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To,

All University Officers, AAU, Anand

All Conveners AGRESCO Sub Committee, AAU, Anand

All Unit / Sub-Unit Officers, AAU, Anand

Sub: Proceeding of **Tenth Combined AGRESCO of SAUs**.....

Enclosed, please find herewith the proceeding of Tenth Combined AGRESCO of SAUs held on 9-11 April, 2014 at Junagadh Agricultural University, Junagadh for your information and necessary action on the point/s pertaining to your subject / discipline.

Enclosed : As above

DIRECTOR OF RESEARCH & DEAN
FACULTY OF P. G. STUDIES

For office use

PROCEEDING OF THE TENTH MEETING OF COMBINED JOINT AGRICULTURAL RESEARCH COUNCIL OF SAUs - 2013-14

ORGANIZED BY

JUNAGADH AGRICULTURAL UNIVERSITY

(APRIL 09-11, 2014)

NAVSARI AGRICULTURAL UNIVERSITY

DIRECTORATE OF RESEARCH

JUNAGADH AGRICULTURAL UNIVERSITY

JUNAGADH-362001

YEAR : 2013-14

TENTH COMBINED JOINT AGRESCO MEETING

PROCEEDING OF THE TENTH COMBINED JOINT AGRESCO MEETING OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH DURING 09-11 APRIL, 2014.

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The Tenth Combined Joint meeting of Agricultural Research Council (AGRESCO-2014) of SAUs of Gujarat was held at Junagadh Agricultural University, Junagadh during April 9-11, 2014. Dr. C. J. Dangaria, Director of Research, JAU, Junagadh welcomed Shri Rajkumar, Chief Guest and Principal Secretary, Department of Agriculture & Cooperation, Government of Gujarat and Dr. N. C. Patel, Chairman of the inaugural function and Hon'ble Vice Chancellor, Junagadh Agricultural University. He also welcomed Dr. A. R. Pathak, Hon'ble Vice Chancellor, NAU, Navsari; Dr. A. M. Shekh, Hon'ble Vice Chancellor, AAU, Anand; Dr. B. R. Shah, Director of Horticulture, Gujarat State; Dr. A. J. Kachhia Patel, Director of Animal Husbandry, Gujarat State; Dr. J. B. Misra, Director, Directorate of Groundnut Research, Junagadh and Member of the Board of Management, JAU; Dr. P. R. Godhani, Member of the Board of Management, JAU and Prof. R. B. Maravia, Executive Director, Sardar Sarovar Narmada Nigam Limited. He also welcomed the Directors of Research, Directors of Extension Education, Deans of various faculties, Registrars, University officers, Associate Directors of Research, the conveners of different sub-committees, Senior Scientists/Professors of SAUs, officers from line departments of Gujarat state, Progressive farmer and representatives from press & media. He briefly highlighted the background, mandates and summary of the research activities of SAUs.

While giving the opening remarks, Dr. A. R. Pathak, Hon'ble Vice Chancellor, NAU, Navsari told that to address the future needs of ever increasing population of country; it is necessary to increase productivity by application of latest technologies involving multidisciplinary approach. Frontier areas of bio technology, nano technology, climate resilient research needs to be strengthened. He also stressed to bridge the gap between farmers and researchers for increasing per capita income.

Dr. A. J. Kachhia patel, Director of Animal Husbandry emphasized on protection of Gir and Kankrej cow, Jaffarabadi bauffalo, Kathiavadi horse and Jhalavadi goat and further improvement in breeds for quality and higher production. Inland fisheries are required to be promoted along with marine fish culture. He

insisted for greater emphasis on extension in the area of veterinary science and animal husbandry which may be useful to farmers/livestock owners.

Dr. B. R. Shah, Director of Horticulture expressed his views on the progress and achievements of Gujarat in increasing area and production of fruits, vegetables, flowers and spices due to liberal policies especially by application of micro irrigation, protected cultivation and increasing export potential in this area. For future it is required to use soil less media like hydroponics for quality assurance in production.

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

Shri Rajkumar, Principal Secretary, Department of Agriculture & Cooperation expressed his views about the conditions of farmers, in spite of high production they are not getting good remuneration of their efforts. Market and price fixing system needs to be addressed in favour of farmers. He congratulated scientists for their valued research recommendations. He emphasized that "it is high time to disseminate latest technologies to the end users by improving extension functionaries." He suggested to use latest technologies of extension including mobile application.

In his Chairman address, Dr. N. C. Patel, Hon'ble Vice Chancellor, JAU has stressed on planning of research based on long term issues. He emphasized on mechanization of mandated crops, improvement in animal breeds and popularization of fish culture in scientific manner. He also informed the scientists to try old germ plasm/varieties and past technologies for current climatic change situation.

Dr. A. M. Parakhia, Director of Extension Education, JAU, Junagadh proposed the vote of thanks at the end of inaugural session.

PROCEEDING OF THE TENTH COMBINED JOINT AGRESCO MEETING OF CROP IMPROVEMENT OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JAU, JUNAGADH, DURING 9-11, APRIL 2014

10.1 CROP IMPROVEMENT :

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

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

Dr. C. J. Dangaria, Director of Research, JAU, Junagadh

Rapporteurs : Dr. K. L. Dobariya, RS (Groundnut), JAU, Junagadh

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

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

Universities	**Varietal Recommendations**				**New Technical Programmes**	
	Farming Community		**Scientific Community**			
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**
AAU	7	6	-	-	4	4
JAU	3	3	-	-	2+1=3	2+1=3
NAU	5	5	-	-	5	5
SDAU	3	2	2	2	6	5
Total	**18**	**16**	**2**	**2**	**17+1=18**	**16+1=17**

Recommendation for farming community

10.1.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

10.1.1.1 **Medicinal and Aromatic Plants Project, A.A.U., Anand**

Proposal for release of Basil (GUJARAT ANAND BASIL 1)

This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand

The proposed genotype of Basil GAB-1 has produced 89.59 and 95.22 % higher green leaf yield as well as 148.70 and 96.85 % higher oil yield than Anand local and Somya check varieties, respectively. Therefore, based on performance of higher green leaves and oil yield, the promising genotype GAB-1 (Gujarat Anand Basil 1) is approved for release in

