advised to grow papaya variety Gujarat Junagadh Papaya-1 (GJP-1). This variety recorded mean fruit yield 33.81 kg/plant (84.52 t/ha) which was 59.10% higher than the check variety Pusa Dwarf (21.25kg/pl., 53.13 t/ha). The variety GJP-1 is early in flowering with more number of fruits per plant. The fruits are medium in size with pyriform shape and attractive green colour. The fruit possess higher pulp-seed & pulp-peel ratio, higher pulp content, more sugar and good organoleptic characters as compared to Pusa Dwarf. સૌરાષ્ટ્ર વિસ્તારમાં પપૈયાની ખેતી કરતા ખેડુતોને પપૈયાની ગુજરાત જુનાગઢ પપૈયા-૧ (જી.જે.પી.-૧) જાતની રોપણી કરવાની ભલામણ કરવામાં આવે છે. આ જાતનું સરેરાશ ઉત્પાદન ૩૩.૮૧ કી. ગ્રા./છોડ (૮૪.૫૨ ટન/હે.) મળેલ છે. જે પુસા ડવાર્ફ જાતનાં ઉત્પાદન (૨૧.૨૫ કી.ગ્રા./છોડ, ૫૩.૧૩ ટન/હે.) કરતાં ૫૯.૧૦% વધારે માલુમ પડેલ છે. આ જાતનાં ફળો મધ્યમ કદનાં, લંબગોળ, આકર્ષક તથા લીલા રંગના છે. ફળોમાં માવાનું પ્રમાણ વધુ, માવો કેશરી કલરનો, પોચો અને મીઠો છે. આ ઉપરાંત તેના ફળોમાં માવા-બીજ અને માવા-છાલનો ગુણોત્તર વધારે છે. **Suggestions:** 1. It was for the information to the house and final approval will be given in crop improvement sub-committee. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
13.4.1.6	**Varietal evaluation of strawberry under polyhouse**
	Farmers of South Saurashtra Agro Climate Zone, interested in strawberry cultivation, are advised to grow cv. Winter Queen under protected structure (Fan-pad Cooling Poly House) for getting higher yield and net return. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના, સ્ટ્રોબેરીની ખેતીમાં રસ ધરાવતા ખેડૂતોને સલાહ આપવામાં આવે છે કે ભભવિન્ટર કવીનભભ જાતને ૨૧ાિત આવરણમાં (ફેન-પેડથી ઠંડા રહેતા પોલી હાઉસમાં) વાવવાથી વધુ ઉત્પાદન અને આર્થિક વળતર મેળવી શકાય છે. **Suggestions:** 1. **Approved.** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
13.4.1.7	**Standardization of drying and packing method for dry ber**
	Fruit processors are advised to dry the ber in solar dryer for 8 hours (50±1°C) and packed in lining polyethene bag for storage up to 6 months with good quality. ફળોની બનાવટોના ઉત્પાદકોને ભલામણ કરવામાં આવે છે કે, બોરને સોલાર ડ્રાયરમાં ૮ કલાક (૫૦+૧૦સે.) સુધી સુકવી લાઈન પોલીથીન કોથળીમાં પેક કરી છ માસ સુધી સંગ્રહ કરવાથી સારી ગુણવત્તા જળવાઈ રહે છે. **Approved with following suggestions:** 1. Mention the sample size for initial weight and 2. Add parameters of microbial count and moisture percent.

	3. Extend for one year. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
13.4.1.8	**Effect of PGR, nutrients and pruning on growth flowering, yield and fruit quality of mango cv. Kesar**
	Farmers of Saurashtra region growing mango cv. Kesar are advised to apply two foliar spray of sea weed extract @ 500 ml/10 liter of water once immediately after harvesting and second in August for getting higher yield, quality and net return. સૌરાષ્ટ્ર વિસ્તારના આંબાની કેસર જાતની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે આંબામાં દરીયાઈ સેવાળનું દ્રાવણ ૧૦ લીટર પાણીમાં ૫૦૦ મીલી મુજબ ઓગાળી વર્ષમાં બે વખત એટલે કે પ્રથમ છંટકાવ ફળોની કાપણી બાદ તુરંત તેમજ બીજો છંટકાવ ઓગષ્ટ મહીનામાં કરવાથી ગુણવતા સભર વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Suggestions:** 1. Not approved. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
13.4.1.9	**Evaluation of small to medium sized varieties of Mango**
	Farmers of Saurashtra region are interested to growsmall to medium sized mango (150 to 250g) are advised to grow variety Kesar and as alternate of Kesar variety, hybrid variety Amrapalifor better yield from thirteen years old tree. Both varieties possess medium sized fruits with attractive colour, flavor, aroma and good taste. આથી સૌરાષ્ટ્ર વિસ્તારમાં આંબાની નાના થી મધ્યમ કદના ફળો (૧૫૦ થી ૨૫૦ ગ્રામ) ધરાવતી જાતોમાં કેસર જાતની અને કેસરના વિકલ્પ રૂપે આમ્રપાલી હાઈબ્રીડ જાતના તેર વર્ષના ઝાડમાંથી વધુ ઉત્પાદન માટે વાવેતર કરવાની ભલામણ કરવામાં આવે છે. આ બંને જાતના ફળો મધ્યમ કદના, આકર્ષક રંગના, સારી સોડમ, સ્વાદ અને સુગંધ ધરાવે છે. **Suggestions:** 1. **Approved.** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
13.4.1.10	**Evaluation of medium to large sized varieties of Mango**
	Farmers of Saurashtra region are interested to growmedium to large sized mango (250 to 500g) varieties are advised to grow mango hybrid Sonpari or variety Rajapuri for getting higher yield. The variety possess good quality with attractive and large sized fruits. આથી સૌરાષ્ટ્ર વિસ્તારનામધ્યમથી મોટા કદના ફળો (૨૫૦ થી ૫૦૦ ગ્રામ) ધરાવતા આંબાનું વાવેતર કરતા ખેડૂતોને તેર વર્ષના ઝાડ માંથી વધારે ઉત્પાદન મેળવવા આંબાની સોનપરી હાઈબ્રીડ અથવા રાજાપુરી જાતની રોપણી કરવાની ભલામણ કરવામાં આવે છે. આ જાતના ફળો મોટા કદના, આકર્ષક રંગ અને ઉત્તમ ગુણવત્તા ધરાવે છે.

	Suggestions: 1. **Approved.** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)
13.4.1.11	**Performance of leafy vegetables purpose coriander under different shed net in summer season**
	The farmers of Saurashtra region are interested to growcoriander for leaf purpose in summer season are advised to use 75% white shed net in low cost shed net house for securing higher yield and net return. આથી સૌરાષ્ટ્ર વિસ્તારમાં ઉનાળાની ઋતુમાં લીલા ધાણાં ઉગાડવા માં રસ ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે લો-કોસ્ટ શેડ નેટ હાઉસમાં ૭૫% સફેદ શેડ નેટનો ઉપયોગ કરવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Suggestions:** 1. **Approved.** **(Action: Res.** Sci., ARS (F.C.), JAU, Mahuva**)**
13.4.1.12	**Performance of leafy vegetables purpose fenugreek under different shed net in summer season**
	The farmers of Saurashtra region are interested to leafgreen purpose fenugreek in summer season are advised to use 75% white shed net in low cost shed net house for securing higher yield and net return. આથીસૌરાષ્ટ્ર વિસ્તારમાં ઉનાળાની ઋતુમાં લીલી મેથી ઉગાડવા માં રસ ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે લો-કોસ્ટ શેડ નેટ હાઉસમાં ૭૫% સફેદ શેડ નેટનો ઉપયોગ કરવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે. **Suggestions:** 1. **Approved.** **(Action: Res.** Sci., ARS (F.C.), JAU, Mahuva**)**
13.4.1.13	**Integrated nutrient management in mango cv. Jamadar**
	The farmers of South Saurashtra Agro climatic zone are interested to growmango cv. Jamadar are follow the fertlizers to apply as per following schedule for securing higher yield and net return.

Age of tree (Year)	Poultry manure (kg/plant)	N (g/plant)	P (g/plant)	K (g/plant)
4th year	20	160	64	232
5th year	25	200	80	290
6th year	30	240	96	348
7th year	35	280	112	406

આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં આંબાની જમાદાર જાત ઉગાડવા માં રસ ધરાવતાખેડુતો નીચે મુજબ ભલામણ કરેલ ખાતરનો જથ્થો આપવાથી વધારે ઉત્પાદન અને ચોખ્ખો નફો મળે છે.

ઝાડની ઉમર (વર્ષ)	મરઘાનુ ખાતર (કી.ગ્રા.)	નાઈટ્રોજન (ગ્રામ)	ફોસ્ફરસ (ગ્રામ)	પોટાશ (ગ્રામ)
૪	૨૦	૧૬૦	૬૪	૨૩૨
૫	૨૫	૨૦૦	૮૦	૨૯૦
૬	૩૦	૨૪૦	૯૬	૩૪૮
૭	૩૫	૨૮૦	૧૧૨	૪૦૬

Suggestions:

1. **Approved.**

(Action: Res.Sci., ARS (F.C.), JAU, Mahuva**)**

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13.4.1.14	Effect of time and dose of fertilizer application on yield and quality of sapota cv. Kallipati
	The sapota growers are advised to apply recommended dose of fertilizer *i.e.* 1000:500:500 NPK g/tree in three split doses of 50% in June (500:250: 250 NPK g/tree), 25% in October (250:125: 125 NPK g/tree) and 25% in February (250:125: 125 NPK g/tree) to get maximum yield with better quality fruits during winter season. ચીકુની ખેતી કરતા ખેડૂતોને ભલામણ કરેલ ખાતર (૧૦૦૦-૫૦૦-૫૦૦) ગ્રામ/ઝાડ ના ૫૦ ટકા જુન માસ દરમ્યાન (૫૦૦-૨૫૦-૨૫૦ ના.ફો.પો. ગ્રામ/ઝાડ), ૨૫ ટકા ઓક્ટોબર માસ દરમ્યાન (૨૫૦-૧૨૫-૧૨૫ ના.ફો.પો. ગ્રામ/ઝાડ)અને ૨૫ ટકા ફેબ્રુઆરી માસ દરમ્યાન (૨૫૦-૧૨૫-૧૨૫ ના.ફો.પો. ગ્રામ/ઝાડ)આપવાથી શિયાળુ ઋતુમાં સારી ગુણવત્તા સાથે વધુ ઉત્પાદન મેળવી શકાય છે. **Approved with following suggestions:** **1. Treat the experiment as multi location trial (Navsari and Gandevi) and present the data next year.** **2. Statistically compare the season wise results.** **3. Deferred for one year.** **(Action :** Associate Prof., RHRS, ACHF, NAU, Navsari **)**
13.4.1.15	**Effect of time of fertilizer application on yield and quality of sapota cv. Kalipatti**
	The Farmers of south Gujarat heavy rainfall zone-I having a sapota orchard with adult trees of cv. Kalipatti are recommended to apply 100 percent recommended dose of fertilizers @ 1000-500-500g NPK/tree/year in three splits i.e. 250-125-125g NPK in June, again 250-125-125g NPK in October and 500-250-250g NPK in February instead of two equal split i.e. in June and October. This gives higher fruit yield of sapota with higher income in winter season in comparison of summer season. This also gives higher fruit yield and income during the whole year with higher net profit. FYM @ 100kg/tree/year should be apply in June. દક્ષિણ ગુજરાતના ભારે વરસાદ વાળા વિસ્તાર(ઝોન-૧)માં ચીકુની કાલીપત્તી જાતના પુખ્તવયના ઝાડોની વાડી ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ચીકુના ઝાડને

	રાસાયણિક ખાતર હાલની ભલામણ મુજબ ૧૦૦૦-૫૦૦-૫૦૦ ગ્રામ ના.ફો.પો.પ્રતિ ઝાડ બે સરખા હપ્તામાં જૂન અને ઑક્ટોબર માસમાં આપવાને બદલે ત્રણ હપ્તામાં ૨૫૦-૧૨૫-૧૨૫ ગ્રામના.ફો.પો.જૂન માસમાં, ફરીથી ૨૫૦-૧૨૫-૧૨૫ગ્રામ ના.ફો.પો. ઑક્ટોબર માસમાં અને ૫૦૦-૨૫૦-૨૫૦ગ્રામ ના.ફો.પો. ફેબ્રુઆરી માસમાં પ્રતિઝાડ મુજબ આપવાથી શિયાળાની ઋતુમાં ઉનાળાની ઋતુની સરખામણીમાં વધુ ઉત્પાદન સહિત વધુ નફોમળે છે. ઝાડ દીઠ છાણીયું ખાતર ૧૦૦કિ.ગ્રા. પ્રતિઝાડ મુજબ જૂન માસમાં આપવું. **Approved with following suggestions:** **1. Differed for one year.** **2. It will be clupped with Recommendation no.1 as MLT.** **(Action : FRS, Gandevi, NAU, Navsari)**
13.4.1.16	**Effect of chemicals on fruiting behavior, yield and quality of mango cv. Kesar.**
	The farmers of South Gujarat (Zone II) having the Kesar mango orchards are advised to apply the KNO_3, 1.0 % as foliar spray twice during FBD (Flowering Bud Development) to FB (Full Bloom) stage in the month of November and December to get better yield and quality. દક્ષિણ ગુજરાત (ઝોન-૨)ના ખેડૂતો ને કેસર આંબામાં સારી ગુણવત્તા સાથે વધુ ઉત્પાદન મેળવવા માટે છદફધનું ૧.૦% નું દ્રાવણ બે વખત ફૂલ કલિકાવિકાસથી પુર્ણ ફૂલની અવસ્થાએ નવેમ્બર અને ડિસેમ્બર માસમાં છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **Suggestions:** **1. Not approved.** **(Action : Head, Dept. of Horticulture, COA-Bharauch)**
13.4.1.17	**Effect of rhizome size on growth and yield of turmeric cv. GNT-1.**
	The farmers of south Gujarat heavy rainfall zone are advised to plant mother rhizome pieces (10-15 g) of turmeric cv. GNT-1 in pro tray and transplant it after one month in field with minimum quantity of seed rhizomes. દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તાર માં હળદર (જાત જી.એન.ટી.૧) વાવતા ખેડૂતો ને ભલામણ કરવામાં આવે છે કે હળદરની માતૃગાંઠ ના ટુકડા (૧૦-૧૫ ગ્રામ) પ્રો-ટ્રેમાં ઉછેરી ૧ મહિના બાદ ફેરરોપણી કરવા થી ઓછા બિયારણનાજથ્થાસાથે વધારે ચોખ્ખી આવક મેળવી શકે છે. **Suggestions:** **1. Approved.** **(Action : Head, Dept. of Vegetable Science, ACHF , Navsari)**
13.4.1.18	**Standardization of fertigation and methods of training in capsicum under naturally ventilated polyhouse.**
	Farmers cultivating capsicum in naturally ventilated polyhouse (1000 m^2 area) are advised to fertigate the crop with 25: 25: 25 kg NPK (as per the Table given below) along with application of 0.5 kg*Trichodermaviride*, Phosphorous

Solubilizing Bacteria (*Bacillus megaterium*), Azotobactor, *Pseudomonas fluorescens*each, 0.4 t vermicompost and 5.0 kg micro-nutrients (Grade-5) at the time of planting and train plants to four shoot system for higher net returns.

Crop Duration	**Distribution pattern /ratio of fertilizers**			**Remarks**
	N (kg)	**P (kg)**	**K (kg)**	
1st Growth Period (Up to 30 days)	7.15	8.32	2.50	• Fertigation should be started after 10-15 days of planting. • Fertigation should be carried out once a week. • The source of nitrogen during flowering period should preferably be Calcium Nitrate.
2nd Growth Period (31-60 days)	3.57	5.56	5.00	
3rd Growth Period (61-90 days)	3.57	2.78	7.50	
4th Growth Period (91-120 days)	3.57	2.78	5.00	
5th Growth Period (121-150 days)	3.57	2.78	2.50	
6th Growth Period (151-180 days)	3.57	2.78	2.50	
Total	**25.00**	**25.00**	**25.00**	

નેચરલી વેન્ટીલેટેડ પોલી હાઉસમાં કેપ્સીકમ મરચાની રક્ષિત ખેતી સાથે સંકળાયેલ ખેડૂતોને ૧૦૦૦ ચો. મી.ના પોલીહાઉસમાંથી વધુ આવક મેળવવા માટે પાકને ફર્ટીગેશન અંતર્ગત ૨૫-૨૫-૨૫ કિ.ગ્રા. ના.ફો.પો. ની સાથે ટ્રાઇકોડર્મા વિરીડી, ફોસ્ફોરસ સોલ્યુબીલાઇઝીંગ બેક્ટેરીયા (બેસિલસ મેગાટેરીયમ), અઝેટોબેક્ટર અને સ્યુડોમોનાસ ફ્લુરોસેન્સ દરેક ૦.૫ કિ.ગ્રા. તથા ૦.૪ ટન વર્મીકમ્પોસ્ટ અને ૫.૦ કિ.ગ્રા. સૂક્ષ્મ તત્વ (ગ્રેડ-૫) પ્રમાણે છોડની રોપણી સમયે આપવાની અને છોડને ચાર ડાળી ઉપર કેળવણી કરવાની ભલામણ કરવામાં આવે છે.

પાકનો સમય ગાળો	**ખાતર વિભાજિત કરવાનો ગુણોતર**			**નોંધ**
	નાઈટ્રોજન (કિ.ગ્રા.)	**ફોસ્ફોરસ (કિ.ગ્રા.)**	**પોટાશીયમ (કિ.ગ્રા.)**	
પ્રથમ વિકાસ તબક્કો (પ્રથમ ૩૦ દિવસ)	૭.૧૫	૮.૩૨	૨.૫૦	• ફર્ટીગેશનની શરૂઆત રોપણી બાદ ૧૦-૧૫ દિવસ પછી કરવી. • અઠવાડિયામાં એકવાર ફર્ટીગેશન આપવું . • ફૂલના સમયગાળા દરમિયાન નાઈટ્રોજનની પૂરતી કેલ્શિયમ નાઈટ્રેટ ખાતરના સ્ત્રોત થી કરવો .
દ્વિતીય વિકાસ તબક્કો (૩૧ થી ૬૦ દિવસ)	૩.૫૭	૫.૫૬	૫.૦૦	
તૃતીય વિકાસ તબક્કો (૬૧ થી ૯૦ દિવસ)	૩.૫૭	૨.૭૮	૭.૫૦	
ચોથો વિકાસ તબક્કો (૯૧ થી ૧૨૦ દિવસ)	૩.૫૭	૨.૭૮	૫.૦૦	

	પાંચમો વિકાસ તબક્કો (૧૨૧ થી ૧૫૦ દિવસ)	૩.૫૭	૨.૭૮	૨.૫૦	
	છઠો વિકાસ તબક્કો (૧૫૧ થી ૧૮૦ દિવસ)	૩.૫૭	૨.૭૮	૨.૫૦	
	કુલ	૨૫.૦૦	૨૫.૦૦	૨૫.૦૦	

Suggestions:

1. Approved.

(Action : Head, Dept. of Vegetable Science, ACHF , Navsari)

13.4.1.19	**Effect of de-leafing and foliar nutrient application for offseason flowering in spider lily (*Hymenocallislittoralis*).**
	Farmers of south Gujarat heavy rainfall zone I growing spider lily are advised to cut the leaves in 1st week of May and subsequently apply 13-0-45 (NPK) @ 1.5 % (15g/l) through foliar application as first spray when plant attain 30-45 cm height after de-leafing and second spray 15 days after first foliar application along with recommended dose of fertilizers (300:225:200 kg NPK/ha) for getting higher production of flower buds as well net realization. દક્ષિણ ગુજરાત ના ભારે વરસાદી ઝોન -૧ માં સ્પાઈડર લીલીની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, સ્પાઈડર લીલીના પાનને મે માસના પ્રથમ અઠવાડીયામાં નીચેથી કાપણી કર્યા બાદ જયારે છોડ ૩૦ થી ૪૫ સેમી. ઉંચાઈનો થાય ત્યારે ૧.૫ % (૧૫ ગ્રામ/૧ લિટર) મુજબ ૧૩:૦:૪૫ (ના ફો પો)નો પ્રથમ છંટકાવ કરી ૧૫ દિવસ બાદ ઉપરોકત ખાતરનો બીજો છંટકાવ કરી ભલામણ કરેલ ખાતર (૩૦૦: ૨૨૫: ૨૦૦ ના.ફો.પો. કિગ્રા/હેકટર) આપવાથી વધુ કળીઓનું ઉત્પાદન મેળવી શકાય છે. **Suggestions:** **1. Approved.** **(Action : Head, Dept. of Floriculture & Landscape Architecture, ACHF, Navsari)**
13.4.1.20	**Exploration and evaluation of local weed flora for value addition through drying**
	People interested in cottage industry based on dry ornamentals are being advised to dry *Argyreiaspeciosa for* 7 days, *Celosia argentea*and *Setariaverticillata*for 5 days, *Cyperusrotundus*and *Dinebra arabica* for 4 days and *Eragrostispilosa*for 3 days through press drying method at room temperature for dry ornamentals. સુકા ફૂલોના કુટીર ઉદ્યોગમાં રુચિ ધરાવતી વ્યકિતઓને ભલામણ કરવામાંઆવે છે કે ઉચ્ચ ગુણવત્તા મેળવવા અને લાંબા સમય સંગ્રહ કરવા માટે સમુફ શોષ ને ૭ દિવસ, લાંપડું અને બોદરી ઘાસ ને ૫ દિવસ, ચીઢો અને ખારીયું ને ૪ દિવસ અને ભૂમસી ને ૩ દિવસ માટે પ્રેસ ડ્રાઈંગ પધ્ધતિ દ્વારા સુકવણી કરી સુકા ફૂલોની ગોઠવણીમાં ઉપયોગ કરી શકાય છે. **Suggestions:** **1. Approved in Horticulture & Agroforestry sub-committee but not approved in Engg. & Food Processing Sub-committee meeting.**

	(Action : Head, Dept. of Floriculture& Landscape Architecture, ACHF, Navsari)
13.4.1.21	Standardization of drying technique in Rose var. Top secret, Gold Strike and Rewine
	People interested in cottage industry based on dry flowers are advised to dry roses of variety Top Secret and Gold Strike using silica gel (60-120 mesh size) embedding method (850 g silica for 10 flowers) either with Microwave Oven (900 Watts, 30 L capacity, 1 day –drying time) or under room condition (7 days-drying time) to obtain good quality dry flowers having storage life of about 120 days. **Procedure of Drying** (Microwave Oven Silica gel Embedding Method) ▶ Embedding in Silica (850 grams/10 flowers)-glass bowl ▶ Microwave Oven (900 Watt, 30 liter capacity) ▶ 2 mins on microwave oven/1 hour cooling (Outside)- 3 times repeat ▶ 18 hours cooling followed by 1 time repeat ▶ Taking out of dry flowers સુકા ફૂલોના લઘુ ઉદ્યોગમાં રુચિ ધરાવતી વ્યકિતઓને ભલામણ કરવામાં આવે છે કે ફૂલોની સુકવણી માટે ગુલાબની ટોપ સિક્રેટ અને ગોલ્ડ સ્ટ્રાઈક જાતોને સિલિકા જેલ ૮૬૦-૧૨૦ mesh size)વડે આચ્છાદિત કરી (૮૫૦ ગ્રામ સિલિકા/૧૦ ફુલ) માઈક્રોવેવ ઓવનમાં (૧ દિવસ, ૯૦૦ વોટ/૩૦ લિટર કેપેસીટી) અથવા ઓરડામાં (૭ દિવસ) સુકવણી કરવાથી સારી ગુણવત્તાવાળા સુકા ફૂલો મેળવી શકાય, જેની જાળવણી ૧૨૦ દિવસ સુધી કરી શકાય છે. સુકવણીની પધ્ધતિ (માઈક્રોવેવ ઓવનમાં સિલિકા જેલ વડે અચ્છાદિત કરવાની રીત): ૧. એક ગ્લાસ બાઉલમાં ફૂલોને સિલિકા જેલ(૮૫૦ ગ્રામ/૧૦ ફૂલ) માં અચ્છાદિત કરવા. ૨. માઈક્રોવેવ ઓવન(૯૦૦ વોટ/૩૦ લિટર કેપેસીટી)માં મુકવું. ૩. ૨ મિનિટ માટે માઈક્રોવેવ ઓવન ચાલુ કરવું અને ત્યાર બાદ ૧ કલાક માટે બાઉલને બહાર કાઢી ઠંડુ થવા દેવું. - (આ પ્રક્રિયાનું ૩ વાર પુનરાવર્તન કરવું.) ૪. ૧૮ કલાક માટે બાઉલને ઠંડુ રહેવા દેવું અને ત્યારબાદ એક વાર ફરીથી પ્રક્રિયા નં-૩નું પુનરાવર્તન કરવું. ૫. કાચના બાઉલમાંથી સાચવીને સુકા ફૂલોને કાઢી લેવા. **Suggestions:** **1. Approved.** **(Action : Head, Dept. of Floriculture& Landscape Architecture, ACHF, Navsari)**
13.4.1.22	**Development of technology for dehydration of onions rings for adoption at commercial scale**
	Processors and entrepreneurs are recommended to dehydrate red onions rings by pre-treating onion rings with combination of 2000 ppm potassium meta-bisulphite (KMS) and 500 ppm citric acid for 15 minutes followed by dehydration at 75ºC for 2 hours, 70ºC for 2 hours, 65ºC for 1 hour and 60ºC for 8 hours till a final moisture content of 4.8%. Dehydrated red onion rings packed in 400 gauge

	HDPE bags remain microbiologically safe for 6 months with better quality attributes. આથી પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે લાલ ડુંગળીની સુકવણી કરવા માટે ડુંગળીની રિંગ્સને ૨૦૦૦ પીપીએમ પોટેશિયમ મેટાબાઈસલ્ફાઈટઅને ૫૦૦ પીપીએમ સાઇટ્રિક એસિડના મિશ્રણમાં ૧૫ મિનિટ પુર્વ માવજત બાદ ૭૫૦ સે તાપમાન પર ૨ કલાક, ૭૦૦ સે પર ૨ કલાક, ૬૫૦ સે પર ૧ કલાક અને ૬૦૦ સે પર ૮ કલાક અંતીમ ભેજ ૪.૮ % સુધી સુકવવી. સુકવેલ લાલ ડુંગળી રિંગ્સને ૪૦૦ ગેજ એચ. ડી. પી. ઈ. થેલીમાં પેક કરી ૬ મહિના સુધી જીવાણુ રહીતસારી ગુણવત્તા સાથે સંગ્રહ કરી શકાય છે. **Suggestions:** **1. Approved.** **(Action : Head, Dept. of PHT, ACHF, NAU-Navsari)**
13.4.1.23	**Development of technology for dehydration of okra slices for adoption at commercial scale**
	Processors and entrepreneurs are recommended to dehydrate okra slices by pre-treating okra slices with combination of 1500 ppm KMS and citric acid @ 500 ppm for 15 minutes followed by dehydration at 75 for 2 hours and 65°C for 10 hours till a final moisture content of 5.2%. Dehydrated okra slices packed in 400 gauge HDPE bags remain microbiologically safe for 6 months with better quality attributes. આથી પ્રોસેસરો અને ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે ભીંડાના ટૂકડાની સુકવણી કરવા માટ ેભીંડાના ટૂકડાને ૧૫૦૦ પીપીએમ પોટેશિયમ મેટાબાઈસલ્ફાઈટ (છોક) અને ૫૦૦ પીપીએમ સાઇટ્રિક એસિડના મિશ્રણમાં ૧૫ મિનિટ પૂર્વ માવજત બાદ ૭૫૦ સે તાપમાન પર ૨ કલાક અને ૬૫૦ સે પર ૧૦ કલાક અંતીમ ભેજ ૫.૨ % સુધી સુકવવી.સુકવેલ ભીંડાના ટુકડાને ૪૦૦ ગેજ એચ. ડી. પી એઈ. થેલીમાં પેક કરી સામાન્ય તાપમાન પર ૬મહિના સુધી જીવાણુ રહીતસારી ગુણવત્તા સાથે સંગ્રહ કરી શકાય છે. **Suggestions:** **1. Approved.** **(Action : Head, Dept. of PHT, ACHF, NAU-Navsari)**
13.4.1.24	**Development of technology for dehydration of cauliflower for adoption at commercial scale**
	Processors and entrepreneurs are recommended to dehydrate cauliflower cut segments by pre-treating cauliflower cut segments with combination of 1500 ppm KMS and 1000 ppm citric acid for 15 minutes. After pre-treatment, the cauliflower cut segments must be dehydrated at 75°C for 2 hours, 70°C for 2 hours, 65°C for 1 hour and 60°C for 7 hours till a final moisture content of 4.9%. The dehydrated cauliflower cut segments packed in 400 gauge HDPE bags remain microbiologically safe for 6 months with better quality attributes.

	આથી પ્રોસેસરો અને ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે કૂલકોબીના ટુકડાને ૧૫૦૦ પીપીએમ પોટેશિયમ મેટાબાઈસલ્ફાઈટ (છોક) અને ૧૦૦૦ પીપીએમ સાઇટ્રિક એસિડના મિશ્રણમાં ૧૫મિનિટ પૂર્વ માવજત આપવી. પુર્વ માવજત આપ્યા બાદ ૭૫° સે પર ૨ કલાક, ૭૦૦ સે પર ૨ કલાક, ૬૫° સે પર ૧ કલાક અને ૬૦° સે પર ૭ કલાક અંતીમ ભેજ ૪.૯ % સુધી સુકવવા.સુકવેલકૂલકોબીના ટુકડાને ૪૦૦ ગેજ એચ. ડી. પી એઈ. થેલીમાં પેક કરી સામાન્ય તાપમાન પર ૬ મહિના સુધી જીવાણુ રહીત સારી ગુણવત્તા સાથે સંગ્રહ કરી શકાય છે. **Suggestions:** **1. Approved.** **(Action : Head, Dept. of PHT, ACHF, NAU-Navsari)**
13.4.1.25	**Effect of hot water dip treatment on the eradication of fruit fly, ripening and quality of mango for export purpose (cvs. Kesar and Alphonso).**
	Exporters are recommended to give hot water treatment at 50°C for 20 min to eradicate fruit fly infestation in Kesar and Alphonso mango to maintain the export quality fruits. નિકાસકારોને આથી ભલામણ કરવામાં આવે છે કેકેસર અને હાફૂસ જાતની કેરીને ૫૦° સે૨૦ મિનીટ સુધી ગરમ પાણીની માવજત આપવાથી ફળમાખીનુ સંક્રમણ નાબુદકરીનિકાસલક્ષી ગુણવત્તા મેળવી શકાય છે. **Suggestions:** **1.Approved.** **(Action : Head, Dept. of PHT, ACHF, NAU-Navsari)**
13.4.1.26	**Varietal screening of cashew apple for preparation of RTS and Jam.**
	Cashew growers and entrepreneurs of Gujarat state are recommended to use cv. Vengurla-4 for preparation of cashew apple ready to serve (RTS) drink and jam which can be stored at ambient temperature up to 90 days. (The recipe and methodology for processing of RTS standardize by Thrissur, Madakkathara (Kerala) centre of AICRP- Cashew,with some required minor changes has been followed.) ગુજરાત રાજ્ય ના કાજુ ની ખેતી કરતા ખેડૂતો તેમજ વ્યાવસાયીક ઉદ્યોગકારો માટે ભલામણ કરવામાં આવેછે કે કાજુ જાત વેન્ગુર્લા-૪ના ફળમાંથી બનાવવામાં આવતા કાજુ ફળના રેડીટુસર્વ(આર.ટી.એસ.) પીણા અને જામ ને ઓરડાના તાપમાને ૯૦ દિવસ સુધી સંગ્રહી શકાયછે. (એ.આઇ.સી.આર.પી.-કાજુનાથીસુર,મડાક્કાથરા(કેરળ) કેન્દ્ર દ્વારા વિકસીત રેસીપી તેમજ પધ્ધતી, જરૂરી થોડા ફેરફાર સાથે અનુસરવામાં આવી.) **Suggestions:** **1. Approved in Horticultre& Agroforestry sub-committee but not approved in Engg. & Food Processing Sub-committee meeting.** **(Action : Res. Scientist (Horti), AES (NAU), Paria)**

13.4.1.27	**Preparation and standardized technique of guava (*Psidiumguajava* L.) and papaya (*Carica papaya* L.) blended RTS.**
	It is recommended to processors and entrepreneurs to blend guava and papaya pulp at 75:25 ratio for preparation of RTS. Use 15% blended pulp with maintaining 15 ^{0}Brix TSS and 0.30% acidity for preparation of blended guava-papaya RTS. After mixing of ingredients RTS, pasteurize RTS at 96±1^{o}C and packed in glass bottles followed by processing (96±1^{o}C) for 30 minutes. The RTS can be stored satisfactorily for 180 day at ambient temperature. આથી પ્રોસેસરો અને ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે જામફળ અને પપૈયાના રસને ૭૫:૨૫ પ્રમાણમાં મિશ્ર કરી આર.ટી.એસ.(ચતક) બનાવી શકાય છે. જામફળ પપૈયાના મિશ્ર આર.ટી.એસ.(ચતક) ૧૫% મિશ્ર રસ લઈ ૧૫^{o} બ્રિક્ષ ટી.એસ.એસ. અને ૦.૩% એસીડીટી જાળવવાં. આર.ટી.એસ.(ચતક) બનાવવા માટે ઘટકોનેમિશ્ર કરી, જીવાણું મુક્ત ૯૬+૧ :સે કરી, કાચની બોટલમાં ભરી, ૩૦ મિનીટ માટે પ્રશંસ્કરીકૃત(૯૬+૧:સે) કરવું. આ આર.ટી.એસ. ને ૧૮૦ દિવસ સુધી સામાન્ય તાપમાને સંતોષકારક રીતે સંગ્રહ કરી શકાય છે. **Suggestions:** **1. Approved in Horticultre& Agroforestry sub-committee but deferred in Engg. & Food Processing Sub-committee meeting for 1 year with following suggestions.** **2. Add microbial count.** **3. Take the nutritional parameters (b-carotene).** **(Action : Head, Dept. of Horticulture, COA, Bharuch)**
13.4.1.28	**Sustainable Bark Harvesting Techniques in Arjunsadad (*Terminaliaarjuna*)**
	The farmers of South Gujarat heavy rainfall zone-1 harvesting *Terminalia arjuna* (ArjunSadad) bark commercially for medicinal purpose are recommended to make incision of 10 cm (h) x 5 cm (w) size in trees having more than 100 cm GBH (Girth at breast height) for higher and sustainable bark yield. દક્ષિણ ગુજરાતના ભારે વરસાદીય વિસ્તારવાળા ઝોન -૧ ના અર્જુન સાદડની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ૧૦૦ સેમીના કે તેથી વધારે ઘેરાવા વાળા ટર્મીનાલીઆ અર્જુના (અર્જુન સાદડ) ના વૃ૧ાની છાલને ૧૦ સેમી ઉચાઈ × ૫ સેમી પહોળાઈ નો કાપ મૂકી છાલની લણણી કરવામાં આવે તો છાલનું વધુ અને સતત ઉત્પાદન મળે છે. **Suggestions:** **1. Approved.** **(Action : Assoc. Prof., Dept. SAF, CoF., ACHF, NAU, Navsari)**
13.4.1.29	**Evaluation of Eucalyptus Clones for growth and physiological characters**
	Farmers of south Gujarat heavy rainfall zone-1 are recommended to harvest Eucalyptus (Nilgiri) clone G 283 (at 2 X 2 m spacing) after four years for better biomass production or pulp wood. દક્ષિણ ગુજરાત ભારે વરસાદ ઝોન-૧ માં નીલગીરીની ખેતી કરનારા ખેડૂતો માટે ભલામણ કરવામાં આવે છે કે વધુ બાયોમાસ અથવા પલ્પ વુડ ઉત્પાદન માટે કલોન જી

	૨૮૩ ને ૨ × ૨ મી. અંતરે ઉછેરી ચાર વર્ષે કાપણી કરવી જોઈએ. **Suggestions:** **1. Approved.** **(Action:Asstt.Prof. Tree Improvement)COF, ACHF, NAU, Navsari)**
13.4.1.30	**Evaluation of carbon sequestration potential of different bamboo species in South Gujarat**
	The farmers of South Gujarat heavy rainfall zone-I are advised to grow plantation of *Bambusa vulgaris* (green) for higher biomass and carbon sequestration. The thin walled and long internode bamboo species *Schizostachympergracile* and *Schizostachymdullooa* are recommended for kite industry. દક્ષિણગુજરાતનીભારેવરસાદવાળાવિસ્તારઝોન–૧મા વાંસની ખેતી કરતાં ખેડૂતો માટે ભલામણ કરવામાં આવેછે કે ગ્રીન બામ્બુ(બામ્બુ સાવુલગારીસ) જાત વધારે વજન અને કાર્બન સંગ્રહ માટે વાવેતર કરીશકાય. પતંગ વ્યવસાય માટે પાતળા અને બે ગાંઠ વચ્ચે લાંબા અંતર હોઈ એવી વાંસની જાતો શીઝોસ્ટીક્મ પરગ્રસાઈલ અને શીઝોસ્ટીક્મ ડુલૂઆ નું વાવેતર કરવાની ભલામણ છે. **Suggestions:** **1.Approved.** **(Action: Asstt. Prof. (Agroforestry), COF, ACHF, NAU, Navsari)**
13.4.1.31	**Potential and prospects of Minor Forest Products in the Dang of South Gujarat**
	The tribal of the Dang of south Gujarat heavy rainfall zone-I are recommended to do collection and marketing of Minor Forest Produces like Mahuda flower, Karamda, Puvad seed, Kadayo gum, Safedmusli, Honey and Bamboo in community groups for getting remunerative price. દક્ષિણ ગુજરાત ભારે વરસાદીય ઝોન-૧ ના ડાંગ વિસ્તારનાઆદિવાસીઓને ભલામણ કરવામાં આવે છે કે ગૌણ વન પેદાશો જેવી કે મહુડા ફુલ, કરમદા, પુવાડ બીજ, કડાયો ગુંદર, સફેદ મુશળી, મધ અને વાંસને એકત્રીકરણ અને જુથમાં વેચાણ કરી વધુ લાભપ્રદ ભાવો મેળવી શકે છે. **Suggestions:** **1. Approved.** **(Action: Asstt. Prof. (FPU), COF, ACHF, NAU, Navsari)**

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

13.4.1.32	**Influences of integrated use of organic and inorganic sources of nutrients on growth, yield and quality of garden pea (*Pisum sativum* L.) cv. Bonneville.**
	Farmers of North Gujarat Agroclimatic zone IV interested to grow vegetable pea are recommended to apply well rotten poultry manure @ 1063 kg/ha (2.35 % N content) with full dose of Phosphorus (70 kg/ha) and potash (50 kg/ha) as basal dose and biofertilizer, *Rhizobium* and PSB should be applied as

	soil application @ 1.25 l/ha and seed treatment 20 ml/ kg seed each to obtain the maximum yield and net return of green pod of vegetable pea. ઉત્તર ગુજરાત ખેતહવામાન વિસ્તાર-૪ના શાકભાજી ઉગાડવામાં રસ ધરાવતા ખેડૂતો ને ભલામણ કરવામાં આવેછે કે, પાયાના ખાતર તરીકે ૧૦૬૩ કિ.ગ્રામ/હેં. સારૂં કોહવાયલુ મરઘાનું ખાતર (૨.૩૫ % નાઇટ્રોજન), ફોસ્ફરસ (૭૦કિ.ગ્રામ/હેં) અનેપોટાશ (૫૦કિ.ગ્રામ/હેં) તેમજ રાઈઝોબીયમ અનેપી.એસ.બી. જૈવિકખાતરો જમીનમાં ૧.૨૫ લિ./હેંપ્રમાણમાં અને બીજ ને માવજત ૨૦મી.લી/ કિ.ગ્રામ બીજ પ્રમાણે આપવાથી શાકભાજી ની વટાણાની લીલીશીગનુ વધુ ઉત્પાદન અને ચોખ્ખુ વળતર મેળવી શકાય છે. **Suggestions:** **1. Approved.** **(Action:Head, Dept. of Horti. CPCA, SDAU, Sardarkrushinagar**)
13.4.1.33	**Organic farming in Aonla.**
	The farmers of North Gujarat Agro-climatic Zone IV are interested to grow rainfed organic aonla are advised that the recommended dose of chemical fertilizers (1000:500:500 NPK g/tree) can be replaced by Farm Yard Manure (200 kg FYM/tree) as an organic source for getting higher fruit production and net return. Application of FYM also improves the soil fertility of light textured soil. ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તાર-૪ માં બિન પિયત સેન્દ્રિયઆમળાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ભલામણ કરેલ રાસાયણીક ખાતર (૧૦૦૦:૫૦૦:૫૦૦ ના. ફો. પો. ગ્રામ પ્રતિ વૃ૧ા) ની જગ્યાએ છાણીયું ખાતર (૨૦૦ કિગ્રા છાણીયું ખાતર પ્રતિ વૃક્ષ) સેન્દ્રિયસ્ત્રોત તરીકે આપવાથી ફળનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મળે છે. છાણીયું ખાતર આપવાથી હલકી પ્રત વાળી જમીનની ફળદ્રુપતા પણ વધે છે. **Suggestions:** **1. Approved.** **(Action:Res. Scientist, Agroforestry Res. Station, SDAU, Sardarkrushinagar)**

13.4.2. RECOMMENDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY: NIL

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

13.4.2. 1	**Information for the Scientific Community:**
	It is informed to scientific community that the climatic parameters like temperature, humidity, rainfall, bright sun shine hours and wind velocity influenced the flowering, fruit setting, fruit dropping, number of fruit per plant and fruit yield. Higher day temperature with lower night temperature as well as more fluctuation in day & night temperature disturb the flowering, pollination and fruit setting process. Similarly, higher humidity, dew, late rain or off seasonal rain during flowering also affects adversely. Mango requires 25-30 ^{0}C day temperature & 15-

	18 ^{0}C night temperature, 40-45% humidity, no dew formation, lower late rain (September), higher sun shine hours (8-9 hrs.) during floral bud initiation, flowering and fruit setting. **Suggestions:** 1. **Approved.** **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

13.4.2. 2	Seasonal influence on nutritional and physiological changes associated with flowering and fruiting behaviour in mango
	The nutrient contents viz. nitrogen, potassium, calcium, magnesium, manganese, iron and zinc in leaves of mango cultivar 'Kesar' and 'Alphonso' were higher during the months of October to January, thereafter the nutrient contents started to decrease and were recorded lower during the months of April to July. Photosynthetic rate and internal CO_2 content of leaves of cultivar 'Kesar' and 'Alphonso' increased significantly during the months of November to March and declined during the months of August–September. Correlation analysis indicated that nitrogen, potassium, calcium, magnesium, sulphur, manganese, photosynthetic rate and internal CO_2 content of leaves of cultivar 'Kesar' and 'Alphonso' have significant negative correlation with minimum temperature and maximum relative humidity. **Suggestions:** **1.Approved.** **(Action : Head, Dept. of Fruit Science, ACHF, NAU, Navsari)**
13.4.2. 3	**Evaluation of parthenocarpic cultivars of cucumber under protected conditions for yield and other horticultural traits.**
	Greenhouse cucumber cultivars Oscar and Valleystar were identified as the highest yielders recording more than 12 tonnes per 1000 m^{2}under naturally ventilated polyhouse, which were at par in performance with cvs. RS 03602833, Kian and Multistar. Minor differences in yield of these cultivars in general and variation in seed cost of cultivars in particular other than various variables components of cost contributed towards higher net returns in Oscar. Evaluation of cucumber cultivars for various sensory parameters by heterogeneous panel of evaluators revealed highest overall score in cv. Multistar statistically at par with KUK-9 and 52-23. **Suggestions:** **1.Approved.** **2.To be discussed in plenary session, weather the variety of private sector can be taken or not.** **(Action : Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)**
13.4.2. 4	**Evaluation of tomato cultivars under NVPH for yield and other horticultural traits.**
	Cultivar Bargad was identified as significantly highest yielder producing 14.90 tonnes per 1000 m^2 with maximum net realizationin naturally ventilated polyhouse. Higher number of fruits per plant and minimum occurrence of blossom end rot were observed as major contributing traits towards yield. Cv. Rakshita possessed maximum TSS whereas cv. Heemsohna showed higher ascorbic acid,

	lycopene and pH. **Suggestions:** **1. Approved.** **2. To be discussed in plenary session, weather the variety of private sector can be taken or not.** **(Action : Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)**
3.4.2. 5	**Sustainable Bark Harvesting Techniques in Terminaliaarjuna**
	Terminalia arjuna (ArjunSadad) tree having more than 100 cm GBH (Girth at Breast Height) produced higher bark yield in terms of biomass and more bark recovery. No significant effect of different height (1m, 2m and 3m from the tree) on bark biomass was recorded. Anatomical study showed that wounded (healed) bark of trees produced higher proportion of fibres and biomass than fresh bark. **Suggestions:** **1. Approved.** **(Action : Assoc. Prof., Dept. SAF, CoF., ACHF, NAU, Navsari)**
3.4.2. 6	**Evaluation of Meliacomposita (Cav.) families for germination traits and growth variation at nursery stage**
	As per the germination percentage, rate of germination and seedling vigour index, family no. 24, 76, 195, 259, 267 and 270 performed better than other tested families of Melia composita Cav. (Malabar Neem) under nursery condition. It is further informed to scientific community to test these species in field condition and improved families may be selected for future breeding and tree improvement. **Suggestions:** **1. Approved.** **(Action: Astt.Prof. Dept. of FBTI, CoF, ACHF., Navsari)**

S.D. AGRICULTURAL UNIVERSITY: NIL

13.4.3. NEW TECHNICAL PROGRAMME

ANAD AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title /centre	Suggestions	Remarks
13.4.3.1	Standardization of method and time of propagation in guava cv. Allahabad Safeda (Centre:Anand)	Accepted with following suggestions **1. Treatment combination-12** **A. Method of propagation** i. soft wood grafting ii. semi hard wood cutting **B Time of propagation** i.Last week of February ii.Last week of March iii. First week of May iv. First week of June v. First week of July vi. First week of August	

		2.Statistical design should be factorial completely randomized block design (FCRD) with method-2 level and time -6 level (Action: Professor & Head, Department of Horticulture, BACA, AAU, Anand)	
13.4.3.2	Evaluation of vegetable crops during different season under different shade net condition (Centre:Anand)	Accepted as such. (Action: OSD & Professor, College of Horticulture, AAU, Anand)	
13.4.3.3	Nutrient requirement of banana based on Soil Test Crop Response Correlation (Centre:Jabugam)	Accepted as such. (Action **Assistant Professor** (Soil Sci.), College of Agriculture, AAU, Jabugam)	
13.4.3.4	Effect of bunch feeding on yield of banana cultivation (cv. Grand Naine) of Tribal area of Chhotaudepur Region of middle Gujarat (Centre:Jabugam)	Accepted with following suggestions 1. Remove treatment 2 (2,4-D). (Action: Assistant Research Scientist, ARS AAU, Jabugam)	
13.4.3.5	Evaluation of the possibility of pulse based inter-cropping system with banana cultivation in tribal area following drip irrigation system (Centre:Jabugam)	Accepted with following suggestions 1. Include net plot size. (Action: Assistant Research Scientist, ARS, AAU, Jabugam)	
13.4.3.6	Nitrogen management in tomato (*Lycopersiconesculentum* L.) under drip irrigation system in *goradu* soil of middle Gujarat conditions (Centre:Thasra)	Accepted with following suggestions 1. Statistical design should be split plot design (Action: Associate Research Scientist, ARSIC, AAU, Thasra)	

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title/Centre	Suggestions	Remarks
13.4.3.7	Effect of biostimulants and micronutrients on growth, flower yield and quality of tuberose (*Polianthes tuberose* L.) cv. Prajwal	Accepted as such. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)	
13.4.3.8	Effect of time and intensity of pruning on yield of *Jasminumsambac* L. cv. Baramasi double	Accept with following suggestions 1. Mention net and gross plot size. **(Action:** Professor and Head Dept. of Horticulture,JAU,Junagadh)	
13.4.3.9	Effect of drip fertigation on high density mango orchard cv. Kesar under Saurashtra region	Accept with following suggestions 1. Include observation of collar girth at 15 cm. 2. Remove observation of plant spread (E-W) & (N-S) . **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)	
13.4.3.10	Effect of fertigation on growth, flowering and yield in papaya cv. "GJP-1"	Accept with following suggestions 1. Change the title as “Effect of potassium and biofertilizers applied through fertigation on growth, yield in papaya cv. GJP-1” 2.Mention RDF & No. of plant per treatment. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)	
13.4.3.11	Standardization of severity of pruning and crop load on yield and quality in pomegranate (*Punicagranatum* L.) cv. Bhagwa	Accept with following suggestions 1. Specify pruning time. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)	
13.4.3.12	Effect of de-leafing and graded multi micronutrients on growth, flowering and flower yield of spider lily (*Hymenocallislittoralis* L.) cv. Local	Accept with following suggestions 1. Specify time of spray. 2.Remove observations: No.	

		of leaves, width & length of leaves, leaf area per plant, fresh and dry weight, shelf life. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)	
13.4.3.13	Feasibility of intercropping in coconut under Saurashtra region	Accepted as such. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh)	
13.4.3.14	Evaluation of cucumber varieties under net house and poly house conditions	Accept with following suggestions 1. If possible use public sector variety. 2. Design should be FCRD & mention time of TP. 3. Remove observations: no. secondary branches, total no. of leaves, leaf area/plant, sex ratio. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh	
13.4.3.15	Effect of drip fertigation on yield and quality of jamun	Accept with following suggestions 1. Remove word 'drip' from title. 2. Start fertigation at flowering & interval should be 10 days. 3. Take 2 plants per treatment. **(Action:** Professor and Head, Dept. of Horticulture, JAU, Junagadh	
13.4.3.16	Preparation and storage studies of jamun juice	Not accepted.	
13.4.3.17	Performance of different varieties of pomegranate (*Punicagranatum* L.) in coastal region	Accept with following suggestions 1. Remove the variety 'Sinduhri'. 2. Increase replication up to 6. **(Action:** Research Scientist, ARS (FC), JAU, Mahuva)	

13.4.3.18	Effect of nitrogen levels on growth, yield and quality of different Pineapple varieties	Accepted as such. **(Action:** Research Scientist, ARS (FC), JAU, Mahuva)	
13.4.3.19	Evaluation of coconut (*Cocosnucifera* L.) genotype	Accept with following suggestions 1. Varieties should be grouped in tall & dwarf. 2. Follow design –RBD & replication--3 3. Write spacing-7.5 x 7.5 m **(Action:** Research Scientist, ARS (FC), JAU, Mahuva)	

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title /centre	Suggestions	Remarks
13.4.3.20	Effect of heading back and pruning on growth and yield of high density planting orchard of mango cv. Kesar. (Centre:Dept. of Fruit Science, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of Fruit Science, ACHF, NAU, Navsari)	
13.4.3.21	Effect of heading back and pruning on growth and yield in sapota cv. Kalipatti planted at normal distance. (Centre: Dept. of Fruit Science, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of Fruit Science, ACHF, NAU, Navsari)	
13.4.3.22	Effect of heading back and pruning on growth and yield in sapota cv. Kalipatti planted at high density plantation. (Centre: Dept. of Fruit Science, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of Fruit Science, ACHF, NAU, Navsari)	
13.4.3.23	Effect of different foliar application of organics on management of mango malformation	**Not approved** (Action: Head, Dept. of Fruit Science, ACHF, NAU, Navsari)	

	(Centre: Dept. of Fruit Science, ACHF, NAU, Navsari)		
13.4.3.24	Evaluation of the field performance of the macro-propagated plants of banana (Centre: Fruit Research Station- Gandevi, NAU, Navsari)	**Accepted as such** (Action: Res. Sci., Fruit Research Station- Gandevi, NAU, Navsari)	
13.4.3.25	Alleviation of soil moisture deficit stress in banana (Centre: Fruit Research Station- Gandevi, NAU, Navsari)	**Accepted as such** (Action: Res. Sci., Fruit Research Station- Gandevi, NAU, Navsari)	
13.4.3.26	Net house cultivation of papaya (Centre: Fruit Research Station- Gandevi, NAU, Navsari)	**Accepted as such** (Action:Res. Sci., Fruit Research Station- Gandevi, NAU, Navsari)	
13.4.3.27	Evaluation of new hybrids of sapota (Centre: Fruit Research Station- Gandevi, NAU, Navsari)	**Accepted as such** (Action:Res. Sci., Fruit Research Station- Gandevi, NAU, Navsari)	
13.4.3.28	Effect of different cultivation practices of yield and quality of banana pseudostem sap (Centre: Soil and water management Research Unit, ACHF, NAU, Navsari)	Accepted with following suggestions 1. Include parameter- Yield of banana 2. Conduct as filler trial. (Action:Res. Sci., Soil and water management Research Unit, ACHF, NAU, Navsari)	
13.4.3.29	Development of new formulations for adding insecticidal properties in banana pseudostem sap (Centre: Soil and water management Research Unit, ACHF, NAU, Navsari)	Accepted with following suggestions 1. Keep design CRD with 5 replications. (Action: Res. Sci., Soil and water management Research Unit, ACHF,	

		NAU, Navsari)	
13.4.3.30	Effect of foliar application of fertilizers on flowering, yield and quality of cashew (*Anacardiumoccidentale*L.) cv. Vengurla-4 (Centre: Agri. Expt. Sation-Paria, NAU, Navsari)	**Accepted as such** (Action: Res. Sci., Agri. Expt. Sation-Paria, NAU, Navsari)	
13.4.3.31	Effect of different colour shade net on germination and seedling growth of papaya (*Carica papaya*) var. Red Lady (Centre: Dept. of Horticulture, NMCA, NAU, Navsari	Accepted with following suggestions 1. Replace variety Red Lady with GJP-1 and recast the title and objective accordingly. (Action: Head, Dept. of Horticulture, NMCA, NAU, Navsari)	
13.4.3.32	Effect of organic liquid fertilizers on growth, yield and quality of organically grown mango cv. Kesar (Centre: Horticulture Polytechnic, NAU, Navsari)	Accepted with following suggestions 1. Recast the title as "Effect of organic liquid fertilizers on growth, yield and quality of mango cv. Kesar under organic farming. (Action: Principal, Horticulture Polytechnic, NAU, Navsari)	
13.4.3.33	Response of Greater Yam (*Dioscorea alata* L.) to Different Growing Conditions. (Centre: Dept. of Vegetable Science, ACHF, NAU, Navsari)	Accepted with following suggestions 1. Change variety to- V_1 -Local round V_2 -Local long (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.34	Effect of media for storage of spine gourd tubers (Centre: Dept. of Vegetable Science, ACHF, NAU, Navsari)	Accepted with following suggestions 1. In observations add sprouting percentage instead of survival percentage. (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.35	Standardization of fertilizer dose for Drumstick (*Moringa spp.*) var. PKM-1 (Centre: Dept. of Vegetable Science, ACHF, NAU,	Accepted with following suggestions 1. Recast treatment as follows- N-50, 75, 100 g/plant P-50, 75 g/plant	

	Navsari)	K- 50, 75 g/plant 2. Take RBD with factorial concept 3. Nitrogen will applied in 4 splits at 30 days interval after pruning. (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.36	Artificial oscillation for increasing fruit set and performance of tomato in polyhouse under South Gujarat conditions (Centre: Dept. of Vegetable Science, ACHF, NAU, Navsari)	Accepted with following suggestions 1. Add “summer season” in title & objective also. (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.37	Effect of different sources of nutrients and fertigation levels on yield and other horticultural traits in tomato under protected culture. (Centre: Dept. of Vegetable Science, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.38	Parthenocarpic fruit development through various PGRs in musk melon under protected conditions. (Centre: Dept. of Vegetable Science, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.39	Effect of different light sources on growth and quality of microgreens. (Centre: Dept. of Vegetable Science, ACHF, NAU, Navsari)	Accepted with following suggestions 1. Mention time of planting. (Action: Head, Dept. of Vegetable Science, ACHF, NAU, Navsari)	
13.4.3.40	Validation of organic farming technology in elephant foot yam. (Centre: AICRP-Tuber crops, Dept. of Vegetable Science, ACHF, NAU, Navsari)	**Accepted as such** (Action: Res. Sci., AICRP-Tuber crops, Dept. of Vegetable Science, ACHF, NAU, Navsari)	

13.4.3.41	Effect of land configuration and nutrient management on growth and yield of brinjal*(Solanummelongna*L.) Cv. Gujarat NavsariBrinjal - 1 (Centre: Horticulture Polytechnic, Navsari, NAU, Navsari)	Accepted with following suggestions 1. Take 4 replication instead of 3. 2. N level should be- 125 % of RDF, 100 % of RDF, 75 % of RDF (Action: Principal, Horticulture Polytechnic, Navsari, NAU, Navsari)	
13.4.3.42	Effect of different growing media and foliar application of Nitrogen on Spinach (Centre: Dept. of Floriculture(BH-12401), ACHF, NAU, Navsari)	Accepted with following suggestions 1. Add the following note: apply NPK 19:19:19 (250 mg/lit. water) @1 lit./tray at 10 days interval. (Action: Head, Dept. of Floriculture, ACHF, NAU, Navsari)	
13.4.3.43	Effect of different growing media and foliar application of Nitrogen on fenugreek (Centre: Dept. of Floriculture(BH-12401), ACHF, NAU, Navsari)	Accepted with following suggestions 1. Add the following note: apply NPK 19:19:19 (150 mg/lit. water) @1 lit./tray at 10 days interval. (Action: Head, Dept. of Floriculture, ACHF, NAU, Navsari)	
13.4.3.44	Effect of different growing media on green garlic (Centre: Dept. of Floriculture(BH-12401), ACHF, NAU, Navsari)	Accepted with following suggestions 1. Add the following note: apply NPK 19:19:19 (250 mg/lit. water) @1 lit./tray at 10 days interval. (Action: Head, Dept. of Floriculture, ACHF, NAU, Navsari)	
13.4.3.45	Integrated weed management in African marigold (*Tageteserecta* L.) var. PusaNarangiGenda (Centre: Dept. of Floriculture, ACHF, NAU, Navsari)	Accepted with following suggestions 1.Add observation- bioassay (Action: Head, Dept. of Floriculture, ACHF, NAU, Navsari)	
13.4.3.46	Effect of different growing media on Haworthia pot plant (Centre: Dept. of Floriculture, ACHF, NAU,	Accepted with following suggestions 1. Add the following note: apply NPK 19:19:19 (250 mg/lit. water) @200 ml./plant will be given at 3 month interval.	

	Navsari)	(Action: Head, Dept. of Floriculture, ACHF, NAU, Navsari)	
13.4.3.47	Response of IBA and cutting methods on vegetative growth of Kamini (Murraya exotica). (Centre: Dept. of Horticulture, NMCA, NAU, Navsari)	Accepted with following suggestions 1. Title recast as "Effect of IBA and cutting methods on vegetative growth of Kamini (*Murraya exotica*)" (Action: Head, Dept. of Horticulture, NMCA, NAU, Navsari)	
13.4.3.48	Development and quality evaluation of jackfruit seed flour and soy flour fortified pasta (Centre: Dept. of PHT, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of PHT, ACHF, NAU, Navsari)	
13.4.3.49	Identification and trouble shooting of biotic stress occurs during canning of mango pulp (Centre: Dept. of PHT, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of PHT, ACHF, NAU, Navsari)	
13.4.3.50	Design and development of centrifugal vegetable dewatering machine (Centre: Dept. of PHT, ACHF, NAU, Navsari)	**Accepted as such** (Action: Head, Dept. of PHT, ACHF, NAU, Navsari)	

Forestry

Sr. No.	Title /centre	Suggestions	Remarks
Silviculture& Agroforestry			
13.4.3.51	Seed germination and seedling emergence study in Dev shower (*Bombax insigne*) (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, SAF, CoF, NAU)**	
13.4.3.52	Effect of IBA on vegetative propagation of Motihirwani (*Kydiacalycina*) . (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, SAF, CoF, NAU)**	

13.4.3.53	Screening of secondary host of sandalwood seedling for field establishment. (Centre: College of Forestry, NAU)	**Accepted with following suggestion:** 1. Specify Melia species **(Action: Head, SAF, CoF, NAU)**	
13.4.3.54	Vegetative propagation of Kadamb (*Anthocephaluscadamba) and* Shivan *(Gmelinaarborea)* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, SAF, CoF, NAU)**	
13.4.3.55	Rapid multiplication of *Dendrocalamushamiltonii* through *in vitro* regeneration techniques from nodal explant (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, SAF, CoF, NAU)**	
13.4.3.56	Macro propagation of different bamboo species by Culm Cutting with different root hormone treatments (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, SAF, CoF, NAU)**	
13.4.3.57	Growth evaluation of different bamboo species at Rambhas, Waghai (Centre: College of Forestry, NAU)	**Accepted with following suggestions** **1. Remove farm name from title.** **(Action: Head, SAF, CoF, NAU)**	
Forest Biology & Tree Improvement			
13.4.3.58	Evaluation of Eucalyptus Clones for Coppice growth and biomass (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.59	Clonal variation for mechanical properties of wood in Eucalyptus (Centre: College of Forestry, NAU)	**Accepted with following suggestions** **1. In experimental details (Point:2) take sample at every 2 m height**	

		Action: Head, FBTI, CoF, NAU)	
13.4.3.60	Population structure and genetic diversity analysis of Timru (*Diospyrus melanoxylon)* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.61	Population structure and genetic diversity analysis of Kadya (*Sterculia urens)* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.62	Genetic diversity and population structure analysis of Tetu (*Oroxylum indicum)*. (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.63	Genetic diversity and population structure analysis of Charoli (*Buchnania lanzan)* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.64	Vegetative propagation of *Salix tetrasperma* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.65	Variability study for fruit and germination characters in Timru (*Diospyros melanoxylon)* from Gujarat. (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	
13.4.3.66	Inter and intra population variation for fruit and nut characters in Charoli (*Buchnania lanzan).* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FBTI, CoF, NAU)**	

Forest Products & Utilisation			
13.4.3.67	Assessment of BilaytiBabool (*Prosopis juliflora),* Babool *(Acacia nilotica) and* Neem*(Azadirchta indica)* trees of South Gujarat for natural gum potential (Centre: College of Forestry, NAU)	**Accepted with following suggestions** **1. Recast title- "**Assessment of GandoBabool (*Prosopis juliflora),* Babool *(Acacia nilotica) and* Neem*(Azadirchta indica)* trees of South Gujarat for natural gum potential" **(Action: Head, FPU, CoF, NAU)**	
13.4.3.68	Macropropgation ofJyotishmati*(Celastrus paniculatus* Willd.) (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FPU, CoF, NAU)**	
13.4.3.69	Vegetative propagation of Dambel*(Tylophora indica)* (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, FPU, CoF, NAU)**	
Natural Resource Management			
13.4.3.70	Evaluation of Ailanthus – Jatropha based agroforestry systems in South Gujarat (Centre: College of Forestry, NAU)	**Accepted with following suggestions** **1. Recast the title as "Evaluation of Ailanthus based agroforestry systems in South Gujarat "** **(Action: Head, NRM, CoF, NAU)**	
Basic Science & Humanities			
13.4.3.71	Assessment of genetic diversity present in different bamboo species using DNA based marker system. (Centre: College of Forestry, NAU)	**Accepted as such** **(Action: Head, BSH, CoF, NAU)**	

S. D. AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Sr. No.	Title/Centre	Suggestions	Remarks
13.4.3.72	Effect of different times and severity of pruning on *Mrig*and *Hasta Bahar* of pomegranate (*Punicagranatum* L.). (**Centre:**College of Horticulture, S. D. Agricultural University, Jagudan)	**Accepted with following suggestions** 1. Recast treatments. 2. Replication-4, number of plants/treatment-2 and total-192. 3. Include observation of percentage of scorched fruits. 4. Plant height before &after pruning. 5. Add observation on infestation of pest & diseases. (**Action:** Principal, College of Horticulture, S. D. Agricultural University, Jagudan)	
13.4.3.73	Effect of different organics on growth, yield and quality of pomegranate (*Punicagranatum* L.) (**Centre:**College of Horticulture, S. D. Agricultural University, Jagudan)	**Accepted with following suggestions** 1. Recast title- replace the word 'organics' with 'organic manure'. 2. Add treatment T_{10} 100 % RDN through foliar spray of cattle urine. 3. Add the observations of pest & disease. (**Action:** Principal, College of Horticulture, S. D. Agricultural University, Jagudan)	
13.4.3.74	Marigold germplasm collection from different marigold growing areas of Gujarat and evaluating them for different characters (**Centre:**College of Horticulture, S. D. Agricultural University, Jagudan)	**Accepted with following suggestions** 1. Use of 'African marigold' instead of 'marigold' in all places. 2. keep spacing of 60 x 45 cm (**Action:** Principal, College of Horticulture, S. D. Agricultural University, Jagudan)	
13.4.3.75	Effect of nutrition and mulching on growth, yield and quality of desi rose (*Rosa indica*) (**Centre:**Department of Horticulture, CPCA, S. D. Agricultural University, Sardarkrushinagar)	**Accepted with following suggestions** 1. Organic mulch levels (i.Castor shell, ii. Tree foliage, iii. Mustard stock, iv. No mulch) 2.Keep nitrogen levels (N 150, 200, 300 kg/ha) & remove P levels. 3. Total treatment combination 12	

		4. Add observations: Insitu longevity 5. Keep mulch height 5 cm (**Action:** Professor & Head, Department of Horticulture, CPCA, S. D. Agricultural University, Sardarkrushinagar)	
13.4.3.76	Effect of pruning and spacing on growth, yield and quality of desi rose (*Rosa indica*) (**Centre:** Department of Horticulture, CPCA, S. D. Agricultural University, Sardarkrushinagar)	**Accepted with following suggestions** 1. Single row system- 120 x 30 cm instead of 150 x 30 cm 2. Add observations: Days taken for flowering after pruning 3.Disease & pest observation 4. Add observations: Insitu longevity (**Action:** Professor & Head, Department of Horticulture, CPCA, S. D. Agricultural University, Sardarkrushinagar)	
13.4.3.77	Multipurpose tree and medicinal plants based agroforestry system under north Gujarat conditions**.** **(Centre:**Agroforestry Research station, SDAU, Sardarkrshinagar)	**Accepted with following suggestions** 1. Recast title as "Multipurpose tree and medicinal plants based agroforestry system on farm bund under north Gujarat conditions" (**Action:** Res. Sci.,Agroforestry Research station, SDAU, Sardarkrshinagar)	
13.4.3.78	Leaf biomass production and nutrient dynamics of Drum stick tree (*Moringaoleifera*) in arid and semi arid region of Gujarat **(Centre:**Agroforestry Research station, SDAU, Sardarkrshinagar)	**Accepted with following suggestions** 1. Recast the title as "Leaf biomass production of Drum stick tree (*Moringaoleifera*) in arid and semi arid region of Gujarat" 2. Density plantation of drumstick at – i. 15 x 15 cm (4 row) x 60 cm (high density) ii. 30 x 60 cm (low density) 3. Delete observation- Litter fall production Physico chemical properties of soil. 4. Add observation- Chemical analysis of green biomass. (**Action:** Res. Sci.,Agroforestry Research station, SDAU, Sardarkrshinagar)	

13.4.3.79	Growth and biomass production of Ardusa (*Ailanthus excelsa*) with medicinal plants based agroforestry system under irrigated conditions **(Centre:**Agroforestry Research station, SDAU, Sardarkrshinagar)	**Accepted as such** (**Action:** Res. Sci.,Agroforestry Research station, SDAU, Sardarkrshinagar)	
13.4.3.80	Evaluation of Melia genotypes in arid and semi arid region of Gujarat **(Centre:**Agroforestry Research station, SDAU, Sardarkrshinagar)	**Accepted with following suggestions** 1. In objective write genotype instead of species. (**Action:** Res. Sci.,Agroforestry Research station, SDAU, Sardarkrshinagar)	
13.4.3.81	Comparative study of different fruit crops under different growing conditions. (**Centre:** Arid Horticulture Research Station, Agroforestry Research Station, Sardarkrushinagar)	**Accepted with following suggestions** 1. Add observations – bird damage, pest & diseases (**Action:** Res. Sci.,Agroforestry Research station, SDAU, Sardarkrshinagar)	
13.4.3.82	Effect of growth regulator on flower initiation of olive tree (*Oleaeeuropaea* L.) **(Centre:** Agrofoestry Res. Station, Sardarkrushinagar	**Accepted with following suggestions** 1. Keep only S.K. Nagar location. (**Action:** Res. Sci.,Agroforestry Research station, SDAU, Sardarkrshinagar)	
13.4.3.83	Flower regulation in date palm (*Phoenix dactylifera* L.) by using Paclobutrazol. (**Centre:**Date palm Research Station,-Mundra)	**Accepted with following suggestions** 1. Keep Paclobutrazol dose @ 3and 5 g a.i. /palm 2. Fertilizer apply 1 month prior to cultar treatment. 3. Take 4 plants per treatment. (**Action:**Res. Sci., Date palm Research Station,-Mundra)	

13.4.3.81	Fertigation scheduling in date palm (*Phoenix dactylifera*) cv. ACE-100 (**Centre:** Date palm Research Station,-Mundra)	**Accepted with following suggestions** 1. Title recast with " Irrigation &fertigation scheduling in date palm (*Phoenix dactylifera*) cv. ACE-100'' 2.Fertilizer level should be 60, 80, 100 % of RDF 3. 2 plants/treatment. (**Action:**Res. Sci., Date palm Research Station,-Mundra)	
13.4.3.85	Induced ripening of dates (*Phoenix dactelifera* L.) by post harvest application of ethylene fumes through ethrel (**Centre:** Date palm Research Station,-Mundra)	**Accepted with following suggestions** 1. Conducted as filler trial. (**Action:**Res. Sci., Date palm Research Station,-Mundra)	
13.4.3.86	Effect of different covering on male inflorescence of date palm to harvest maximum pollen (**Centre:** Date palm Research Station,-Mundra)	**Accepted with following suggestions** 1. Use green net (90%) 2. Add non woven cloth bag. 3. Keep 4^{th}& 5^{th} observations (**Action:** Res. Sci., Date palm Research Station,- Mundra)	
13.4.3.87	Effect of bagging of date palm (*Phoenix dactylifera*) inflorescence after pollination (**Centre:** Date palm Research Station,-Mundra)	**Accepted with following suggestions** 1. Title recast as 'Effect of bagging of date palm (*Phoenix dactylifera*) inflorescence on fruit set & quality' (**Action:**Res. Sci., Date palm Research Station,-Mundra)	

13.5 AGRIL ENGINEERING & AIT/AGRIL. ENGINEERING, DAIRY & FOOD TECH/ DAIRY SCI. & FPT & BE/AGRIL. ENGINEERING

Chairman	:	Dr. N.C. Patel, Hon. VC, AAU
Co-Chairman	:	Dr. R. Subbaiah, AAU
	:	Dr. N.K. Gontiya, JAU
Repporteurs	:	Dr. P.M. Chauhan, JAU
	:	Dr. R. Swarnkar, AAU
	:	Dr. Ashish Dixit, SDAU

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

S U M M A R Y

Name of Sub-Committee	Recommendations				New Technical Programmes	
	Farming community		Scientific community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	26	25	12	11	54	52
JAU	8	8	1	1	13	13
NAU	4	4	2	2	13	12
SDAU	2	2	0	0	10	10
KU	0	0	0	0	2	2
Total	40	39	15	14	92	89

13.5.1 RECOMMENDATIONS FOR FARMING COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

13.5.1.1	**Development of a low cost power operated maize sheller for small and marginal farmers**
	House approved the recommendation as under Electric power operated maize sheller developed by Anand Agricultural University is recommended for small and marginal farmer's use and commercial exploitation. The machine works satisfactorily for shelling 1000 kg maize cobs/h. The developed Sheller reduce cost of shelling by 96.87 and 92.00 % over hand and pedal operated maize Sheller respectively. ભલામણ : આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ વીજળીથી સંચાલિત મકાઈના દાણા કાઢવાનું મશીન નાના અને સીમાંત ખેડૂતોને વાપરવા તેમજ વેપારી ઉદ્યોગકારો માટે

	ભલામણ કરવામાં આવે છે. આ મશીન દ્વારા ૧૦૦૦ કિ.ગ્રા. ડોડા/કલાકે સંતોષકારક રીતે ફોલી શકાય છે તેમજ હાથ અને પેડલ સંચાલિત મશીનની સરખામણીમાં અનુક્રમે ૯૬.૮૭ અને ૯૨ % દાણા કાઢવાનો ખર્ચ ઘટાડી શકાય છે. **(Action : HoD, FMP,CAET, AAU, Godhra)**
13.5.1.2	**Development of a low cost planting unit for conventional plough**
	House approved the recommendation as under A low cost planting unit for bullock drawn conventional plough developed by Anand Agricultural University for maize (seed size of 7 to 10 mm) sowing is recommended for small and marginal farmers' use and commercial exploitation as it saves about 38 & 93% time of sowing and 50 & 71% cost of sowing as compared to conventional plough with funnel type seeding device and dibbling method, respectively. ભલામણ : આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ બળદથી ચાલતાં હળ સાથે જોડી શકાય તેવું ઓછી કિંમતનું પ્લાન્ટીંગ યુનિટ નાના અને સીમાંત ખેડૂતોને વાપરવા તેમજ વેપારી આલમને બહોળી પ્રસિધ્ધી માટે ભલામણ કરવામાં આવે છે. જેના વડે ૭ થી ૧૦ મી.મી. કદના મકાઈના દાણાની વાવણી કરી શકાય છે. આ યુનિટ વડે વાવણી કરવાથી હળ સાથે ઓરણી જોડીને તેમજ દાણા થાણીને મકાઈની વાવેતરની પધ્ધતિ કરતાં અનુક્રમે ૩૮ અને ૯૩% સમયમાં તેમજ લગભગ ૫૦ અને ૭૧% વાવણી ખર્ચમાં બચત કરી શકાય છે. **(Action : HoD, FMP,CAET, AAU, Godhra)**
13.5.1.3	**Modifications in hand operated disc type Maize Sheller**
	House approved the recommendation as under A pedal operated disc type maize sheller developed by Anand Agricultural University is recommended for small and marginal farmers' use and commercial exploitation as its throughput capacity and shelling efficiency were observed to be 67.9 kg/h and 99.44% respectively. ભલામણ : આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ પેડલથી ચાલતાં ડીસ્ક પ્રકારના મકાઇના દાણા છૂટાં પાડવાના મશીનનો નાના તથા સીમાંત ખેડૂતોને ઉપયોગ કરવા તેમજ વ્યવસાયિક આલમને બહોળી પ્રસિધ્ધી માટે ભલામણ કરવામાં આવે છે. આ મશીનથી પ્રતિ કલાકે ૬૭.૯ કિ.ગ્રા. ડોડવામાંથી લગભગ સંપુર્ણ રીતે ૯૯.૪૪ ટકા દાણા છૂટાં પાડી શકાય છે. **(Action :PI/Principal, Poly. Agri. Engg., AAU, Dahod)**
13.5.1.4	**Modifications in existing hand operated paddy thresher**
	House approved the recommendation as under An electric operated paddy thresher developed by Anand Agricultural

	University is recommended for small and marginal farmers' use and commercial exploitation as it threshes paddy grains from paddy plants easily with threshing capacity of 202.25 kg/h which is 2.5 and 3.6 times higher than bullock threshing and manual beating, respectively. ભલામણ : ડાંગરના પૂળામાંથી દાણા છૂટા પાડવા માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ વિજળીથી ચાલતાં ડાંગર થ્રેસરનો ઉપયોગ કરવા ખેડૂતો અને ઉદ્યોગ સાહસીકોને બહોળી પ્રસિધ્ધી માટે ભલામણ કરવામાં આવે છે. આ થ્રેસરની કાર્યક્ષમતા ૨૦૨.૨૫ કિ.ગ્રા./કલાક છે. જે બળદથી ખળામાં થ્રેસીંગ કરતાં ૨.૫ ગણી અને માણસો દ્વારા ઝુડવાથી /ધોકાવાની પધ્ધતિ કરતાં ૩.૬ ઘણી વધુ છે. **(Action :PI/PC, KVK, AAU, Dahod)**
13.5.1.5	**Study on use of *Mulberry in* development of Natural Ice cream**
	House approved the recommendation as under The entrepreneurs and food processors interested in manufacturing of Natural *Mulberry* ice cream are recommended to adopt the production technology developed by Anand Agricultural University, Anand. The technology involves incorporating mulberry pulp @ 8.0% by weight of ice cream mix, along with the addition of sago @ 1.0% and WPC-70 @ 0.5% as the natural source of stabilizer and emulsifier respectively. ભલામણ : સંપૂર્ણ કુદરતી પદાર્થોનો ઉપયોગ કરીને શેતુર આઈસ્ક્રીમ બનાવવામાં રસ ધરાવતા ડેરી ઉદ્યોગ અને ઉદ્યોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ ટેકનોલોજીનો ઉપયોગ કરવા માટે ભલામણ કરવામાં આવે છે. આ પ્રકારનો આઈસ્ક્રીમ બનાવવા માટે આઈસ્ક્રીમ મિક્ષના વજનના ૮% શેતુર પલ્પ ઉપરાંત ૧% સાબુદાણા અને ૦.૫% વ્હેપ્રોટીન પાઉડરનો અનુક્રમે કુદરતી સ્ટેબીલાઈઝર અને ઈમલ્સીફાયર તરીકે ઉપયોગ કરવો. **(Action : HOD, Dept. of Dairy Technology, DSC, AAU, Anand)**
13.5.1.6	**Utilization of paneer whey in cultured butter milk**
	House approved the recommendation as under Dairy Industry and Entrepreneurs are recommended to use method developed by Anand Agricultural University for the preparation of probiotic cultured buttermilk with acceptable sensory qualities and enhanced biofunctional properties by blending dahi with fermented paneer whey in 60:40 ratio (w/w) using starter cultures *Lactobacillus helveticus* MTCC 5463 and *Lactococcus lactis* sub sp. *diacetylactis* (NCDC 60) in 1:1 ratio at 1% rate of inoculum. The product stored in PET bottles has shelf life of 5 days at 7±1°C. ભલામણ :