	Middle Gujarat zone with following suggestions : 1. Specify the species of variety and checks 2. Correct breeding methodology (**Action**: Res. Sci. (M & AP), AAU, Anand)
10.1.1.2	**Pulse Research Station Anand, Agricultural University, Model Farm, Vadodara-3.**
	Proposal for release of mungbean YMV disease resistant variety GAM 5 (VMS-6) (GUJARAT ANAND MUNGBEAN 5)
	This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand This proposed genotype of mungbean is highly resistant to YMV disease and the average yield advantage is to the tune of 46.5 and 18.6 % over check varieties GM 4 and Meha, respectively in *summer* season. The proposed variety is early in maturity and has bolder seed. This variety may be approved with following conditions : 1. As the variety needs to be released for summer season and the data of only two season and one location is available. The variety be approved if multi location data of summer – 2014 are available before the meeting of State Seed Sub-Committee and approved by the committee of DR, AAU, Res. Sci. (Pulse), SDAU and concerned breeder of AAU and convener of Crop Improvement Sub-Committee, AAU. Otherwise the proposal to be submitted during next year with all data. It is a good variety with high level of YMV, which is the major problem of summer crop in many areas of the state. 2. The variety may also be tested in FLDs 3. YMV data should be given year wise recorded during summer season 4. Use proper format of release proposal (**Action**: Assoc. Res. Sci. (Pulses), Pulses Research Station, AAU, Vadodara)
10.1.1.3	**Main Forage Research Station, Anand Agricultural University, Anand-388 110**
	Release proposal for endorsement of oat variety JO-03-91
	This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand The proposed genotype of oat has produced 29.7, 20.6 and 18.9 % higher green

	forage yield as well as 13.6, 9.2 and 6.9 % higher dry matter yield than check varieties OS 6, Kent and JHO 822, respectively. The proposed genotype JO-03-91 found resistant to leaf blight, root rot and powdery mildew diseases. Hence, it is approved for endorsement in Gujarat. (**Action**: Res. Sci. (FC), M.F.R.S., AAU, Anand)
10.1.1.4	**Main Vegetable Research Station, Anand Agricultural, University, Anand-388 110**
	Proposal for release of leafy vegetable dill seed variety, Gujarat Anand Vegetable Dill seed 1 (GAVD 1)
	This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand The proposed genotype of leafy vegetable dill seed recorded 2.39, 15.63 and 5.58 % higher green foliage yield than the check varieties GD 1, GD 2 and GD 3, respectively in Middle Gujarat. It has dark green foliage and late maturity. This genotype can also be grown under residual moisture. Hence, it is approved for release in Middle Gujarat with following suggestions : 1. Give information on acceptability of variety in Point No. 13 of the proposal 2. Mention date of 1^{st} and 2^{nd} cutting 3. Give separate date of sowing for irrigated / residual moisture condition i.e. for Sanand and Anand centers 4. Specify the recommended ecology 5. The variety should be tested for one more year at Navasari station (**Action**: Res. Sci. (Veg.), M.V.R.S., AAU, Anand)
10.1.1.5	**Main Vegetable Research Station, Anand Agricultural, University, Anand-388 110**
	roposal for release of brinjal hybrid Gujarat Anand Brinjal Hybrid 3 (GABH 3)
	This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand The proposed hybrid of brinjal exhibited 34.22 and 19.66 % higher fruit yield over the check hybrids ABH 1 and GBH 2, respectively at Anand. The hybrid contains significantly higher vitamin C (11.182 mg/100g), anthocyanin (538.64 mg/100g), acidity (0.971%) and total carbohydrates (4.12%), while, significantly lower in total phenol (1.15 mg/100g) and total soluble sugar (1.80%) as compared to the checks ABH 1 and GBH 2. Hence, it is approved for release in Middle Gujarat with following suggestions : 1. Include hybrid seed production technique in proposal 2. Give growout test (GOT) detail characters and stage / time of observation (**Action**: Res. Sci. (Veg.), M.V.R.S., AAU, Anand)

10.1.1.6	**Main Vegetable Research Station, Anand Agricultural University, Anand-388 110**
	Proposal for release of onion variety Gujarat Anand White Onion 2 (GAWO 2)
	This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand The proposed genotype of white onion exhibited 24.64 and 44.85 % higher bulb yield over the check varieties GWO 1 and PWF 131, respectively at Anand. The genotype contains higher TSS (14.05 brix), pyruvic acid (36.47 mg/100g), reducing sugar (1.62%), non-reducing sugar (3.58%), total carbohydrates (10.61%) and total phenols (1.556 mg/100g) as compared to the checks, GWO 1 and PWF 131. The proposed genotype had low purple blotch disease index (1.67) and thrip incidence (5.87 per plant) as compared to both the checks. Hence, it is approved for release in Middle Gujarat with following suggestion : 1. To be tested more at Mahuva center. (**Action**: Res. Sci. (Veg.), M.V.R.S., AAU, Anand)
10.1.1.7	**Main Vegetable Research Station, Anand Agricultural University, Anand-388 110**
	Proposal for release of garlic variety Gujarat Anand Garlic 6 (GAG 6)
	This proposal was presented by Dr. J. A. Patel, Convener, AAU, Anand The proposed genotype of garlic exhibited 27.39 and 36.41 % higher bulb yield over the check varieties GG 4 and G 282, respectively at Dahod. The genotype has more number of long dark green leaves, purple colour of dry external scales and purple scale colour of clove. The genotype contains higher TSS (35.47 brix), pyruvic acid (3.11 mg/100g), ascorbic acid (7.37 mg/100g), total soluble sugar (21.47 %), reducing sugar (2.28 %), non reducing sugar (19.19 %), terpenoids, glycosides and flavonoids as well as lower in total phenol (0.118 mg/100g) as compared to the checks GG 4 and G 282. Hence, it is approved for release in purple coloured garlic cultivated area of middle Gujarat. (**Action**: Res. Sci. (Veg.), M.V.R.S., AAU, Anand)
10.1.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH	
10.1.2.1	**Pulses Research Station, JAU, Junagadh**
	Proposal for release of Chickpea Variety Gujarat Gram 5 (GJG 0809)
	This proposal was presented by Dr. M. S. Pithia, Convener, JAU, Junagadh This variety of chickpea has produced 27.61 and 12.25 % higher seed yield over check varieties Dahod Yellow and Gujarat Gram 1, respectively under irrigated condition in Gujarat. Seeds of this variety are of medium size and brown in colour. This variety is resistant to wilt and stunt diseases. This variety is approved for release in Gujarat state. (**Action:** Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh)