	વ્હેનો ઉપયોગ કરી સ્વીકાર્ય ગુણવત્તાવાળી તથા વધુ જૈવ-ક્રિયાશીલ ગુણધર્મો ધરાવતી છાશ બનાવવામાં રસ ધરાવતા ડેરી ઉદ્યોગ અને ઉદ્યોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ ટેકનોલોજીનો ઉપયોગ કરવા માટે ભલામણ કરવામાં આવે છે. આ પ્રકારે છાશ બનાવવા માટે દહીં અને આથવણ કરેલ પનીર વ્હેને ૬૦:૪૦ ના પ્રમાણમાં મિક્ષ કરી પ્રોબાયોટિક બેક્ટેરિયા *લેક્ટોબેસીલસ હેલવેટીકસ* MTCC 5463 અને *લેક્ટોકોકસલેક્ટીસ* સબ. *ડાયએસીટાયીલલેક્ટીસ* (NCDC 60) ૧:૧ મિશ્રણનો ૧% ના દરે મેળવણ તરીકે ઉપયોગ કરવો. આવી છાશને PET બોટલમાં ભરી ૭±૧° સે. તાપમાને ૫ દિવસ સંગ્રહ કરી શકાય છે. **(Action : HOD, Dept. of Dairy Chemistry, DSC, AAU, Anand)**
13.5.1.7	**Development of value added buttermilk, dahi and ice cream containing drumstick.**
	House approved the recommendation as under Dairy Industry and Entrepreneurs are recommended to use method developed by Anand Agricultural University for manufacturing of buttermilk containing *Moringa* leaf powder as an ingredient. One serving size (300 g) per day of the product could be a good source of Vitamin A, calcium and iron providing 10, 18 and 11% DV vs. 3.6, 15 and 2.83% DV respectively present in buttermilk without addition of moringa. Moreover, the product contains considerable amount Vitamin C (~9% DV).The acceptability of the product could be improved by addition of two blends of spices viz. Blend A (consisting of equal quantities of roasted cumin and ginger powder) and Blend B (consisting of mixture of dry mango and black pepper in the proportion of 80:20 w/w) @ 0.20 and 0.30 % (w/w) of buttermilk, respectively. The product had a shelf-life of 20 daya at 7±2°C when packaged in Polyethylene terephthalate (PET) bottles. ભલામણ : આણંદ કૃષિ યુનિવર્સિટી દ્વારા સરગવાનાં પાનના પાઉડરનો ઉપયોગ કરી છાશ બાનાવાની પધ્ધતી વિકસાવવામાં આવેલ છે. એક દિવસના એક સર્વીંગ પ્રમાણે (૩૦૦ ગ્રામ) છાશ એ ખુબ જ સારી માત્રામાં વિટામીન A ૧૦% DV , કેલ્શિયમ ૧૮% DV અને લોહતત્વ ૧૧% DV પૂરું પાડે છે, કે જે સામાન્ય સરગવો નાખ્યા વગરની છાછમાં ૩.૬, ૧૫, અને ૨.૮૩% DV જોવા મળે છે. આ છાછમાં ખુબ સારી માત્રામાં વિટામીનC (~૯% DV) ઉપલબ્ધ હોય છે. આ છાશની ઉપયોગીતા વધારવા તેમાં ૨ જાતનાં મસાલાઓનું મિશ્રણ ઉમેરી શકાય છે. જેમ કે મિશ્રણ A (એક સરખા પ્રમાણમાં શેકેલું જીરું અને આદુંનો પાઉડર) અને મિશ્રણ B (આમચુર પાઉડર અને કાળામરીનો પાવડર ૮૦:૨૦ વજન/વજન પ્રમાણે) ને અનુક્રમે ૦.૨% અને ૦.૩% ના દરે ઉમેરી આ વિકસાવેલ છાછને ૨૦ દિવસ સુધી ૭±૨°સે. તાપમાને પોલીઇથેલીન તર્પથેલેટ બોટલમાં સાચવી શકાય છે. **(Action : HOD, Dept. of Dairy Microbiology, DSC, AAU, Anand)**

13.5.1.8	**Evaluation of Bacterial Culture for Treatment of Dairy Effluent**
	House approved the recommendation as under Dairy Industry and Entrepreneurs are recommended to adopt method developed by Anand Agricultural University using aerobic bacterial culture *B. cereus* MTCC 25641 for the reduction of effluent treatment loads of commercial dairy plants. This culture is found effective in reduction of COD by about 90% in 7 days of aeration when added @ 2 % in pilot scale experimental plant. ભલામણ : ડેરી ઉદ્યોગ અને ઉદ્યોગ સાહસીકોને એરોબીક કલ્ચર બેસીલસ સીરીઅસ MTCC 25641 નો ઉપયોગ ડેરીપ્લાન્ટમાંથી નિકળતા પ્રદુષિત પાણીને આણંદ કૃષિ યુનિવસિર્ટી દ્વારા વિકસાવવામાં આવેલ પ્રક્રિયા દ્વારા સુધારવા માટે ભલામણ કરવામાં આવે છે. સદર કલ્ચરના ૨% ના દરના ઉપયોગથી ૭ દિવસની એરોબીક પ્રક્રિયા દરમ્યાન લગભગ ૯૦% જેટલો સી.ઓ.ડી ભારણ ઘટાડી શકાય છે. **(Action : HOD, Dept. of Dairy Microbiology, AAU, Anand)**
13.5.1.9	**Development of Oat Based Probiotic Smoothie**
	House approved the recommendation as under Dairy Industry and Entrepreneurs are recommended to adopt method developed by Anand Agricultural University for the preparation of probiotic smoothie using functional ingredients like oat bran (5%), SMP (9%), WPI (1%) with addition of Sugar (7.5%) and Mango pulp (12.0%). The product is made using *Streptococcus. thermophilus* MTCC 5460 as starter and *Lactobacillus helveticus* MTCC 5463 as probiotic culture. Shelf life of the product is 24 days in polypropylene cups at 4±2°C. ભલામણ : ડેરી ઉદ્યોગ અને ઉદ્યોગ સાહસીકોને આણંદ કૃષિ યુનિવસિર્ટી દ્વારા વિકસાવેલ પ્રોબાયોટીક સ્મુધી બનાવવાની પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. જેમાં ઉપયોગી ઘટકો જેવા કે ઓટ બ્રાન ૮૫પ્લ એસ.એમ.પી (૯%), ડબલ્યુ.પી.આઈ (૧%), ખાંડ ૮૭.૫%) અને કેરીનો પલ્પ (૧૨%) નો ઉપયોગ કરવામાં આવેલ છે. સદર સ્મુધીમાં સ્ટાર્ટર કલ્ચર સ્ટ્રપ્ટોકોક્સથર્મોફિલસ MTCC 5460 અને પ્રોબાયોટીક કલ્ચર લેકટોબેસિલ સહેલ્વેટીક્સ MTCC 5463 નો ઉપયોગ કરવામાં આવ્યો છે અને આ ઉત્પાદનની સંગ્રહક્ષમતા પોલીપ્રોલિન કપમાં ૪$\pm$૨^0 સે.ગ્રે. તાપમાને ૨૪ દિવસ હોય છે. **(Action : HOD, Dept. of Dairy Microbiology, DSC, AAU, Anand)**
13.5.1.10	**Engineering interventions for commercial production of kheer**
	House approved the recommendation as under Dairy Industry and Entrepreneurs are recommended to adopt method developed by Anand Agricultural University for manufacture of thermally treated (118°C for 15 min.) *Kheer.* It is made from standardized milk (4.5% fat & 8.5 %

	SNF) concentrated to 2 times concentration level using scraped surface heat exchanger (SSHE) and added with Basmati rice and sugar at the rate of 7% and 11.5% respectively of concentrated milk. The product has a shelf life of 135 days at room temperature (35±2 °C). The technology developed for the manufacture of *Kheer* is recommended for its commercial exploitation. ભલામણ : ડેરી ઉદ્યોગ અને ઉદ્યોગ સાહસીકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ગરમીથી માવજત આપેલ ૧૧૮° સે.ગ્રે./૧૫ મીનિટ) ખીર બનાવવાની રીતની વાપરવાની ભલામણ કરવામાં આવે છે. આ ખીર સ્ટાંડર્ડ દૂધને (4.5% ફેટ & 8.5 % એસ. એન. એફ.) બે ઘણુ ઘટ્ટ સ્ક્રેપ્ડ સપાટી હીટએક્સચેંજર્મા કરી, તેમા બાસમતી ચોખા અને ખાંડ અનુક્રમે @ ૭% અને ૧૧% ઘટ્ટ દૂધના પ્રમાણમા ઉમેરીને બનાવેલ છે. આ ખીર સમાન્ય તાપમાને (૩૫±૨° સે.ગ્રે). ૧૩૫ દિવસ સુધી સારી રહી શકે છે. **(Action : HOD, Dept. of Dairy Engineering, DSC, AAU, Anand)**
13.5.1.11	**Process re-engineering for the manufacture of 'shrikhand'**
	House approved the recommendation as under; Dairy Industry and Entrepreneurs are recommended to adopt method developed by Anand Agricultural University for the manufacture of acceptable quality of *shrikhand* without removal of whey from Reconstituted Concentrated Skim Milk (RCSM) and cream. RCSM (35% Total solids) is inoculated with Sacco culture @ 1% of RCSM, and incubated at 40 ºC until 2% acidity is developed. Then it is added with sugar @ 50% of dahi and 70% fat cream to get 6% fat in shrikhand. It is mixed well and thermized at 90 ºC/10 min in SSHE and then added with 0.2% cardamom powder. Shrikhand was packed and stored at refrigeration temperature (7 ± 2 ˚C). The Developed *shrikhand* has more yields and is cost effective compared to *shrikhand* manufactured by traditional method. ભલામણ : ડેરી ઉદ્યોગ અને ઉદ્યોગ સાહસીકોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા દહીંમાંથી પાણી કાઢયા વગર સારી ગુણવતાવાળો શ્રીખંડ રી-કોન્સ્ટીટ્યુટેડ કોન્સ્નટ્રેટેડ સ્કીમ મીલ્ક અને મલાઈમાંથી બનાવવાની પધ્ધતિ ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. શ્રીખંડ બનાવવા માટે ૩૫% TS વાળા RCSMમાં Saccoનુ મેળવણ૧% પ્રમાણથી મિશ્રિત કરી ૪૦° સે.ગ્રે. તાપમાને ૨% એસિડિટી આવે ત્યા સુધી રાખ્યા બાદ તેમાં દહીંના ૫૦% પ્રમાણે મોરસ અને ૭૦% ચરબીવાળી ક્રીમ શ્રીખંડમાં ૬% ચરબી જળવાય તે રીતે મિશ્રિત કરી, બનેલ શ્રીખંડને ૯૦° સે.ગ્રે. / ૧૦ મિનિટ સુધી SSHE માં ગરમ કરવામાં આવે છે. ત્યારબાદ તેમાં ૦.૨% એલચી પાઉડર નાખી પેક કરી નીચા તાપમાને (૭± ૨° સે.ગ્રે.) સંગ્રહિત કરવામાં આવે છે. વિકસીત પધ્ધતિથી બનાવેલ શ્રીખંડ વધુ ઉપજ આપે છે, તેમજ શ્રીખંડ બનાવવાનો ખર્ચ પરંપરાગત પધ્ધતિથી બનાવેલ શ્રીખંડ કરતા ઓછો આવે છે. **(Action : HOD, Dept. of Dairy Engineering, DSC, AAU, Anand)**

13.5.1.12	**Production of high quality powder with maximum retention of essential oil using cryogenic grinding -"Cumin" & "Coriander"**
	House approved the recommendation as under Farmers, entrepreneurs and agro-processing units involved in grinding of spices are recommended to use the technology of cryogenic grinding developed by Anand Agricultural University, Anand for superior quality cumin and coriander powder with higher retention of volatile oil (84 & 93 % respectively) compared to conventional grinding. ભલામણ : મસાલા પાકો અને તેના પાઉડરના ઉત્પાદન સાથે જોડાયેલાં ખેડૂતો, ઉદ્યોગ સાહસિકો અને એગ્રો પ્રોસેસીંગ યુનિટોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ક્રાયોજેનિક ગ્રાઇન્ડિંગ તકનીક દ્વારા પાઉડર બનાવવાની ભલામણ કરવામાં આવે છે. આ તકનીક દ્વારા ખુબ નીચા તાપમાને ધાણા અને જીરૂંને દળવામાં આવતા હોઇ,સાદી દળવાની પ્રક્રિયા કરતા ક્રાયોજેનિક ગ્રાઇન્ડિંગથી દળેલા પાઉડરમાં જરૂરી બાષ્પશીલ તેલનું પ્રમાણ ખુબ ઊંચુ (૮૪ અને ૯૩%) જળવાઈ રહે છે. **(Action : HOD, Dept. of Post Harvest Engg. & Tech, FPTBE, AAU, Anand)**
13.5.1.13	**Sterilization of Red Chilli using irradiation**
	House approved the recommendation as under The entrepreneurs and spice processers are recommended to adopt gamma irradiation protocol developed by Anand Agricultural University, Anand for fungal decontamination of chilli powder. The technology results in safe storage of packed and irradiated (7.5 kGy) ground chilli powder in ambient condition for six months and more. ભલામણ : ઉદ્યોગ સાહસિકો અને મસાલા પ્રોસેસરોને મરચાના પાઉડરને ફુંગથી વિશુદ્ધિકરણ કરવા માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ગામા ઇરેડિએશન પ્રોટોકોલના ઉપયોગની ભલામણ કરવામાં આવે છે. આ ટેક્નોલોજીના ઉપયોગ દ્વારા પેકિંગ તેમજ ઇરેડિએટ (૭.૫ કી.ગ્રે) કરેલા મરચાના પાઉડરને ૬ કે તેથી વધુ મહિના સુધી શૂન્યાવકાશની સ્થિતિમા સંગ્રહ કરી શકાય છે. **(Action : HOD, Dept. of Food Engineering, FPTBE, AAU, Anand)**
13.5.1.14	**Development of vacuum dried khaman**
	House approved the recommendation as under The entrepreneurs interested in production of new product like dried *khaman* (ready-to-rehydrate) are recommended to adopt processing technology developed by Anand Agricultural University, Anand. The technology involves vacuum drying (600 mmHg, 80^{o}C, 180 min) of *khaman* pieces. Final product packed in aluminium laminated pouches can be stored under ambient storage condition (27±2°C) for 60 days. This can be easily rehydrated for consumption in 5 min using warm water (~50^{o}C) with addition of 68 g water to prepare 100g product.

	ભલામણ : નવી પ્રોડક્ટ જેવી કે સુકા ખમણ(રેડી-ટુ -રીહાઇડ્રેટ) ઉત્પાદન કરવા માટે ઉત્સુક ઉદ્યોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ પ્રોસેસીંગ તકનીકના ઉપયોગની ભલામણ કરવામાં આવે છે. આ તકનીકમા ખમણના ટુક્ડાઓને વેક્યુમથી સુકવવામા (૬૦૦ mmHg, ૮૦°સે) આવે છે. આ તકનીકમાં બનાવેલ પ્રોડક્ટને લેમિનેટેડ એલ્યુમિનિયમ કોથળીમાં પેકિંગ કરી સામાન્ય તાપમાને (૨૭±૨°સે) ૬૦ દિવસ સુધી સંગ્રહ કરી શકાય છે . આ રીહાઇડ્રેટ કરેલ પ્રોડક્ટને ગરમ પાણીમાં(~૫૦°સે) ૫ મિનિટ સુધી મૂકી ફરીથી ઉપયોગમાં સહેલાઇથી લઇ શકાય છે . **(Action : HOD, Dept. of Food Engineering, FPTBE, AAU, Anand)**
13.5.1.15	**Ohmic heating of mango pulp**
	House approved the recommendation as under The entrepreneurs and fruit pulp processors interested in preservation of mango pulp are recommended to use ohmic heating processing technology developed by Anand Agricultural University, Anand. The processing parameters are voltage (160 V), temperature (80°C), with holding time of 4 min. The pulp retains better nutrients (7.1 Overall Acceptability), is stable and acceptable upto sixty seven days of storage in glass bottles, under refrigerated condition at 7±2°C. Energy requirement for ohmic heating of mango pulp was almost 3.5 times lesser than the conventional heating. ભલામણ : ઉદ્યોગ સાહસિકો અને ફળના ગર/માવાના પ્રોસેસરોને કેરીના માવાની જાળવણી કરવા માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ઓહ્મીક હિટિંગ પ્રોસેસીંગ (૧૬૦ V, ૮૦°સે, ૪મિનિટ) તકનીકના ઉપયોગની ભલામણ કરવામાં આવે છે. આ તકનીક દ્વારા પ્રોસેસ કરેલ માવામા સારા પોષકતત્વોની સ્થિરતા સાથે ૬૭ દિવસ સુધી રેફ્રીજરેટેડ સ્થિતી (૭±૨°સે) એ સંગ્રહ રહી શકાય છે. કેરીના માવાની ઓહ્મીક હિટિંગમા ઉર્જાની જરુરિયાત પરંપરાગત હિટિંગ કરતા ૩.૫ ગણી ઓછી રહે છે. **(Action : HOD, Dept. of Food Engineering, FPTBE, AAU, Anand)**
13.5.1.16	**Effect of gamma irradiation on milling and cooking characteristics of pigeon pea**
	House approved the recommendation as under The entrepreneur and dal millers interested in pulse processing are recommended to adopt gamma irradiation technology developed by Anand Agricultural University, Anand for improving milling and cooking quality of pigeon pea. Irradiation (10 kGy) resulted in good milling characteristics, reduction in cooking time (~ 50%) and phytic acid content (~ 66%), and improving protein digestibility (80%).

	ભલામણ : ઉદ્યોગ સાહસિકો અને દાળમિલ પ્રોસેસરોને પલ્સ પ્રોસેસિંગ કરવા માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ગામા ઇરેડિએશન તકનિકના ઉપયોગ દ્વારા તુવેરના મિલિંગ અને કુકિંગની ગુણવત્તા સુધારવાની ભલામણ કરવામાં આવે છે. આ ઇરેડિએશન તકનિક (૧૦ કી.ગ્રા) ના ઉપયોગ ધ્વારા સારા મિલિંગના લક્ષણો ધરાવતી, કુકિંગના સમય (આશરે ૫૦%), અને ફાઇટીક એસિડમાં આશરે (૬૬ %) ઘટાડો તેમજ પ્રોટીન પાચન કરવાની ક્ષમતા સુધારી શકાય છે (૮૦%). **(Action : HOD, Dept. of Food Engineering, FPTBE, AAU, Anand)**
13.5.1.17	**Popping of sorghum grains using microwave energy**
	House approved the recommendation as under The entrepreneurs and food processors interested in production of ready to puff sorghum grain using microwave energy are recommended to use technology developed by Anand Agricultural University, Anand. The process involves use of Gujarat local (White) variety (17% moisture content, 1.33% salt, 10% oil).The technology enables production of puffed sorghum in domestic convective cum microwave oven (18 W/g, 160s). The pre-treated grains can be stored safely for 3 months and more in microwavable pouches.. ભલામણ : ઉદ્યોગ સાહસિકો અને ફૂડ પ્રોસેસરોને ઇન્સટન્ટ ધાણીના ઉત્પાદન કરવા માટે માઇક્રોવેવ ઉર્જા દ્વારા ગુજરાત લોકલ (સફેદ) જાત (૧૭% ભેજ, ૧.૧૩% મીઠું, ૧૦% તેલ) ઉપયોગ કરી આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ પ્રોટોકોલના ઉપયોગની ભલામણ કરવામાં આવે છે. આ પ્રોટોકોલના મુજબ ધાણીનુ ઉત્પાદન સ્થાનિક કનવેક્ટીવ કમ માઇક્રોવેવ ઓવનથી (૧૮વોટ/ગ્રામ, ૧૬૦ સેકન્ડ) કરી શકાય છે. આ પૂર્વ-માવજત કરેલ જુવારને માઇક્રોવેવેબલ કોથળીમા પેકિંગ કરી ૩મહિના કે તેથી વધુ સમય સુધી સહેલાઇથી સંગ્રહ કરી શકાય છે. **(Action : HOD, Dept. of Food Engineering, FPTBE, AAU, Anand)**
13.5.1.18	**Design and development of grader for aonla fruits**
	House approved the recommendation as under Farmers, entrepreneurs and food processors are recommended to use the size based grader for aonla fruits developed by Anand Agricultural University, Anand, for grading aonla fruits. The developed grader has high capacity (300kg/h) efficient and economical (about 1/5th cost of manual) over manual grading the aonla fruits. ભલામણ : ખેડૂતભાઈઓ અને સંલગ્ન વ્યવસાયિકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલા આમળા ગ્રેડીંગ મશીન ઉપયોગ ભલામણ કરવામાં આવે છે.

	હાથ દ્વારા કરવામાં આવતાં ગ્રેડીંગ ની સરખામણીએ આ મશીનથી વધારે ઝડપથી આમળા ફળનું ગ્રેડીંગ કરી શકાય છે અને ફળને ઓછી નુકશાની થાય છે, જેની કાર્યક્ષમતા પ્રતિ કલાક ૩૦૦ કિલો હોય છે. **(Action : HOD, Dept. of Food Technology, FPTBE, AAU, Anand)**
13.5.1.19	**Development of ready to eat extruded food product from tomato pomace**
	House approved the recommendation as under The entrepreneurs and food processors interested in production of extruded food product from tomato pomace are recommended to use the technology developed by Anand Agricultural University, Anand. The extruder is to be operated at 140°C barrel temperature, 400 RPM screw speed, raw material moisture content of 16.44%. This technology involves use of dehydrated pomace @5% and its extrusion with the corn @80% and Bengal gram @15% resulting in extruded product rich in protein, fiber and lycopene. ભલામણ : ટમેટા પોમેસ (ખોળ) માંથી રેડી-ટુ-ઈટ એક્ષ્ટ્રુડેડ ઉત્પાદનો (પ્રોડક્ટસ) બનવવા ઈચ્છતા ઉદ્યોગ સાહસિકો અને ફૂડ પ્રોસેસરોને આણંદ કૃષિ યુનિવર્સિટી, આંણદ દ્વારા વિક્સાવેલ તકનીક (૧૪૦°સે બેરલ તાપમાન, ૪૦૦ આર. પી.એમ. સ્ક્રુ સ્પીડ, ૧૬.૪૪% ભેજ) નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે . આ તકનીકમાં સુકવેલ ટમેટા પોમેસ (ખોળ ૫%) મકાઈ (૮૦%) અને ચણા (૧૫%) નો ઉપયોગ કરી એક્ષ્ટ્રુઝન ધ્વારા પ્રોટીન, રેસા અને લાઇકોપીનથી સમૃદ્ધ એક્ષ્ટ્રુડેડ ઉત્પાદનો (પ્રોડક્ટસ) મેળવી શકાય છે. **(Action : HOD, Dept. of Food Technology, FPTBE, AAU, Anand)**
13.5.1.20	**Production technology for superior quality Malt Flour from Finger millet (Ragi)**
	House approved the recommendation as under The entrepreneurs and food processors interested in manufacturing of malt based products are recommended to adopt the production technology of finger millet malt developed by Anand Agricultural University, Anand. The technology involves soaking and germination of finger millet for 12 h and 24 h respectively, followed by drying at standard temperature and then milling. This process reduces the anti-nutritional factors like Phytic Acid and Trypsin Inhibitor Activity to 60.02 and 49.96%, respectively. ભલામણ : માલ્ટ આધારિત ઉત્પાદનો બનાવવામાં રસ ધરાવતા ઉદ્યોગ સાહસિકો અને ઉત્પાદકોને આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ, રાગીમાંથી માલ્ટ બનાવવાની પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં રાગીને ૧૨ કલાક પાણીમાં પલાળી અને ૨૪ કલાક સુધી ફણગાવ્યા બાદ તેને ૬૦°સેં તાપમાને સુકવીને દળવામાં આવે છે. આ પધ્ધતિ દ્વારાપ્રતિ-પોષકતત્વો જેવા કે ફાઈટીક એસીડ અને ટ્રીપ્સીન ઇન્હીબીટરનું પ્રમાણ

	અનુક્રમે ૬૦.૦૨ અને ૪૯.૯૬% જેટલું ઘટે છે. **(Action : HOD, Dept. of Food Technology, FPTBE, AAU, Anand)**
13.5.1.21	**Canning of mango slices**
	House approved the recommendation as under The entrepreneurs and mango fruit processors interested in production of canned mango slices are recommended to adopt processing technology developed by Anand Agricultural University, Anand. Canned mango slices put in 20˚Brix sugar syrup and thermally processed (retorted) at 100˚C for 10 minutes results in good quality product. Processed mango slices can be stored at ambient storage condition (30±2°C) for one year. ભલામણ : કેરીની ચીરીયાનું કેનીંગના ઉત્પાદન કરવામાં રસ ધરાવતા સાહસિકો અને ઉદ્યોગકારોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ ધ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં સારી ગુણવતાની કેરીની ચીરીયાને ૨૦° બ્રીક્ષ ચાસણીમાં રાખી ૧૦૦°સે તાપમાને ૧૦ મિનિટ થર્મલ પ્રક્રિયા કરી, સામાન્ય વાતાવરણના તાપમાને (૩૦±૨°સે) એક વર્ષ માટે સંગ્રહ કરી શકાય છે. **(Action : HOD, Dept. of Food Technology, FPTBE, AAU, Anand)**
13.5.1.22	Development of carotenoid fortified cookies
	House approved the recommendation as under The entrepreneurs and food processors interested in production of fortified cookies using carotenoid are recommended to use the technology developed by Anand Agricultural University, Anand. This technology involves use of carotenoid extract obtained by super critical fluid extraction from vacuum dried pumpkin powder. Addition at the rate of 350 mg of extract per 100g of refined wheat flour is recommended. The cookies thus obtained contained 42.17 mg of β-carotene per 100g of product with a shelf life of 60 days. ભલામણ : કૂકીઝ બનાવતા ઉદ્યોગ સાહસિકોને કેરોટીનોઇડ ફોર્ટિફાઇડ કૂકીઝ ઉત્પાદન કરવા માટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ તકનીકનો ઉપાયોગ કરવાની ભલામણ કરવામાં આવે છે. આ તકનીકમાં શૂન્યાવકાશમાં સુકવણી કરેલ કોળા પાઉડરમાંથી સુપર ક્રિટિકલ પ્રવાહી દ્વારા નિષ્કર્ષણ કરી કેરોટીનોઈડનુ ઉત્પાદન કરી કેરોટીનોઇડ ૩૫૦ મિ.ગ્રા / ૧૦૦ ગ્રામ. મૈદા માં ઉમેરીને કૂકીઝ બનાવી શકાય. આ રીતે ઉત્પાદન કરેલ કૂકીઝમાં β-કેરોટિન ૪૨.૧૭ મિ.ગ્રા / ૧૦૦ ગ્રામ મેળવી શકાય છે. **(Action : HOD, Dept. of Food Technology, FPTBE, AAU, Anand)**

13.5.1.23	**Development of production technology for sesame spread**
	House approved the recommendation as under The entrepreneurs and fat spread manufacturers interested in production of sesame spread are recommended to adopt processing technology developed by Anand Agricultural University, Anand. Sesame spread can be prepared by treatments includes, roasting (180 ^{0}C for 20 min) of de-hulled sesame, cooling, mixing of sesame seeds with sugar (7.3%), lecithin (1.2%), hydrogenated vegetable oil (5%) and salt (1.2%) and grinding the mix for 3 min at low speed to produce good quality sesame spread. Sesame spread can be stored at refrigerated condition (7±2°C) for three months. ભલામણ : તલ ફેટસ્પ્રેડના ઉત્પાદન કરવામાં રસ ધરાવતા સાહસિકો અને ઉદ્યોગકારોને આણંદ કૃષિ યુનિવર્સિટી, આણંદ ધ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. તલસ્પ્રેડની પધ્ધિતમાં ડીહલ્ડ (ફોતરી કાઢેલ) તલને ૧૮૦° સે તાપમાને ૨૦ મિનિટ શેકી ઠંડા કરી તેમાં ખાંડ (૭.૩%), લેસીથીન (૧.૨%), હાઇડ્રોજીનેટેડ વેજિટેબલ તેલ (૫ %) અને મીઠું (૧.૨%) ઉમેરી મીક્ષરમાં ૩ મિનિટ લઘુતમ સ્પીડે દળી તલનું સારી ગુણવત્તાવાળું સ્પ્રેડ બનાવી શકાય છે. તલનું સ્પ્રેડ રેફ્રીજરેશન સ્થિતી (૭ $\pm$ ૨^{0}સે) પર ત્રણ મહીના માટે સંગ્રહીત કરી શકાય છે. **(Action : HOD, Dept. of FQA, FPTBE, AAU, Anand)**
13.5.1.24	**Super critical extraction of essential oil from curry leaves**
	House approved the recommendation as under The entrepreneurs and food processors interested in production of essential oil from curry leaves are recommended to use supercritical extraction technology developed by Anand Agricultural University, Anand. This technology involves recovery of essential oil (1.3%) using drying, sieving and CO_2 supercritical fluid extraction at controlled pressure (125 bar) and temperature (45^{o}C). The process results in superior quality essential oil compared to conventional extraction methods. ભલામણ : મીઠા લીમડાના પાનમાંથી આવશ્યક તેલ ઉત્પાદનમાં રસ ધરાવતા ઉદ્યોગ-સાહસિકો અને ફૂડ પ્રોસેસરોને, આણંદ કૃષિ યુનિવર્સિટી ધ્વારા વિકસાવેલ સુપર ક્રિટિકલ ફ્લુઇડ એક્સટ્રેસન ટેકનોલોજીનો ઉપયોગ કરવાની ભલામણ છે. આ ટેકનોલોજી પ્રમાણે સુકવણી, તેનો પાવડર બનાવી તેને ચાળી, નિર્ધારિત તાપમાને (૪૫°સે) અને નિર્ધારિત દબાણે (૧૨૫ બાર) સુપર ક્રિટિકલ ફ્લુઇડ એક્સટ્રેસન કાર્બનડાયોક્સાઈડ વડે કરવાથી વિશિષ્ટ તેલ (૧.૩%) મેળવી શકાય છે. આ પ્રક્રિયા ધ્વારા મળતા આવશ્યક તેલ હાલમાં વપરાતી અન્ય પ્રક્રિયાની સરખામણીમાં વધુ ગુણવતાવાળા હોય છે. **(Action : HOD, Dept. of FQA, FPTBE, AAU, Anand)**

13.5.1.25	**Development of poultry dropping based biogas system for energy utilization in poultry farm**
	House approved the recommendation as under Poultry owners are recommended to adopt a technology developed by Anand Agricultural University, Anand for biogas production from poultry dropping. The biogas yield from poultry dropping was about 12.87% more than cattle dung for $2m^3$/day capacity biogas plant. The cost of biogas production from poultry dropping was calculated as Rs.31/m^3/day. The produced biogas can be used to operate poultry brooders. By using the gas, 403.2 kWh electricity can be saved in three weeks duration for raising 1000 chicks as against electrically operated brooders. ભલામણ : મરઘા ફાર્મના માલિકોને માટે આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા વિકસાવેલ મરઘાના હગારમાંથી બાયોગેસ ઉત્પન્ન કરવાની તકનીક અપનાવાની ભલામણ કરવામાં આવે છે. મરઘાના હગારમાંથી ૨ ઘનમીટર પ્રતિ દિવસ ક્ષમતાવાળા બાયોગેસ પ્લાન્ટમાં છાણ કરતા લગભગ ૧૨.૮૭ ટકા વધારે બાયોગેસ ઉત્પન્ન થાય છે. મરઘાના હગારમાંથી બાયોગેસ ઉત્પન્ન કરવાની કિમત આશરે રૂ. ૩૧ પ્રતિ ઘનમીટર / દિવસ આવે છે. એવી રીતે ઉત્પન્ન બાયોગેસને પોલ્ટ્રી બ્રુડરો ચલાવવામાં ઉપયોગ કરી શકાય. આમ કરવાથી ૧૦૦૦ મરઘાના બચ્ચાઓને ઉછેરવામાં ત્રણ અઠવાડીયાના સમયમાં વીજળીથી ચાલતા બ્રુડરોમાં ૪૦૩.૨ વીજળી યુનિટની બચત થઇ શકે છે. **(Action : HOD, Dept. of Bio energy, FPTBE, AAU, Anand)**
13.5.1.26	**Development of a biogas plant based on Jatropha cake for energy generation**
	Recommendation is deferred by the house and suggested to conclude. **(Action : HOD, Dept. of Bio energy, FPTBE, AAU, Anand)**

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13.5.1.27	**Design and Development of a Tractor Mounted Rural Transporter**
	House approved the recommendation as under: Farmers are recommended to use tractor mounted “JAU Rural Transporter” for carrying up to 500 kg live /dead load for better safety and fatigue reduction as compared to carrying on tractor mudguard or trailer. Rural transporter is also released for commercial exploitation. **ભલામણ** ખેડૂતો ને ૫૦૦ કિગ્રા સુધીના જીવંત/માલ સામાનના ભાર વહન માટે ટ્રેકટર મડગાર્ડ અને ટ્રેઈલર ની સરખામણીમાં સલામતી વધારવા અને થાકમાં ઘટાડો કરવા માટે

	“ટ્રેકટર માઉન્ટેડ જેએેયુ રૂરલ ટ્રાન્સપોર્ટર” વાપરવા ભલામણ કરવામાં આવે છે. આ રૂરલ ટ્રાન્સપોર્ટર ને વ્યવસાયિક ધોરણે પ્રચલિત કરવાની પણ ભલામણ કરવામાં આવે છે. **(Action: Prof.& Head, Dept. of Farm Machinery & Power, CAET, JAU, Junagadh)**
13.5.1.28	**Effect of protected environment on off-season seedling raising of Papaya.**
	House approved the recommendation as under: The farmers of South Saurashtra Agro climatic Zone interested to raise papaya seedling in protected structure are advised to use poly-cum-shadenet house covered with 50% white shade net on periphery and roof covered with 200 micron UVS polyethylene sheet. **ભલામણ** આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારના પ્રોટેક્ટેડ સ્ટ્રકચરમાં પપૈયાના ધરૂ ઉછેરવામાં રસ ધરાવતા ખેડૂતોને ચારે બાજુએ ૫૦% શેડવાળી સફેદ શેડ નેટ અને ઉપરની બાજુએ ૨૦૦ માઈક્રોન યુવીએસ પોલીઈથીલીન શીટથી બનેલ પોલીકમ શેડ નેટ હાઉસ નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. **(Action: Prof.& Head, Dept. of Renewable Energy & Rural Engg, CAET, JAU, Junagadh)**
3.5.1.29	**Evolvement of mulching technology for bunch type groundnut crop**
	House approved the recommendation as under: The farmers of South Saurashtra Agro-climatic Zone are advised to use silver black plastic mulch (20 µm) with drip irrigation and raised bed for water saving and to achieve higher yield of bunch type groundnut in summer season.

Details of mulching technology :		**Details of drip system :**	
1	Mulch film: 20 µm silver black plastic	1	No. of laterals / bed : 2
2	Bed size: (a) Top width: 75 cm (b) Bottom width: 90 cm (c) Height: 20 cm	2	Lateral spacing: 20 cm
		3	Dripper spacing: 40 cm
		4	Dripper discharge: 2 lph
3	No. of rows per bed : 3	5	Irrigation scheduling : a. Feb.: 10 to 15 min/day b. March: 30 to 35 min/day c. April: 40 to 45 min/day d. May: 55 to 60 min/day
4	Spacing: (a) Bed spacing:120 cm (b) Row spacing : 20 cm (c) Plant spacing : 20 cm		

ભલામણ

આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તાર ના ખેડૂતો ને ઉનાળુ ઉભડી મગફળી ના વધુ પાક ઉત્પાદન અને પાણી ની બચત માટે ગાદી ક્યારા ટપક પધ્ધતિ સાથે ૨૦ માઈક્રોન જાડાઈ ની સીલ્વર બ્લેક કલર ની પ્લાસ્ટીક મલ્ચ નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.

	૧	પ્લાસ્ટીક ફિલ્મ: ૨૦ માઈક્રોન સીલ્વર બ્લેક કલર		૧	પ્રતિ બેડ લેટરલ ની સંખ્યા: ૨
	૨	બેડ નું માપ: અ. ઉપરની પહોળાઈ: ૭૫ સે.મી. બ. નીચેની પહોળાઈ: ૯૦ સે.મી. ક .ઉંચાઈ :૨૦vસે.મી.		૨	લેટરલ નું અંતર: ૨૦સે.મી.
				૩	ડ્રીપર નું અંતર: ડ્રીપર નુ અંતર: ૪૦ સે.મી.
				૪	ડ્રીપર ડિસ્ચાર્જ રેઈટ: ૨ લીટર/કલાક
	૩	પ્રતિ બેડ હાર ની સંખ્યા: ૩		૫	ડ્રીપ ચલાવવા નો સમય: અ.ફેબ્રુઆરી:૧૦થી ૧૫ મિનિટ/દિવસ બ.માર્ચ: ૩૦ થી ૩૫ મિનિટ/દિવસ ક. એપ્રિલ: ૩૦ થી ૩૫ મિનિટ/દિવસ ડ. મે: ૫૫ થી ૬૦ મિનિટ/દિવસ
	૪	અંતર: અ.બેડનુ અંતર: ૧૨૦ સે.મી. બ.બે હાર વચ્ચે નું અંતર:૨૦ સે.મી. ક. બે છોડ વચ્ચેનું અંતર: ૨૦ સે.મી.			

(Action: Prof. & Head, Dept. of Renewable Energy & Rural Engg, CAET, JAU, Junagadh)

13.5.1.30	**Aquifer Mapping of Uben River Basin**
	House approved the recommendation as under: The farmers, NGO's and line department people are advised to construct water conservation structures along with shaft recharging technique for augmenting surface water resources around the area starting from Sakkarbaugh,Vadal,Choki,Makhiyala up to Fareni. Keeping and view the higher horizontal, vertical hydraulic conductivity and transmissibility of unconfined/confined aquifer. The surface water harvesting structures should be encouraged for augmenting the surface water resources in rest parts of the Uben beasin. **ભલામણ** સકરબાગ, વડાલ, ચોકી, માખીયાળા થી ફરેણી સુધીના વિસ્તારમાં કન્ફાઈન્ડ/અનકન્ફાઈન્ડ એકવીફરમાં વર્ટીકલ, હોરીજન્ટલ, કન્ડકટીવીટી અને ટ્રાન્સમીસીબીલીટી વધું જોવા મળતાં જમીનની સપાટીના પાણી સંગ્રહ માટે, રીચાર્જીંગ સ્ટ્રકચર બનાવવા માટે ખેડૂતો, સંલગ્ન વિભાગોમાં તેમજ વિસ્તારમાં કાર્યરત એન.જી.ઓ. ને ભલામણ કરવામાં આવે છે. તેમજ ઉબેણ નદીનાં બાકીના વિસ્તારમાં સપાટીનો જળ સ્ત્રોતો વધારવા સપાટી પરનાં પાણી સંગ્રહ માળખાઓ બનાવવા પ્રોત્સાહન આપવું. **(Action: Prof. & Head, Dept of Soil &Water Engg, CAET, JAU, Junagadh)**

13.5.1.31	**Conjunctive effect of emitter configuration and irrigation regimes on productivity of Cumin**
	House approved the recommendation as under: Farmers of South Saurashtra Agro-climatic Zone growing cumin are advised to adopt drip irrigation with triangular geometry having 0.6m lateral spacing and 2 lph emitter discharge and to irrigate at 4 days interval with 0.8 IW/ETc (2 hours) for acquiring higher yield (38%), water use efficiency (60.95%), water productivity (61%) and net return (38.87%) as compared to farmers' practices. **ભલામણ** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં જીરૂનું વાવેતર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, જીરૂના પાકમાં ડ્રીપ ત્રિકોણીયાકારે ગોઠવી ડ્રિપ બે લેટરલ લાઈન વચ્ચેનું અંતર ૦.૬ મીટરતથા બે લીટર/કલાકનો પ્રવાહ દર ધરાવતા ડ્રીપર દ્વારા દર ચાર દિવસના અંતરાલે ૦.૮ ઈ.ટી.સી. લેવલે)એટલે કે બે કલાક (પિયત આપવાથી ખેડૂત દ્વારા અપનાવાતી પિયત પધ્ધતિ કરતા વધુ ઉત્પાદન)૩૮(%, પાણી વપરાશની JW] કાર્યક્ષમતા) ૬૦.૯૫(%, પાણીની વધુ ઉત્પાદકતા) ૬૧ (%તેમજ વધારે ચોખ્ખી આવક) ૩૮.૮૭ (%મેળવી શકાય છે. **(Action: Research Scientist (Agril. Engg.), RTTC, JAU, Junagadh)**
13.5.1.32	**Design and development of tractor operated FYM applicator**
	House approved the recommendation as under: Tractor operated Farm Yard Manure applicator developed by Junagadh Agricultural University is recommended for farmers' use and for commercial exploitation to apply FYM at desired row spacing within furrow as per requirement. It saves time and economical as compared to manual FYM application. **ભલામણ** આથી ખેતર માં પાક ની હાર ના અંતર મુજબ ચાસમાં જરૂરિયાત પ્રમાણેનું છાણીયું ખાતર ઓરવા જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ ટ્રેક્ટર સંચાલિત ફાર્મ યાર્ડ મેન્યુર એપ્લીકેટર ખેડૂતો ને વાપરવા તેમજ વ્યાપારી આલમને બહોળી પ્રસિદ્ધિ માટે ભલામણ કરવામાં આવે છે. મજુર દ્વારા ખાતર ઓરવાની સરખામણીમાં તે આર્થિક રીતે ફાયદાકારક માલુમ પડેલ છે. **(Action: Research Scientist (Agril. Engg.), RTTC, JAU Junagadh)**
13.5.1.33	**Rain water management for sustaining cotton productivity in medium black soils under dry farming conditions**
	House approved the recommendation as under: The farmers of North Saurashtra Agro-climatic Zone growing Bt. cotton are advised to apply FYM @ 10 t/ha and kaolin @ 4% spray (400gm/10 liter water) at dry spell for obtaining higher productivity and maximum net returns as well as for getting maximum rain and crop water use efficiency

	under dry farming conditions. **ભલામણ** ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના સુકી ખેતી પરિસ્થિતિમાં બી ટી કપાસનુ વાવેતર કરતા ખેડુતોને વધારે ઉત્પાદન અને આર્થિક વળતર તેમજ મહત્તમ વરસાદના અને પાકના પાણીના વપરાશની કાર્યક્ષમતા મેળવવા માટે પ્રતિ હેકટરે ૧૦ ટન છાણીયું ખાતર અને બે વરસાદ વચ્ચે નો ગાળો લંબાય ત્યારે ૪ %કેઓલીન ના દ્રાવણ (૪૦૦ ગ્રામ/૧૦ લીટર પાણી) નો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે . **(Action: Research Scientist (Dry Farming), DFRS, JAU, Targhadia)**
13.5.1.34	**Rainwater management for sustaining groundnut productivity in medium black soils under dry farming conditions**
	House approved the recommendation as under: The farmers of North Saurashtra Agro-climatic Zone growing groundnut (GG-20) are advised to apply FYM @ 10 t/ha and kaolin @ 4% spray (400gm/10 liter water) at dry spell for obtaining higher productivity and net returns as well as maximum rain and crop water use efficiency under dry farming conditions. **ભલામણ** ઉત્તર સૌરાષ્ટ્ર ખેતઆબોહવાકીય વિસ્તારના સુકી ખેતી પરિસ્થિતિમાં મગફળી (જીજી-૨૦) નું વાવેતર કરતા ખેડુતોને વધારે ઉત્પાદન અને આર્થિક વળતર તેમજ મહત્તમ વરસાદના અને પાકના પાણીના વપરાશ ની કાર્યક્ષમતા મેળવવા માટે પ્રતિ હેકટરે ૧૦ ટન છાણીયું ખાતર અને બે વરસાદ વચ્ચે નો ગાળો લંબાય ત્યારે ૪ %કેઓલીન ના દ્રાવણ) ૪૦૦ ગ્રામ/૧૦ લીટર પાણી(નો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **(Action: Research Scientist (Dry Farming), DFRS, JAU, Targhadia)**

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13.5.1.35	**Effect of Pretreatments on Quality Attributes of Dehydrated Green Chilli Powder.** **House approved the recommendation as under:** Entrepreneurs/food processors are recommended to prepare green chilli powder by using the process: green chilli pieces (2 cm) blanched in water at standard conditions (90°C for 3 min) followed by pretreatment with 2000 ppm Sodium Metabisulphite solution dipping for 30 min and dried in a tray dryer at temperature of 60°C for 18 h till final moisture content of 5±1%. The green chilli dried pieces to be grinded and packed in 125 micron HDPE pouch for storage up to 6 months at ambient temperature (26-32°C). **ભલામણ**

	ઉદ્યોગકારો /ફૂડ પ્રોસેસરોને લીલા મરચાનો પાવડર બનાવવા માટે વિકસાવવામાં આવેલ પધ્ધતિનો ઉપયોગ કરવા ભલામણ કરવામાં આવે છે. જેમાં લીલા મરચાના ૨ સે.મી. લાંબા ટૂકડાઓને પ્રમાણિત પધ્ધતિ(૯૦૦ સે.તાપમાને ૩ મિનીટ સુધી) થી પાણીમાં બ્લાન્ચીંગ કર્યા બાદ ૨૦૦૦ પી.પી.એમ. સોડીયમ મેટાબાઈસલ્ફાઈટ ના દ્રાવણમાં ૩૦ મિનીટ માટે માવજત આપીને ૬૦૦ સે.તાપમાને ટ્રે ડ્રાયરમાં ૧૮ કલાક અંતિમ ભેજ ૫ ત્ર ૧ ટકા ના થાય ત્યાં સુધી નિર્જલીકૃત કરવા. ત્યાર બાદ સૂકા લીલા મરચાંના ટૂકડાઓને દળી ૧૨૫ માઈક્રોન જાડાઈની એચ.ડી.પી.ઈ. થેલીમાં પેક કરી સામાન્ય તાપમાને (૨૬ - ૩૨ ૦ સે.) ૬ મહિના સુધી સંગ્રહ કરી શકાય છે. **(Action: I/c, CE on PHT, Navsari)**
13.5.1.36	**Standardization of technology for preparation of unripe banana (*Musa paradisiaca* L.) powder for commercial adoption.** **House approved the recommendation as under:** Food processors and entrepreneurs are recommended to cut 2 mm thick unripe banana (*Grand Naine*) slices for dehydration by blanching in water at 70°C for 1 min followed by dipping for 30 min in 1000 ppm Potassium Metabisulphite+2000 ppm Citric Acid solution and dried in a tray dryer at a temperature of 60±2 °C till a final moisture content of 3±1%. The dried unripe banana slices should be grinded into powder and packed in glass jar or Aluminium laminate pouches for storage upto six months at ambient temperature. ભલામણ ફુડ પ્રોસેસરો અને ઉદ્યોગ સાહસીકોને ભલામણ કરવામાં આવે છે કે ૨ મી.મી. પાતળી ગ્રાન્ડ નાઈન જાતની કાચા કેળાની પાતરી કાપી અને ૭૦° સેં. તાપમાને ૧ મિનિટ સુધી બ્લાન્ચીંગ કરી, ત્યાર બાદ ૧૦૦૦ પી.પી.એમ. પોટાશીયમ મેટાબાઈસલ્ફાઈટ + ૨૦૦૦ પી.પી.એમ. સાઈટ્રીક એસીડના દ્રાવણમાં ૩૦ મિનિટ સુધી ડુબાડી, ૬૦°સેં. તાપમાને ડ્રાયરમાં અંતીમ ભેજ ૩૧% થાય ત્યાં સુધી સુકવણી કરી, સુકવેલ કેળાની ચીરીઓને દળી કાચની બરણીમાં અથવા એલ્યુમીનીયમ લેમીનેટ થેલીમાં ભરવાથી ૬ માસ સુધી સામાન્ય તાપમાને સંગ્રહ કરી શકાય છે. **(Action: I/c, CE on PHT, Navsari)**
13.5.1.37	**Design of Corrugated Fiber Board (CFB) box for packaging of Kesar mango.** **House approved the recommendation as under:** Manufactures are recommended to use corrugated fiber board box for 3kg, 5kg and 10 kg to pack Kesar mango fruits packaging having edge crush test value 2.44N/mm, 5.31N/mm and 4.51N/mm respectively prepared from kraft liner paper with B-type flute having less than 12% moisture content with following specifications for safe transport.

Particulars	**3kg Box**	**5kg Box**	**10kg Box**
Type of Box	One piece Interlocking box	One-piece tuck-in cover/	One piece box

	(OSC)	telescopic box (OSC)	(RSC)
Compressive Strength of Box, Kgf	105.49	217.30	228.92
Internal Dimension, mm Length x Width x Height	398x256x66	332x256x130	332x256x256

ભલામણઃ

બોક્ષ બનાવનારાઓને ભલામણ કરવામાં આવે છે કે ૩કિગ્રા.,પકિગ્રા., અને ૧૦ કિગ્રા. કેસર કેરી ફળ પેક કરી સલામત રીતે વહન કરવા માટે ક્રાફટ લાઈનર કાગળ સાથે બી-ટાઈપની વમળ ધરાવતા, ૧૨%થી ઓછો ભેજ વાળા અને અનુક્રમે ૨.૪૪ ન્યુ/મી.મી, ૫.૩૧ ન્યુ/મી.મી અને ૪.૫૧ ન્યુ/મી.મી ની એજ ક્રશ ટેસ્ટ અંક ધરાવતાના કોરૂગેટેડ ફાઈબર બોર્ડ બોક્ષ નીચે જણાવેલ માપદંડ મુજબ બનેલા હોય તે વાપરવા. વિગત	૩કિગ્રા બોક્ષ	પકિગ્રા બોક્ષ	૧૦કિગ્રા બોક્ષ
બોક્ષ નો પ્રકાર	વન પીસ ઈન્ટરલોકીંગ બોક્ષ (ઓએસસી)	વન પીસ ટ્રક-ઈન કવર/ટેલીસ્કોપીક બોક્ષ (ઓએસસી)	વન પીસ બોક્ષ (આરએસસી)
બોક્ષ ની કંપ્રેશીવ સ્ટ્રેન્થ, કિગ્રાફોર્સ	૧૦૫.૪૯	૨૧૭.૩૦	૨૨૮.૯૨
અંદરના પરીમાણ	૩૯૮×૨૫૬×૬૬	૩૩૨×૨૫૬×૧૩૦	૩૩૨×૨૫૬×૨૫૬

	લંબાઈ×પહોળાઈ×ઉચાઈ			
	(Action: I/c, CE on PHT, Navsari)			
13.5.1.38	**Effect of tillage practices on sugarcane production** **House approved the recommendation as under:** Farmers of south Gujarat heavy rainfall zone (AES-III) adopting sugarcane-sugarcane cropping sequence in clayey soils are advised to adopt sub soiling to a depth of 45 cm and at a spacing of 1 m followed by ploughing by cultivator for achieving higher cane yield and net income as compared to normal and deep ploughing. ભલામણઃ આથી દક્ષિણ ગુજરાતનાં ભારે વરસાદ વિસ્તાર(એઈએસ-૩) માં શેરડી પછી શેરડીનો પાક અપનાવતા ખેડુતો માટે ભલામણ કરવામાં આવે છે કે ભારે કાળી જમીનમાં ૧ મીટરના અંતરે અને ૪૫ સે.મી. ની ઉંડાઈએ સબસોઈલર તથા કલ્ટીવેટરથી ખેડ કરી શેરડીનો પાક લેવાથી સામાન્ય તથા ઉંડી ખેડ ની સરખામણીએ વધું ઉત્પાદન તેમજ વધારે સારી આવક મેળવી શકાય છે. **(Action: I/c Prof. and Head, Dept. of Agril. Engg., NMCA, Navsari)**			

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY	
13.5.1.39	**Study on different drying methods for drying of red and green chilly**
	House approved the recommendation as under: The farmers and agro processors are advised to use forced convectional solar dryer to dry green and red chilly to produce better quality dried products of chilly. The drying rate was found higher (127.46 g/h) moisture loss for red and green chilly under forced convectional solar dryer. With the use of forced convectional solar dryer, 44.20 % drying time can be saved compared to low cost poly solar dryer and 87.1% as compared to sun drying method. The low cost poly solar dryer is recommended for maintaining quality and colour of dried red and green chilly, whereas forced solar conventional solar dryer is recommended for attaining fast drying (less drying time). ભલામણઃ ખેડૂત તેમજ પ્રોસેસીંગ એકમોને લીલા તેમજ લાલ મરચા સુકવવા માટે ડ્રાફટ કન્વેન્શનલ સોલર ડ્રાયર (સૂર્ય ઉર્જાથી ચાલતુ સુકવણી માટેનું સાધન) નો ઉપયોગ કરવા ભલામણ કરવામાં આવે છે. આ પ્રકારનાં સૂર્ય ઉર્જા સંચાલીત સુકવણીનાં સાધનમાં લાલ તેમજ લીલા મરચાંનો સુકવણી દર ૧૨૭.૪૬ ગ્રામ/કલાક છે. જે ઓછી કિંમત (લો કોસ્ટ) નાં પોલી સોલર સુકવણી સાધન કરતાં વધારે છે. ડ્રાફટ કન્વેન્શનલ સોલર ડ્રાયરનાં ઉપયોગથી મરચાંની સુકવણીની પ્રક્રિયામાંઙ્કપોલી હાઉસમાં સુકવણીની સરખામણીએ ૪૪.૨૦ ટકા જેટલો ઓછો સમય થાય છે. જયારે સૂર્યનાં ખુલ્લા તડકામાં

	સુકવણીની સરખામણીએ ૮૭.૧૦ ટકા જેટલો ઓછો સમય લાગે છે. મરચાંની સુકવણી દરમિયાન મરચાંનો લાલ રંગ સારી રીતે જળવાઈ રહે તે માટે ઓછી કિંમતવાળા (લો કોસ્ટ) પોલી સોલર ડ્રાયર પણ વાપરી શકાય છે પરંતું ઝડપી સુકવણી કરવા ડ્રાફટ સોલર કન્વેન્શનલ સાધન વાપરવાની ભલામણ કરવામાં આવે છે. **(Action: Dean, College of Renewable Energy & Environmental Engineering, SDAU, Sardarkrushinagar)**
13.5.1.40	**Techno-economic feasibility of Solar Water Pumping System in Banaskantha district of Gujarat, India.**
	House approved the recommendation as under: Farmers of North Gujarat region are hereby recommended to adopt 5 hp solar photovoltaic water pumping system coupled with micro irrigation system to promote eco-friendly daytime irrigation. The system is appropriate in the total head range of 5 to 85 m. The PV system is economical as compared to diesel pump set with average payback period of 04 years. ભલામણઃ ઉત્તર ગુજરાતના ખેડૂતોને પિયત હેતું પર્યાવરણ હિતેચ્છુ ૫ હો.પા. ક્ષમતાની સૌર સિંચાઇ પંપ સહિત સૂક્ષ્મ સિંચાઇ પધ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. સૌર સિંચાઇ પંપ ૫ થી ૮૫ મીટરની કુલ ઉંડાઇથી પાણી ખેંચવા માટે અનૂકુળ છે. ડીઝલ પંપની સરખામણીએ સૌર સિંચાઇ પંપ આર્થિક રીતે વધુ ફાયદાકારક છે. અને સરેરાશ ૦૪ વર્ષમાં જ રોકાણ નીકળી જાય છે. **(Action: Dean, College of Renewable Energy & Environmental Engineering, SDAU, Sardarkrushinagar)**

13.5.2. RECOMMENDATION FOR SCIENTIFC COMMUNITY

NAND AGRICULTURAL UNIVERSITY

13.5.2.1	**Web based application for analysis of Completely Randomized Design, Latin Square Design, and Strip Plot Design**
	House approved the recommendation as under Web based application developed by Anand Agricultural University is useful to analyze the data of the experiments using designs like Completely Randomized Design, Randomized Block Design, Latin Square Design, Split plot design and Strip Plot design and also for illustration purposes as well as for the researchers with interest in experimental designs. **(Action : PI /HOD, CAIT, AAU, Anand)**
13.5.2.2	**Development of Web based Annual Budget Management System**
	House approved the recommendation as under Web based online Annual Budget Management System developed by

	Anand Agricultural University automates annual budgeting and funding process of State Agricultural Universities. It is recommended to use at State Agricultural Universities Council and SAUs of Gujarat. **(Action : PI /DIT, AAU, Anand)**
13.5.2.3	**Web based application for Dead Stock and IT Asset information Management**
	House approved the recommendation as under Web based Dead Stock and IT Asset information Management System developed by Anand Agricultural University is useful to store, retrieve and track dead stock items and IT assets details. It is recommended to use by the IT users of the concerned unit/sub-unit of the SAUs of Gujarat. **(Action : PI /DIT, AAU, Anand)**
13.5.2.4	**Online Information Management for Extension Education Centers of AAU**
	House approved the recommendation as under Web based online Information Management for Extension Education Centers system developed by Anand Agricultural University is used to store and manipulate the training data, FLD information, budget information, extension activities, results of OFT and success stories of the unit/sub-unit of SAUs and can generate necessary reports for management. It is recommended to use by all the respective unit/sub-unit of SAUs of Gujarat who are involved in extension activities. **(Action : PI /DIT, AAU, Anand)**
13.5.2.5	**Parameterization of probability models for SUH derivation using Geomorphological model of a catchment response**
	House approved the recommendation as under The NGO's, planners and irrigation specialists are advised to adopt Two Parameter Weibull distribution over two parameter Gamma distribution coupled with geomorphological model of catchment response for development of synthetic unit hydrograph and the flood hydrographs from ungauged catchments of Panam river basin system. **(Action : Principal, Poly. Agri. Engg., AAU, Dahod)**
13.5.2.6	**Comparative appraisal of physical, chemical, instrumental and sensory evaluation methods for monitoring oxidative deterioration of ghee**
	House approved the recommendation as under 1. The prediction based on regression model comprising peroxide value by FOX method, carbonyl value and flavor score obtained by sensory evaluation of ghee on storage at 80±2°C as variables is promising for predicting shelf life of ghee at ambient temperature (35±2°C). 2. The use of Rancimat is not promising to predict the shelf life of ghee on storage at ambient temperature (35±2°C). **(Action : HOD, Dept. of Dairy Chemistry, DSC, AAU, Anand)**

13.5.2.7	**Screening of Qualitative Tests for Detection of Adulterants in Milk**
	House approved the recommendation as under Inter-adulterant interference in detection of adulterants in milk by selected qualitative tests • Mixing of urea at 0.8% or more in milk interferes in detection of detergents by Methylene blue test given by FSSAI (2015). • Mixing of formalin at 0.4% or more in milk interferes in detection of detergents by Methylene blue test given by FSSAI (2015). • Mixing of sodium hydroxide at 0.08% or more in milk interferes in detection of detergents by Methylene blue test given by FSSAI (2015). • Mixing of formalin at 1.0% or more in milk interferes in detection of ammonium sulphate by Phenol test given by FSSAI (2015). • Mixing of sodium hydroxide at 0.04% or more in milk interferes in detection of Glucose by Barfoed method given by FSSAI (2015). • Mixing of formalin at 0.1% or more in milk interferes in detection of Sucrose by Seliwanoff test given by Srivastava (2010). • Mixing of sodium hydroxide at 0.01% or more in milk interferes in detection of Maltodextrin by Iodine test given by Sharma et al. (2012). • Mixing of urea at 0.4% or more in milk interferes in detection of starch by Iodine test given by BIS (1960). • Mixing of ammonium sulphate at 0.1% or more in milk interferes in detection of starch by Iodine test given by BIS (1960). • Mixing of sodium hydroxide at 0.01% or more in milk interferes in detection of starch by Iodine test given by BIS (1960). • Mixing of sodium hydroxide at 0.01% or more in milk interferes in detection of sulphate by Barium chloride given by FSSAI (2015). • Mixing of sucrose at 0.4% or more in milk interferes in detection of formaldehyde by Leach test given by BIS (1961). **Note:** While applying the aforementioned qualitative tests, interference as caused by the coexisting respective adulterant should be taken into account for interpretation of the respective qualitative tests. Such interference by the coexisting adulterants suggests the need for suitable modification or for further research on alternate tests. Effect of Processing on detection of adulterants in milk by selected qualitative tests • Pasteurization and sterilization of milk affects detection of Detergents in milk by methylene blue test given by FSSAI (2015). • Pasteurization, boiling and sterilization affects detection of Urea by DMAB test given by FSSAI (2015). • Chilling, pasteurization, boiling and sterilization affects detection of Glucose in milk by Barfoed test given by FSSAI (2015). • Sterilization affects detection of Sucrose in milk by Seliwanoff test given by Srivastava (2010). • Sterilization affects detection of Formaldehyde in milk by Leach test given by BIS (1961). • Chilling, pasteurization, boiling and sterilization affects detection of Hydrogen peroxide in milk by ρ-Phenylenediamine test given by Draaiyer*et al.* (2009).

	• Sterilization affects detection of Neutralizers by Rosolic acid test given by (DGHS, 2005). **(Action : HOD, Dept. of Dairy Chemistry, DSC, AAU, Anand)**
13.5.2.8	**Application of infrared spectroscopy in detection of foreign fats and oils in ghee**
	House approved the recommendation as under ✓ FT-MIR spectroscopy in reflectance mode using HATR and FT-NIR spectroscopy in transmittance mode are suitable for evaluation of physical and chemical parameters of ghee. ✓ FT MIR (4000–650 cm^{-1}) spectra of ghee have 14 peaks and position of peaks (wavenumbers) are at 3005, 2922, 2853, 1744, 1466, 1418, 1377, 1236, 1161, 1114, 1098, 966, 870 and 721 cm^{-1}. ✓ FT NIR (10000–4000 cm^{-1}) of ghee have 9 peaks and position of peaks (wavenumbers) are at 8258, 7185, 7076, 5790, 5677, 5262, 5180, 4976 and 4700 cm^{-1}. The intensity of absorbance is higher in case of cow ghee compared to buffalo ghee. **(Action : HOD, Dept. of Dairy Chemistry, DSC, AAU, Anand)**
13.5.2.9	Experimental determination of rate of respiration and heat load of important commodities of the region.
	House approved the recommendation as under Persons interested in designing cold/low temperature storage facilities for fruits/vegetables such as Green chilli, Guava, Brinjal, Mango, Custard apple, Cluster beans and Cucumber are recommended to use the data on respiration rate and heat of respiration for the above commodities for various temperatures and RH's, generated by Anand Agricultural University, Anand. **(Action : HOD, Dept. of Post Harvest Engg & Tech, AAU, Anand)**
13.52.10	Evaluation of Synthetic Food Colors in Selected Food Products
	Recommendation was deferred. **(Action : HOD, Dept. of FQA, FPTBE, AAU, Anand)**
13.52.11	Prevalence and study of antibiotic resistant pattern of *Salmonella* in raw milk in Anand town
	House approved the recommendation as under Analysis of raw milk samples collected around Anand region reveals prevalence of Salmonella in 8.57%. These Salmonella strains found to be sensitive to antibiotics and pasteurization temperature. **(Action : HOD, Dept of FQA, FPTBE, AAU, Anand)**
13.52.12	The study on *in vitro* antioxidant and antidiabetic activity of garden cress seed (*Lepidiumsativum*)
	House approved the recommendation as under Antioxidant activity of Garden cress seed was determined by DPPH, ABTS,

	FRAP and TPC found 22.63 (% inh), 13.78 (% inh), 48.07 (RP%) and 788.46 (mg %), respectively. In vitro antidiabetic activity studied using Non enzymatic Glycosylation of haemoglobin assay and ά-amylase inhibition power found 70.20 (% inh) and 66.53 (% inh), respectively. **(Action : Principal, PFSHE, AAU, Anand)**

JUNAGADH AGRICULTURAL UNIVERSITY	
13.5.2.13	Vibration study and its attenuation through coating on mini tractor seat.
	House approved the recommendation as under: Mini tractor operators / manufacturers are recommended to use operator's seat coated on both sides by natural rubber [density- 0.978 g/cc; thickness- 10mm & hardness - 50], which resulted in significant attenuation of whole body vibration of operator along with enhanced operating time, as per BIS / ISO standards under all operating conditions with & without trailer on tar road, farm road and field. **(Action: Professor & Head, Dept of Farm Machinery and power, CAET, JAU, Junagadh)**

NAVSARI AGRICULTURAL UNIVERSITY	
13.5.2.144	A study of technical feasibility and development of Mobile App for Agricultural Information Dissemination to the farming community. **House approved the recommendation as under:** The prototype model of mobile based application developed by Navsari Agricultural University (Kisan Mitra) can be used for developing mobile application for agricultural information dissemination to the farming community. **(Action : Dept. of ICT,AABMI,NAU, Navsari)**
13.5.2.15	A study on technical feasibility and development of the KIOSK system for the information dissemination to the farmers. **House approved the recommendation as under:** The prototype model of KIOSK application developed by Navsari Agricultural University can be used for agricultural and allied field information dissemination to the farming community. **(Action: Dept. of ICT,AABMI,NAU, Navsari)**

RECOMMENDATIONS FROM OTHER SUB COMMITTEES

NAVSARI AGRICULTURAL UNIVERSITY	
1	Development of technology for dehydration of onions rings for adoption at commercial scale **House approved the recommendation as under:** Processors and entrepreneurs are recommended to dehydrate red onions rings by pre-treating them with combination of 2000 ppm potassium meta-bisulphite (KMS) and 500 ppm citric acid for 15 minutes followed by staged

	dehydration (75 ºC for 2 h, 70 ºC for 2 h, 65 ºC for 1 h and 60ºC for 8 h) till final moisture content of 4.8%. Dehydrated red onion rings packed in 400 gauge HDPE bags remain microbiologically safe for 6 months with better quality attributes. ભલામણ આથી પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે લાલ ડુંગળીની સુકવણી કરવા માટે ડુંગળીની રિંગ્સને ૨૦૦૦ પીપીએમ પોટેશિયમ મેટાબાઈસલ્ફાઈટ (છોક) અને ૫૦૦ પી.પી.એમ. સાઇટ્રિક એસિડના મિશ્રણમાં ૧૫ મિનિટ પુર્વ માવજત બાદ ૭૫૦ સે તાપમાન પર ૨ કલાક, ૭૦૦ સે પર ૨ કલાક, ૬૫૦ સે પર ૧ કલાક અને ૬૦૦ સે પર ૮ કલાક અંતીમ ભેજ ૪.૮ % સુધી નિર્જલીકૃત કરવા. નિર્જલીકૃત લાલ ડુંગળી રિંગ્સને ૪૦૦ ગેજ એચ. ડી. પી એઈ. થેલીમાં પેક કરી ૬ મહિના સુધી જીવાણુ રહીત સારી ગુણવત્તા સાથે સંગ્રહ કરી શકાય છે. **(Action: I/c, CE on PHT, Navsari)**
2	Development of technology for dehydration of okra slices for adoption at commercial scale **House approved the recommendation as under**: Processors and entrepreneurs are recommended to dehydrate okra slices by pre-treating okra slices with combination of 1500 ppm potassium meta-bisulphite (KMS) and citric acid @ 500 ppm for 15 minutes followed by two stage dehydration (75ºC for 2 h and 65ºC for 10 h) till a final moisture content of 5.2%. Dehydrated okra slices packed in 400 gauge HDPE bags remain microbiologically safe for 6 months with better quality attributes. ભલામણ આથી પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે ભીંડાના ટૂકડાની સુકવણી કરવા માટેભીંડાના ટૂકડાને ૧૫૦૦ પીપીએમ પોટેશિયમ મેટાબાઈસલ્ફાઈટ (છોક) અને ૫૦૦ પીપીએમ સાઇટ્રિક એસિડના મિશ્રણમાં ૧૫ મિનિટ પૂર્વ માવજત બાદ ૭૫૦ સે તાપમાન પર ૨ કલાક અને ૬૫૦ સે પર ૧૦ કલાક અંતીમ ભેજ ૫.૨ % સુધી નિર્જલીકૃત કરવા. નિર્જલીકૃત ભીંડાના ટુકડાને ૪૦૦ ગેજ એચ. ડી. પી. એઈ. થેલીમાં પેક કરી સામાન્ય તાપમાન પર ૬ મહિના સુધી જીવાણુ રહીત સારી ગુણવત્તા સાથે સંગ્રહ કરી શકાય છે. **(Action: I/c, CE on PHT, Navsari)**
3	Development of technology for dehydration of cauliflower for adoption at commercial scale **House approved the recommendation as under:** Processors and entrepreneurs are recommended to dehydrate cauliflower cut segments by pre-treating them with combination of 1500 ppm potassium meta-bisulphite (KMS) and 1000 ppm citric acid for 15 minutes. After pre-treatment, the cauliflower cut segments must be dehydrated stage wise (75ºC for 2 h, 70ºC for 2 h, 65ºC for 1 h and 60ºC for 7 h) till final moisture content of 4.9%. The dehydrated cauliflower cut segments packed in 400 gauge HDPE bags remain microbiologically safe for 6 months with better quality

	attributes. ભલામણ આથી પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે ફૂલકોબીના ટુકડાનીસુકવણી કરવા માટે ફૂલકોબીના ટુકડાને ૧૫૦૦ પ◌ીપ◌ીએમ પ◌ોટેશિયમ મેટાબાઈસલ્ફાઈટ (છોક) અને ૧૦૦૦ પી.પી.એમ. સાઇટ્રિક એસિડના મિશ્રણમાં ૧૫મિનિટ પ◌ૂર્વ માવજત આપવી. પૂર્વ માવજત આપ્યા બાદ ૭૫૦ સે ૫૨ ૨ કલાક, ૭૦° સે ૫૨ ૨ કલાક, ૬૫° સે ૫૨ ૧ કલાક અને ૬૦° સે ૫૨ ૭ કલાક અંતીમ ભેજ ૪.૯ % સુધી નિર્જલીકૃત કરવા. નિર્જલીકૃત ફૂલકોબીના ટુકડાને ૪૦૦ ગેજ એચ. ડી. પી એઈ. થેલીમાં પેક કરી સામાન્ય તાપમાન ૫૨ ૬ મહિના સુધી જીવાણુ રહીત સારી ગુણવત્તા સાથે સંગ્રહ કરી શકાય છે. **(Action: I/c, CE on PHT, Navsari)**
4	Exploration and evaluation of local weed flora for value addition through drying **Recommendation deferred due to lack of scientific information.** **(Action: Prof. and Head Floriculture,ACHF, Navsari)**
5	Standardization of drying technique in Rose var. (*Top secret, Gold Strike and Rewine*) **House approved the recommendation as under:** People interested in cottage industry based on dry flowers are advised to dry roses of variety *Top Secret and Gold Strike* using silica gel (60-120 mesh size) embedding method (850 g silica for 10 flowers) either with Microwave Oven (30 l capacity) at 900 watts for 2 minutes followed by 1 h cooling with 3 times repetition and finally cooling for 18 h or under room condition (7 days-drying time) to obtain good quality dry flowers having storage life of 120 days. ભલામણઃ સુકા ફૂલોના લઘુ ઉદ્યોગમાં રુચિ ધરાવતી વ્યકિતઓને ભલામણ કરવામાં આવે છે કે ફૂલોની સુકવણી માટે ગુલાબની ટોપ સિક્રેટ અને ગોલ્ડ સ્ટ્રાઈક જાતોને સિલિકા જેલ ૮૬૦-૧૨૦ ?ભ(ઝ (થ્રભ્લ્વડે આચ્છાદિત કરી (૮૫૦ ગ્રામ સિલિકા/૧૦ ફુલ) માઈક્રોવેવ ઓવનમાં (૩૦ લિટર કેપ◌ેસીટી) ૯૦૦ વોટસ ૫૨ ૨ મિનિટ માટે મુકયા બાદ ૧ કલાક ઠંડુ પાડવું (૩ વખત પ◌ુનરાવર્તન કરવું) અને છેલ્લે ૧૮ કલાક માટે ઠંડુ પાડવું અથવા ઓરડામાં (૭ દિવસ) સુકવણી કરવાથી સારી ગુણવત્તાવાળા સુકા ફૂલો મેળવી શકાય, જેની જાળવણી ૧૨૦ દિવસ સુધી કરી શકાય છે. **(Action: Prof. and Head Floriculture,ACHF, Navsari)**
6	Development of *burfi* utilizing watermelon *(Citrullus lanatus) rind* **House approved the recommendation as under:** It is recommended to use 10% (w/w) watermelon rind in buffalo milk for

	preparation of watermelon rind burfi with acceptable physicochemical and sensory quality which can be stored for 20 days at refrigeration temperature (7±1°C). ભલામણ આથી ભલામણ કરવામાં આવે છે કે ,ભેંસના દૂધ માં ૧૦ %વજન મુજબ તરબૂચની આંતર છાલ ઉમેરીને બનાવેલ “તરબૂચ બરફી” નાં ભૌતિક ,રાસાયણિક તેમજ સંવેદનાત્મક ગુણધર્મ જળવાઈ રહે છે .જેને ફ્રીજનાં તાપમાને)૭ ± ૧ સે (.૨૦ દિવસ સુધી સંગ્રહી શકાય છે. **(Action: Prof. and Head, LPT, Navsari)**
7	Varietal screening of cashew apple for preparation of RTS and jam. **House deferred both the recommendations (a & b) due to lack of statistically at par treatments.** **(Action: Research Scientist, AES, Paria)**
8	Preparation and standardized technique of guava (*Psidium guajava* L.) and papaya (*Carica papaya* L.) blended RTS. **House deferred the recommendation due to lack of nutritional and microbial parameters.** **(Action: Principal, COA, Bharuch)**
9	**Development of mango fortified goat milk dahi** **House deferred the recommendation due to following reasons.** **1. The data of culture population doesn’t matched with the basic principals during storage** **2. Acidity was not evaluated** **(Action: Head, Dept. of LPT, College of Veterinary Science & AH, SDAU)**

13.5.3 NEW TECHNICAL PROGRAMME

Chairman	**:**	Dr. N.C. Patel, Hon. VC, AAU
Co-Chairman	**:**	Dr. J.B. Prajapati, AAU
	:	Dr. G.K. Saxena, SDAU
Repporteurs	**:**	Dr. P. Mohanot, JAU
	:	Dr. R.V. Prasad, AAU
	:	Er. A.D. Deshpande, SDAU

ANAND AGRICULTURAL UNIVERSITY

Sr. No.	Title /centre	Suggestions	Action
13.5.3.1	Web-Based Application for Combined Analysis of Variance	**Approved**	**(Action: PI/HOD, CAIT, Anand)**
13.5.3.2	Annual Award Module for Colleges of AAU	**Approved**	**(Action: PI/HOD, CAIT, Anand)**
13.5.3.3	Transformation of Information through multimedia Based Interactive media for Maize crop	**Approved**	**(Action: PI/HOD, CAIT, Anand)**
13.5.3.4	Transformation of Information through multimedia based Interactive media for Mungbean	**Approved**	**(Action: PI/HOD, CAIT, Anand)**
13.5.3.5	Designing fully automated self sustainable Greenhouse	**Not Approved**	**(Action: PI/HOD, CAIT, Anand)**
13.5.3.6	Development of Web Based AGRESCO Project Information & Monitoring Management System	**Approved**	**(Action: PI/ DIT,Anand)**
13.5.3.7	Web Based System for Planning and Budget	**Approved**	**(Action: PI/ DIT,Anand)**
13.5.3.8	Web Based Complain Management System for IT Related Services at AAU	**Approved**	**(Action: PI/ DIT,Anand)**
13.5.3.9	Decision Support System for Plant Protection	**Approved**	**(Action: PI/ DIT,Anand)**
13.5.3.10	Web Based System for Enrollment of Post Graduate Students (Campus Form) – Adding a New Module in Post Graduate Information System	**Approved**	**(Action: PI/ DIT,Anand)**
13.5.3.11	Web Based Integrated Workflow Management	**Approved**	**(Action: PI/ DIT,Anand)**

	System		
13.5.3.12	GEA – Mobile App Emergency Alert Mobile Application for Hostelite Girl Students of SAU's of Gujarat)	**Approved**	**(Action: PI/ DIT,Anand)**
13.5.3.13	Conjugate Assessment of Drip Lateral Spacing and Irrigation Regimes on Productivity of Rabi Maize	**Approved with following suggestions** 1. Lateral space should be 0.6 and 1.2 m	**(Action: PI/HOD, SWE, CAET, Godhra)**
13.5.3.14	Development of tractor drawn simple and low cost combined tillage tool	**Approved with following suggestions** **1. Include cone index parameter**	**(Action: PI/HOD, FMPE, CAET, Godhra)**
13.5.3.15	Development of battery operated cutter	**Approved with following suggestions** **1. Use cutter instead of harvester in the title**	**(Action: PI/HOD, FMPE, CAET, Godhra)**
13.5.3.16	Development of electric motor operated maize cob dehusker	**Approved**	**(Action: PI/HOD, FMPE, CAET, Godhra)**
13.5.3.17	Evaluation of different types of ground wheel for seed cum fertilizer drill machine	**Approved with following suggestions** **1. Rewrite the title as:** Evaluation of different types of ground wheel for sowing and planting machine **2. Recast second objective as:** To optimize the dimensions of ground wheel	**(Action: PI/HOD, FMPE, CAET, Godhra)**
13.5.3.18	Development of low cost multi crop planting unit For conventional plough	**Approved with following suggestions** 1. Include the seed damage, germination percentage, seed placement depth and seed singulation efficiency in the observations 2. Use test code for performance evaluation of the planting unit	**(Action: PI/HOD, FMPE, CAET, Godhra)**

13.5.3.19	Effect of light intensity and color on growth performance of rose in net house	**Approved with following suggestions** 1. Dutch rose to be taken instead of Gladiator 2. LED bulb to be use in place of CFL	**(Action: PI/HOD, APE, CAET, Godhra)**
13.5.3.20	Evaluation and modification of sun drying practices for maize cobs	**Approved with following suggestions** 1. Modify the second objective as: To develop effective sun drying method for maize crop 2. Remove word wire mesh from the treatment and include GI wire 3 Include the treatment of drying maize cobs from LDPE black sheet of 100 micron in the experiment	**(Action: PI/HOD, APE, CAET, Godhra)**
13.5.3.21	Development of Arduino based wireless soil moisture sensor	**Approved with following suggestions** **1. Modify the title as:** Performance evaluation of ARDUINO based wireless soil moisture sensor	**(Action: PI/HOD, APE, CAET, Godhra)**
13.5.3.22	Irrigation Scheduling For Chilli Crop Under Drip Irrigation System	**Approved**	**(Action: PI/Principal, Poly. Ag. Eng.,Dahod)**
13.5.3.23	Development of Bullock Drawn Multi-crop Dibbler Planter	**Approved with following suggestions** **1. Modify the title as following:** Development of Bullock Drawn Multi-crop Planter based on dibbling technology	**(Action: PI/Principal, Poly. Ag. Eng.,Dahod)**
13.5.3.24	Web Based Application for Analysis of CRD and RBD Designs in Factorial Concept	**Approved**	**(Action: PI/HOD, Ag. Stat., BACA, Anand)**
13.5.3.25	Technology development for moraiyo (panicummiliare) kheer	**Approved with following suggestions**	HOD, Dept. of Dairy Technology