10.1.2.2	**Pulses Research Station, JAU, Junagadh**
	Proposal for release of Pigeonpea Variety Gujarat Junagadh Pigeonpea 1 (GJP 0901)
	This proposal was presented by Dr. M. S. Pithia, Convener, JAU, Junagadh This Pigeonpea variety has produced 71.14, 2.82, 29.12 and 25.23 per cent higher seed yield over check varieties, BDN 2, ICPL 87119, Vaishali and AGT 2, respectively during *kharif* season in South Saurashtra. This variety is medium late (176 days) in maturity. GJP 1 is also found moderately resistant to Wilt and SMD diseases. The seed of this variety is bold in size with white colour. This variety is approved with following suggestions : 1. Release for Saurashtra region of Gujarat 2. Test this entry in LSVT during *Kharif* 2014 for yield performance in state 3. Evaluate for wilt and SMD diseases data at hot spot location i.e. Bharuch (**Action: 1.** Research Scientist (Pulses), Pulses Research Station, SDAU, S.K.Nagar 2. Research Scientist (Chickpea), Pulses Research Station, JAU, Junagadh)
10.1.2.3	**Vegetable Research Station, JAU, Junagadh**
	Proposal for release of Garlic Variety Gujarat Junagadh Garlic 5 (JG-07-13)
	This proposal was presented by Dr. M. S. Pithia, Convener, JAU, Junagadh This variety of garlic recorded 23.34 % and 26.93 % higher bulb yield over check varieties GG 4 and G 282, respectively during *rabi* season in Saurashtra and Middle Gujarat. The bulbs of this variety are medium in size, compact and white in color. This variety is approved for release in Saurashtra and Middle Gujarat. (**Action:** Research Scientist (O&G), Vegetable Research Station, JAU, Junagadh)
10.1.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI	
10.1.3.1	**Regional Rice Research Station, Vyara**
	Release of rice variety IET-18654 (CRR 356-26) (PURNA)
	This proposal was presented by Dr. D. U. Patel, Convener, NAU, Navsari The proposed culture of rice IET-18654 is derived from a cross between Annada x RR 151-3 at CRURRS, Hazirabaug, Jharkhand. It performed well in South Gujarat and produced 22 % and 8.8 % higher grain yield over checks GR-5 and GR-9, respectively. This variety is approved for release in upland rice growing region of South Gujarat. **(Action:** Associate Research Scientist (AB), RRRS, NAU, Vyara)

10.1.3.2	**Main Cotton Research Station, NAU, Surat**
	Release of cotton hybrid GSHH-2729 (GN Cot Hy-14)
	This proposal was presented by Dr. D. U. Patel, Convener, NAU, Navsari The hybrid GSHH-2729 of cotton was developed from crossing two diverse parents in 2008. It gave 2552 kg/ha seed cotton yield on overall basis which is 26.1%, 16.2% and 70.6% higher than G. Cot. Hy-10, G. Cot. Hy-12 and Ankur-651, respectively. It recorded lint yield of 831 kg/ha which is 30.4%, 16.3% and 66.0% higher than G. Cot. Hy-10, G. Cot. Hy-12 and Ankur-651, respectively. This hybrid is approved for release in irrigated area of Gujarat with following suggestion 1. Delete data of rainfed condition from the proposal and work out the per cent increase using irrigated data only. **(Action:** Research Scientist (Cotton). MCRS, NAU, Surat)
10.1.3.3	**Pulse Research Station, Navsari**
	Release proposal of Indian bean variety (Vegetable purpose) NPS-1 (GNIB 21)
	This proposal was presented by Dr. D. A. Chauhan, Asso. Res. Sci., NAU, Navsari The proposed variety of Indian bean is developed from cross of Arka Jay x Katargam. It recorded 10.08 % higher green pod yield over Katargam. It recorded near about 4 t/ha green pod yield at even closer distance due to its erect nature. On large scale demonstration on farmer's field it has given 53 % higher green pod yield over check under productive management. This variety is approved for release in South Gujarat Heavy Rainfall Zone with following suggestion: 1. Name should be changed as GNIB 21 instead of GNIB 1 **(Action:** Associate Res. Sci., Pulse Research Station, Navsari)
10.1.3.4	**Vegetable Research Scheme, ACOHF, Navsari**
	Release proposal of Pointed Gourd variety (PG-2) (GNPG-1)
	This proposal was presented by Dr. D. U. Patel, Convener, NAU, Navsari Pointed Gourd variety GNPG-1 is a selection from local germplasm. It has recorded 47.13% higher fruit yield over the local variety. The variety has long, light green fruit with fair whitish strip. This variety is approved for release in South Gujarat with following suggestion: 1. Delete Table 1 2. Give detail of selection of entry from collections 3. Delete other entries from testing trials. Compare test entry and check 4. The revised proposal be submitted to the committee comprising following persons for verification and approval: 1. Dr. K. B. Kathiaria, D.R., AAU, Anand 2. Dr. J. A. Patel, R. S.(RRS), AAU, Anand 3. Dr. S. Sarvaiya, Professor, NAU, Navsari 4. Dr. D. U. Patel, Convener (CP), NAU, Navsari **(Action:** Professor & Head, Vegetable Research Scheme, ACOHF, Navsari)

10.1.3.5	**Hill Millets Research Station, NAU, Waghai**
	Release proposal of Nagli variety GNN-6 (WN-259)
	This proposal was presented by Dr. D. U. Patel, Convener, NAU, Navsari The variety of nagli GNN 6 was developed through selection from local germplasm collected from the Dang district. It gave 17.91 % and 30.52 % higher yield than checks GN-4 and VR-708, respectively. This variety is approved for release in dry lands/ hilly / tribal region of South Gujarat and Panchmahal district of middle Gujarat with following suggestion: 1. Include data of PET and SSVT in the proposal 2. Verify data of nutritional value especially P and Fe content 3. Verify data for reaction to root rot % in state / AICRP trials **(Action:** Asso. Res. Sci., HMRS, NAU, Waghai)
10.1.4	**SARDAR KRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S. K. NAGAR**
10.1.4.1	**Center of Excellence for Research on Pulses, SDAU, Sardarkrushinagar**
	Proposal for release of Mung bean GDM 5 tested as GM-04-02
	This proposal was presented by Dr. Y. Ravindrababu, Res. Sci. (Pulses), SDAU, S.K.Nagar The proposed variety GDM 5 (GM 04-02) of mungbean has recorded 12.45, 17.24 and 15.43 % yield superiority over checks GM 4, Meha and K 851, respectively through-out Gujarat in *kharif*, while in summer season it registered superiority of 19.5 % over GM 4. This variety has early maturity, medium greenish and lustrous grain. The variety has small seed and is late by eight days as compared to GM 4. Its yield advantage under North Gujarat, North Saurashtra and Kutch regions is not convincing. The variety is not found better for its reaction to YMV disease. Hence, this variety is differed by the house. (**Action**: Research Scientist (Pulses), SDAU, Sardarkrushinagar)
10.1.4.2	**Center for Research on Seed Spices, SDAU, Jagudan**
	Proposal for release of Leafy Coriander GCLC 1 tested as Local kalami
	This proposal was presented by Dr. Y. Ravindrababu, Res. Sci. (Pulses), SDAU, S.K.Nagar Considering leaf yield, seed yield, leaf aroma, better keeping quality and less prone to disease and pests, it is proposed to recommend the variety, GDLC 1 for general cultivation in the leafy vegetable coriander growing areas of the state. (**Action**: Center for Research on Seed Spices, SDAU, Jagudan)
10.1.4.3	**Agricultural Research Station , SDAU, Talod**
	Proposal for the endorsement of BOLLGARD II cotton hybrids GD. Cot. Hy. - 1 (BG II)

	This proposal was presented by Dr. J. A. Patel, Asstt. Res. Sci. (PBR), SDAU, Talod Looking to the superiority of cotton hybrid GTHH 49 (BGII) for seed cotton yield, lint yield, ginning outturn, bolls / plant, oil content, calculated oil yield sucking pest tolerant particularly jassids & thrip over other checks, the hybrid is endorsed as GD. Cot. Hy. - 1 (BGII) for commercial cultivation under irrigated condition for entire Gujarat. This variety is approved with following suggestions: 1. Include 2nd year data of all the centers where the entry was tested (Junagadh, Talod) 2. Include data of FLDs 3. As one of the parent having BG II genes (G. Cot. 10) is developed and converted by NAU, the authority of nucleus/breeder seed production and supply will be with NAU, Surat. (**Action:** 1. Asso. Res. Sci., Agricultural Research Station , SDAU, Talod 2. Res. Sci. (Cotton), NAU, Surat)
10.1.4.4	**Agricultural Research Station , SDAU, Talod**
	Quantitative relation of crop development, drying and yield with temperature in different Bt cotton hybrids.
	This Recommendation for scientific community was presented by Dr. J. A. Patel, Asstt. Res. Sci. (PBR), SDAU, Talod ➢ In north Gujarat, Para-wilt in *Bt* cotton is directly and positively correlated with the range of day and night temperatures during September - October resulting into drying / resting of plants due to unavailability of food to plants. ➢ To reduce / overcome yield loss due to para-wilt in *Bt* cotton, crop geometry for HDP (High Density Population) and appropriate sowing time should be recast. ➢ Develop new Bt cotton hybrids for changed planting practices This recommendation is approved. (**Action:** Asso. Res. Sci. , ARS, SDAU, Talod)
10.1.4.5	**Seed Technology Department , SDAU, Sardarkrushinagar**
	Standardization of isolation distance for seed production of cumin
	This Recommendation for scientific community was presented by Dr. P. S. Patel, Convener, SDAU, S.K.Nagar It is recommended to keep isolation distance of 10 m for certified, foundation and breeder seed production of cumin. This recommendation is approved with following suggestion: 1. The results and recommendation be submitted to Directorate of Seed Research, ICAR

	Mau, Project Coordinator (Spices), IISR, Kalicut and Director, GSSC, Ahmedabad to take necessary actions for modifications in isolation standard of seed production of cumin crop. (**Action:** Res. Sci. (Seed Tech.), SDAU, Sardarkrushinagar)

NEW TECHNICAL PROGRAMME

10.1.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr. No.	Title/Centre	Suggestions	Remarks
10.1.1.1	**Department of Horticulture, BACA, AAU, Anand,**		
	Comparative performance of parthenocarpic varieties of cucumber under control condition	Approved with following suggestion/s 1. Select varieties based on popularity among the farmers in Gujarat 2. Any recommendation will not be made from the experiment (**Action:-** Prof. & Head, Deptt. of Horticulture, AAU, Anand**)**	-
10.1.1.2	**Agricultural Research Station, A.A.U., Jabugam**		
	Evaluation of different varieties of banana as a lam (ratoon) crop in tribal area of Chhota Udaipur Region of Middle Gujarat	Approved with following suggestion/s 1. Consult Dr. Kolambe and Dr. B. N. Patel, NAU, Navsari before finalization of programme 2. Use tissue cultured plants only 3. Use drip irrigation / fertigation (**Action:-** Asstt. Res. Sci., ARS, AAU, Jabugam**)**	

10.1.1.3	**Department of Genetics and Plant Breeding, B.A.C.A., AAU, Anand**		
	Effect of seed priming treatment in chickpea (*Cicerarietinum*L.).	Approved with following suggestion/s 1. The feeler trial should also be conducted at Arnej in field condition for germination and initial growth 2. Include JG 16 instead of Chaffa variety (**Action:-** Prof. & Head, Deptt. of Genetics & Plant Breeding, AAU, Anand**)**	
10.1.1.4	**Department of Bio Technology, AAU, Anand**		
	Interspecific hybridization in Custard Apple *(Annona squamosa)*	Approved Aaction : Prof. & Head, Department of Bio Technology, AAU, Anand	
10.1.2 JUNAGADH AGRICULTURAL UNIVERSITY			
10.1.2.1	**Main Bajara Research Station, JAU, Jamnagar**		
	"Integrated approach for maximization of seed yield in cluster bean"	Approved (**Action:** Res. Sci. (Bajara), Pearl Millet Research Station, JAU, Jamnagar)	
10.1.2.2	**Grassland Research Station, JAU, Dhari**		
	"Preliminary evaluation trial on fodder pearl millet hybrids"	Approved (**Action:** Asso. Res. Sci. (Pl.Br.), Grassland Research Station, JAU, Dhari)	
10.1.2.3	**Department of Bio-Technology, JAU, Junagadh**		
	"Biochemical and Molecular Characterization of Brinjal Varieties and Promising Genotypes"	Approved with following suggestion/s 1. Include two more varieties viz., Surati Ravaiya & Doli 5 (**Action:** Professor & Head, Deptt. of Bio-Technology, JAU, Junagadh)	
10.1.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI			
10.1.3.1	**ain Cotton Research Station, NAU, Surat**		
	Identification/Evaluation of genotypes/varieties suitable for high density planting system(HDPS) under different conditions in cotton	Approved **(Action:** Research Scientist (Cotton). MCRS, NAU, Surat**)**	

10.1.3.2	**Hill Millets Research Station, NAU, Waghai**		
	Development of male sterile lines in Ragi (Nagli) (Finger millet, *Eleusine coracana* L.).	Approved with following suggestion 1. Proper methodology for conversion of CMS source to elite line be followed **(Action** : Associate Research Scientist- Hill Millet**)**	
10.1.3.3	**Dept. of Genetics and Plant Breeding, NM College of Agriculture, NAU, Navsari**		
	LSVT of Turmeric including national check Pratibha.	Approved **(Action :** Professor and Head- Dept. of Genetics and Plant Breeding)	
10.1.3.4	**Dept. of Genetics and Plant Breeding, NM College of Agriculture, NAU, Navsari**		
	Effect of rhizome size on growth and yield of turmeric	Approved with following suggestion 1. Not related to Crop Improvement Sub Committee 2. Correct year of start of experiment 3. Present in Horticulture & Agro-forestry sub-committee **(Action :** Professor and Head- Dept. of Genetics and Plant Breeding)	
10.1.3.5	**Dept. of Genetics and Plant Breeding, NM College of Agriculture, NAU, Navsari**		
	The new CVT on turmeric.	Approved **(Action :** Professor and Head-Dept. of Genetics and Plant Breeding)	
10.1.4 SARDAR KRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S. K. NAGAR			
10.1.4.1	**Maize Research Station, SDAU, Bhiloda**		
	Preliminary hybrid trial on yellow maize (PHT)	Approved with following suggestion/s 1. Consult Res. Sci. (Maize) AAU, Godhara before finalization of programme (**Action**: Asstt. Res. Sci., Maize Res. Station, SDAU, Bhiloda)	