		1. Addition of Presoaked moriyo @ 2,3,4 % instead of 3,4,5 %	
13.5.3.26	Evaluation of selected additives for the manufacture of low fat chhana	**Approved with following suggestions** 1. Recast the objectives 2. Treatment details should be specified	HOD, Dept. of Dairy Technology
13.5.3.27	Development of methods for detection of adulterants of milk and milk products Sub project: Optimization of selected quantitative tests for detection of common adulterants in milk	**Approved**	HOD, Dept. of Dairy Chemistry
13.5.3.28	Utilization of whey in dairy and food products Sub Utilization of paneer whey in symbiotic Sherbet candy	**Approved**	HOD, Dept. of Dairy Chemistry
13.5.3.29	Development of dairy starter cultures and value added dairy product Sub project1: Development of probiotic smoothie enriched with Finger millet	**Approved with following suggestions** Replications to be replaced with repetitions at phase IV plan of study	HOD, Dept. of Dairy Microbiology
13.5.3.30	Development of dairy starter cultures and value added dairy product Sub project2: Evaluation of Exopoly saccharides and non EPS producing strains of LAB for production of Dahi	**Approved**	HOD, Dept. of Dairy Microbiology
13.5.3.31	Plasmid profile of LAB and their use as bio-medical agents GOG, Sub Project 1: Invitro evaluation of lactobacillus helveticus MTCC 5463 against selected skin pathogens and potential effect on skin lightning	**Approved**	HOD, Dept. of Dairy Microbiology
13.5.3.32	Plasmid profile of LAB and their use as bio-medical agents GOG, Sub Project 2: Purification and characterization of ACE inhibitory peptides derived	**Approved with following suggestions** **1.** Statistical replications to be reviewed	HOD, Dept. of Dairy Microbiology

	from fermented camel milk		
13.5.3.33	Design, development and performance evaluation of a solar thermal system assisted Double Pipe Heat Exchange for heating of milk for preparation of paneer	**Approved**	HOD, Dept. of Dairy Engineering
13.5.3.34	Varietal evaluation of selected fruits and vegetables for respiration rate under the steady storage condition	**Approved with following suggestions** **1. Remove fruits from objectives** **2. Replication word to be replaced with repetitions** **3. FCRD to be replaced with CRD**	HOD, Dept. of Post Harvest Engg. And Technology
13.5.3.35	Post Harvest Management of some important middle crops of Gujarat. **Sub-Title:**Production of premium quality powder with maximum retention of essential oil using cryogenic grinding of carom (ajwain), Cinnamon and black pepper	**Approved**	HOD, Dept. of Post Harvest Engg. And Technology
13.5.3.36	Design and Development of Two-Stage Evaporative Cooling System for Transport of Fruits and Vegetables	**Approved**	HOD, Dept. of Post Harvest Engg. And Technology
13.5.3.37	Standardization of drying technique for *Moringa Oleifera* leaves	**Approved with following suggestions** The word Replications to be replaced with repetitions	HOD, Dept. of Post Harvest Engg. And Technology
13.53.38	Effect of Ohmic Heating at Lower Frequencies on Recovery of Fruits and Vegetables Juices	**Approved**	HOD, Dept. of Food Engineering
13.5.3.39	Development and performance evaluation of continuous rolling, sheeting and cutting system for *Kajukatli* production	**Approved**	HOD, Dept. of Food Engineering
13.5.3.40	Preservation of Mango	**Approved with following**	HOD, Dept. of

	slices **Sub**Osmotic drying of Mango slices	**suggestions** Tray drying method developed by NAU to be compared in the study	Food Technology
13.5.3.41	Development of functional low sugar muffins	**Approved**	HOD, Dept. of Food Technology
13.5.3.42	Development of technology for production and preservation of *Moringa Oleifera* (Drumstick) fruit pulp	**Not Approved due to duplications at NAU**	HOD, Dept. of Food Technology
13.5.3.43	Technology for Development of Ready- to-Rehydrate Type of Rice	**Approved with following suggestions** Pulses to be included in the title as well as in the objectives	HOD, Dept. of Food Technology
13.5.3.44	Super Critical Extraction of Essential Oil from Carom (ajwain) and Black Pepper	**Approved with following suggestions** 1. Shelf life study to be included in the objective 2. Antioxidant and antimicrobial activities to be measured in observations	HOD, Dept. of Food Quality Assurance
13.5.3.45	Cold Milling of Flaxseed for extraction of Omega-3 Rich Oil and Utilization of De-oiled Meal for Value Added Products	**Approved with following suggestions** 1. Spell as phase I, phase II, phase III instead 1,2,3 objectives. **2.** Spell the treatments phasewise	HOD, Dept. of Food Quality Assurance
13.5.3.46	Study on decontamination of pesticides in selected Spices, vegetables and fruits using γ-irradiation, UV radiation and Ozonation Techniques **Sub** Degradation of pesticide in red chili powder using gamma irradiation	**Approved with following suggestions** 1. Treatment levels to be decided on the basis of filler trials 2. Statistical design CRD to be considered	HOD, Dept. of Food Quality Assurance
13.5.3.47	Metagenomic based microbial diversity study of dairy effluent treatment	**Approved**	HOD, Dept. of Food Quality Assurance

	plants		
13.5.3.48	Production technologies for value added products from pumpkin seeds	**Approved**	HOD, Dept. of Food Quality Assurance
13.5.3.49	Development of Electrolyzed water and Ultraviolet-C (UV-C) food decontamination technology for safety and quality of fresh and minimally processed fruits and vegetables	**Approved**	HOD, Dept. of Food Quality Assurance
13.5.3.50	Screening, characterization and identification of conjugated linoleic acid producing lactic acid bacteria	**Approved**	HOD, Dept. of Food Quality Assurance
13.5.3.51	Bio-chemical characterization of *Moringa oleifera* leaves & pods	**Approved**	HOD, Dept. of Food Quality Assurance
13.5.3.52	Development of value added product containing Wheat *Ponk*	**Approved with following suggestions** 1. Add chick pea hola (ponk) in Title. 2. Drying techniques to be taken as three treatments 3. Five repetitions to be undertaken.	Principal, Polytechnic Food Science and Home Economics
13.5.3.53	Development of Antidiabetic and Antioxidant Rich Health Drink and Cookies using Garden Cress Seed *(LepidiumSativum*)	**Approved with following suggestions** 1. Treatments to be defined	Principal, Polytechnic Food Science and Home Economics
13.5.3.54	Development of Analytical Protocol for Detection of Aflatoxins in Selected Foods.	**Approved with following suggestions** 1. Survey to be removed from plan of work.	HOD, Dept. of Food Quality Assurance

JUNAGADH AGRICULTURAL UNIVERSITY

Sr. No.	Title/ center	Suggestions	Remarks
13.5.3.55	Development and evaluation of manually	**Approved**	

	operated Jamun harvesting device Center: Department ofFarm Machinery and Power, CAET, JAU, Junagadh)	**(Action: Prof.& Head, Dept. of Farm Machinery & Power, CAET, JAU, Junagadh)**	
13.5.3.56	Development of online screen-gravel filter for groundwater recharge (Center: Department ofSoil & Water Engineering,CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of Soil & Water Engg., CAET, JAU, Junagadh)**	
13.5.3.57	Evaluation of hydraulic performance of oozing pipe irrigation (Center: Department ofSoil & Water Engineering,CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of Soil & Water Engg., CAET, JAU, Junagadh)**	
13.5.3.58	Modeling water and energy fluxes over forest system (Center: Department ofSoil & Water Engineering,CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of Soil & Water Engg., CAET, JAU, Junagadh)**	
13.5.3.59	Adaption to climate change: Effect of hydrogel and organic manure to mitigate biotic stress in Bt. Cotton (Center:Main Dry Farming Research Station, JAU, Targhadia)	**Approved** **Action: Res. Scientist, Main Dry Farming Research station, JAU, Targadiya)**	
13.5.3.60	Adaption to climate change: Effect of hydrogel and organic manures to mitigate biotic stress in groundnut (Center: Main Dry Farming Research Station, JAU, Targhadia)	**Approved** **(Action: Res. Scientist, Main Dry Farming Research station, JAU, Targadiya)**	
13.5.3.61	Root growth study of Brinjal& Tomato crops under different irrigation methods (Center:Centre of	**Approved with following suggestion** **Van Genuchten root water extraction pattern to be verified**	

	Excellence on Soil & Water Management, RTTC, JAU, Junagadh)	**(Action: Res. Scientist, Centre of Excellence on SWM, RTTC, JAU, Junagadh)**	
13.5.3.62	Effect of drip lateral geometry on productivity of Wheat (Center: Centre of Excellence on Soil & Water Management, RTTC, JAU, Junagadh)	**Approved with following suggestion** **Already 80cm spacing recommended for wheat may be accounted.** **(Action: Res. Scientist, Centre of Excellence on SWM, RTTC, JAU, Junagadh)**	
13.5.3.63	Optimum water management for off-season Okra cultivation under protected environment (Center: Department of Renewable Energy and Rural Engineering, CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of RE&RE, CAET, JAU, Junagadh)**	
13.5.3.64	Design and development of small-scale peanut roaster (Center:Department Of Processing And Food Engineering, CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of P&FE, CAET, JAU, Junagadh)**	
13.5.3.65	Forced air curing of onion (Center: Department Of Processing And Food Engineering, CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of P&FE, CAET, JAU, Junagadh)**	
13.5.3.66	Effect of ozonization against harmful microbial organisms of fruits and vegetables (Center: Department Of Processing And Food Engineering, CAET, JAU, Junagadh)	**Approved** **(Action: Prof.& Head, Dept. of P&FE, CAET, JAU, Junagadh)**	
13.5.3.67	Testing of ozonization against storage insect pest of wheat. (Center: Department Of Processing And Food	**Approved**	

	Engineering, CAET, JAU, Junagadh)	**(Action: Prof.& Head, Dept. of P&FE, CAET, JAU, Junagadh)**	

NAVSARI AGRICULTURAL UNIVERSITY

S.N.	Title /centre	Suggestions	Remarks
13.5.3.68	"Effect of drip irrigation scheduling on Eucalyptus species grown in South Gujarat." **(Centre: NRM, Navsari)**	**Approved** **(Action: Prof. & Head, NRM, Navsari)**	
13.5.3.69	Design and development of centrifugal vegetable dewatering machine **(Centre: CE on PHT, Navsari)**	**Approved with following suggestions** **1. Title should be modified as-** Design and development of centrifugal dewatering machine for vegetable **2.** Add the word spinning duration instead of spinning time **(Action: I/c, CE on PHT, Navsari)**	
13.5.3.70	Development and quality evaluation of jackfruit seed flour and soy flour fortified pasta **(Centre: CE on PHT, Navsari)**	**Approved** **(Action: I/c, CE on PHT, Navsari)**	
13.5.3.71	Effect of lateral and open drain spacing on growth and yield of kharif grown pigeon pea with irrigation though drip during rabi season under South Gujarat conditions. **(Centre: SWMRU, Navsari)**	**Approved with following suggestions** **1.** Surface drain design should be spelled as per the runoff condition and rainfall pattern **(Action: Research, Scientist SWMRU, Navsari)**	
13.5.3.72	Study on drying characteristics of bitter gourd (*Momordica charantia* L.) **(Centre: CAET, Dediapada)**	**Approved with following suggestions** 1. Use RSM 2. Complete the experiment within 2 years. 3. Factorial CRD should be used **(Action: Dean, CAET, Dediapada)**	

13.5.3.73	Development of an apparatus for measuring angle of repose of granular materials. **(Centre: CAET, Dediapada)**	**Not approved due to duplication at AAU, Anand** **(Action: Dean, CAET, Dediapada)**	
13.5.3.74	Development of zero energy evaporative cooling storage structure (ZEECSS) for tribal region of Dediapada **(Centre: CAET, Dediapada)**	**Approved** **(Action: Dean, CAET, Dediapada)**	
13.5.3.75	Effect of land use/land cover changes on ground water resources of Dediapada block **(Centre: CAET, Dediapada)**	**Approved with following suggestions** 1. Use geomorphological based synthetic hydrograph and base flow separation method for ground water assessment. 3. Remove the word block from title. **(Action: Dean, CAET, Dediapada)**	
13.5.3.76	Computation of crop water requirements for cotton and pigeon pea crops of Dediapada region. **(Centre: CAET, Dediapada)**	**Approved with following suggestions** 1. Use local correction for Kc as per FAO-56 **(Action: Dean, CAET, Dediapada)**	
13.5.3.77	Evaluation of solar tunnel dryer for feasibility of green leaves drying for herbal products. **(Centre: CAET, Dediapada)**	**Approved with following suggestions** 1. "In Dediapada" should be added in title 2. Spell herbal plants in methodology. **(Action: Dean, CAET, Dediapada)**	
13.5.3.78	Development of Erodibility Map for Dang district. **(Centre: COA, Waghai)**	**Approved with following suggestions** Specify the procedure to calculate Organic Carbon, permeability and soil texture **(Action: Dean, COA, Waghai)**	

13.5.3.79	Analysis of Land Cover Changes in Dang District over Past 30 years using Remote Sensing and GIS. **(Centre: COA, Waghai)**	**Approved with following suggestions** 1. Remove the word "over Past 30 years" in the title 2. Delete objective (c) 3. Runoff estimation to be undertaken **(Action: Dean, COA, Waghai)**	
13.5.3.80	Development of multipurpose biomass based water heating and cooking system for EWS (Economical Weaker Section) people. **(Centre: COA, Bharuch)**	**Approved with following suggestions** 1. Approved as feeler trial 2. Smoke analysis to be done 3. Water flow should be specified **(Action: Principal, COA, Bharuch)**	

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Sr.No	**Title & Centre**	**Suggestions**	**Action**
13.5.3.81	Design and development of solar photovoltaic panel cleaning system.	**Approved**	(Action: Dr. V. M. Modi, CRE&EE, SDAU)
13.5.3.82	**Title:** Design and development of forced convection solar drying system for fruits and vegetables.	**Approved with following suggestions** Spell fruits and vegetables to be taken in the experiment.	(Action: Er. A.D. Deshpande, CRE&EE, SDAU)
13.5.3.83	**Title:** Design and development of fast composting machine for organic waste and cattle dung.	a) House approved as feeler trial. b) Spell the testing/performance parameters.	(Action: Er. J.R. Samriya, CRE&EE, SDAU)
13.5.3.84	Fertigation in fennel (Gujarat Fennel 12) through sub surface drip systems.	**Approved**	(Action: Er. B.S. Parmar, CNRM, SDAU)
13.5.3.85	Fertigation in chilly (Gujarat Chilly 3) through sub surface drip irrigation system.	**Approved**	(Action: Er. B.S. Parmar, CNRM, SDAU)

13.5.3.86	Optimization of process parameters for the development of tomato based carbonated beverage using response surface methodology.	**Approved with following suggestions** 1. Title recast as "Standardization of tomato based carbonated beverage". **2.** Storage period should not be restricted.	(Action: Shri. Ashish Dixit, DFST, SDAU)
13.5.3.87	Development of basil fortified mishti dahi.	**Approved with following suggestions** 1. Title recast as " Development of Basil fortified sweet dahi" **2.** Basil powder characteristics should be analysed.	(Action: Dr. Kanchan Mogha, DFST, SDAU)
13.5.3.88	**Title:** Development of functional squash containing drumstick leaves powder and mango pulp.	**Approved with following suggestions** 1. Change leaf with leaves in objective. 2. Shelf life to be studied at room temperature. **3.** Nutritional analysis of final product with and without drumstick powder should be undertaken.	(Action: Shri. Nirav D. Joshi, DFST, SDAU)
13.5.3.89	Process optimization for the development of amaranth-potato based weaning food premix.	**Approved with following suggestions** Nutritional analysis should be done.	(Action: Dr. Preeti H. Dave, DFST, SDAU)
13.5.3.90	**Title:** Development of non fat probiotic yogurt from goat milk supplemented with *karonda* (*Carissa carandas*).	**Approved with following suggestions** 1. Normal goat milk should be used (No skimming required) 2. Use dried caronda powder and analyse nutritional profile of caronda powder. **3.** Remove non-fat from title.	Action: Dr. Manju G, DFST, SDAU)

KAMDHENU UNIVERSITY

Sr. No.	Title /centre	Suggestions	Remarks
13.5.3.91	Detection of oil adulteration in milk by chromatographic methods in-tandem with chromogenic methods **(College of Dairy Science, Amreli)**	**Approved with following suggestions:** 1. Correction in objective-I as suggested by the house. ('behaviour' word to be replaced by 'properties') 2. Cotton seed oil to be added. 3. Dalda to be replaced by hydrogenated vegetable oil. 4. In pattern of samples – in cow milk, buffalo milk and mixed milk fat will be substituted by oil at the rate of 10, 20, 30 and 40% **(Action: College of Dairy Science, Amreli)**	

13.5.3.92	Study on process standardization and optimization of milk based peanut *thabdi* **(College of Dairy Science, Amreli)**	**Approved with following suggestions:** 1. Title of experiment to be corrected as suggested by the house. (Process optimization of milk based peanut *thabdi*) **(Action: College of Dairy Science, Amreli)**	

JUNAGADH AGRICULTURAL UNIVERSITY

Sr. No.	Title /centre	Suggestions	Remarks
13.5.3.93	Development of flavored milk using cucurbits L. (Pumpkin) **(College of Veterinary Science, JAU, Junagadh)**	**Approved with following suggestions:** 1. Modification in treatments with level of sugar and pumpkin pulp between 5-10% 2. Appropriate observations to be taken **(Action: Prof. & Head, Dept. of LPT, College of Veterinary Science, JAU, Junagadh)**	

13.6 SOCIAL SCIENCE

Chairman : Dr. V. P. Chovatia, DR, JAU (Dt. 5-6th April 2017)
Co-Chairman : Dr. Arun Patel, DEE, AAU
: Dr. G. R. Patel, DEE, NAU
: Dr. K. A. Thakkar, DEE, SDAU
: Dr. P. H. Vataliya, KU
Rapporteurs : Dr. P. R. Kanani, JAU
: Dr. K. P. Thakkar, SDAU
: Dr. R. R. Prajapati, SDAU
: Dr. R. D. Pandya, NAU
: Dr. R. L. Shiyani, JAU
: Dr. J. J. Mistry, SDAU

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

Name of University	Recommendations				New Technical Programmes	
	Farming Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	-	-	9	9	44	44
JAU	-	-	2	2	16	16
NAU	-	-	3	0	32	30
SDAU	-	-	1	1	17	16
Total	**-**	**-**	**15**	**12**	**109**	**106**

13.6.1 RECOMMENDATIONS FOR FARMING COMMUNITY: NIL

13.6.2 RECOMMENDATIONS FOR SCIENTIFIC COMMUNITY: 10

Out of fifteen recommendations, Twelve recommendations were approved which are given below.

ANAND AGRICULTURAL UNIVERSITY

13.6.2.1	**Development of yardstick of CV % for Arnej center (Bhal and Coastal Zone) crops field experiments**
	The yard stick of CV% for accepting the results of Arnej center (Bhal and Coastal Zone) crops experiments is 20 per cent for yield character. The proposal was approved by the house. **(Action:** Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand**)**
13.6.2.2	**Development of yardstick of CV % for Dhandhuka center (Bhal and Coastal Zone)crops field experiments**
	The yard stick of CV% for accepting the results of Dhandhuka center (Bhal and Coastal Zone) crop experiments is 14 per cent for yield character.

The proposal was approved by the house.
(Action: Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand**)**

13.6.2.3 Development of yardstick of CV % for Bhal and Coastal Zone crops field experiments

The yard stick of CV % for accepting the results of Bhal and Coastal Zone crops experiments is 18 per cent for yield character.

The proposal was approved by the house.
(Action: Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand **)**

13.6.2.4 Development of yardstick of CV % for Gram (Bhal and Coastal Zone) crop field experiments

The yard stick of CV% for accepting the results of gram (Bhal and Coastal Zone) crop experiments is 19 per cent for yield character.

The proposal was approved by the house.
(Action: Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand **)**

13.6.2.5 Development of yardstick of CV % for wheat (Bhal and Coastal Zone) crop field experiments

The yard stick of CV% for accepting the results of wheat (Bhal and Coastal Zone) crop experiments is 15 per cent for yield character.

The proposal was approved by the house.
(Action : Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand **)**

13.6.2.6 Development of yardstick of CV % for cotton (Bhal and Coastal Zone) crop field experiments

The yard stick of CV % for accepting the results of cotton (Bhal and Coastal Zone) crop experiments is 21 per cent for yield character.

The proposal was approved by the house.
(Action: Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand**)**

13.6.2.7 Development of yardstick of CV % for safflower (Bhal and Coastal Zone) crop field experiments

The yard stick of CV% for accepting the results of safflower (Bhal and Coastal Zone) crop experiments is 24 per cent for yield character.

The proposal was approved by the house.
(Action: Professor & Head, Deptt. of Agril. Stat; BACA,AAU, Anand**)**

13.6.2.8 Development and standardization of scale to measure the attitude of farmers towards Farmers Interest Group

Development and standardization of scale to measure attitude of farmers towards Farmers Interest Group(FIG)

No	Statements	SA	A	UD	DA	SDA
1	I think that Farmers Interest Group (FIG) provides opportunity to solve those issues which are difficult to	5	4	3	2	1

		solve individually (+)					
	2	I think that FIG creates conflict among the farmers.(-)	1	2	3	4	5
	3	I feel that FIG helps in acquiring costly inputs which are difficult to manage single-handedly (+)	5	4	3	2	1
	4	I believe that FIG means too many *cooks spoil* the broth (-)	1	2	3	4	5
	5	I think FIG is ideal platform to bridge extension personnel with farmers. (+)	5	4	3	2	1
	6	I think that FIG creates conflict between resource poor and rich farmers (-).	1	2	3	4	5
	7	I like to be a member of FIG (+).	5	4	3	2	1
	8	I believe that FIG creates misunderstanding within the farmers (-)	1	2	3	4	5
	9	I believe that input buying capacity of farmer improves joining FIG (+)	5	4	3	2	1
	10	I believe that FIG provides forum in sharing advantageous issues (+)	5	4	3	2	1
	11	I feel that FIG is a prospective system to empower farmers. (+)	5	4	3	2	1
	12	I feel that FIG is a potential tool for women empowerment. (+)	5	4	3	2	1

The proposal was approved by the house.

(Action : Associate Professor, DoEE, BACA, AAU, Anand **)**

13.6.2.9 **Development and standardization of scale to Measure Attitude of Extension Personnel towards Training Programmes Organized by EEI, Anand**

Development and standardization of scale to Measure Attitude of Extension Personnel towards Training Programmes Organized by EEI, Anand

No	**Statements**	**SA**	**A**	**UD**	**DA**	**SDA**
1	I believe that training programmes organized by EEI help to improve work performance of extension personnel. (+)	5	4	3	2	1
2	I believe that medium of instruction in training programmes organized by EEI is not suitable to level of understanding of extension personnel. (-)	1	2	3	4	5
3	Training programmes organized by EEI result in improving practical skills of extension personnel. (+)	5	4	3	2	1
4	I believe that module of training programmes organized by EEI are more information oriented than performance oriented. (-)	1	2	3	4	5
5	I feel that training programmes organized by EEI help in inculcating extension leadership amongst the extension personnel. (+)	5	4	3	2	1

	6	I hold opposite views for the methods of training adopted in training programmes organized by EEI. (-)	1	2	3	4	5
	7	I believe that course contents of training programmes organized by EEI are outdated for extension personnel. (-)	1	2	3	4	5
	8	I feel that training programmes organized by EEI create motivating environment for extension personnel. (+)	5	4	3	2	1
	9	I feel that training programmes organized by EEI are incapable to introduce recent extension skill amongst extension personnel. (-)	1	2	3	4	5
	10	I believe that trainers working at EEI to train extension personal are incompetent. (-)	1	2	3	4	5
	11	I believe that training equipments used in training programmes organized by EEI are discouraging. (-)	1	2	3	4	5
	12	I feel that the scope of career development is limited in training programmes organized by EEI. (-)	1	2	3	4	5
	13	I think in general approaches adopted at EEI for training are learner centered. (+)	5	4	3	2	1
	14	I think that training programmes organized by EEI result in overall improvement of extension productivity. (+)	5	4	3	2	1
	The proposal was approved by the house. **(Action :** Director, EEI, AAU, Anand**)**						

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13.6.2.10	**Path Coefficient analysis tools for selection of genotype in wheat.**
	It is advised to scientific community, that the productive tillers per 3 meter, grain weight per spike and days to anthesis are the important biometric characters for selecting genotype for improving grain yield of timely shown wheat under South Saurastra Agro climatic zone. The proposal was approved by the house. **(Action:** Professor & Head, Dept. of Agril. Statistics, CoA, JAU, Junagadh)

NAVSARI AGRICULTURAL UNIVERSITY

13.6.2.11	**Production and marketing of flower crops in Bharuch District of South Gujarat.**
	Message: The rose, paras and marigold flower crops found remunerative to farmers of Bharuch district of South Gujarat on the basis of cost of cultivation data. In case of flower marketing, the channel producer-retailer- consumer found best for rose, paras and marigold flower crops because producer share in consumer's rupee was the highest in this channel. The percentage of producer share in consumer's rupee in rose, paras and marigold was 77.01, 82.60 and 64.60, respectively. The non-availability of labour, high infection of diseases and pest, high price of

	planting materials, high transportation cost and spoilage of flowers were major production and marketing constraints found in the study area. Results of the study were accepted by the house. After discussion house did not consider for recommendation. The information generated by the study can be used for publication at local level. **(Action** :Assoc. Professor and Head, (Agril Eco.), CoA, NAU, Bharuch)
13.6.2.12	**A study on awareness of farmers about organic farming and marketing of organic farm produce in dang district.**
	Message: Extension workers should spread awareness about organic farming, especially organic certification as very few farmers (3.33%) found aware about it. In Dangs, farmers are marginal, thus Government can intervene for creation of farmers groups and group certification. The proposal was not approved by the house as the appropriate methodology was not followed. (Action: Planning Officer & Assoc. Professor (Agril. Eco.), Directorate of Research , NAU, Navsari)
13.6.2.13	**An appraisal of rice flakes (poha) processing units in Navsari district of South Gujarat**
	Message: Poha processing is a profitable enterprise and important link in value addition of paddy in South Gujarat. Poha processing cluster in South Gujarat should be strengthened by improving the networking in cluster for joint marketing and entrepreneurs should be trained in new marketing methods, brand building and export procedures for improved market access. Results of the study were accepted by the house. After discussion house did not consider for recommendation. The information generated by the study can be used for publication at local level. **(Action** : Dean, AABMI, Navsari)

13.6.3 RECOMMENDATIONS FOR POLICY MAKER: 2

JUNAGADH AGRICULTURAL UNIVERSITY

13.6.3.1	**Total Factor Productivity of Major Crops and Contribution of Research Investment to Agricultural Growth in Gujarat.**
	The major crops of Gujarat have experienced a strong technological growth during last two decades, except bajra and sesamum. The internal rate of return to public investment in agricultural research ranged from 26.80 % (*i.e.*27%) in case of mustard to 74.90% (*i.e.*75%) for cumin with the overall average of 42% for major crops of Gujarat. Sesamum needs more efficient technological breakthrough to increase productivity by evolving varieties which sustain in adverse monsoon conditions. Proper management of agronomical practices to keep low production cost and proper price incentive to keep pace with other

	crops in the state are equally important. To attain targeted agricultural growth, investments on agricultural research and extension education need to be increased at the rate of 5 per cent per annum to achieve an additional one per cent growth in TFP. The proposal was approved by the house. **(Action:** Professor & Head, Dept. of Agril. Economics, CoA, JAU, Junagadh)

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

13.6.3.2	**Status of Crop Insurance in Gujarat**
	Recommendation for Policy Makers • The benefitted farmers across the regions and crops showed skewed distribution as in Saurashtra region it had been 76.77 percent and in cotton and groundnut combined it had been 79.35 percent. To achieve the desired results from new PradhanMantriFasalBimaYojana state nodal agency should focus on other potential regions and crops. • There is need to focus on sensitising the farmers about region wise crop losses in the crop insurance campaign. **Remark:** As per the recommendation by the Director of Research, SDAU, the Social Science Sub–Committee of Combined AGRESCO has permitted to present the recommendation of the research study "Status of Crop Insurance in Gujarat" and the house has approved it. **(Action: Department of Agril. Econ.,CPCA,SDAU)**

13.6.4 NEW TECHNICAL PROGRAMMES

ANAND AGRICULTURAL UNIVERSITY

Sr. No	Title/Centre	Suggestions	Remarks
Centre: Department of Agril. Econ., BACA, AAU, Anand			
13.6.4.1	Study of Price Behaviour of Pulses in Middle Gujarat	Accepted with following suggestions 1. Delete the word 'Middle' from the title 2. Use appropriate statistical tools in methodology 3. Instead of 10 years, collect the data for 15 year for whole prices of selected crops (Action: Professor & Head, Deptt. of Agril. Economics, BACA, AAU, Anand)	

Centre: Department of Agrilcultural Economics, BACA, AAU, Anand			
13.6.4.2	Impact Assessment of Drip Irrigation Technology in Banana in Middle Gujarat	Accepted with following suggestions 1. No need to go for logistic regression model 2. Specify the determinants of production 3. The objective No.3 needs to be specified. (Action: Professor & Head, Deptt. of Agril. Economics, BACA, AAU, Anand)	
13.6.4.3	Growth and Prospects of Export of Major Seed Spices from India	Accepted with following suggestions 1. Delete the word 'variability' from 2nd objective. (Action: Professor & Head, Deptt. of Agril. Economics, BACA, AAU, Anand)	
Centre: College of Horticulture, BACA, AAU, Anand			
13.6.4.4	Growth Dimension and Change in Cropping Pattern in Gujarat State	Approved by house (Action: Assistant Professor, College of Horticulture, AAU, Anand)	
Centre: IABMI, AAU, Anand			
13.6.4.5	An Economic Analysis of Inland Fish Farming in Middle Gujarat	Approved by house (Action: Principal, IABMI, AAU, Anand)	
13.6.4.6	Demonetization and Subsequent Thrust to Digital India Initiative in Middle Gujarat: an Agribusiness Perspective	Approved by house (Action: Principal, IABMI, AAU, Anand)	
13.6.4.7	A Study of Supply Chain and Estimation of Post-Harvest Losses in Banana in Middle Gujarat	Approved by house (Action: Principal, IABMI, AAU, Anand)	
Centre:Agril. Economics Discipline, ARS, AAU, Jabugam			
13.6.4.8	An Economic Analysis of Production and Marketing of Tomato	Accepted with following suggestions	

	Cultivation in Tribal Area of Chhotaudepur District of Middle Gujarat	1. Remove the word 'cultivation' from the title (Action: Assistant Research Scientist, AAU, Jabugam)	
Centre: Department of DBM. Dairy Sci. College, AAU, Anand			
13.6.4.9	Financial Literacy about Basic Banking Services among the Participant Farmers of DVK	Approved by house (Action: Head, Deptt. of DBM, Dairy Science College, AAU, Anand)	
13.6.4.10	Awareness of agril. Application available on smart phone and digital banking services among dairy farmers in middle Gujarat	Approved by house (Action: Head, Deptt. of DBM, Dairy Science College, AAU, Anand)	
Centre: College of FPT&BE, AAU, Anand			
13.6.4.11	Assessing the Knowledge and Practices of Street Food Vendors in the City of Anand-Vidyanagar regarding Food Hygiene and Safety	Accepted with following suggestions 1. The title should be modified as "Assessing the knowledge and adopted practices of street food Vendors in the city of Anand – Vidhyanagar regarding food hygiene and safety" (Action: Associate Professor, College of FPT&BE, AAU, Anand)	
Centre: Department of Agril. Stat., BACA, AAU, Anand			
13.6.4.12	Study of trend and growth rate of area, production and productivity of pulse crops grown in middle Gujarat based on non-linear and non-parametric regression models	Approved by house (Action: Professor & Head, Deptt. of Agril. Stat; BACA, AAU, Anand)	
13.6.4.13	Modernization of inhouse statistical programs for contemporary computing environment	Accepted with following suggestions 1. Considering the content of project it has been presented in the group of Agril. Engineering and Technology and AIT research sub-committee at Combine Joint AGRESCO for discussion and approval.	

		(Action: Professor & Head, Deptt. of Agril. Stat; BACA, AAU, Anand)	
13.6.4.14	Study on variability and development of yardstick for reliability of the experimental results of sugarcane crop	Accepted with following suggestions 1. Study should be based on maximum available data (Action: Assistant Professor, Deptt. of Agril. Stat; BACA, AAU, Anand)	
Centre: College of Horti. Stat.discipline (Wing), BACA, AAU, Anand			
13.6.4.15	Evaluation of statistical models for forecasting area, production and productivity of fruit crops in Gujarat	Accepted with following suggestions 1. Collect the maximum available time series data for study (Action: Assistant Professor, College of Horticulture, BACA, AAU, Anand)	
Centre: EEI,AAU,Anand			
13.6.4.16	Impact in terms of Effectiveness of Trainers of EEI regarding training abilities as perceived by the trainees	Accepted with following suggestions 1. Delete the word "Impact in terms of" from the title (Action: Director, EEI, AAU, Anand)	
13.6.4.17	Follow-up study of Training programme on Human Resource Development	Approved by house (Action: Director, EEI, AAU, Anand)	
Centre: Directorate Of Ext.Edu. AAU, Anand			
13.6.4.18	Knowledge and adoption of Pink Ballworm management practices	Approved by house (Action: Director of Extension Education, AAU, Anand)	
Centre: EEI, AAU, Anand			
13.6.4.19	Study on "Level of Knowledge of Farmers regarding Liquid Bio-fertilizers"	Approved by house (Action: Director of Extension Education, & Director, EEI, AAU, Anand)	
Centre: AIT College, AAU, Anand			
13.6.4.20	Opinion of farmers about Bio-NPK Consortium developed by AAU,	Accepted with following suggestions	

	Anand	1. Recast the 2nd objective by adding the word 'of the farmers' after the word opinion (Action: Assistant Professor, AIT College, AAU, Anand)	
Centre: Department of Ext.Edn.,BACA, AAU, Anand			
13.6.4.21	Attitudinal impact of dairy farmers of Middle Gujarat towards selected Improved animal husbandry practices	Approved by house (Action: Professor & Head, DoEE, BACA, AAU, Anand)	
13.6.4.22	Development and standardization of Scale to measure attitude towards yoga as a tool of Human Resource Development	Approved by house (Action: Professor & Head, DoEE, BACA, AAU, Anand)	
13.6.4.23	Factors experienced by the agricultural land holders for avoiding farming as a profession	Approved by house (Action: Professor & Head, DoEE, BACA, AAU, Anand)	
Centre: College of Agriculture, AAU, Jabugam			
13.6.4.24	Tribal farm women's knowledge and adoption towards clean milk production in chhotaudepur district	Approved by house (Action: Assistant Professor, College of Agriculture, AAU, Jabugam)	
Centre: Department. of Vet. Extension, Veterinary College,AAU,Anand			
13.6.4.25	Knowledge and adoption gap about udder health in cross bred cow owners in Anand taluka	Approved by house (Action: Associate Professor, Department of Vet. Extension, Vet. Science College, AAU, Anand)	
Centre: IDEA, AAU, Anand			
13.6.4.26	A study on change in business strategy for trained input dealers under Diploma in Agricultural Extension Services for Input Dealers (DAESI) programme	Approved by house (Action: Assistant Professor, Institute of Distance Education, AAU, Anand)	

Centre: College of Agriculture, AAU, Anand			
13.6.4.27	A Study on level of Knowledge and adoption of recommended Biofertilizer (Anubhav Liquid Biofertilizer) by paddy growers of Nadiad taluka of Kheda district of Gujarat state	Approved by house (Action: Assistant Professor, College of Agriculture, AAU, Vaso)	
13.6.4.28	Awareness and Adoption of recommendations made by AAU in Paddy crop	Approved by house (Action: Assistant Professor, College of Agriculture AAU, Vaso)	
13.6.4.29	Adoption and Knowledge of Clean Milk Production Practices Adopted by Dairy Farmers of Vaso Taluka of Kheda District of Gujarat	Approved by house (Action: Assistant Professor, College of Agriculture AAU, Vaso)	
Centre: Polytechnic In Food Science & Home Economics			
13.6.4.30	Assessment of the nutritional status of elderly farmers	Approved by house (Action: Assistant Professor, Polytechnic in Food Science and Home Economics, AAU, Anand)	
13.6.4.31	**Centre: Regional Research Station, AAU, Anand**		
	Perception of the beneficiary about Anubhav brand seeds of AAU with special reference to GAR-13 variety of paddy	Approved by house (Action: Assistant Research Scientist, Regional Research Station, AAU, Anand)	
Centre: KVK, AAU, Arnej			
13.6.4.32	Attitude of farmers of Bhal region of Ahmedabad district towards mix farming and its economics	Approved by house (Action: Senior Scientist cum Head, KVK, AAU, Arnej)	
Centre: Krushi Vigyan Kendra, AAU, Devataj			
13.6.4.33	Knowledge and adoption Among cattle owners regarding Parasitic control in cattle	Approved by house (Action: Senior Scientist cum Head, KVK, AAU, Devataj)	
13.6.4.34	Impact of training on rose growers about rose production technology in Anand district	Approved by house (Action: Senior Scientist cum Head, KVK, AAU, Devataj)	

13.6.4.35	Impact of front line demonstrations on INM in rose on rose growers	Approved by house (Action: Senior Scientist cum Head, KVK, AAU, Devataj)	
Centre: Krushi Vigyan Kendra, MangalBharti,Di. Vadodara			
13.6.4.36	Impact of front line demonstrations on adoption of mungbean production technology by the farmers of Chhotaudepur district of Gujarat State	Approved by house (Action: Sr. Scientist cum Head, KVK, Mangalbharti)	
Centre: Krushi Vigyan Kendra,Gujarat Vidhyapith,Dethali Di. Kheda			
13.6.4.37	Study on knowledge and adoption of recommended production technology among green gram growers in Khedadistrict	Approved by house (Action: Sr. Scientist cum Head, KVK, Gujarat Vidhyapith, Dethali)	
Centre: Krushi Vigyan Kendra, AAU, Dahod			
13.6.4.38	Adoption of improved *Rabi* maize production technology by maize growers in Dahod district	Approved by house (Action: Sr. Scientist cum Head, KVK, AAU, Dahod)	
Centre: Pasui Vigyan Kendra,, AAU, Limkheda, D'Baria			
13.6.4.39	Knowledge of tribal Farmers about Improved dairy Management Practices in operational area of Pashu Vigyan Kendra	Approved by house (Action: Associate Professor, Pashu Vigyan Kendra, D'Baria)	
13.6.4.40	Adoption of backyard poultry practices by tribal farmers in operational area of Pashu Vigyan Kendra	Approved by house (Action: Associate Professor, Pashu Vigyan Kendra, D'Baria)	
Centre: Farm Technology Transfer Centre, AAU, Nenpur, Sansoli			
13.6.4.41	Impact analysis of farm Technology training centre on Knowledge and adoption of cucurbitaceous growers of Kheda District	Approved by house (Action: Assistant Professor, Farm Technology Training Centre, Nenpur- Sansoli)	
Centre: TRTC & TFWTC,AAU, D'Baria			
13.6.4.42	Technological gap in adoption of Urd bean production technology among the farmers of	Approved by house	

	Dahod district	(Action: Training Organizer, TRTC & TFWTC, AAU, Devgadhbaria)	
Centre: Dairy Vigyan Kendra, AAU, Vejalpur			
13.6.4.43	Feeding practices followed by livestock owners for their animals in operational area of DVK, Vejalpur	Approved by house (Action: Assistant Professor, Dairy Vigyan Kendra, AAU, Vejalpur)	
Centre: Main Maize Research Station, AAU, Godhra			
13.6.4.44	Knowledge and Adoption of Improved Maize Cultivation Technology	Approved by house (Action: Assistant Research Scientist, Main Maize Research Station, AAU, Godhra)	

JUNAGADH AGRICULTURAL UNIVERSITY

Sr. No	Title/Centre	Suggestions	Remarks
Centre: Department of Agricultural Economics, JAU, Junagadh			
13.6.4.45	An Economic Analysis of Herbicide on Groundnut crops in Saurashtra region of Gujarat state	Accepted with following suggestions 1. Use the word 'Herbicide used instead of Herbicide in title. (Action: Professor & Head, Deptt. of Agril. Economics, JAU, Junagadh)	
13.6.4.46	Expert Performance of Marine Products from India	Approved by house (Action: Professor & Head, Deptt. of Agril. Economics, JAU, Junagadh)	
13.6.4.47	Mapping and Valuation of Economic, Social and Environmental Benefits of Conserving Gir Forest Ecosystem	Accepted with following suggestions 1. specific social variables like SHG, social participation etc. should be incorporated. (Action: Professor & Head, Deptt. of Agril. Economics, JAU, Junagadh)	
13.6.4.48	Estimation of Coconut Yield and Production in the State of Gujarat	Approved by house (Action: Professor & Head, Deptt. of Agril. Economics, JAU, Junagadh)	
Centre: Department of Agricultural Statistics, JAU, Junagadh			
13.6.4.49	Estimation of different characteristics of fitted lactation curve by using non-linear models	Accepted with following suggestions 1. Change the title as 'Fitting the lactation curve for Gir cattle' 2. The objective should be , To estimated the different	

		characteristics by using non-linear models. (Action: Professor & Head, Deptt. of Agril. Statistics, JAU, Junagadh)	
Centre: PG Institute of ABM, JAU, Junagadh			
13.6.4.50	Utilization Pattern and Trends in NPA of Crop Loan in Junagadh District	Accepted with following suggestions 1. Give full form of NPA in title 2. Delete the word 'sample' from 1st objective. 3. For study, nationalized bank should be selected randomly (Action: Principal, PGIABM, JAU, Junagadh)	
Centre: Department of Agricultural Extension, JAU, Junagadh			
13.6.4.51	Information needs of farmers in relation to mobile texts/mobile voice messages application in Saurashtra	Accepted with following suggestions 1. Add the name of district 'Junagadh and Gir Somnath' in title. 2. The word 'dissemination process and' should be removed from 2nd objective (Action: Professor & Head, Deptt. of Agril. Extn, JAU, Junagadh)	
Centre: Krishi Vigyan Kendra, JAU, Amreli			
13.6.4.52	Knowledge level of farmers about organic farming	Accepted with following suggestions 1. modify the title as 'assessment of knowledge level of farmers about organic farming' 2. change the 3rd objective as 'To assess knowledge level of farmers about marketing of organic product (Action: Senior Sci. cum Head, KVK, Amreli, JAU)	
13.6.4.53	Training needs of farmers about recommended practices in cotton and groundnut crop of Amreli district	Accepted with following suggestions 1. club the 2nd and 3rd objectives 2. in the objective replace the word new agricultural practices by recommended agricultural practices (Action: Senior Sci. cum Head, KVK, Amreli, JAU)	
Centre: KrishiVigyanKendra,JAU, Nana Kandhasar			
13.6.4.54	Perception of cotton growers of	Accepted with following suggestions	

	Surendranagar district about use of bio pesticides and bio-agent in Bt.cotton crops	1. Add the word utilized as 'scientific information utilized regarding in objective 3rd (Action: Senior Sci. cum Head, KVK, Nana Kandhasar, JAU)	
13.6.4.55	Study about knowledge level of dairy farm women of Surendrangar district regarding scientific dairy farming practices & their training need	Accepted with following suggestions 1. Change the title as 'Assessment of knowledge level and training need of dairy farmwomen of surendranagar district' 2. Add to study in 3rd objective 3. (Action: Senior Sci. cum Head, KVK, Nana Kandhasar, JAU)	
Centre: KrishiVigyan Kendra, JAU, Pipaliya (Rajkot)			
13.6.4.56	Training needs of rural women with respect to animal husbandry practices in Rajkot district of Saurashtra region	Accepted with following suggestions 1. repalce the word rural women by dairy farm women in title (Action: Senior Sci. cum Head, KVK, Pipaliya, JAU)	
13.6.4.57	Knowledge of farmers about use of bio fertilizer and bio pesticides in Bt.cotton	Approved by the house (Action: Senior Sci. cum Head, KVK, Pipaliya, JAU)	
13.6.4.58	Impact of Self Help Groups On Empowerment Of Rural Women: A Study in Rajkot district	Accepted with following suggestions 1. remove the word 'A study' from the title 2. delete the 2nd objective 3. replaced the word sample respondents by beneficiaries in 1st objective. (Action: Senior Sci. cum Head, KVK, Pipaliya, JAU)	
Centre: Director of Extension Education, JAU, Junagadh			
13.6.4.59	Survey for impact of SAWAJ-Trichoderma in controlling the diseases among its end users.	Accepted with following suggestions 1. Change the title as 'perception of effectiveness of SAWAJ Trichoderma in controlling the disease among its end users' 2. Eliminate the world 'characteristic from 1st objective. (Action: DEE, JAU, Junagadh)	
13.6.4.60	Survey for efficacy of SAWAJ-brand biofertilizers under field	Accepted with following suggestions 1. Change the title as 'Perception	

	condition at its end users.	of effectiveness of SAWAJ brand bio fertilizers under field condition at its end users' (Action: DEE, JAU, Junagadh)	

NAVSARI AGRICULTURAL UNIVERSITY

Sr. No	Title/Centre	Suggestions	Remarks
13.6.4.61	Fundamental clarity about FLDs and OFTs among KVK scientists of Gujarat	Accepted with following suggestions **1.** Change the title as "usefulness of FLD and OFT in transfer of technology in Tapi district" **2.** Objective should be reframe in context to title (Action: Senior Scientist-cum-Head KVK , Vyara)	
13.6.4.62	Marketing behavior of okra growers in Tapi district	Approved by house (Action: Senior Scientist-cum-Head KVK , Vyara)	
13.6.4.63	Adoption of improved dairy husbandry practices by the tribals of Tapi district	Approved by house (Action: Senior Scientist-cum-Head KVK , Vyara)	
13.6.4.64	Pesticides use pattern among okra growers' in Tapi district	Accepted with following suggestions **1.** House suggested to compare the pesticide use pattern with recommendation (Action: Senior Scientist-cum-Head KVK , Vyara)	
13.6.4.65	Adoption of fruits and vegetable preservation technology by tribal farm women of Tapi district	Accepted with following suggestions **1.** Delete the word 'personal' from 1st objective (Action: Senior Scientist-cum-Head KVK , Vyara)	
13.6.4.66	Knowledge regarding micro finances among the member of Self Help Group	Approved by house (Action: Senior Scientist-cum-Head KVK, Waghai)	
13.6.4.67	Adoption of fruits and vegetable preservation technology by farm women of Surat district	Approved by house (Action: Senior Scientist-cum-Head KVK, Surat)	
13.6.4.68	Impact of training on	Accepted with following	

	cashew growers of Kaparada taluka.	suggestions **1.** In objectives, use word 'cashew growers' instead of farmers. **2.** Specify the data collection method in methodology, and the response of growers needs to be taken as before and after training for finding training impact. (Action: Research Scientist, AES , Paria)	
13.6.4.69	Professionalism in management of dairy cooperatives in South Gujarat	Accepted with following suggestions **1.** Add the word 'primary' before dairy cooperatives in title. (Action: HoD, Ext. Edu., NMCA, Navsari)	
13.6.4.70	Expectations of visitors towards SardarSmurti Kendra (SSK) in present scenario, NAU,Nasvsari	Approved by house (Action: Asso. Prof. (Extension), ACHF, Navsari)	
13.6.4.71	Breed preference and production performance of dairy animals among dairy farmers of Navsari district	Accepted with following suggestions 1. Replace the word breed by animal in 4th objective (Action: HoD, Vet. Ext., VCVS&AH, Navsari)	
13.6.4.72	Awareness towards secondary soil salinity among the farmers in Bharuch district.	Accepted with following suggestions **1.** Add 'To' before 4th objective (Action: Assoc. Professor (Extension), CoA, Bharuch)	
13.6.4.73	Feedback regarding RAWE programme from the students of COA, Waghai (Dangs)	Approved by house (Action: Assoc. Professor (Extension), CoA, Waghai)	
13.6.4.74	Decision making pattern of tribal women in dairy enterprise in Dangs district	Accepted with following suggestions 1. Replace the word enterprise by farming in title (Action: Assoc. Professor (Extension), CoA, Waghai)	
13.6.4.75	Study on expectations and motivational sources of enrolled students of Polytechnic in Agriculture, N.A.U., Vyara.	Approved by house (Action: Principal, Polytechnic in Agri.,Vyara)	

13.6.4.76	Analysis of adoption and constraints perceived by paddy growers in rice production technology in Tapi district of Gujarat State	Accepted with following suggestions 1. Change the title as "Adoption and constraints perceived by paddy growers in rice production technology in Tapi district". (Action: Principal, Polytechnic in Agri, Vyara)	
13.6.4.77	Economics of milk production of cows and buffaloes in Navsari district of Gujarat	Approved by house (Action: Professor, Agril. Economics, NMCA, NAU, Navsari)	
13.6.4.78	Economics of processing of tur dal in Bharuch district of South Gujarat.	Approved by house (Action: Assoc. Professor and Head, (Agril Eco.), CoA, NAU, Bharuch)	
13.6.4.79	Consumer behavoiur towards online shopping from Krushi Mall , Surat	Accepted with following suggestions **1.** Use the word perception instead of behavior in title (Action: Planning officer and Assoc. Professor (Agril. Eco.) , Directorate of Research , NAU, Navsari)	
13.6.4.80	Examine the pattern of fund received for research on major crops of South Gujarat	**House advised to drop the project** (Action: Planning officer and Assoc. Professor (Agril. Eco.) , Directorate of Research , NAU, Navsari)	
13.6.4.81	An economic evaluation of Kishan Credit Card (KCC) scheme in Navsari & Dangs districts.	Accepted with following suggestions 1. Change the title as "Economic impact of KCC in Navsari and Dang district." (Action: Assistant Professor, (Agril.Econ.), CoA, Waghai)	
13.6.4.82	Impact of micro finance on empowerment of rural women in Dangs district.	Approved by house (Action: Assistant Professor, (Agril.Econ.), CoA, Waghai)	
13.6.4.83	Evaluation of the full day career management training programme on "Campus to Corporate-C2C" through Kirkpatrick model.	Accepted with following suggestions 1. Remove " through Kirkpatrick model" from title (Action: Dean, AABMI, Navsari)	
13.6.4.84	Study of Organizational Role Stress (ORS) among	Approved by house	

	the Teachers of NAU Campus, Navsari.	(Action:Dean, AABMI, Navsari)	
13.6.4.85	Seasonal variations and forecasting in wholesale prices of brinjal in Surat Market	Approved by house (Action: Dean, AABMI, Navsari)	
13.6.4.86	Factors affecting marketing among small and marginal vegetables farmers of South Gujarat.	Accepted with following suggestions 1. The study should be conducted for 3 years. (Action:Dean, AABMI, Navsari)	
13.6.4.87	Knowledge sharing behaviour among teaching staff of Navsari Agricultural University	Accepted with following suggestions 1. Proper knowledge sharing behavior tool should be used. 2. (Action: Dean, AABMI, Navsari)	
13.6.4.88	Factors affecting marketing of spider lily in Navsari district of Gujarat.	Approved by house (Action: Dean, AABMI, Navsari)	
13.6.4.89	Consumer behaviour and marketing strategy towards durables of forest produce in Dangs District of South Gujarat	Approved by house (Action: Assistant Professor, Office of the Registrar, NAU, Navsari)	
13.6.4.90	Estimation of optimum level of nitrogen and phosphorus in little millet (Vari) under rainfed condition	**House advise to drop the project** (Action: Professor, Agril. Statistics, NMCA, Navsari)	
13.6.4.91	Instability in brinjal production of South Gujarat: A Decomposition Analysis	Accepted with following suggestions 1. Cause of instability need to be elaborated and quantify (Action: Assoc. Professor, Agril. Statistics ACHF, NAU, Navsari)	
13.6.4.92	Crop yield forecast models using different linear and nonlinear approach	Approved by house (Action: Asstt. Professor, Agril. Statistics, CoA, NAU, Waghai)	

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY

Sr. No	Title/Centre	Suggestions	Remarks
Centre: ASPEE College of Home Science and Nutrition, Sardarkrushinagar			
13.6.4.93	The Effectiveness of Flipped Classroom Model of Teaching on Student's Learning	Approved by the house (Action: Professor & Head, Deptt. of HECM, ASPEE college of Home Science and Nutrition, Sardarkrushinagar)	
Centre: ASPEE College of Home Science and Nutrition, Sardarkrushinagar			
13.6.4.94	Evaluation of Training Programme on Reproductive Health of Adolescent Girls	Approved by the house (Action: PI: Dr. Pragaya Dasora)	
Centre: ASPEE College of Home Science and Nutrition, Sardarkrushinagar			
13.6.4.95	Hygiene Practices followed by Milk Producers of Banaskantha district	Approved by the house (Action: Professor & Head, Deptt. of HECM, ASPEE college of Home Science and Nutrition, Sardarkrushinagar)	
Centre: ASPEE College of Home Science and Nutrition, Sardarkrushinagar			
13.6.4.96	Communication Methods Media Used by Extension Functionaries for Transfer of Technology to Farmers	Approved by the house (Action: Professor & Head, Deptt. of HECM, ASPEE college of Home Science and Nutrition, Sardarkrushinagar)	
Centre: DDE, Sardarkrushinagar			
13.6.4.97	Credibility of Communication Sources Utilized by the Pomegranate Growers	Approved by the house (Action: Director of Extension Education, DEE, Sardarkrushinagar)	
13.6.4.98	Farmers Perception towards Pradhan MantriFasal Bima Yojana (PMFBY) in North Gujarat	Approved by the house (Action: Director of Extension Education, DEE, Sardarkrushinagar)	
Centre: Polytechnic College, Khedbrahma			
13.6.4.99	Adoption of Improved Goat Rearing Practices by Tribal Farmers	Approved by the house (Action: Principal, Polytechnic college, Khedbrahma, SDAU)	

Centre: Departmentof Ext. Edu, CPCA, Sardarkrushinagar			
13.6.4.100	A Case Study of Experimentations and Innovations Adopted by *Padma Shri* Mr.Genabhai Patel, a Successful Pomegranate Grower of Gujarat	Approved by the house (Action: Professor & Head, Deptt. of Ext. Edu, C. P. College of Agriculture, Sardarkrushinagar)	
13.6.4.101	Attitude and Perception of the Farmers Regarding Rearing of Kankrej Cow	Approved by the house (Action: Professor & Head, Deptt. of Ext. Edu, C. P. College of Agriculture, Sardarkrushinagar)	
13.6.4.102	Mechanisation Need of Pomegranate Growers of Banaskantha District of Gujarat.	Approved by the house (Action: Professor & Head, Deptt. of Ext. Edu, C. P. College of Agriculture, Sardarkrushinagar)	
Centre: Polytechnic College, Deesa			
13.6.4.103	Adoption of Drip Irrigation in Potato crop in Banaskantha District	Approved by the house (Action: Principal, Polytechnic college, Deesa, SDAU)	
Centre: Department of Agril. Economics, CPCA, Sardarkrushinagar			
13.6.4.104	Status of Agriculture Credit in Gujarat	Approved by the house (Action: Professor & Head, Deptt. of Agril. Economics, , C. P. College of Agriculture, Sardarkrushinagar)	
13.6.4.105	Total Factor Productivity Growth of Potato in Gujarat	Approved by the house (Action: Professor & Head, Deptt. of Agril. Economics, C. P. College of Agriculture, Sardarkrushinagar)	
Centre: College of Horticulture, Jagudan			
13.6.4.106	Assessment of Structural and Technological Changes in Cultivation of Fennel crop in Gujarat State	Approved by the house (Action: Principal, College of Horticulture, Jahudan)	
Centre: College of ABM, Sardarkrushinagar			
13.6.4.107	Contract Farming of Potato Crop in North Gujarat	Accepted with following suggestions 1. Modify the title as ‘ Analyses of the mode of contract farming of potato crop in North Gujarat (Action: Principal, ABM College, SDAU)	

Centre: Department of Agril. Stat, CPCA ,Sardarkrushinagar			
13.6.4.108	Interrelationship between Summer Groundnut Yield and Weather Parameters in Banaskantha District of North Gujarat	Approved by the house (Action: Professor & Head, Deptt. of Agril. Statistics, C. P. College of Agriculture, Sardarkrushinagar)	
13.6.4.109	Adoption of Recommended Optimum Plot Size for Field Experiments in Wheat, mustard, Cumin and Castor Crops by SDAU Research Stations	**House advised to drop the project** (Action: Professor & Head, Deptt. of Agril. Statistics, C. P. College of Agriculture, Sardarkrushinagar)	

13.7 BASIC SCIENCE & HUMANITIES/ BASIC SCIENCE, PLANT PHYSIOLOGY, BIOCHEMISTRY & BIOTECHNOLOGY

Chairman	**:**	**Dr. S.R. Chaudhari, DR, NAU**
Co-Chairman	**:**	**Dr. B.A. Golakia, RS, JAU**
	:	**Dr. S. R. Vyas, Dean, SDAU**
Rapporteurs	**:**	**Dr. A.D. Patel, AAU** **Dr. Chintan Kapadia, NAU** **Dr. Gaurav S. Dave, SDAU**

TECHNICAL SESSION- I :: RECOMMENDATIONS (13)

The summary of recommendations presented, discussed and approved during the Technical Session- I are as under:

University	**No of Recommendations**					
	Farming community		**Scientific community**		**Total**	
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**
AAU, Anand	1	1	1	1	2	2
JAU, Junagadh	2	2	2	2	4	4
NAU, Navsari	1	-	7	7 (6+1)	8	7
SDAU, Sardarkrushinagar	-	-	-	-	-	-
Total	**4**	**3**	**10**	**10**	**14**	**13**

13.6.1 RECOMMENDATION FOR FARMING COMMUNITY: 3

ANAND AGRICULTURAL UNIVERSITY, ANAND

13.7.1.1.1	**Seed priming and foliar spray of stress mitigating chemicals for ameliorating moisture stress in conserved moisture condition in chickpea**
	House approved the recommendation after recasting the language as: "The farmers of *Bhal* & Coastal Agro-climatic Zone –VIII growing *rainfed* chickpea are advised to soak seeds with Thiourea @ 500 ppm (0.5 g/l) per kg seed for one hour before sowing and apply two spray of Thiourea @ 1000 ppm (1.0 g/l) at vegetative stage (30-35 DAS) and at pod filling stage (45-50 DAS) to get maximum seed yield and net return" **ખેડૂતોપયોગી ભલામણ:** "ગુજરાત રાજયના ભાલ અને દરીયાકાંઠા ખેત આબોહવાકીય વિભાગ - ૮ ના બિનપિયત ચણાની ખેતી કરતા ખેડૂતોને ચણાનુ મહત્તમ ઉત્પાદન અને વધુ આવક મેળવવા માટે વાવણી પહેલા પ્રતિ કિલોગ્રામ બીજ પ્રમાણે થાયોયુરીયાના ૫૦૦ પી.પી.એમ. (૦.૫ ગ્રામ/ લિ. પાણી) ના દ્રાવણમાં ૧ કલાક પલાળીને અને થાયોયુરીયાના બે છંટકાવ ૧૦૦૦ પી.પી.એમ. (૧ ગ્રામ / લિ.પાણી) પ્રમાણે વાનસ્પતિક વૃધ્ધિ અવસ્થાએ (વાવણી બાદ ૩૦-

	૩૫ દિવસે) અને દાણા ભરાવાની અવસ્થાએ (વાવણી બાદ ૪૫-૫૦ દિવસે) કરવાની ભલામણ કરવામાં આવે છે". **(Action : Asstt. Res. Sci., ARS, AAU, Dhandhuka)**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

13.6.1.2.1	**Effect of brassinolide on physiological and yield related traits of chickpea and their relationship with yield**
	House approved the recommendation after recasting the language as : The farmers of South Saurashtra Agro Climatic Zone growing chickpea under irrigated condition are advised to use plant growth regulator Brassinolide (BS) as a seed treatment for 2 hrs @ 0.50 mgl^{-1} (0.04%, i.e. 12.5 ml BS and make 10 litre solution) to obtain higher seed yield and net return. **ખેડૂતોપયોગી ભલામણ:** દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં પિયત ચણાનું વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન અને આર્થિક વળતર મેળવવા માટે વનસ્પતિ વૃધ્ધિ નિયંત્રક બ્રાસિનોલાઈડ ૦.૫ મીલીગ્રામ/ લીટર (૦.૦૪% એટલે કે ૧૨.૫ મીલી લીટર બ્રાસિનોલાઈડ ૧૦ લીટર પાણીમાં ઓગાળી ફવણ બનાવવું) ની બે કલાક બીજ માવજત આપી વાવેતર કરવાની ભલામણ કરવામાં આવે છે. **(Action : Prof. & Head, Department of Genetics and Plant Breeding, JAU, Junagadh)**
13.6.1.2.2	**Efficiency of foliar spray of growth regulating substances for enhancing seed yield of pearl millet under rainfed condition**
	The house approved as recommendation after recasting the language as : The farmers of North Saurashtra Agro Climatic Zone growing *kharif* pearl millet are advised for foliar application of potassium chloride 1.5% (7.5 kg ha^{-1} in 500 litre water) at 30-35 and 50-55 DAS for higher vegetative growth, seed yield and net return. **ખેડૂતોપયોગી ભલામણ:** ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારના ચોમાસુ બાજરી ઉગાડતા ખેડૂતોને સારી વાનસ્પતિક વૃધ્ધિ, વધુ ઉત્પાદન અને ચોખ્ખી આવક મેળવવા માટે વાવણી બાદ ૩૦-૩૫ અને ૫૦-૫૫ દિવસે પોટેશીયમ કલોરાઈડ ૧.૫ ટકાના દરે (૭.૫ કિ.ગ્રા/ હે. ૫૦૦ લીટર પાણીમાં ઓગાળીને) છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. **(Action : Research Scientist, Pearl Millet Research Station, JAU, Jamnagar)**

13.7.2 RECOMMEDATION FOR SCIENTIFIC COMMUNITY

ANAND AGRICULTURAL UNIVERSITY, ANAND

13.7.2.1	**Effect of benzyladenine (BA) on water deficit stress in rice seedlings**
	House approved the recommendation after recasting the language as : It is informed to scientific community that for alleviating adverse effect of water deficit stress, rice seeds be treated with 100 ppm benzyladenine for 8 hrs. to maintain adequate level of osmolytes such as total soluble sugars, phenols and proline with low membrane injury upto 20 days old seedlings. **[Action: Professor & Head, Department of Biochemistry, B.A.C.A., AAU, Anand]**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

13.7.1.2	**Effect of organic seed treatment on storability of wheat**
	House approved the recommendation after recasting the language as : It is informed to scientific community that wheat seed may be stored under ambient storage condition packed with cloth bag with seed treatment of Neem Leaf Powder or Sweet Flag Rhizome Powder @ 2-5g/kg of seed or Neem Seed Kernel Powder @ 2g/kg seed for a period of 20 months without deterioration in germination and seedling vigour. **(Action : Professor & Head, Department of Seed Science and Technology, JAU)**
13.7.1.3	**Biochemical and molecular characterization of phosphate solubilizing bacteria from different soil rhizosphere**
	House approved the recommendation after recasting the language as : It is informed to scientific community that among 17 PSBs, isolate derived from chickpea rhizosphere exhibited highest phosphate solubilizing index followed by isolates from pigeonpea rhizosphere and poultry farms. The best PSBs were confirmed as *Pseudomonas putida* and *Pseudomonas fulva*. **(Action : Professor & Head, Department of Biochemistry and Biotech, JAU)**

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

13.7.1.4	**Effect of different cooking conditions on antioxidant properties of some cucurbit vegetables**
	House approved the recommendation after recasting the language as : It is informed to scientific community that bitter gourd contains highest antioxidant activity as compared to cucumber, pumpkin, bottle gourd, pointed gourd and spine gourd. Further, antioxidant activity was remained maximum at cooking for 7 minutes in microwave (900 W) or 10 minutes in pressure cooker (2 whistles). **(Action : Prof. & Head, Dept. of Soil Science and Agri. Chemistry, NMCA, NAU)**
13.7.1.5	**Development of EST - SSR marker in chilli**
	House approved the recommendation after recasting the language as : It is informed to scientific community that 25 out of 86 polymorphic markers are

present in EST-SSR based primers (3893 EST-SSR) in chilli genotypes.

Sr. No	Primer Id	Expected fragment size (bp)	Observed fragment size range (bp)	Monomorphic/ Polymorphic
1	DiwCA03	280	421-474	Polymorphic
2	DiwCA05	370	378-507	Polymorphic
3	DiwCA08	398	350-540	Polymorphic
4	DiwCA09	398	671-748	Polymorphic
5	DiwCA12	307	310-465	Polymorphic
6	DiwCA17	168	155-325	Polymorphic
7	DiwCA22	166	175-305	Polymorphic
8	DiwCA25	370	284-436	Polymorphic
9	DiwCA27	184	180-260	Polymorphic
10	DiwCA29	254	265-396	Polymorphic
11	DiwCA30	122	110-156	Polymorphic
12	DiwCA32	169	215-232	Polymorphic
13	DiwCA33	297	316-326	Polymorphic
14	DiwCA36	233	228-242	Polymorphic
15	DiwCA41	320	254-495	Polymorphic
16	DiwCA49	394	300-565	Polymorphic
17	DiwCA50	226	200-395	Polymorphic
18	DiwCA62	355	350-601	Polymorphic
19	DiwCA67	226	205-359	Polymorphic
20	DiwCA68	174	166-346	Polymorphic
21	DiwCA73	337	302-487	Polymorphic
22	DiwCA75	174	185-325	Polymorphic
23	DiwCA79	227	200-350	Polymorphic
24	DiwCA81	246	250-463	Polymorphic
25	DiwCA83	140	140-265	Polymorphic

(Action: Prof. & Head, Dept. of Plant Molecular Biology and Biotech, ACHF, NAU)

13.7.1.6 **Refinement of sucker tip decontamination technique for mass multiplication of banana through tissue culture**

House approved the recommendation after recasting the language as :

It is informed to scientific community that trimming of banana sucker tip up to 3-4 leaf bases and then treating with lactic acid (0.15 %) + Tween-20 (0.1 %) + commercial bleach (0.8 %) for 30 minutes. Further, trim the sucker tip up to 1-2 leaf bases and then retreat with Sodium chlorite (0.3 %) for 30 minutes. Inoculate these explants aseptically on the culture medium to reduce bacterial and fungal contamination with culture establishment up to 66 per cent.

(Action: Prof. & Head, Dept. of Plant Molecular Biology and Biotech, ACHF, NAU)

13.7.1.7	**Development of low cost technology for *in vitro* mass multiplication of banana**
	House approved the recommendation after recasting the language as : It is informed to scientific community that replacement of laboratory grade sucrose with commercial sugar (30g/l) produced highest no. of shoots. Further, agar (4 g/l) with isabgul (10 g/l) reduces the cost of media and gives better multiplication. **(Action: Prof. & Head, Dept. of Plant Molecular Biology and Biotechnology, ACHF, NAU)**
13.7.1.8	*In vitro* regeneration protocol for spine gourd (*Momordica dioca* Roxb.)
	House approved the recommendation after recasting the language as : It is informed to scientific community to use MS medium supplemented with BAP (1.0 mg/l) + NAA (1.0 mg/l) for highest shoot multiplication and ½ MS medium supplemented with IBA (2.0 mg/l) for rooting in spine gourd (*Momordica dioca* Roxb.). The rooted plantlets of 6 cm shoot length be transferred from culture bottles into plastic cups containing mixture of cocopit and sand (1:1). After 21 days of hardening in the green house, these plants are ready for transfer in the soil. **(Action:** Prof. & Head, Dept. of Plant Molecular Biology & Biotech, ACHF, NAU, Navsari)
13.7.1.9	**Isolation, identification and exploitation of microbes from composting site for xylanase production for agro waste management**
	Deferred due to following reasons-- 1. Deferred due to incomplete data. 2. Title is not justify with results as agro waste management data is missing. 3. Temperature mentioned is not justifiable with experimental utility. 4. Growth kinetic and characteristics are not mentioned. **(Action :** Prof. & Head, Food Quality Testing Laboratory, NAU, Navsari**)**
13.7.1.10	**Exploring microbes for their siderophore production and their biocontrol potential**
	House approved the recommendation after recasting the language as : It is informed to scientific community that siderophore producing *Enterobacter ludwigii* TLAB1 and *Pseudomonas aeruginosa* TPA1 can be used *in vitro* to inhibit the growth of *Colletotrichum* sp. **(Action :** Prof. & Head, Food Quality Testing Laboratory, NAU**)**
13.7.1.11	**Exploring microbes for exopolysaccharides (EPS) production**
	The house approved as recommendation after recasting the language as : It is informed to scientific community that exopolysaccharide produced by bacterial isolate *Klebsiella vericolla* showed non-Newtonian behaviour, therefore, can be used as thickening agent and also possesses antioxidant activity. **(Action : Prof. & Head, Food Quality Testing Laboratory, NAU, Navsari)**

13.6.3. TECHNICAL SESSION-II

Chairman	**:**	**Dr S.R. Chaudhari, DR, NAU**
Co-Chairman	**:**	**Dr. B.A. Golakia, RS, JAU**
	:	**Dr. S. R. Vyas, Dean, SDAU**
Rapporteurs	**:**	**Dr. J.B. Patel, JAU** **Dr. Kapil K. Tiwari, SDAU** **Dr. Yogesh R. Patel, SDAU**

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

University	**New Technical Programme**	
	Proposed	**Approved**
AAU, Anand	**13**	**13**
JAU, Junagadh	**15**	**15**
NAU, Navsari	**8**	**8**
SDAU, Sardarkrushinagar	**8**	**7**
Total	**44**	**43**

ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	**Title**	**Suggestions**	**Remarks**
13.7.3.1	Development of tissue culture protocol for mass multiplication of seedless lemon.	**Accepted** **(**Action: Research Scientist, Centre for advanced research in plant Tissue culture, AAU, Anand)	**Approved**
13.7.3.2	Development of gender specific SCAR (Sequence Characterized Amplified Region) marker in date palm.	**Accepted** **(**Action: Research Scientist, Centre for advanced research in plant Tissue culture, AAU, Anand)	**Approved**
13.7.3.3	Synthesis and characterization of sulphur nanoparticles and study of its anti-fungal activity against phytopathogens.	**Accepted** **(**Action: Research Scientist, Centre for advanced research in plant Tissue culture, AAU, Anand)	**Approved**
13.7.3.4	Evaluation of efficacy of zinc nanoparticles for its enhancement of growth of groundnut crop.	**Accepted with following suggestion** Concentration of Zinc nanoparticles to be verified **(**Action: Research Scientist, Centre for advanced research in plant Tissue culture, AAU, Anand)	**Approved with suggestions**

13.7.3.5	Stabilization and characterization of multiwalled carbon nanotubes (MWCNTs) and its effects on maize, tomato, soybean seeds.	**Accepted** **(**Action: Research Scientist, Centre for advanced research in plant Tissue culture, AAU, Anand)	**Approved**
13.7.3.6	Marker assisted selection for RKN resistance trait in Tobacco.	**Accepted** (Action: Professor & Head, Department of Agril. Biotech, AAU, Anand)	**Approved**
13.7.3.7	Development of tissue culture regeneration protocol in maize through immature zygotic embryo.	**Accepted** (Action: Professor & Head, Department of Agril. Biotech, AAU, Anand)	**Approved**
13.7.3.8	Identification of markers associated with bacterial leaf blight (BLB) resistance in rice	**Accepted** (Action: Professor & Head, Department of Agril. Biotech, AAU, Anand)	**Approved**
13.7.3.9	Effect of limited irrigation and exogenous application of maltose and trehalose on growth, yield and biochemical components of durum wheat.	**Accepted with following suggestions** 1. Details for field experiment to be incorporated in the study. 2. Varieties to be finalized in consultation with Research Scientist (Wheat), Vijapur. 3. Economics to be incorporated in the study. (Action: Professor & Head, Department of Biochemistry, BACA, AAU, Anand)	**Approved with** suggestions
13.7.3.10	Effect of Benzyladenine (BA) on water stress in rice.	**Accepted with following suggestions** 1. Soil properties and moisture holding capacity to be measured before transplanting and after harvest of the crop. 2. Economics to be incorporated in the study. **(**Action: Professor & Head, Department of Biochemistry, BACA, AAU, Anand)	**Approved with suggestions**
13.7.3.11	Effect of harvesting stage on morpho-physiological and essential oil constituents of *Ocimum* sp.	**Accepted** (Action: Research Scientist, Medicinal and Aromatic Plants Research Station, AAU, Anand)	**Approved**

13.7.3.12	Enhancement of Seed Germination in Charoli (*Buchanania lanzan).*	**Accepted** (Action: Research Scientist, Medicinal and Aromatic Plants Research Station, AAU, Anand)	**Approved**
13.7.3.13	Effect of aged seed on seed germination, morpho- physiological parameters and transplantable seedlings in bidi tobacco varieties under nursery conditions. (joint study with agronomy)	**Accepted with following suggestion** Traditional storage method adopted by the farmers to be used in the study for selecting the aged seed (Action: Research Scientist, BTRS, AAU, Anand)	**Approved with suggestions**

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

13.7.3.14	Biochemical appraisal of enzymatic activities from soils of LTFE at JAU, Junagadh.	**Accepted with following suggestion** Include third objective as "To study the metagenomics profiling of LTFE soil" (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved with suggestions**
13.7.3.15	Construction of genetic linkage map and identification of QTL's linked to stem rot resistance in groundnut.	**Accepted** (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved**
13.7.3.16	Draft genome sequencing and analysis of fungal phytopathogen *Sclerotium rolfsii* to reveal insight into its genetic structure	**Accepted** (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved**
13.7.3.17	Genome and transcriptome sequencing of coriander (*Coriandrum sativum*) to reveal insight of its genomic architecture and breeding targets	**Accepted** (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved**
13.7.3.18	Biochemical and molecular evaluation of A1 and A2 casein protein of milk from Holstein Friesian and indigenous Gir cow	**Accepted** (Action: Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved**

13.7.3.19	Comparative appraisal of cow and buffalo urine for anti-cancerous properties through biochemical and cyto-toxic characterization	**Accepted with following suggestion** Include the name of breed of cow (Gir) and buffalo (Jaffarabadi) in title (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved with suggestions**
13.7.3.20	Isolation and identification of entomopathogenic microorganisms from the soils of Saurashtra region.	**Accepted** (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved**
13.7.3.21	Isolation and identification of salt tolerant strains of beneficial microoraganisms from the coastal soils of Saurashtra region.	**Accepted** (Action : Professor & Head, Department of Biochemistry and Biotechnology, JAU, Junagadh)	**Approved**
13.7.3.22	The effect of different seed containers and seed treatments on viability and vigour of sorghum [*Sorghum bicolor* (L.) Moench]	**Accepted** (Action : Professor & Head, Department of Seed Science and Technology, JAU, Junagadh)	**Approved**
13.7.3.23	Preparing for climate change: Effect of environment on crop phenology development, yield and fiber quality	**Accepted** (Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)	**Approved**
13.7.3.24	Influence of plant growth retardants on morpho-physiological traits and yield in high density planting cotton (*Gossypium hirsutum* L.)	**Accepted** (Action: Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)	**Approved**
13.7.3.25	Manipulation of source-sink relationship in pearl millet through growth retardants	**Accepted** (Action : Research Scientist (Pearl millet), Pearl millet Research Station, JAU, Jamnagar)	**Approved**
13.7.3.26	Physiological screening of bunch varieties of groundnut (*Arachis hypogaea* L.) under dry farming conditions	**Accepted** (Action : Research Scientist, Dry Farming Research Station, JAU, Targhadia)	**Approved**
13.7.3.27	Evaluation of nano fertilizer in Bt. Cotton	**Accepted with following suggestion**	**Approved with**

	(*Gossypium hirsutum* L.) under dryland agriculture	Measure the moisture content of soil (Action : Research Scientist, Dry Farming Research Station, JAU, Targhadia)	**suggestion**
13.7.3.28	To develop the protocol for micropropagation in Sandalwood (*Santalum album* L.)	**Accepted with following suggestion** Title to be modified as "Development of protocol for micropropagation in Sandalwood (*Santalum album* L.)" (Action : Professor & Head, Department of Genetics and Plant Breeding, JAU, Junagadh)	**Approved with suggestions**

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13.7.3.29	Induction of systemic tolerance in tomato and brinjal to salt stress by halotolerant bacteria	**Accepted with following suggestion** Replace the word salt tolerance with salt sensitive varieties in point no 7 (Crop & Variety) (Action: Prof. & Head, Dept. of Plant Molecular Biology and Biotech, ACHF, NAU	**Approved with suggestions**
13.7.3.30	Metagenomic analysis of flooded rice ecosystem under climate change resilience	**Accepted** **(Action:** Prof. & Head, Dept. of Basic Science and Humanity, College of Forestry, ACHF NAU, Navsari)	**Approved**
13.7.3.31	Identification and trouble shooting of microbial contamination occurs during canning of mango pulp	**Accepted with following suggestion** To check microbial load of water used for washing of mango processing plant. (Action**:** Prof. & Head, Department of Post Harvest Technology, ACHF, NAU)	**Approved with suggestions**
13.7.3.32	Screening of pigeon pea genotypes for qualitative characters	**Accepted** (Action: Prof. & Head, Department of Soil Science & Agri. Chemistry, NMCA, NAU, Navsari)	**Approved**
13.7.3.34	Status of heavy metals in green leafy vegetables grown under south Gujarat region	**Accepted with following suggestions** 1. To perform pesticide residues analysis of all the samples. 2. To measure the nutritional profiling of all the samples. 3. Collect the samples in all the three seasons 4. Experimental details (No of treatments, replication and statistical design) be incorporated	**Approved with suggestions**