10.1.4.2	**Main Castor-Mustard Research Station, SDAU, Sardarkrushinagar**		
	Screening of mustard genotypes for salt tolerance in field condition on Adiya Farm	Approved with following suggestion/s 1. Include susceptible and resistant checks (**Action**: Main Castor-Mustard Research Station, SDAU, Sardarkrushinagar)	
10.1.4.3	**Main Castor-Mustard Research Station, SDAU, Sardarkrushinagar**		
	Screening of mustard germplasm entries for salt tolerance in field condition on Adiya Farm	Approved (**Action**: Res. Sci. (Castor-Mustard), SDAU, Sardarkrushinagar)	
10.1.4.4	**Main Castor-Mustard Research Station, SDAU, Sardarkrushinagar**		
	Evaluation of yield performance of castor in relation to harvesting of spikes at different maturity stages	Not approved due to following suggestion/s 1. Not related to crop improvement Committee. Suggested to get approved in Basic Science Sub-Committee (**Action**: Res. Sci. (Castor-Mustard), SDAU, Sardarkrushinagar)	
10.1.4.5	**Department of Genetics & Plant breeding, CPCA, SDAU, Sardarkrushinagar**		
	Evaluation of linseed (*Linum usitatissimum* L) genotypes	Approved (**Action**: Prof. & Head, Department of Genetics & Plant breeding, CPCA, SDAU, S.K.Nagar)	
10.1.4.6	**Central Instrumental Laboratory, Directorate of Research, SDAU, S.K.Nagar**		
	Development of Plant tissue culture protocol for elite Papaya (*Carica papaya*) cv. Honeydew & Croog Honeydew	Approved (**Action**: Asstt. Prof. (Bio-Tech.), Laboratory, Directorate of Research, SDAU, S.K.Nagar)	

10.1.3 General Suggestions :

1 When variety has been developed by local selection or selection from germplasm, original source of collection should also be used for yield comparison testing. The comparison of original source for characters and yield should also be presented in the proposal.

2 If average yield is less than state average, that data should not be considered for calculating the means of varieties in release proposal.

3 All the centers should follow the format of release proposal for proforma and preparation of various tables as per the JAU.

4 Concerned crop scientist should send one copy of AGRESCO report every year to each supporting center.

5 The data of initial evaluation trials should be submitted to the concerned crop specialist for compilation and inclusion of entries in multi location trials.

6 Ongoing crop breeding work or testing trials (SSVT, LSVT, etc) need not be presented as new technical programmes.

7 It has already been decided that breeder tag will be issued by crop scientist/concern breeder as followed in GAU, If the variety is released before 2004. After 2004 if the variety is released by different SAUs the authorized breeder of concern SAU will issue the breeder tag.

(**Action :** All concerned Research Scientist / Asso. Res. Scientist / Asstt. Res. Scientist of SAUs)

PROCEEDING OF THE TENTH COMBINED JOINT MEETING OF CROP PRODUCTION SUB-COMMITTEE OF AGRESCO OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JAU, JUNAGADH DURING APRIL 9-11, 2014

The Crop Production sub-committee meeting was held in Conference Hall, Department of Agronomy, College of Agriculture, Junagadh Agricultural University, Junagadh under the chairmanship of Dr. A.M. Shekh, Hon'ble Vice Chancellor, AAU, Anand, and Dr. M.K. Arvadia, Principal, N.M. College of Agriculture, NAU, Navsari and Dr. R.G. Patil, Research Scientist (Soil & Water), NAU, Navsari acted as co-chairman. Dr. M.V. Patel, Professor & Head, Department of Agril. Chemistry & Soil Science, CPCA, SDAU, Sardarkrushinagar and Dr. R.K. Mathukia, Associate Research Scientist, Department of Agronomy, JAU, Junagadh were rapporteurs. The convenors of the sub-committee of all SAUs presented the recommendations and new technical programmes. During the technical session-I, in all 51 recommendations were discussed and approved after thorough discussion. Similarly, in the technical session-II, 103 new technical programmes were screened and 102 were approved. The university wise summary of the recommendations and new technical programmes is given below. In these technical sessions, 48 recommendations for farming community, 3 confirmation of earlier recommendations/withheld and 8 recommendations for scientific community were passed.

University	Recommendations				New Technical Programmes	
	Farming community		Scientific community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	15	14	1	1	22	22
JAU	15	15	5	5	27	27
NAU	11	10	0	1	29	28
SDAU	10	9	0	1	25	25
Total	**51**	**48**	**6**	**8**	**103**	**102**

10.2.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Recommendations for the farming community

10.2.1.1 Effect of NADEP compost on yield and quality of tomato

The farmers of middle Gujarat Agro-climatic Zone-III intending to grow determinate tomato organically are advised to apply NADEP compost @ 7 t mixed with castor cake @ 350 kg/ha and 1 litre *Azotobacter* culture at the time of transplanting for securing higher yield with better quality, more net return and maintaining soil fertility.

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

10.2.1.2 Integrated nutrient management in cotton – wheat crop sequence

The farmers of middle Gujarat Agro-climatic Zone-III adopting Bt cotton (early group) - wheat crop sequence are advised to apply 10 t FYM/ha or 1.0 t castor cake/ha to both the crops along with 240 kg N/ha (75% RDF) to cotton and 90-45-0 kg N-P_2O_5-K_2O/ha (75% RDF) to wheat for obtaining higher yield and net return.

*(**Action**: Research Scientist, RRS, AAU, Anand)*

10.2.1.3 Effect of drip irrigation and nitrogen on yield of Bt cotton

The farmers of middle Gujarat Agro-climatic Zone-III (AES-III) are advised to adopt drip irrigation method (0.8 PEF) and apply 100% RDN (240 kg N/ha) in Bt cotton for obtaining higher yield and net return.