		(Action**:** Prof. & Head, Food Quality Testing Laboratory, NMCA, NAU)	
13.7.3.35	Delaying the enzymatic browning of sugarcane juice by various treatments	**Accepted with following suggestion** Remove the word enzymatic from the title. (Action**:** Prof. & Head, Food Quality Testing Laboratory, NMCA, NAU)	**Approved with suggestions**
13.7.3.36	Screening of rice germplasm for zinc and iron content	**Accepted with following suggestion** 1. Measure Zn & Fe content of the soil (at pre and post harvesting stage) (Action: Prof. & Head, Department of Genetics & Plant Breeding, NMCA, NAU)	**Approved with suggestions**
13.7.3.37	Isolation, characterization and identification of different *Rhizobium* spp. from the varieties of Pigeonpea	**Accepted with following suggestions** 1. Replace the word Nitrogen fixing bacteria with *Rhizobium spp* in the objectives. 2. Number of samples and locations of sampling to be mentioned. 3. Replace the word "varieties" with "genotypes" in the title. (Action**:** Prof. & Head, Dept. of Plant Pathology, COA, NAU, Bharuch)	**Approved with suggestions**

SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

13.7.3.38	Evaluation of Nutritional and Antinutritional properties of Pearl Millet	**Accepted with following suggestions** 1. Language of objectives should be recasted. 2. Lipid profile, metabolic profile, crude fiber and amino acid profile should be added in the objectives as well as in methodology along with its methods of estimation. 3. Promising genotypes should be selected in consultation with pearl millet breeder. 4. Total carbohydrates should be estimated by the anthrone method in place of Phenol sulphuric method. (Action: Dean, CBSH, Sardarkrushinagar)	**Approved with suggestions**

13.7.3.39	Evaluation of phenolics and antioxidative property of Pigeonpea varieties	**Accepted with following suggestions** 1. Title should be modified as "Evaluation of nutritional profile of Pigeonpea varieties during storage". 2. Language of the objectives should be recasted 3. Nutritional profiling should be measured at 4 months interval. 4. Amino acid profiling to be added in objectives. 5. Experiment to be reframed in CRD (factorial) design. (Action: Dean, CBSH, Sardarkrushinagar)	**Approved with suggestions**
13.7.3.40	SCAR marker development for sex determination in *Simarouba glauca*	**Accepted with following suggestions** 1. Language of the objectives should be recasted 2. Minimum 5 male and 5 female tree to be selected for the study. (Action: Res. Scientist (CIL), Sardarkrushinagar	**Approved with suggestions**
13.7.3.41	Root exudates analysis of Ajwain (*Trachyspernum ammi*)	House dropped the experiment because output of experiment is not useful. (Action: Res. Scientist (CIL), Sardarkrushinagar)	**Not approved**
13.7.3.42	Biochar mediated carbon augmentation of soil and involvement of PGPR in tomato plant growth	**Accepted with following suggestions** 1. Recast the experiment based on modified objectives listed below- 2. To assess the growth and yield of tomato under biochar. 3. To study the carbon content of soil 4. To study the effect of biochar on rhizosphere microbes of soil. (Action: Dean, CBSH, Sardarkrushinagar)	**Approved with suggestions**
13.7.3.43	Evaluation of plant growth regulators for development of quality parthenocarpic fruits of date palm (*Phoenix dactylifera* L.)	**Accepted with following suggestion** No. of treatment combinations to be mentioned in methodology Action: Prof & Head, GPB, CPCA Sardarkrushinagar	**Approved with suggestions**

13.7.3.44	Elucidation of genomic profile and evolutionary relatedness of Amaranthus genotypes	**Accepted** Action: Prof & Head, GPB, CPCA Sardarkrushinagar	**Approved**
13.7.3.45	Green synthesis of nanoparticles for evaluating blight resistance in cumin	**Accepted with following suggestions** 1. Include the word "copper" in the Title before nanoparticles. 2. Include objective as to check efficacy of synthesiszed nanoparticles against *Alteranaria burnsii* through pot trial Action: Prof & Head, GPB, CPCA Sardarkrushinagar	**Approved with suggestions**

General suggestions:

1. New technical programme should be submitted in standard Agresco format.
2. Expected outcome should be mentioned in each new technical programme.
3. Experiment number should be as per the proceeding of combined joint Agresco.
4. Year of commencement and completion to be mentioned in the new technical programme

13.8 ANIMAL HEALTH/ANIMAL PRODUCTION/FISHERIES

SUMMARY RECOMMENDATIONS

University	Recommendation for farmers community			Recommendation for scientific community			Total approved
	Proposed	Approved	Dropped	Proposed	Approved	Dropped	
AAU Animal Health Animal Production	01 04	01 04	00 00	04 08	03 08	01 00	16
NAU Animal Health Animal Production	01 03	01 03	00 00	02 02	01 02	01 00	07
JAU	06	06	00	09	07	02	13
SDAU Animal Health Animal Production	00 00	00 00	00 00	04 01	04 00	00 01	04
KU	00	00	00	00	00	00	00
Total	15	15	00	30	25	05	40

NAME OF THE UNIVERSITY: **AAU, Anand**

SUMMARY

Name of Sub Committee	No. of Recommendations					
	Farming Community			Scientific community		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Health	**1**	**1**	**0**	**4**	**3**	**1**

RECOMMENDATIONS

A.	RECOMMENDATION FOR FARMING COMMUNITY
1.	**Centre/Station/Department:** Department of Veterinary Gynaecology & Obstetrics, College of Veterinary Science and Animal Husbandry, AAU, Anand.
	Title of Experiment: Effect of Nutritional Management of Transition Period on Blood Profile, Puerperal Events and Postpartum Fertility in Buffaloes: A Demonstration to Tribal Farmers
	Recommendation in English The buffalo owners in tribal areas of around taluka Santrampur, district Mahisagar are recommended to provide additional nutrients supplementation over routine feeding to their animals during transition period for 2 months each pre- and postpartum (1.5 kg compound concentrate, Type-I, BIS & 50 g chelated ASMM) with injectable slow releasing multi micro-minerals at around 2 months prepartum and again on the day of calving to reduce the peri parturient complications, and significantly improve postpartum fertility along with better economic return.

	Recommendation in Gujarati મહીસાગર જીલ્લાના સંતરામપુર તાલુકા આજુબાજુના આદિવાસી વિસ્તારના પશુપાલકોને ભલામણ કરવામાં આવે છે, કે ભેંસોમાં વિયાણને લગતી સમસ્યાઓ અને બે વિયાણ વચ્ચેનો સમયગાળો ઘટાડી, સારૂ આર્થિક વળતર મેળવવા માટે, રોજિંદા ઘરગથ્થું ખાણ-દાણ ઉપરાંત વધારાનું પોષણ (૧.૫ કિગ્રા બીઆઇએસ પ્રકાર-૧ દાણ, ૫૦ ગ્રામ એરીયા સ્પેસિફીક ચીલેટેડ મિનરલ મિક્ષ્ચર) વિયાણ અગાઉના ૨ માસ તથા વિયાણ બાદના ૨ માસ દરમિયાન આપવું.આ ઉપરાંત દીર્ઘકાલિન અસર ધરાવતું બહુ સુક્ષ્મ તત્વોવાળું ઇંજેક્શન વિયાણના ૨ માસ પહેલા અને વિયાણના દિવસે, એમ બે વાર અપાવવુ જોઈએ. **Suggestions:** **1.APPROVED** **(Action:** Prof. & Head, Department of Vet. Gynaecology& Obstetrics, Veterinary College, AAU, Anand)
B	**RECOMMENDATION FOR SCIENTIFIC COMMUNITY**
1.	**Centre/Station/Department:** Department of Veterinary Parasitology, College of Veterinary Science and Animal Husbandry, AAU, Anand.
	Title of Experiment: Studies on Prevalence, Haemato-Biochemical Alterations and Diagnostic Aspects of *Trypanosoma evansi* using Blood Smear Examination and Polymerase Chain Reaction (PCR) in Cattle and Buffaloes.
	Recommendation in English Polymerase chain reaction based diagnosis of *Trypanosoma evansi* is more effective than routine blood smear examination which has showed 30.23% sensitivity in relation to PCR in cattle and buffaloes. **Suggestions:** **1.APPROVED** **(Action:** Prof. & Head, Department of Veterinary Parasitology, Veterinary College, AAU, Anand)
2.	**Centre/Station/Department:** Department of Veterinary Gynaecology & Obstetrics**,** College of Veterinary Science and Animal Husbandry, AAU, Anand.
	Title of Experiment: Effect of Nutritional Management of Transition Period on Blood Profile, Puerperal Events and Postpartum Fertility in Buffaloes: A Demonstration to Tribal Farmers
	Recommendation in English Buffaloes during transition period in tribal area of taluka Santrampur district Mahisagar when supplemented with additional nutrients over routine feeding for 2 months each pre- and postpartum (1.5 kg compound concentrate, type I, BIS & 50 g chelated ASMM) along with injectable micro-minerals (Se 25mg, Zn 200mg, Cu 75 mg, Mn 50 mg ,i/m) at around 2 months pre partum and again on the day of calving optimized the plasma metabolites, minerals and hormonal profiles, and reduced the incidence of peri parturient complications, enhanced uterine involution and significantly improved postpartum fertility with reduced infertility and calving interval. Injection of micro-minerals alone found more economical over concentrate alone or a combination of concentrate and micro-minerals in optimally fed animals. **Suggestions:** **1.APPROVED** **(Action:** Prof. & Head, Department of Vet. Gynaecology& Obstetrics, Veterinary College, AAU, Anand)

3.	**Centre/Station/Department:** Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, AAU, Anand.
	Title of Experiment: Studies on xylazine-ketamine, midazolam-ketamine and isoflurane anaesthesia in butorphanolpremedicated birds
	Recommendation in English In birds, premedicant Butorphanol Tartrate @ 1 mg/kg, intra-muscular in conjunction with local anesthetic (2 % Lignocaine Hydrochloride) induces adequate analgesia for minor surgical interventions and facilitates smooth recovery **Suggestions:** **1. DROPPED: Data related to local anesthetic were not incorporated.** **(Action:** Prof. & Head, Department of Veterinary Surgery and Radiology, Veterinary College, AAU, Anand)
4.	**Centre/Station/Department:** Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, AAU, Anand.
	Title of Experiment: "Ultrasonography of udder and teat in dairy animals"
	Recommendation in English Ultrasonographyof bovine udder and teats using 7.5 MHz linear transducer with water bath method provides optimum visualization of the teat canal, rosette of Furstenberg, teat cistern, teat wall and blood vessels, whereas 10 MHz linear transducer with direct gel technique provides excellent visualization of udder parenchyma, gland cistern, vessels and supramammary lymph nodes. **Suggestions:** **1. APPROVED** **(Action:** Prof. & Head, Department of Veterinary Surgery and Radiology, Veterinary College, AAU, Anand)

NAME OF THE UNIVERSITY: **AAU, Anand**

SUMMARY

Name of Sub Committee	**No. of Recommendations**					
	Farming Community			**Scientific community**		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Production	**4**	**4**	**0**	**8**	**8**	**0**

RECOMMENDATIONS

S.No.	**Centre/Station/Department : Animal Nutrition Research Station**
A	**RECOMMENDATION FOR FARMING COMMUNITY**
1.	**Title of Experiment:** Formulation and evaluation of total mixed ration comprising of pigeon pea (*Cajanuscajan*) straw in adult sheep (AP/ANRS/2016/04)
	Recommendation in English Sheep owners are advised to maintain adult flock on total mixed ration comprising of equal quantity of *jowar* hay and pigeon pea straw. **Recommendation in Gujarati** ઘેટા પાલકોને સલાહ આપવામાં આવે છે કે પુખ્ત ઘેટાંઓને જુવાર બાટું અને તુવેર ગોતરની સરખી માત્રા ઉમેરીને બનાવેલ કુલમિશ્રિત આહાર પર નિભાવી શકાય છે.

	Suggestions: **1.APPROVED** **(Action :**Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
2	**Title of Experiment:** Formulation and evaluation of total mixed ration comprising of gram *(Cicer arietinum L)* straw in adult goats (AP/ANRS/2016/05)
	Recommendation in English Goatsowners are advised to maintain adult flock on total mixed ration comprising ofequal amount of *jowar* hay and gram straw. **Recommendation in Gujarati** બકરાં પાલકોને સલાહ આપવામાં આવે છે કે પુખ્ત બકરાઓને જુવાર બાટું અને ચણા ગોતરની સરખી માત્રા ઉમેરીને બનાવેલ કુલમિશ્રિત આહાર પર નિભાવી શકાય છે. **Suggestions:** **1. APPROVED** **(Action :** Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
3	**Title of Experiment:** Studies on the effect of feeding bypass fat and yeast (*Saccharomyces cerevisiae*) supplemented total mixed ration to adult sheep during hot summer.
	Recommendation in English Sheep owners are advised to feed a combination of bypass fat and yeast (*Saccharomyces cerevisiae*) each at 2% of feed intake to adult sheep during hot summer (April to June) in order to reduce the impact of heat stress. **Recommendation in Gujarati** ઘેટાં પાલકોને સલાહ કરવામાં આવેછે કે એપ્રિલથી જૂન માસના ગરમ હવામાન દરમ્યાન પુખ્ત ઘેટાંઓને બાયપાસફેટ અને યીસ્ટ (*સેકેરોમાયસીસ સેરેવિસી*) પ્રત્યેક ૨% લેખે ખોરાકમાં ઉમેરવાથી ગરમીથી થતી તાણ ઘટે છે. **Suggestions:** **1. APPROVED** **(Action :** Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
4	**Title of Experiment:** Methane mitigation in cattle using legume straw based Total Mixed Ration with SSF Biomass.
	Recommendation in English Farmers are recommended to feed total mixed ration with 30% groundnut haulm (*gotar*), 30% wheat straw and 40% concentrate mixture, instead of total mixed ration with only 60% wheat straw and 40% concentrate mixture in order to reduce methane emission by 11% in adult cattle and buffalo. **Recommendation in Gujarati** ખેડૂતોને ભલામણ કરવામાં આવેછે કે પુખ્ત વયના ગાય અને ભેંસ સંવર્ગના પશુઓને ફક્ત ઘઉં કુંવળ ૬૦ % અને ખાણદાણ ૪૦ % લઇને બનાવેલ કુલ મિશ્રિત આહાર કરતાં મગફળીનું ગોતર ૩૦ % ઘઉં કુંવળ ૩૦ % અને ખાણદાણ ૪૦ % લઇને બનાવેલ કુલમિશ્રિત આહાર આપવાથી તેઓ દ્વારા ઉત્સર્જિત મિથેનવાયુ ના ઉત્સર્જનમાં ૧૧ % સુધી ઘટાડો કરી શકાય છે.

Suggestions:

1. APPROVED

(Action: Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand)

B **RECOMMENDATION FOR SCIENTIFIC COMMUNITY**

1. **Title of Experiment:** Development of area-specific mineral mixture formulations for Mahisagar district (AP/ANRS/2016/03)

Recommendation in English

Based on prioritization of limiting minerals in Mahisagar district, the area specific mineral mixture has been formulated to make up for the deficiency when dairy animals are fed @ 30g/head/day in addition to the current feeding practices.

Sr. No.	Mineral Element	Per Cent Requirement
1	Calcium	20.00
2	Phosphorus	12.01
3	Magnesium	4.61
4	Sulphur	1.00
5	Copper	0.17
6	Zinc	1.77
7	Manganese	0.51
8	Iron	0.40
9	Cobalt	0.01
10	Iodine	0.03

Suggestions:

1.APPROVED

(Action : Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**

2 **Title of Experiment:** Formulation and evaluation of total mixed ration comprising of pigeon pea (*Cajanuscajan*) straw in adult sheep (AP/ANRS/2016/04)

Recommendation in English

The pigeon pea straw can replace 50 % *jowar* hay in total mixed ration (with roughage to concentrate ratio 70:30) for adult sheep without any adverse effect on body weight, rumen parameters and digestibility of nutrients.

Suggestions:

1.APPROVED

(Action : Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**

3 **Title of Experiment:** Formulation and evaluation of total mixed ration comprising of gram (*Cicer arietinum L*) straw in adult goats (AP/ANRS/2016/05**)**

Recommendation in English

The gram straw can replace 50 % *jowar* hay in total mixed ration (with roughage to concentrate ratio 70:30) for adult goats without any adverse effect on body weight,

	rumen parameters and digestibility of nutrients. **Suggestions:** **1.APPROVED** **(Action :** Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
4	**Title of Experiment:** Studies on the effect of feeding bypass fat and yeast (*Saccharomyces cerevisiae*) supplemented total mixed ration to adult sheep during hot summer. (AP/ANRS/2015/09)
	Recommendation in English Sheep during hot summer when supplemented with a combination of bypass fat and yeast(*Saccharomyces cerevisiae*) each at 2% of feed intake caused significant reduction in rectal temperature and respiration rate and thus reduced the impact of heat stress. **Suggestions:** **1.APPROVED** **(Action :** Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
5	**Title of Experiment:** Methane mitigation in buffalo on legume straw based Total Mixed Ration (AP/ANRS/ 2016/ 08)
	Recommendation in English Inclusion of groundnut haulm (*gotar*) @ 30% replacing wheat straw in total mixed ration (pelleted) with roughage to concentrate ratio 60:40 increases rumen microbial protein synthesis by 8.95% as compared to total mixed ration without groundnut haulm in Surti buffalo. **Suggestions:** **1.APPROVED** **(Action :** Res. Scientist& Head, Animal Nutrition Research Station, AAU, Anand**)**
6	**Title of Experiment:** Methane mitigation in buffalo on legume straw based Total Mixed Ration (AP/ANRS/ 2016/ 08)
	Recommendation in English Inclusion of groundnut haulm (*gotar)*in mash and pelleted form @ 30% replacing wheat straw in total mixed ration with roughage to concentrate ratio 60:40 reduces methane emission (g/kg DDMI) by 8.7 % and 18.93 % and also digestible energy loss through methane by 5% and 12.92% in mash and pelleted form, respectively, as compared to total mixed ration without groundnut haulm in Surti buffalo. **Suggestions:** **1.APPROVED** **(Action :** Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
7	**Title of Experiment:**Methane mitigation in cattle using legume straw based Total Mixed Ration with SSF Biomass. (AP/ANRS/2015/02)
	Recommendation in English Inclusion of groundnut haulm (*gotar*) @ 30% replacing wheat straw in total mixed ration with roughage to concentrate ratio 60:40 increases rumen microbial protein synthesis by 13.26 % as compared to total mixed ration without groundnut haulm in cattle.

	Suggestions: **1.APPROVED** **(Action :**Res. Scientist & Head, Animal Nutrition Research Station, Veterinary College, AAU, Anand**)**
8	**Title of Experiment:** Methane mitigation in cattle using legume straw based Total Mixed Ration with SSF Biomass. (AP/ANRS/2015/02)
	Recommendation in English Inclusion of groundnut haulm (*gotar*) @ 30% replacing wheat straw in total mixed ration with roughage to concentrate ratio 60:40 reduces methane emission (g/kg DDMI) by 15.13 % and digestible energy loss through methane by 10.80 % in cattle. Inclusion of Solid State Fermentation biomass @ 5% in the same ration further reduces methane emission by 10.60 % and digestible energy loss through methane by 4.26 %. **Suggestions:** **1.APPROVED** **(Action :** Res. Scientist& Head, Animal Nutrition Research Station, AAU, Anand**)**

NAME OF THE UNIVERSITY: **NAU, Navsari**

SUMMARY

Name of Sub Committee	No. of Recommendations					
	Farming Community			Scientific community		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Health	**1**	**1**	**0**	**2**	**1**	**1**

RECOMMENDATIONS

Sr. No.	Centre/Station/Department : **COLLEGE OF VETERINARY SCIENCES & ANIMAL HUSBANDRY**
A	**RECOMMENDATION FOR FARMING COMMUNITY (PET OWNERS)**
1.	**Title of Experiment:** Clinical studies on neurological disorders in canines
	Recommendation in English In pet dogs, based on incidence (87.50%) of posterior paresis as a result of fall from an elevation on the back due to owner's negligence; it is suggested to be cautious while playing with pets at elevated platforms. **Recommendation in Gujarati** પાલતુ શ્વાનમાં ઉચાઈએથી પટકાવવાથી પાછળનાં બન્ને પગ લકવાગ્રસ્ત થયાની નોંધાયેલ ઘટનાઓ (૮૩.૫૦%)ના આધારે ભાલમાણ કરવામાં આવે છે કે શ્વાનો રમુજમાં કે અકસ્માતે ઉચાઈએથી પટકાઈ ના જાય તેની કાળજી રાખવી. **Suggestions: 1.**The public notice of such advice to the pet owners should be displayed at veterinary clinic **2. APPROVED** **(Action :**Head of Department, Veterinary Surgery & Radiology),
B	**RECOMMENDATION FOR SCIENTIFIC COMMUNITY**
1.	**Title of Experiment:** Evaluation of frozen semen of buffalo, crossbred and indigenous cow bull by Hypo Osmotic Swelling Test and supravital staining technique
	Recommendation in English

	1. Instead of trusting on single evaluation test, combination of quality control tests *viz.,* Post Thaw Motility, Hypo-Osmotic Swelling test, viability test should be employed to select the best quality semen. 2. Hypo osmotic swelling test and Eosin and Nigrosin staining is recommended to evaluate the sperm head and tail plasma membrane integrity simultaneously on the same slide for laboratories not equipped with sophisticated microscope. **Suggestions:** **1.**Recommendation no.1 is **Dropped as it is a routine procedure** **2.**Recommendation no.2 is **APPROVED** **(Action :**Head of Department, Veterinary Gynaecology& Obstetrics**)**

NAME OF THE UNIVERSITY: **NAU, Navsari**

SUMMARY

Name of Sub Committee	No. of Recommendations					
	Farming Community			Scientific community		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Production and Fisheries	**3**	**3**	**0**	**2**	**2**	**0**

RECOMMENDATIONS

Sr. No.	Centre/Station/Department :College of veterinary Science & A.H. Department of Livestock Product Technology
A	**RECOMMENDATION FOR FARMING COMMUNITY**
1.	**Title of Experiment:** Development of burfi utilizing watermelon *(Citrulluslanatus)* rind.
	Recommendation in English It is recommended to use 10% (w/w) watermelon rind in buffalo milk for preparation of watermelon rind burfi with acceptable physicochemical and sensory quality for storage till 20 days at refrigeration temperature (7±1°C). **Recommendation in Gujarati** આથી ભલામણ કરવામાં આવે છે કે, ભેંસના દૂધમાં ૧૦% વજન મુજબ તરબૂચની આંતરછાલ ઉમેરીને બનાવેલ “તરબૂચ બરફી” નાં ભૌતિક, રાસાયણિક અને સંવેદનાત્મક ગુણધર્મ જળવાઇ રહે છે. જેને ફ્રિજના તાપમાને (૭±૧^{0}સે.) ૨૦ દિવસ સુધી સંગ્રહી શકાય છે. **Suggestions:** **1.APPROVED** with suggestion that the same is to be approved in FPT/Dairy Science sub-committee. **2. Approved in FPT/Dairy Science sub-committee.** **(Action :** PI and HOD, LPT**)**
	Department of Animal Nutrition
2.	**Title of Experiment:** Effect of fenugreek (*Trigonellafoenum-graecum L.*) supplementation on milk yield and quality in lactating Surti buffaloes. **Recommendation in English:** The farmers of South Gujarat are recommended to supplement daily 125-150g overnight soaked fenugreek seed to the Surti buffaloes during 40-115 days of parturition to improve the total milk production (approximately 8%) without any

	increase in cost of milk (Rs. /litre) production. **Recommendation in Gujarati:** દક્ષિણ ગુજરાતના પશુપાલકોને ભલામણ કરવામાં આવે છે કે, સુરતી ભેંસોને વિયાણ બાદ ૪૦ થી ૧૧૫ દિવસ દરમ્યાન, પૂરક આહાર તરીકે ૧૨૫-૧૫૦ ગ્રામ મેથી દાણા ને રાત ભર પલાળીને ખવડાવવાથી દુધ ઉત્પાદન પર થતા ખર્ચ (રૂ. / લીટર) ને અસર કર્યા વગર કુલ દુધ ઉત્પાદનમાં (આશરે ૮%) વધારો થાય છે. **1.APPROVED** **(Action :** PI through HOD, Animal Nutrition**)**
	Department of Veterinary Physiology and Biochemistry
3.	**Title of Experiment:** Strategies to mitigate the impact of climate change: Effect of 75% green agro-net on production, reproduction and stress parameters in Surti buffaloes.
	Recommendation in English: Farmers of South Gujarat region are recommended to use 75% green agro shed-net at 10 feet height to reduce 10-15^{0}C floor temperature of the open paddock between 2-5 PM in hot-dry season (April end to first week of June) and also to reduce heat stress by lowering THI in hot-humid season (mid June to July end) for the comfort of Surti buffaloes". **Recommendation in Gujarati:** દક્ષિણ ગુજરાતના સુરતી ભેંસ પાળતા પશુપાલકોને ભલામણ કરવામાં આવે છે કે ગરમીની ઋતુમાં (અપ્રિલના અંતથી જુનનું પહેલું અઠવાડિયું) પશુઓના પાકા રહેઠાણની ખુલ્લી જગ્યામાં ૧૦O]8 નીઉચાઈએ ૭૫% લીલી એગ્રોનેટનો ઉપયોગ કરવાથી બપોરના ૨ થી ૫ ના સમયગાળામાં જમીનનું તાપમાન ૧૦ થી ૧૫ ડિગ્રી સેલ્સિયસ ઘટાડી શકાય અને ગરમ ભેજવાળી ઋતુમાં (મધ્ય જૂન થી જુલાઈ ના અંત સુધી) તાપમાન ભેજ ક્રમાંક (THI) ઓછું થવાથી ગરમીનું ભારણ ઘટે છે જેના થી સુરતી ભેંસોને આરામ પહોંચાડી શકાય છે. **1.APPROVED** **(Action :**HOD, Department of Veterinary Physiology and Biochemistry**)**
	Centre/Station/Department : Livestock Research Station
B	**RECOMMENDATION FOR SCIENTIFIC COMMUNITY**
1.	**Title of Experiment**: Effect of Body Condition Score on health, production and reproduction performances in Surti buffaloes.
	Recommendation in English 1. The mean body condition score (BCS) of Surti buffaloes estimated at 3.46(Edmonson *et al.,* 1989)explained variation(R^2=0.10) in production traits*at par*with simplified method of taking single observations of lumbar vertebrae spinous process instead of eight check points with accuracy of 98%. 2. Body condition score in Surti buffaloes estimated (Edmonson *et al.,* 1989)varied up to 19.3% due to seasons warranting usage of -0.44, 0.29 and 0.15 correction factors for summer, rainy and winter season, respectively. **Suggestions:** **1. APPROVED** **(Action :**PI through Research Scientist, LRS**)**

NAME OF THE UNIVERSITY: **JAU, Junagadh**

SUMMARY

Name of Sub Committee	No. of Recommendations					
	Farming Community			Scientific community		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Science and Fisheries Science	**6**	**6**	**0**	**9**	**7**	**2**

RECOMMENDATIONS

Sr. No.	Centre/Station/Department
A	**RECOMMENDATION FOR FARMING COMMUNITY: 06**
13.1.2.1: CATTLE BREEDING FARM, JAU, JUNAGADH	
1.	**Title of Experiment:**Hydrocyanic concentration during different stages of growth in *Gundrijowar* (*Sorghum vulgare*) and *Baru* (*Sorghumhelipensis*).
	Recommendation in English: *Sorghum vulgare* (*jowar*) and *Sorghum helepensis* (*baru*) fed at 25% flowering stage is safe for ruminantsas the HCN content is below the toxic level. **Recommendation in Gujarati:** ૨૫% ફૂલ અવસ્થાએ જુવાર અને બરૂ માં HCN નું પ્રમાણ સલામત માત્રામાં જોવા મળેલ હોય વાગોળતા પ્રાણીઓને ખવડાવી શકાય. **Suggestions:** **1.APPROVED** **(Action:** PI/Research Scientist, Cattle Breeding Farm, JAU, Junagadh**)**
13.1.3.1 COLLEGE OF FISHERIES, JAU, VERAVAL	
2.	**Title of Experiment:**Effects of Pro-biotics on survival, growth and biochemical changes in *Labeo- rohita* fry.
	Recommendation in English: Fish Farmers are recommended to incorporate three probiotics *Lactobacillus subtilis (*15x10^7 cfu/g), *Bacillus subtilis (*10x10^7cfu/g) and *Saccharomyces cerevisiae (*10x10^7cfu/g) in the ratio of 4:3:4 @ 3% in fish feed to obtain higher growth, nutritive value and survival rate of *Labeorohita*in rearing pond. **Recommendation in Gujarati:** મત્સ્ય ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ઉછેર તળાવોમાં લેબીયો રોહિતા ને આપવામાં આવતા ખોરાકમાં ત્રણ પ્રોબાયોટીક્સ લેકટોબેસીલસ સબટીલીસ (15x10^7cfu/g), બેસીલસસબટીલીસ (10x10^7cfu/g) તથા સેક્રોમાયસીસ સેરેવેસી (10x10^7cfu/g) ને 4:૩:4 ના પ્રમાણમાં મિશ્ર કરી ૩% લેખે ખોરાકમાં આપવાથી લેબીયો રોહિતા ની પોષણ મૂલ્યતા, વિકાસદર, તથા જીવંતદરમાં વધારો કરી શકાય છે. **Suggestions:** **1. APPROVED** **(Action:** PI, Inland Fisheries Research Station, JAU, Junagadh**)**
13.1.3.2 COLLEGE OF FISHERIES, JAU, VERAVAL	
3.	**Title of Experiment:**Effect of dressing on quality and shelf life of dried Bombay duck (*Harpodonnehereus*) during storage.

	Recommendation paragraph: It is recommended to fish processors that removal of gill and gut of Bombay duck (*Harpodonnehereus*) before Sun drying may be adopted for better quality and storage period up to six months. **Recommendation in English:** આથી મત્સ્ય ઔદ્યોગિક એકમોને ભલામણ કરવામાં આવેછે કે બોમ્બે ડક (બુમલા) માં સૂર્યપ્રકાશ દ્વારા કરવામાં આવતી સુકવણી પહેલા ચૂઈ અને અન્નમાર્ગ દુર કરવામાં આવે તો સુકા બોમ્બે ડક ની પોષણગુણવત્તા અને છ મહિના સુધી સંગ્રહसमय ગાળો વધારી શકાય. **Suggestions:** **1. APPROVED** (**Action:** PI/ HOD, Fish Processing Technology, Fisheries College, JAU, Veraval**)**
13.1.4.1 FISHERIES RESEARCH STATION, JAU, OKHA	
4.	**Title of Experiment:**Effects of different salinities on growth and survival of juvenile Pacific white shrimp, *Litopenaeusvannamei* (Boone, 1931).
	Recommendation in English: Shrimp farmers are recommended to use 30 ppt salinity water or select areas having such salinity water for higher growth and survival of shrimp *Litopenaeusvannamei*. **Recommendation in Gujarati:** ઝીંગા ઉછેરતા ખેડૂતોને વનામેઈ ઝીંગાના વધુ ઉત્પાદન અને જીવંતદર માટે ૩૦પી.પી.ટી. ખારાશવાળું પાણી વાપરવા અથવા તેટલી ખારાશવાળા પાણીનો વિસ્તાર પસંદ કરવા ભલામણ કરવામાં આવે છે. **Suggestions:** **1. APPROVED** **(Action:** Research Officer, FRS, JAU, Okha**)**
13.1.4.2 FISHERIES RESEARCH STATION, JAU, OKHA	
5.	**Title of Experiment**: Effects of gamma irradiation on the quality of sun-dried croaker (*Johniusdussumieri)*.
	Recommendation in English: The dry fish processors/exporters are recommended to apply dose of 5 kGy gamma irradiation to dry salted croaker (*Johniusdussumieri*) fish for better quality and nine months shelf-life. **Recommendation in Gujarati:** આથી સુકી માછલીના પ્રક્રિયકો /નિકાસકારોને સુકી ધોમા માછલીનો નવ માસ સુધી સંગ્રહ કરવા તથા સારી ગુણવતા જાળવવા ૫ કિલો ગ્રે ગામા વિકિરણની માત્રા વડે માવજત આપવાની ભલામણ કરવામાં આવે છે. **Suggestions:** **1. APPROVED** **(Action:** Research Officer, FRS, JAU, Okha**)**
13.1.6.1 FISHERIES RESEARCH STATION, JAU, MAHUVA	
6.	**Title of Experiment:**Effect of bottom sediments on moulting to *Fenneropenaeusmerguiensis* in circular cement tank.
	Recommendation in English: Shrimp farmers are recommended to culture *Fenneropenaeusmerguiensis* (Banana shrimp) with pond bottom of sea sand + mud (50:50) mixture of 6 inch sediment thickness, for better growth and survival rate. **Recommendation in Gujarati:** ઝીંગા ઉછેર કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ફિનેરોપીનીયેસ મગુર્યેન્સીસ (બનાના શ્રીમ્પ) ના ઉછેર માટે

	તળાવના તળિયે દરિયાની રેતી +ચીકણી માટી (૫૦:૫૦) ના મિશ્રણનો થર છ (૦૬) ઇંચ રાખવાથી સારો વિકાસ અને જીવંત દર મેળવી શકાય છે. **Suggestions:** **1. APPROVED** **(Action:** Assistant Research Scientist, Fisheries, HRS, JAU, Mahuva**)**
B	**RECOMMENDATION FOR SCIENTIFIC COMMUNITY: 09**
13.1.1.1COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
1.	**Title of Experiment:**Preliminary evaluation of antibacterial activity of extracts of selected medicinal plants.
	Recommendation in English: Methanolic and chloroform extractsof leaves of *Aristolochia longa*(*Kidamari), Adansonia digitate (Gorakhamli), Solanum xanthocarpum(Bhoi-ringani), Moringaoleifera (Saragavo)*and *Syzygiumcuminii*(*Kala-jambu*)were found to have significant*in-vitro* antibacterial activity. **Suggestions:** **1. APPROVED** **(Action:** PI/HOD, Vet. Pharmacology & Toxicology, CVS & AH, JAU **)**
13.1.1.2COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
2.	**Title of Experiment:***In-vitro* anti-inflammatory activity of selected medicinal plants.
	Recommendation in English: Extracts from *Argyreiaspeciosa*leaves *(Avali-savali), Adansonia digitate* leaves*(Gorakhambli), Flueggealeucopyrus*leaves*, Peltophorumpterocarpum*bark*(Pilogulmohor), Solanum xanthocarpuma*erial part*,(Bhoi-ringani)* and *Vitexnegundo* leaves *(Nagod)*showed significant *in-vitro* anti-inflammatory activity. **Suggestions:** **1. APPROVED** **(Action:** PI/HOD, Vet. Pharmacology & Toxicology, CVS & AH, JAU **)**
13.1.1.3COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
3.	**Title of Experiment:***In-vitro* antioxidant activity of extracts of selectedmedicinal plants.
	Recommendation in English: *Opuntiaelatior*(*Hathlothor*) fruit extracts of *Peltophorumpterocarpum*(*Pilogulmohor*) leaves and bark*, Syzygiumcuminii*(*Kala-jambu*) leaves and *Tridaxprocumbens* (*Ghaburi*) leaves showed significant *in-vitro* antioxidant activity. **Suggestions:** **1. APPROVED** **(Action:** PI/HOD, Vet. Pharmacology & Toxicology, CVS & AH, JAU **)**
13.1.1.4COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
4.	**Title of Experiment:***In-vitro* anti-diabetic activity of extracts of selected medicinal plants.
	Recommendation in English: Extracts of *Gymnemasylvestre* (*Madhunashini*), *Lepidiumsativum*seed (*Sheliyo*), *Moringaoleifera*(*Saragavo*) leaves and *Puerariatuberosa* (*Fagiyo*) tuber showed significant *in-vitro* anti-diabetic activity by inhibition of α-amylase and α-glucosidase

	enzyme activity. **Suggestions:** **1. APPROVED** **(Action:** PI/HOD, Vet. Pharmacology & Toxicology, CVS & AH, JAU **)**
13.1.1.5COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
5.	**Title of Experiment:**Effect of various levels of some herbal feed additives in total mixed ration on *in vitro* nutrient utilization and rumen fermentation.
	Recommendation in English: Garlic bulb powder, fenugreek seed powder and *ashwagandha* root powder can be incorporated at 0.5% level and ginger rhizome powder at 1% level in total mixed rations to improve *in-vitro* degradability and rumen fermentation. **Suggestions:** **1. APPROVED** **(Action:** PI/HOD, Animal Nutrition, CVS & AH, JAU **)**
13.1.1.6COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
6.	**Title of Experiment:**Study of acaricidal resistance status and species of tick infesting animals presented at TVCC, Junagadh.
	Recommendation in English: In Saurashtra region, major ticks of cattle, buffaloes and horses is *Rhipicephalusmicroplus* (>85%) and of dog *R. sanguineus* (≈ 100%); wherein *R. microplus* shows moderate resistance (level II) against deltamethrin and ivermectin, but susceptibility to cypermethrin. Moderate resistance (level II) against ivermectin is also recorded in *R. sanguineus*. **Suggestions:** **1. APPROVED** **(Action:** PI/HOD, Vet. Parasitology , CVS & AH, JAU **)**
13.1.1.7COLLEGE OF VETERINARY SCIENCE & A.H., JAU, JUNAGADH	
7.	**Title of Experiment:**Clinical epidemiology of Patients visiting at Junagadh Veterinary Hospital.
	Recommendation in English: Among the clinical cases recorded at TVCC, JAU, Junagadh , maximum number of cases are related to medicine (61.04%) followed by surgery (27.17%) and Gynecology (11.79%) during the years 2014-2016 and species wise, cases registered for canine (35.02 %) cases were higher compared to cattle (20.99) , buffalo (20.90), equine (11.22%) and others(11.87%). **Suggestions: DROPPED** **1.** Since this recommendation is only informative type, hence dropped **(Action:** PI/HOD, TVCC, CVS & AH, JAU **)**
13.1.2.1: CATTLE BREEDING FARM, JAU, JUNAGADH	
8.	**Title of Experiment:**Hydrocyanic concentration during different stages of growth in *Gundrijowar* (*Sorghum vulgare*) and *Baru* (*Sorghumhelipensis*).
	Recommendation in English: At 25% flowering stage, *Sorghum vulgare* (*jowar*) and, *Sorghum helepensis* (baru) can be fed safely to ruminants, as the HCN content at this stage is with in tolerant level of 16.83 and 14.13 mg/100 g dry matter in Kharif and summer season

respectively for *jowar*and 19.88 mg/100 g dry matter during Kharif for *baru*.

Suggestions:

1. Dropped: This recommendation is already approved for farmer community. As it is farmer's centric, so this need not be recommended for scientific community.

(Action: PI/Research Scientist, Cattle Breeding Farm, JAU, Junagadh**)**

13.1.3.3 COLLEGE OF FISHERIES, JAU, VERAVAL

9. **Title of Experiments:**

Documentation and seasonal availability of commercially important shellfish species at Veraval fishing harbor.

Recommendation in English:

Twenty two shellfish species including shrimps, crabs, lobsters, squids, cuttlefish and octopus of different genera were recorded during October 2012 to May 2016 at fishing harbor of Veraval, Gujarat.