System details:

1	Lateral spacing	:	1.2 m
2	Dripper spacing	:	60 cm
3	Dripper discharge	:	4 lph
4	Operating pressure	:	1.2 kg/cm^2
5	Operating frequency	:	Three days interval
6	Operating time	:	October-November: 1 hour 50 minutes December-January : 1 hour 25 minutes

*(**Action**: Research Scientist, RRS, AAU, Anand)*

10.2.1.4 Effect of different dates of sowing and spacings on seed yield of vernonia (*Kalijiri*) [*Vernonia anthlmintica* (L) Willd.] under middle Gujarat conditions

The farmers of middle Gujarat Agro-climatic Zone-III (AES-III) growing vernonia (*kalijiri*) during *rabi* season are advised to sow the crop during October up to third week at 45 cm row spacing for securing higher seed yield and net return.

*(**Action**: Research Scientist, M&APR, AAU, Anand)*

10.2.1.5 Nitrogen management in *rabi* drilled fennel (*Foeniculum vulgare* Mill.) under drip irrigation system

The farmers of middle Gujarat Agro-climatic Zone-III (AES-III) growing drilled fennel during *rabi* are advised to adopt drip method of irrigation at 0.8 PEF and fertilize the crop with 72 kg N/ha of which 25% N (18 kg N/ha) as basal and 75% N (54 kg N/ha) in five equal splits at 10 days interval starting from 30 DAS.

System details:

1	Lateral spacing	:	90 cm
2	Dripper spacing	:	60 cm
3	Dripper discharge	:	8 lph
4	Operating pressure	:	1.2 kg/cm^2
5	Operating frequency	:	Alternate day
6	Operating time	:	30 minutes

*(**Action:** Associate Research Scientist, ARS, AAU, Thasra)*

10.2.1.6 Effect of nitrogen and phosphorus fertigation on yield of sweet corn in *goradu* soil of middle Gujarat conditions

The farmers of middle Gujarat Agro-climatic Zone-III growing *rabi* sweet corn are advised to apply 18 kg N/ha (30% of RDN) along with 50 kg P_2O_5/ha as basal and 42 kg N/ha (70% of RDN) in three equal splits at 10 days interval starting from 20 DAS through fertigation to get higher green cob yield and net return.

System details:

1	Lateral spacing	:	90 cm
2	Dripper spacing	:	60 cm
3	Dripper discharge	:	4 lph
4	Operating pressure	:	1.2 kg/cm^2
5	Operating frequency	:	Alternate day
6	Operating time	:	2 hours

*(**Action:** Associate Research Scientist, ARS, AAU, Thasra)*

10.2.1.7 Yield and quality of hybrid Napier varieties as affected by nitrogen levels

The experiment needs to be continued for one more crop cycle i.e. 3 years.

*(**Action**: Research Scientist, MFRS, AAU, Anand)*

10.2.1.8 Permanent small plot trial for studying the long term effect of phosphorus on yield of *Herbaceum* cotton under rainfed conditions

Application of phosphorus to *deshi* cotton grown in North-West Agro-climatic Zone was not found beneficial (Confirmation of earlier recommendation).

*(**Action:** Assoc. Research Scientist, ARS, AAU, Viramgam)*

10.2.1.9 Study on plant density and levels of nitrogen of newly released *Herbaceum* cotton variety Anand Desi Cotton - 1 (ADC-1)

The farmers of North-West Agro-climatic Zone-V growing rainfed *desi* cotton variety ADC-1 are advised to sow the crop at 210 cm x 30 cm spacing and fertilize @ 40 kg N/ha (20 kg/ha as basal and 20 kg/ha as top dressing at 30-40 DAS) to get higher seed cotton yield and net return.

*(**Action:** Assoc. Research Scientist, ARS, AAU, Viramgam)*

10.2.1.10 Assessment of organic and inorganic nutrient supply system on yield and quality of cotton variety G.Cot.- 21

The farmers of North-West Agro-climatic Zone-V growing rainfed cotton are advised to apply 100% N through FYM (8 t/ha) or 75% N through fertilizer (30 kg N/ha) + 25% N through vermicompost (600 kg/ha) to get higher seed cotton yield and net return.

*(**Action:** Assoc. Research Scientist, ARS, AAU, Viramgam)*

10.2.1.11 Efficacy of potash mobilizing bacteria in potato (*Solanum tuberosum* L.)

The farmers of middle Gujarat Agro-climatic Zone-III growing potato are advised to apply 1 L of potash mobilizing bacteria- *Frateuria aurentia* or native strain- KMB W1-*Enterobacter* (tuber treatment or soil drenching) for obtaining higher yield and saving of 25% potash (application of 165 kg K_2O/ha instead of 220 kg K_2O /ha). Beside this, N and P should be applied as per recommendation.

*(**Action**: Professor & Head, Dept. of Microbiology, AAU, Anand)*

10.2.1.12 Response of cumin (GC-4) to nitrogen and phosphorus in Bhal region

The farmers of Bhal and Coastal Agro-climatic Zone-VIII growing cumin (GC 4) on broad bed and furrow are advised to apply 30 kg N + 30 kg P_2O_5 /ha as basal and 30 kg N/ha as top dressing at 30 DAS for obtaining higher yield and net return.

*(**Action**: Research Scientist, NARP, AAU, Arnej)*

10.2.1.13 Effect of NADEP compost on yield and quality of wheat (GW-1) grown in Bhal region

For obtaining higher yield and net return from durum wheat grown on conserved moisture, in Bhal and Coastal Agro-climatic Zone –VIII are advised to apply NADEP compost @ 2.6 t fortified with castor cake (80 kg/ha) at onset of monsoon in place of recommended N fertilizer and follow seed treatment of *Azospirillum* (5 ml/kg seed).

*(**Action**: Research Scientist, NARP, AAU, Arnej)*

10.2.1.14 Response of root knot resistant bidi tobacco variety ABT-10 to irrigation and topping levels

The farmers of middle Gujarat Agro-climatic Zone-III growing *bidi* tobacco variety ABT-10 are advised to apply five irrigations each of 50 mm depth at 15-20 days interval and the plant is to be topped at 18 leaves for obtaining higher yield and net return.

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

10.2.1.15 Effect of bio-organics and chemical fertilizer on growth, yield & quality of sweet corn (*Zea mays* L. *var. saccharata*)

The farmers of middle Gujarat Agro-climatic Zone-III growing sweet corn (cv. Madhuri) during *rabi* season are advised to apply vermicompost 2 t + castor cake 1.2 t along with 90 kg N + 45 kg P_2O_5/ha for obtaining higher green cob yield and higher net return.

*(**Action**: Research Scientist, MMRS, AAU, Godhra)*

Information for the scientific community

10.2.1.16 Analysis and thematic mapping of extreme weather events of Gujarat

The following warming pattern based on daily minimum temperature showed state wide uniformity in Gujarat which is recommended to consider for the climate change adaptation and mitigation related research/planning.

- Increase in hot nights (*i.e.*, summer when Min T>25ºC)
- Decrease in cold days (*i.e.*, Winter when Min T<10ºC)
- Decrease in cool nights (*i.e.*, When Min T<10^{th} percentile in a year)
- Increase in warm nights (*i.e.*, When Min T>90^{th} percentile in a year).

Except these, the pattern in the climatic extremes of temperature and rainfall recorded during past were ambiguous. Therefore, the location specific climatic trend should be studied before planning of adaptation and mitigation measures/research.

*(**Action**: Professor & Head, Department of Meteorology, AAU, Anand)*

10.2.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Recommendations for the farming community

10.2.2.1 Evaluation of potentiality of organic farming for groundnut (*kharif*)-wheat (*rabi*) cropping sequence

The farmers of South Saurashtra Agro-climatic Zone adopting groundnut (*kharif*)-wheat (*rabi*) cropping sequence under organic farming are advised to apply FYM @ 2.5 t/ha to groundnut and 24 t/ha to wheat for obtaining higher yield and net return along with maintaining soil fertility.

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

10.2.2.2 Impact of tillage practices and sowing pattern on Bt cotton

The farmers of South Saurashtra Agro-Climatic Zone growing Bt cotton are advised to prepare the field by ploughing followed by blade harrowing & planking and sow the crop on ridges (120 cm apart) for achieving higher seed cotton yield and net realization.

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

10.2.2.3 Nutrients requirement for bold seeded summer groundnut

The farmers of South Saurashtra Agro-climatic Zone growing bold seeded summer groundnut are advised to fertilize the crop with 50 kg N, 25 kg K_2O and 20 kg S (120 kg gypsum/) per hector with recommended dose of P_2O_5 (50 kg/ha) for securing higher yield and net realization.

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

10.2.2.4 Relay cropping of castor in soybean

The farmers of South Saurashtra Agro-climatic Zone growing soybean are advised to adopt relay intercropping system with castor by sowing castor 30 days after sowing of soybean with row ratio of 1 : 2 (castor : soybean) for securing higher yield and net return.

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

10.2.2.5 Yield maximization in groundnut through nutrient management practices during *kharif* season

The farmers of South Saurashtra Agro-climatic Zone growing *kharif* groundnut are advised to apply FYM 7.5 t/ha + recommended dose of fertilizer (12.5-25 kg N-P_2O_5/ha) + 25 kg $ZnSO_4$/ha as basal for obtaining higher yield and net return.

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

10.2.2.6 Optimization of *kharif* groundnut production under resource constraints

The farmers of South Saurashtra Agro-climatic Zone growing *kharif* groundnut are advised to follow recommended practices of weed control, plant protection and fertilizer management for obtaining higher yield and net return. However, under the situation of resource constraints, farmers are advised to prioritize their resources in order of
weed control > plant protection > fertilizer management.

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

10.2.2.7 Effect of time of sowing and hybrids on productivity of summer pearl millet

The farmers of North Saurashtra Agro-climatic Zone growing hybrid pearl millet during summer are recommended to sow the crop during second fortnight of February (30 ºC average maximum temperature) to obtain higher yield and net return.

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

10.2.2.8 Time of planting and harvesting for early and midlate varieties of sugarcane

The farmers of South Saurashtra Agro-Climatic Zone-VII growing sugarcane (CoC 671 and CoN 91132) are advised to plant the crop during last week of October to last week of November. The early maturing variety CoC 671 should be harvested between 11 to 12 months of planting and midlate maturing variety CoN 91132 should be harvested between 12 to 14 months of planting for securing higher cane yield and net return.

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

10.2.2.9 Evaluation of chickpea varieties under different dates of sowing under irrigated condition

The farmers of South Saurashtra Agro-climatic Zone growing irrigated chickpea are advised to sow the crop during first fortnight of November (mean minimum temperature 19.9°C and mean maximum temperature 34.7°C) for securing higher yield and net return.

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

10.2.2.10 Effect of biofertilizer along with Mo application on yield of chickpea

The farmers of South Saurashtra Agro-climatic Zone growing irrigated chickpea are advised to treat seeds with *Rhizobium* culture @ 25 g/kg seed + phosphate solubilizing bacterial culture (*Bacillus subtilis*) 30 g/kg seed along with recommended dose of fertilizers (20-40 N-P_2O_5

kg/ha) for securing higher yield and net return. Application of Mo in chickpea was not found advantageous (Confirmation of earlier recommendation).

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

10.2.2.11 Effect of different organic, inorganic and bio-fertilizers on groundnut-pigeonpea relay cropping system

Farmers of South Saurashtra Agro-climatic Zone following groundnut + pigeonpea (2:1) relay cropping system are advised to apply recommended dose of fertilizers to both the crops to obtain higher yield and net returns or 50% RDF + FYM 5 t /ha along with seed treatment of *Rhizobium* and phosphate solubilizing bacteria (each 25-30 g/kg seed) to groundnut only to reduce the dose of chemical fertilizers.

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

10.2.2.12 Response of fennel to plant geometry under North Saurashtra Agro- climatic Zone

The farmers of North Saurashtra Agro-climatic Zone (AES-XV) growing *rabi* fennel are advised to sow the crop at 60 cm x 20-30 cm spacing for securing higher yield and net return.

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

10.2.2.13 Integrated nutrient management in rainfed cotton

The farmers of North Saurashtra Agro climatic zone (AES-VI) growing rainfed Bt. cotton are advised to apply 80 kg N +10 t compost +500 kg castor cake/ha along with bio-fertilizer (*Azotobacter* + PSB) for obtaining higher yield and net return beside improving soil fertility.

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

10.2.2.14 Effect of K application on yield of summer groundnut in calcareous soil

The farmers of South Saurashtra Agro-climatic Zone growing summer groundnut in medium black calcareous soil are advised to apply potassium @ 50 kg/ha as basal in addition to recommended dose of fertilizer (25-50 N-P_2O_5 kg/ha) for securing higher yield and net return.

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

10.2.2.15 Potassium fertilization to *kharif* groundnut in calcareous soil

The farmers of South Saurashtra Agro-climatic Zone growing *kharif* groundnut in medium black calcareous soil are advised to apply potassium @ 50 kg/ha as basal in addition to recommended dose of fertilizer (12.5-25 N-P_2O_5 kg/ha) for securing higher yield and net return.

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

Information for the scientific community

10.2.2.16 Status of sulphur fractions in medium black soils of Rajkot district (Gujarat)

- In general, minimum and maximum values of various sulphur fractions were recorded in soils of Tankara and Upleta, respectively.
- The higher and lower values of various sulphur fractions were recorded with groundnut-groundnut mono sequence and cotton/groundnut-*rabi* crops sequences, respectively.
- The values of all the sulphur fractions were recorded higher with medium deep soil (>60 cm) in comparison to shallow soil (<60 cm).