Group	**Availability**			
	2012-13	**2013-14**	**2014-15**	**2015-16**
Shrimps	Throughout the year. Less number in January and May	September to February Less number in March to May	September to mid December Less number in January to May	Less number throughout the year except November, December and March
Crabs	Throughout the year except December	Throughout the year except November, December and March	Throughout the year	Throughout the year except December and May
Lobsters	Throughout the year	Throughout the year	Throughout the year	Throughout the year
Cephalopods(Cuttle fish, Octopus and Squid)	Throughout the year except May	Throughout the year except after mid April	Throughout the year except May	Throughout the year

Suggestions: 1. APPROVED

(Action: PI/HOD,Fisheries Resource Management,FisheriesCollege, JAU, Veraval **)**

NAME OF THE UNIVERSITY: **SDAU, Sardarkrushinagar**

SUMMARY

Name of Sub Committee	**No. of Recommendations**					
	Farming Community			**Scientific community**		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Health and Fisheries	**0**	**0**	**0**	**4**	**4**	**0**

RECOMMENDATIONS

Sr.No.	Centre/Station/Department :
A	**RECOMMENDATIN FOR FARMING COMMUNITY**
	Title of Experiment: NIL
	Recommendation in English : NIL **Recommendation in Gujarati:** NIL **Suggestions :**
B	**RECOMMENDATIN FOR SCIENTIFIC COMMUNITY**
	Centre/Station/Department: Department of Pharmacology and Toxicology
1.	**Title of Experiment:** Effect of tolfenamic acid on pharmacokinetics of ceftizoxime in sheep
	Recommendation in English : Administration of intramuscular ceftizoxime in sheep @dose rate of 10.00 mg/kg at 48 hours interval maintains therapeutic drug concentration above 0.50 µg/ml in milk. **Suggestions :** 1.**APPROVED** **(Action :** PI, Department of Pharmacology and Toxicology**)**
2	**Title of Experiment:**Monitoring of heavy metals in milk of dairy animals in Northern Gujarat
	Recommendation in English : In sheep, single dose intravenous administration of marbofloxacin (2.0 mg kg-1 body weight) and ornidazole (20.0 mg kg-1 body weight) in combination is safe with respect to haemato-biochemical parameters. **Suggestions :** 1.**APPROVED** **(Action :** PI, Department of Pharmacology and Toxicology)
3	**Title of Experiment:**Pharmacokinetics and safety profile of Marbofloxacin and its combination with Ornidazole in Sheep
	Recommendation in English : Levels of cadmium, copper and lead in milk of cattle and buffaloes of Banaskantha, Mehsana and Gandhinagar districts are found below maximum residue limits recommended by FSSAI. **Suggestions :** 1. **APPROVED with suggestion** that the name of PI and Co-PI(s) should be the same as finalized when the technical programme was approved. **(Action:** PI, Department of Pharmacology and Toxicology**)**
	Centre/Station/Department: Department of Gynecology and Obstetrics
4	**Title of Experiment:**Investigations on anestrus in rural buffaloes of Banaskantha

	Recommendation in English : Single dose oral feeding of 5 gram herbal powder consisting of *Balantsepha* (*Anethumgraveolens*), *Gajarbij* (*Dauccuscarota*), *Kalonji* (*Nigella sativa*), *Mohari* (*Brassica juncea*) and *Shivlingi* (*Bryonialaciniosa*) culminates into a better estrus response and conception rate than single intra-muscular administration of Busereline acetate (20 mcg) in post-partum anestrus cases of Mehsana buffaloes. **Suggestions** : 1. **APPROVED** **(Action :** PI, Department of Gynecology and Obstetrics**)**

NAME OF THE UNIVERSITY: **SDAU, Sardarkrushinagar**

SUMMARY

Name of Sub Committee	**No. of Recommendations**					
	Farming Community			**Scientific community**		
	Presented	Approved	Dropped	Presented	Approved	Dropped
Animal Production	**0**	**0**	**0**	**1**	**0**	**1**

RECOMMENDATIONS

Sr. No.	**Centre/Station/Department : Department of Livestock Products Technology, COVSC&AH, Sardarkrushinagar**
A	**RECOMMENDATION FOR FARMING COMMUNITY :**
1.	**Title of Experiment: NIL**
B	**RECOMMENDATION FOR SCIENTIFIC COMMUNITY**
Centre/Station/Department : Department of LPT	
1.	**Title of Experiment:** Utilisation of goat milk for preparation of different milk products
	Recommendation in English: "Flavored goat milk dahi prepared from 3% (v/v) mesophilic mixed dahi starter culture (NCDC-352) fortified with 10% (v/v) mango pulp and 2% sodium caseinate is as acceptable as cow milk dahi" **Suggestions:** **1.** Suggested to present the recommendation to FPT / Dairy Science committee for final approval. **2. Dropped** by FPT/Dairy science committee **(Action :**PI of the project, LPT, SDAU **)**

Chairman of the session Dr. D. B. Patil welcomed Dr. H. N. Kher, Registrar, SDAU, who suggested that there is need to undertake more farmer oriented research and also as per the demand of the industry/field problems.

NEW TECHNICAL PROGRAM

SUMMARY

University	New Technical Program			Total
	Proposed	Approved	Dropped	
AAU **Animal Health** **Animal Production**	 **15** **20**	 **15** **20**	 **00** **00**	**35**
NAU **Animal Health** **Animal Production**	 **17** **09**	 **14** **09**	 **03** **00**	**23**
JAU	**15**	**15**	**00**	**15**
SDAU **Animal Health** **Animal Production**	 **12** **07**	 **12** **07**	 **00** **00**	**19**
KU	**02**	**02**	**00**	**02**
Total	**97**	**94**	**03**	

NAME OF THE UNIVERSITY: ANAND AGRICULTURAL UNIVERSITY

SUMMARY

Name of the Sub Committee	No. of New Technical Programmes		
	Presented	Approved	Dropped
Animal Health	**15**	**15**	**00**

NEW TECHNICAL PROGRAMME

Sr. No.	Title	Suggestions	Remarks
1.	Determination of *in-vitro* antibacterial activity of aqueous, alcoholic and chloroform extracts of *Moringa oleifera* (Drumstick tree/ *Sargavo*)	**Accepted** **(**Action: Prof. and Head, Dept. of Vet. Pharmacology & Toxicology)	**Approved**
2.	Abattoir studies on helminth parasites of sheep *(Ovis aries)*	**Accepted with following suggestions** **1.** Increase number of samples to 100. (Action: Prof. and Head, Dept. of Vet. Parasitology)	**Approved**
3.	Study on prevalence of bacterial pathogens associated with canine pyoderma with special reference to association of methicillin resistant staphylococci	**Accepted with following suggestions** **1.** Mention minimum (100) number of samples (Action: Prof. and Head, Dept. of Vet. Medicine)	**Approved**

4.	Study on efficacy of inclusion body hepatitis vaccines in experimentally challenged IBH virus serotype 4 and 11 in broiler chicks	**Accepted** (**Action**: Prof. and Head, Dept. of Vet. Pathology)	**Approved**
5.	Detection of genes for antibiotic resistance among *Pasteurella multocida* isolates obtained from animals and avian species in Gujarat	**Accepted** (**Action**: Prof. and Head, Dept. of Vet. Microbiology)	**Approved**
6.	Genomic DNA detection of *Pasteurella multocida* using FTA (Flinders Technology Associates) card by polymerase chain reaction	**Accepted** (**Action**: Prof. and Head, Dept. of Vet. Microbiology)	**Approved**
7.	Evaluation of reproductive metabiota in various patho-physiological conditions of dairy animals	**Accepted** (Action: Prof. and Head, Dept. of Gynaecology and Obstetrics)	**Approved**
8.	Study on freezability and kinematics of fresh and frozen-thawed cattle and buffalo bull spermatozoa using CASA	**Accepted** (**Action**: Prof. and Head, Dept. of Gynaecology and Obstetrics)	**Approved**
9.	Assessment of Doublesynch, Estradoublesynch and PRID + PMSG protocols for estrus synchronization and fertility in cyclic and acyclic dairy animals	**Accepted** (**Action**: Prof. and Head, Dept. of Gynaecology and Obstetrics)	**Approved**
10.	Study on prevalence of dermatophytosis in animal and human populations with special reference to its zoonotic significance	**Accepted** (**Action**: Prof. and Head, Dept. of Vet. Public Health)	**Approved**
11.	Study on prevalence of *Coxiella burnetii* from raw milk samples in and around Anand	**Accepted with following suggestions** **1.** Specify the human source of material (pet owner / farmers?) (**Action**: Prof. and Head, Dept. of Vet. Public Health)	**Approved**
12.	Comparative study of the ELISA and RT-PCR for the detection of the group A Rotavirus from diarrhoeal samples of buffalo calves and human beings	**Accepted with following suggestions** **1.** Specify the human source of material (PHC/ Hospital?) (**Action**: Prof. and Head, Dept. of Vet. Public Health)	**Approved**
13.	Studies on therapeutic and surgical management of corneal	**Accepted with following suggestions**	**Approved**

	affections in canines	**1.** Mention the treatment protocols (**Action**: Prof. and Head, Dept. of Vet. Surgery & Radiology)	
14.	Clinicophysiological and haemodynamic studies on guaifenesin ketamine and isoflurane anaesthesia in bovine	**Accepted** (**Action**: Prof. and Head, Dept. of Vet. Surgery & Radiology)	**Approved**
15.	Studies on ocular neoplasia in animals	**Accepted with following suggestions** **1.** Mention therapeutic management **2.** Mention surgical technique (**Action**: Prof. and Head, Dept. of Vet. Surgery & Radiology)	**Approved**

NAME OF THE UNIVERSITY: ANAND AGRICULTURAL UNIVERSITY
SUMMARY

Name of the Sub Committee	**No. of New Technical Programmes**		
	Presented	**Approved**	**Dropped**
Animal Production	**20**	**20**	**00**

NEW TECHNICAL PROGRAMME

Sr. No.	**Title /centre**	**Suggestions**	**Remarks**
1.	Assessment of the efficiency of different oestrus synchronization protocols in Surti goats	**Accepted with following suggestions** **1.** Trade name be replaced by generic name of hormones with actual dose **(Action: PI through Dean Vet. College)**	**Approved**
2.	Study on uterine environment of buffaloes during different reproductive phases	**Accepted with following suggestions** **1.** Observation on uterine environment be included **(Action: Professor and Head, RBRU)**	**Approved**
3	Effect of tryptophan supplementation at two levels of crude protein in layer ration on production performance of White Leghorn birds	**Accepted** **(Action:Research Scientist, Poultry Research Station)**	**Approved**
4	Effect of body weight at 16	**Accepted**	**Approved**

	weeks of age on production performance of White Leghorn birds	**(Action:Research Scientist, Poultry Research Station)**	
5	Effect of body weight at 16 weeks of age on production performance of Rhode Island Red birds	**Accepted** **(Action:Research Scientist, Poultry Research Station)**	**Approved**
6	Validation of findings of nutritional status of dairy animals in Mahisagar District	**Accepted** **(Action: professor and Head, Animal Nutrition Research Station)**	**Approved**
7	Development of an area specific mineral mixture for dairy animals of Botad District	**Accepted** **(Action: Professor and Head, Animal Nutrition Research Station)**	**Approved**
8	Development of feeding strategy to enhance body weight gain in Surti kids	**Accepted** **(Action: Professor and Head, Animal Nutrition Research Station)**	**Approved**
9	Effect of methane mitigation on growth performance of crossbred calves through feeding legume straw based total mixed ration	**Accepted** **(Action: Professor and Head, Animal Nutrition Research Station)**	**Approved**
10	Effect of different crop residues on methane emission in cattle	**Accepted** **(Action: Professor and Head, Animal Nutrition Research Station)**	**Approved**
11	Analysis of macro and micro mineral contents in mineral mixture marketed by local companies	**Accepted with following suggestions** **1.** Mention “local manufacturers” in place of “local companies” in the title **(Action: Professor and Head, Animal Nutrition Research Station)**	**Approved**
12	Assessment of quality of compound cattle feeds (Proximate analysis) available in the market	**Accepted** **(Action: Professor and Head, Animal Nutrition Research Station)**	**Approved**
13	Evaluation of carbohydrate active enzymes obtained from rumen through metagenomic analysis	**Accepted** **(Action:Professor and Head, Dept. of Animal Biotechnology**	**Approved**
14	Evaluation of oral supplementation of various enzymes harvested from	**Accepted** **(Action:Professor and Head, Dept. of Animal Biotechnology**	**Approved**

	rumen on production in poultry		
15	Enrichment of rumen bacteria using various lignin rich diet	**Accepted (Action:Professor and Head, Dept. of Animal Biotechnology**	**Approved**
16	Genetic characterization of Kachchhi donkey using microsataelite markers	**Accepted (Action:Professor and Head, Dept. of Animal Genetics and Breeding)**	**Approved**
17	Genetic Characterization of Nari cattle using microsatellite markers	**Accepted Action:Professor and Head, Dept. of Animal Genetics and Breeding)**	**Approved**
18	Performance of adult Surti goats on different types under asbestos roofed house	**Accepted Action:Professor and Head, Dept. of LPM)**	**Approved**
19	Performance of indigenous sheep under water deprivation and rehydration	**Accepted with following suggestions** **1.** Correct the title. Mention word restriction instead of deprivation in title. **(Action:Professor and Head, Dept. of LPM)**	**Approved**
20	Study on certain summer management practices on performance of crossbred calves	**Accepted Action:Professor and Head, Dept. of Animal Science)**	**Approved**

NAME OF THE UNIVERSITY: NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

SUMMARY

Name of the Sub Committee	**No. of New Technical Programmes**		
	Presented	**Approved**	**Dropped**
Animal Health and Fisheries	**17**	**14**	**03**

NEW TECHNICAL PROGRAMME

Sr. No.	**Title /centre**	**Suggestions**	**Remarks**
1.	Age correlated changes in gross and	**Accepted with following suggestions** **1.** Correct the title as " Prenatal age related	**Approved**

	histomorphology of the spleen of Surti goat (*Capra hircus*)	changes in gross and histomorphology of the spleen of Surti goat (*Capra hircus*) **"** **(Action:** Head of Department, Veterinary Anatomy**)**	
2.	Studies on pharmacokinetics and pharmacodynamic integration of andrographolide in rats	**Accepted** **(Action:** *Head of Department, Pharmacology and Toxicology***)**	**Approved**
3.	Diagnosis of canine distemper using molecular techniques	**Accepted with following suggestions** **1.** Change the title as "Molecular diagnosis of canine distemper in dogs." **2.** Third objective to be dropped. **(Action***: Head of Department, Veterinary Microbiology***)**	**Approved**
4.	Evaluation of different methods of DNA extraction in diagnosis of canine parvo virus infection for PCR and real time PCR	**Accepted with following suggestions** **1.** Methods of DNA extraction to be specified. **(Action:** *Head of Department, Veterinary Microbiology***)**	**Approved**
5.	*In-vitro* screening of indigenous medicinal plants for their acaricidal activity against the bovine ticks.	**Accepted with following suggestions** **1.** Only methanolic extract should be used. **(Action:** *Head of Department, Veterinary Parasitology***)**	**Approved**
6.	Histopathological study of renal lesions in animals	**Accepted** **(Action:** *Head of Department, Veterinary Pathology* **)**	**Approved**
7.	Molecular detection of *Mycobacterium avium paratuberculosis* (MAP) from goats and cattle.	**Accepted with following suggestions** **1.** 50 samples of each milk and faeces to be taken 2. J.D. tested animals should be included for comparative efficacy. **(Action:** *Head of Department, Veterinary Pathology***)**	**Approved**
8.	Evaluation of anaesthetic regimens of butorphanol, diazepam or midazolam as preanaesthetic and propofol fpr induction and maintenance of anesthesia in canines.	**Accepted** **(Action:** *Head of Department, Veterinary Surgery & Radiology* **)**	**Approved**
9.	Evaluation of different therapeutic and surgical	**Accepted with following suggestions**	**Approved**

	protocols for management of superficial and deep corneal ulcer and descematocoele in dogs.	1. After medical management based on clinical out come grouping is to be done 2. Remove peritoneal graft **(Action:** *Head of Department, Veterinary Surgery & Radiology* **)**	
10.	Clinico-epidemiology and therapeutic management of dermatological disorders in canines presented at TVCC	**Dropped with following suggestions** **1.** Dropped due to routine nature of work. **(Action:** *Head of Department, Veterinary Medicine***)**	**Dropped**
11.	Management of renal disorders in dogs through haemodialysis	**Dropped with following suggestions** **1.** Standardize the procedure for haemodialysis. **(Action:** *Head of Department, Veterinary Medicine***)**	**Dropped**
12.	Influence of ejaculation numbers and reaction time on semen parameters in Surti buffalo bulls	**Dropped with following suggestions** **1.** Dropped to avoid repetition of work. **(Action:** *Head of Department, Veterinary Gynaecology & Obstetrics***)**	**Dropped**
13.	Relationship of body measurements and testicular parameters on extra-gonadal sperm reserves in buck	**Accepted with following suggestions** **1.** BCS parameter to be dropped **(Action:** *Head of Department, Veterinary Gynaecology & Obstetrics***)**	**Approved**
14.	Clinical efficacy of different drug regimen for the treatment of non-dilatation of cervix in goats	**Accepted with following suggestions** **1.** Dosage of oxytocin to be mentioned in International unit. (Action: *Head of Department, Veterinary Gynaecology & Obstetrics***)**	**Approved**
15.	Clinical efficacy of different vulvar retention suture techniques for postpartum genital prolapse in bovine	**Accepted** **(Action:** *Head of Department, Veterinary Gynaecology & Obstetrics***)**	**Approved**
16.	Diagnosis of lead toxicity in animals presented at TVCC	**Accepted** **(Action:** *Head of Department, Teaching Veterinary Clinical Complex***)**	**Approved**
17.	Detection of pathogenic bacteria from locally marketed ice cream/ frozen dessert samples from Navsari city.	**Accepted with following suggestions** **1.** Change the title as “Detection of bacteria from locally marketed ice cream/ frozen dessert samples in Navsari city.” **(Action***: Head of Department, Polytechnic in Animal Husbandry***)**	**Approved**

NAME OF THE UNIVERSITY: NAVSARI AGRICULTURAL UNIVERSITY
SUMMARY

Name of the Sub Committee	No. of New Technical Programmes		
	Presented	Approved	Dropped
Animal Production & Fisheries	**09**	**09**	**00**

NEW TECHNICAL PROGRAMME

Sr. No.	Title /centre	Suggestions	Remarks
1.	Study of genetic polymorphism in growth related genes and its association with growth parameters in Surti goats	**Accepted** **(Action: Professor and Head, AGB)**	**Approved**
2.	Effect of enzymes supplementation on milk yield and quality in lactating Surti buffaloes.	**Accepted with following suggestions** **1.** Take 12 number of animals for experiment. **(Action: Professor and head, Animal Nutrition)**	**Approved**
3.	Effect of challenge feeding on production and reproductive performance of Surti buffaloes	**Accepted** **(Action: Research Scientist, LRS)**	**Approved**
4.	Identification of prolific Surti goats on the basis of body linear traits and temperaments.	**Accepted** **(Action: Professor and Head, LPM)**	**Approved**
5.	*In vitro* embryo development of goat ovaries with supplementation of epidermal growth factor and α- tocopherol in maturation media	**Accepted** **(Action: Professor and Head, Vet. Physio & Bichemistry)**	**Approved**
6.	Effect of heat ameliorative measures (fans, foggers and green net) on physiological, haematological, biochemical and production performance of lactating Surti buffaloes.	**Accepted with following suggestions** **1.** Mention the height of green -net **(Action: Professor and Head, Vet. Physio & Bichemistry)**	**Approved**
7.	Bio-safety evaluation of oxytetracycline as feed additive for marine and fresh water fishes.	**Accepted** **(Action: Head, Fishery College)**	**Approved**

8.	Evaluation of safety of Emamectin Benzoate (EB) in *Cirrhinus mrigala* fingerlings	**Accepted (Action: (Action: Head, Fishery College)**	**Approved**
9.	Evaluation of withdrawal period of oxytetracycline as feed additive for marine and fresh water fishes.	**Accepted (Action: Head, Fishery College)**	**Approved**

NAME OF UNIVERSITY : JUNAGADH AGRICULTURAL UNIVERSITY

SUMMARY

Name of the Sub Committee	**No. of New Technical Programmes**		
	Presented	**Approved**	**Dropped**
Animal Science and Fisheries Science	**15**	**15**	**00**

NEW TECHNICAL PROGRAMME

Sr. No.	**Title/Centre**	**Suggestions**	**Remarks**
1.	Evaluation of healing potential of polyherbal formulation on full-thickness skin wounds in rabbits.	**Accepted** (Action:Professor and Head, Dept. of VPT)	**Approved**
2.	Evaluation of *in-vitro* antibacterial, anti-inflammatory, antioxidant and anti-diabetic effect of medicinal plants.	**Accepted** (Action: Professor and Head, Dept. of VPT)	**Approved**
3.	Receiver operating characteristic (ROC) analysis of milk components for sub-clinical mastitis in Gir cows.	**Accepted with following suggestions** **1.** Add Somatic cell count along with CMT (Action: Professor and Head, Dept. of ILFC)	**Approved**
4.	Assessment of plumage and integument condition in white leghorn layers and their association with egg production.	**Accepted** (Action: Professor and Head, Dept. of ILFC)	**Approved**
5.	Incorporation of *Cucurbita pepo* (pumpkin) pulp for the preparation of value added flavored buffalo milk.	**Accepted with following suggestions** **1.** Suggested to present in Dairy Science group (Action: Professor and Head, Dept. of LPT)	**Approved in concerned Sub committee.**
6.	Effect of piperine pre-conditioning on pharmacokinetics of	**Accepted** (Action: (Action: Professor and Head, Dept. of VPT)	**Approved**

	marbofloxacin following subcutaneous administration in rats		
7.	Association of estrous behavior and cervical mucus properties with conception in Gir cows.	**Accepted** (Action: Research Scientist, Cattle Breeding Farm)	**Approved**
8.	Studies on nutritive value and feeding varying levels of Marvel (*Dicanthium annulatum*) grass on milk production and milk composition in lactating Gir cows.	**Accepted** (Action: Research Scientist, Cattle Breeding Farm)	**Approved**
9.	Evaluation of Growth Performance using *Ipomoea aquatic* Forsk meal as partial supplementation with fish meal in the diet of *Catlacatla*fry.	**Accepted** (Action: HoD, Dept. of IFRS)	**Approved**
10.	Catch composition of commercial gill net operated along the Mangrol coast, Gujarat.	**Accepted** (Action:PI/HoD, Dept. of FRM)	**Approved**
11.	Composition and diversity of fish and shell fish catch of trawl net along the Mangrol coast, Gujarat.	**Accepted** (Action:PI/HoD, Dept. of H & PHT)	**Approved**
12.	Analysis of condition factor of the ribbonfish *Lepturacanthussavala* and *Trichuruslepturus* of Veraval Coast.	**Accepted** (Action: HoD, College of Fisheries, Veraval)	**Approved**
13.	Effect of Chitosan coating on the quality of Silver Pomfret (*Pampusargenteus*) steak in modified atmosphere packaging during chilled storage.	**Accepted** (Action: PI/HoD, Dept. of H&PHT)	**Approved**
14.	Seed production of mud crab *Scylla serrata* in hatchery.	**Accepted** (Action: ResearchScientist, Fisheries Research Station, Okha)	**Approved**
15.	Effect of shrimp (*Littopenaeus vannamei*) pond sludge on growth of Tilapia (*Tilapia mosambiquues*) in cemented circular tank.	**Accepted** (Action: Research Scientist, Fisheries Research Station, Mahuva)	**Approved**

NAME OF THE UNIVERSITY : S. D. AGRICULTURAL UNIVERSITY

SUMMARY

Name of the Sub Committee	No. of New Technical Programmes		
	Presented	Approved	Dropped
Animal Health and Fisheries	12	12	00

NEW TECHNICAL PROGRAMMES

Sr No.	Title	Suggestions	Remarks
1	Effect of preen gland removal on body weight and physio-biochemical properties of blood in broiler chicken .	**Accepted** **Action :**Professor and Head, Dept. of Anatomy,	**Approved**
2	Detection of *Brucella* species in buck (Goat) semen	**Accepted** **Action :** : Professor and Head, Dept. of Animal Biotechnology ,	**Approved**
3	Survey work on awareness of veterinarians on diaphragmatic hernia in Mehsana buffaloes	**Accepted with following suggestions** 1. The title should be changed as" study on technical awareness among field veterinarians regarding diaphragmatic hernia in buffaloes" **Action :** : Professor and Head, Dept. of Surgery	**Approved,**
4	Clinico-biochemical and histopathological studies on mange/scabies affected dogs to evaluate therapeutic efficacy of ivermectin along topical fipronil spray and garlic extract .	**Accepted with following suggestions** 1. Change the title as “Hematobiochemical and histopathological studies on mange/scabies affected dogs to evaluate therapeutic efficacy of ivermectin along with topical fipronil spray and garlic extract” **Action :** : Professor and Head, TVCC,Deesa	**Approved**
5	To study the incidence of buffalo calf diarrhea and its effect on heart using electrocardiography	**Accepted with following suggestions** 1. Delete the third objective **Action :** : Professor and Head, TVCC,SKNagar	**Approved**
6	Immunohistochemical expression of Ki-67 in squamous epithelial neoplasms of animals and its correlation with histopathological classification and grading.	**Accepted Action :** Professor and Head, Dept. of Pathology	**Approved**

7	Detection of *Trypanosoma evansi* infection in ruminants of Gujarat	**Accepted with following suggestions** 1. Title should be changed as "Detection of *Trypanosoma evansi* infection in ruminants" 2. Include Parasitologist as one of the Co- Investigators **Action :** : Professor and Head, Dept. of Pathology	**Approved**
8	Detection of antimicrobial resistance in *E.coli* isolated from various clinical samples of Poultry	**Accepted** **Action :** : Associate Professor and Head, Dept. of Microbiology	**Approved**
9	Molecular characterization of Methicillin resistant *Staphylococcus aureus* (MRSA) in dogs	**Accepted** **Action :** : Professor and Head, VPH	**Approved**
10	Comparative evaluation and efficacy of the commonly used acaricides against ectoparasite infestation in cattle	**Accepted** **Action :** : Professor and Head, RADIC	**Approved**
11	Development of novel combination of antimicrobials (roxithromycin and ciprofloxacin) based on pharmacokinetic investigations in poultry.	**Accepted with following suggestions** 1. Correct the duration 2. Correct the title 3.New combination instead of Novel combination. **Action :** : Professor and Head, Dept. of Pharmacology	**Approved**
12	Safety analysis of multiple dose of combination of roxithromycin and ciprofloxacin (single formulation) combination based on haemato-biochemical parameters in broiler birds .	**Accepted** **Action :** : Professor and Head, Dept. of Pharmacology	**Approved**

NAME OF THE UNIVERSITY: S. D. A. U., SARDARKRUSHINAGAR
SUMMARY

Name of the Sub Committee	**No. of New Technical Programmes**		
	Presented	**Approved**	**Dropped**
Animal Production	**07**	**07**	**00**

NEW TECHNICAL PROGRAMME

Sr. No.	**Title /centre**	**Suggestions**	**Remarks**
1.	Calculating feed	**Accepted with following suggestions**	**Approved**

	efficiency in lactating Kankrej cattle at Livestock Research Station.	1. Calculate feed utilization efficiency of lactating Kankrej cattle as influenced by parity 2. Include optimum number of animals of each parity i.e. 2^{nd} ,3^{rd} and or 4^{th} lactation **(Action: Research Scientist, LRS)**	
2.	Determination of suckling allowance in Kankrej cattle.	**Accepted with following suggestions** **1.** At the time of recording the observations on defecation and urination should be omitted. **(Action: Research Scientist, LRS)**	**Approved**
3.	Molecular characterization of ß-casein gene in Kankrej cattle for A1 and A2 genotype	**Accepted** **(Action: Professor and Head, Dept. of Animal Genetics and Breeding)**	**Approved**
4	Study on milk composition with reference to biochemical, enzymatic and mineral profile of Mehsana buffaloes (*Bubalus bubalis*) during different stages of lactation	**Accepted with following suggestions** **1.** Title to change : Analysis of milk of Mehsana buffalo for chemical, enzymatic and mineral profile during different stages of lactation. **(Action: Professor and Head, Dept. of Veterinary Physiology & Biochemistry)**	**Approved**
5.	Comparison of immune status in Kankerej cow during different seasons.	**Accepted with following suggestions** 1. Group III should be monsoon season and Group IV comfort season instead of thermoneutral season. **(Action: Professor and Head, Dept. of Veterinary Physiology & Biochemistry)**	**Approved**
6.	Development of dietary fiber enriched chicken meat patties fortified with oats and flax seed.	**Accepted** **(Action: Professor and Head, Dept. of LPT)**	**Approved**
7.	Studies on augmentation of shelf life of meat and meat products using spices at refrigeration temperature.	**Accepted** **(Action: Professor and Head, Dept. of LPT)**	**Approved**

NAME OF THE UNIVERSITY: KAMDHENU UNIVERSITY, GANDHINAGAR

SUMMARY

Name of the Sub Committee	**No. of New Technical Programmes**		
	Presented	**Approved**	**Dropped**
Animal Health and Fisheries	**02**	**02**	**Nil**

NEW TECHNICAL PROGRAMME

Sr. No.	Title /centre	Suggestions	Remarks
1.	Dynamics of vaginal metabiota during estrous cycle and its association with reproductive hormones in *Bubalus bubalis*.	**Accepted** (Action: PI, KU, Gandhinagar)	**Approved**
2.	Complete nutritional profiling of few locally available ingredients to design economically viable aqua feeds**.**	**Accepted** (Action: PI, KU, Gandhinagar)	**Approved**

PLENARY SESSION

Date: 07/04/2017 **Time: 9.00 to 14.00 hours**

The plenary session of 13th combined joint AGRESCO meeting was chaired by Prof. (Dr.) Ashok A. Patel, Hon'ble Vice chancellor, SDAU, Sardarkrushinagar and co-chaired by Dr. A. R. Pathak, Hon'ble Vice chancellor, JAU, Junagadh, Dr. N. C. Patel, Hon'ble Vice chancellor, AAU, Anand and Dr. S. Acharya, Director of Research, SDAU, Sardarkrushinagar. Besides, Director of Research of SAUs, Director of Extension Education of SAUs, Principals and Deans of SAUs, and Associate Director of Research of SAUs, Professors and Scientists remained present. After formal welcome by Prof. (Dr.) Ashok A. Patel, Hon'ble Vice chancellor, SDAU, Sardarkrushinagar session began with the presentation of proceeding of all the sub committees by the respective conveners, wherein recommendations and new technical programmes of different sub committees were approved by the house. Dr. R. K. Patel, ADR, SDAU, Sardarkrushinagar, Dr. D. M. Korat, ADR, AAU, Anand, Dr. I. U. Dhruj, ADR, JAU, Junagadh and Dr. K. A. Patel, ADR, NAU, Navsari were rapporteurs for this session.

Dr. M. A. Vaddoria, Convener, Crop Improvement, Junagadh presented the proceedings of Crop Improvement AGRESCO Sub-committee. Out of the 28 release proposals of improved crop varieties/hybrids, 21 entailing 6, 4, 9 and 2 from AAU, JAU, NAU and SDAU, respectively, were approved with some suggestions. One recommendation for scientific community from AAU, Anand was proposed and accepted by the house. The house felt concerned about the goof ups / variations of data in release proposals; particularly of cotton variety GN. Cot. Hy 18 from NAU. It was suggested that the Director of Research of NAU has to check the sanctity of the data before submitting the release proposal for notification. It was also decided that the release proposal with data goof ups be approved by the committee of four Directors of Research within one month. A discussion ensued on the nomenclature of new varieties/hybrids where the first alphabet of the concerned university has been added by some universities. It was resolved that no such alphabet be added in the name of the variety / hybrid that has been proposed for release for the whole state or for jurisdiction of more than one university. Accordingly, correct the name of the proposed varieties/hybrids before final submission for notification.

(**Action:** Concerned Director of Research of SAUs)

Dr. B. D. Patel, Convener, Natural Resource Management, AAU presented the proceedings of crop production and Natural Resource Management sub-committee. Sixty-one and 19 recommendations of the 69 and 19 recommendations for farming and scientific community, respectively, were proposed and approved by the house. Broaching discussions on the recommendation for preparation of vermicompost (Point No. 13.2.1.7) from banana pseudostem or waste maize fodder, it was suggested to mention the time required for preparation of vermicompost. It was also resolved that such recommendations concerning horticultural crops should be discussed in Horticulture Sub-committee before finalizing the recommendation. The branching stage in groundnut crop (Point No. 13.2.4.2) may be replaced with the proper term. Eighty-three new technical programmes were approved.

(**Action:** Concerned Director of Research/Concerned Scientists of SAUs)

Dr. S. P. Saxena, Convener, Plant Protection, NAU presented the proceedings of the Plant Protection/Crop Protection Subcommittee. He informed that of the 27 and 55 proposals for farming community and scientific community, 20 and 53 were approved, respectively. One hundred-three new technical programs entailing 42, 25, 17 and 18 from AAU, JAU, NAU and SDAU, respectively, were approved.

(**Action:** Concerned Director of Research/Concerned Scientists of SAUs)

Dr. D. K. Varu, Associate Professor, Department of Horticulture, JAU presented the proceeding of Horticulture and Agro-forestry Research Sub-committee of SAUs. The committee approved 24 recommendations for farmers, 6 recommendations for scientific community and 83 new technical programmes. While discussing Recommendation No. 8 and 9, it was suggested that such

recommendations be discussed in Food Processing Technology Sub-committee. The English and Gujarati version in Recommendation No. 6 are different and be corrected. It was also suggested to use Duncan's New Multiple Range Test (DNMRT) in the field experiments of horticulture and plant protection discipline.

(**Action:** Concerned Director of Research/Concerned Scientists of SAUs)

Dr. R. F. Suthar, Convener, Dairy Science and Food Processing Technology & Bio-energy, AAU, Anand presented the recommendations and new technical programmes finalized by Agricultural Engineering, Dairy and Food Technology sub-committee and new technical programmes, respectively. There were many mistakes in Gujarati version of the recommendation text, which be corrected. The house opined that whole process of preparation of dairy product in recommendation be elucidated; provided it is not meant for patent purpose.

Dr. S. K. Shah, Convener, Basic Science and Humanities, SDAU presented the proceeding of Basic Science and Humanity, Plant Physiology, Biochemistry and Biotechnology. Four, 10 and 13 recommendations for farming community, scientific community and new technical programmes were approved, respectively.

Dr. J. J. Makadia, Convener, Social Science, NAU presented the proceedings of Social Science Sub-committee. Twelve recommendations for the scientific community and 106 new technical programmes were approved. While discussing recommendation No. 10 dabbling in "Total factor productivity of ....in Gujarat", the house opined that it concerns policy makers and accordingly be recommended for policy makers.

Dr. B. N. Suthar, Convener, Animal Health & Fisheries, SDAU presented the proceedings of Animal Health, Animal Production and Fisheries Sub-committee. The recommendations for farming community have been approved by the respective sub-committee without calculation of Economics (ICBR). The same may be included in the final proposal.

The following common points were discussed:

- More number of FLD should be conducted to popularize the newly developed crop varieties.
- Drip irrigation system may be used for screening new varieties.
- The genotypes may be marked resistant only after rigorous screening over years against susceptible checks.
- The DNA bar-coding of crop varieties developed by both public and private sector be maintained in database by the Government.
- The following committee be constituted under the Chairmanship of Dr. K. B. Kathiria, Director of Research, AAU , Anand to prepare a guideline for registration of varieties developed by private parties and submit the same the Vice Chancellors of SAUs within a period of 3 months.:

1. Dr. V. P. Chovatia, Director of Research, JAU, Junagadh	Member
2. Dr. A. G. Desai, Research Scientist (Castor-Mustard), SDAU	Member
3. Dr. Mafatlal M. Patel, Research Scientist (Pulses), SDAU	Member
4. Dr. Pathik B. Patel, Asso. Res. Scientist, NAU, Navsari	Member
5. Dr. Vipul P. Patel, Asso. Res. Scientist, NAU, Vyara	Member
6. Dr. K. L. Dobariya, Res. Scientist (Oil Seeds), JAU, Junagadh	Member Secretary

- At present there is no variety of vegetables recommended for cultivation under green house conditions. The above committee will also decide whether the private variety should be considered for evaluation for green house cultivation or not. The committee should also decide on the intent and extent of testing fees for evaluation of any crop varieties developed by private organization.
- The following committee was constituted under the Chairmanship of Dr. P. G. Shah for recommending pesticides (Insecticides /Fungicides/ weedicides/ Plant Growth Regulators /Bio-

pesticides), PGRS) etc in Gujarat which are not listed in Central Insecticide Board & Registration Committee (CIB & RC).

1. Dr. R. N. Pandey, Prof. & Head, Dept of Pathology, BACA, AAU., Anand	Member
2. Dr. P. K. Borad, Prof. & Head, Dept of Entomology, BACA, AAU., Anand	Member
3. Dr. V. A. Solanki, Prof .& Head, Dept of Pl. Pathology, NMCA, NAU., Navsari	Member
4. Dr. S. P. Saxena, Prof., Dept of Entomology, ACHF, N.A.U., Navsari	Member
5. Dr. L. F. Akabari, Prof. & Head, Dept of Pl. Pathology, JAU, Junagadh	Member
6. Dr. M.F.Acharya, I/c Prof. & Head, Dept of Entomology, JAU, Junagadh	Member
7. Dr. D. S. Patel, Prof. & Head, Dept of Pl. Pathology, SDAU, Sardarkrushinagar	Member
8. Dr. D. A. Dodia, Prof., Dept of Entomology, SDAU, Sardarkrushinagar	Member

The committee will also look into the matter for common charges for testing the pesticides (Insecticides /Fungicides/ weedicides/ Plant Growth Regulators /Bio-pesticides) for efficacy and residue analysis.

- SAUs produce large quantity of truthful seeds from breeder seeds by maintaining all standards required for quality seed production. Govt. should be requested to include the truthful seeds for subsidy given to farmers.
- It was resolved by the house that teachers / scientists up to Asstt. Professor/ Asstt. Res. Scientist and its equivalent posts of Host University should be allowed to attend / participate in ensuing Combined Joint AGRESCO meeting.
- It was felt that there is a need to separate the present AGRESCO sub-committee of Dairy Science, Food Processing Technology, Agril. Engineering and Agril. Information Technology into four sub-committee. The house decided to split the present sub-committee into four separate sub-committee i.e. (1) Dairy Science sub committee (2) Food Processing Technology sub committee (3) Agril Engineering sub committee (4) Agril Information Technology sub committee.
- There is a need to extend one more day for Combined Joint AGRESCO meeting and accordingly the house has decided to keep the meeting for 3 days during next year onwards instead of 2 days and forth day morning for plenary session.
- New technical program should be thoroughly / critically discussed in respective sub-committee so that the research goes into right direction.
- Breeders should use marker assisted technique to develop new varieties, wherever possible.
- Target oriented research should be done.
- There should be a standard format for release proposal of crop varieties.

At the end, Prof. (Dr.) Ashok A. Patel, Hon'ble Vice Chancellor, SDAU, Sardarkrushinagar proposed vote of thanks.