- The higher and lower values of various fractions of sulphur were recorded with irrigated and unirrigated conditions, respectively.
- Value of organic S was lower with irrigation applied through bore well in comparison to open or canal/river sources.
- District as whole 32.1 per cent soils fall under deficient category, while 44.6 per cent in medium and only 23.2 soils are in high range.

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

10.2.2.17 Establishment of critical limit of sulphur under onion crop in medium black calcareous soils

For recommending S application to onion crop grown on calcareous soils of Saurashtra, STL of Gujarat should consider critical limit of 10 ppm S in soil and 0.56 per cent in onion plant at 60 DAS.

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

10.2.2.18 Establishment of critical limit of sulphur for garlic crop in medium black calcareous soils

For recommending S application to garlic crop grown on calcareous soils of Saurashtra, STL of Gujarat should consider critical limit of 10 ppm S in soil and 0.45 per cent in garlic plant at 60 DAS.

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

10.2.2.19 Relative salinity tolerance of different wheat genotypes

The relative salt tolerance of wheat varieties was found in order of GW 322 > GW 366 > Lok 1 > GW 273 > GW 496 up to EC 4.0 dS/m of irrigation water.

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

10.2.2.20 Soil test based fertilizer application for targeted yields of Bt. cotton in Saurashtra region of Gujarat

The STL of Gujarat are advised to use following equation for achieving targeted yield (up to 30 q/ha) of Bt cotton grown in Saurashtra region.

$FN = 20.80 \times T - 1.55\ SN$

$FK_2O = 18.97 \times T - 1.47\ SK$

Where; FN = Fertilizer N to be applied (kg/ha)
SN = Available soil N (kg/ha)
T = Targetted yield (q/ha)
FK_2O = Fertilizer K_2O to be applied (kg/ha)
SK = Available soil K_2O (kg/ha)

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

10.2.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Recommendations for the farming community

10.2.3.1 Planting geometry and mulching study in water melon under drip irrigation

The farmers of South Gujarat growing water melon on raised bed during summer season are advised to follow paired row planting (1 m x 0.8 m: 3.2 m) with drip irrigation and mulching using black plastic (thickness: 50µ and 38% area coverage) for getting higher fruit yield and net return besides 29 per cent water saving over conventional method of irrigation. Full dose of P and

10% each of N and K should be applied as basal and the remaining N and K should be applied through drip system in 8 equal splits at an interval of 8 days starting from 3-4 leaves stage.

System details:

1	Lateral spacing	:	4 m
2	Dripper spacing	:	1m
3	Dripper discharge	:	8 lph
4	Operating pressure	:	1.2 kg/cm^2
5	Operating frequency	:	Alternate days
6	Operating time	:	March: 3.5-4.0 hr April : 4.0-4.5 hr May to June: 4.5-5.25 hr

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.2 Effect of post emergence treatments of sleeving and different chemicals to bunch on quality of banana

The banana growers of South Gujarat are recommended to adopt following practices after complete emergence of bunch for getting higher yield and net return than conventional cultivation of banana.

1) Spray mixture of Hogland solution (0.5%) + Carbendazim (0.5%) + banana pseudo stem enriched sap (1%) on bunch immediately after its complete emergence.
2) Then tie the pouch containing fresh cow dung (300-500 g) + 18 g mixture of (K_2SO_4 : $(NH_4)_2SO_4$ 1:2) at the terminal end of pathe after removing male flower.
3) Subsequently, cover the whole bunch with blue plastic film of 16-18 micron thickness.

Further, adoption of these practices also extend shelf life by 3-4 days, increase length of finger of lower hand, improves quality of fruit and induces 17 days early maturity.

(**Note:** Subject to residue analysis data of carbendazim)

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.3 Evaluation of productivity of off-season planted banana in relation to cover crop and fertilizer schedule

The banana growers of South Gujarat planting their crop during off-season (January-February) are advised to sow two rows of *til* as nurse crop on both the sides of banana row after 25-30 days of planting. The nurse crop should be harvested 2 months after sowing (around flowering stage) and the biomass should be applied as mulch. Further, they are also advised to follow fertilizer schedule as given below beside 5 kg FYM/plant as basal.

Fertilizer schedule (% of RDF *i.e.*, 180-90-120 N-P_2O_5-K_2O g/plant):

Element	Planting (basal)	Days after planting					
		30	60	90	120	150	180
N	10	10	20	30	30	-	-
P	100	-	-	-	-	-	-
K	10	10	10	10	20	20	20

Adoption of this technology gives higher fruit yield as well as net return.

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.4 Effect of enriched sap of banana pseudo stem at pre-flowering stage on production and quality of banana *var.* G Naine

The banana growers of South Gujarat region are recommended to apply banana pseudo stem enriched sap @ 120 ml/plant in three equal splits through cone feeding at monthly interval

starting from 3 months after planting or apply whole 120 ml/plant at 6 month after planting or apply sap @ 240 ml/plant in 6 equal splits by injection at 15 days interval starting from 3 months after planting for getting higher yield and net return.

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.5 Desuckering of banana through use of conventional fertilizers

The banana growers of South Gujarat are advised to apply 3 to 5 drops/sucker of 2,4-D (60 g/lit. solution) for effective sucker control. Alternatively, they can apply 4 g SSP/sucker. The use of SSP minimizes emergence of new side suckers. Further, the quantity of SSP applied for controlling suckers should be subtracted from the RD of P (approximately 64 g SSP/plant).

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.6 Feasibility study on use of aquaculture effluent as irrigation water for *Salicornia* (*S. brachiata* Roxb.)

The brackish water aquaculture farmers of South Gujarat heavy rainfall zone (AES- IV) adopting brackish water aquaculture are advised to grow salicornia on the waste land available around the ponds. Further, they are recommended to use aquaculture effluent water for irrigating salicornia along with application of fertilizer @ 250-75-50 NPK kg/ha to get higher fresh biomass yield and net return.

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.7 Crop sequence study under raised and sunken bed configuration on coastal salt affected soils of South Gujarat

The farmers of coastal area of South Gujarat (AES-IV) are recommended to follow raised bed (top width: 1.8m) and sunken bed (bottom width: 3.6 m) configuration and grow brinjal on raised bed (*kharif-rabi*) and paddy (*kharif*)-wheat (*rabi*) in sunken bed for realizing higher yield and net return as compared to sole paddy - wheat sequence only. Alternatively, they are advised to grow either castor (*kharif-rabi*) and paddy (*kharif*) - wheat (*rabi*) in the same land configuration or sole brinjal during *kharif-rabi* seasons on flat bed.

*(**Action**: Research Scientist, Soil & Water, SWMRU, NAU, Navsari)*

10.2.3.8 Effect of soil conditioners and nitrogen levels on new sugarcane varieties (plant and ratoon crop)

Sugarcane growers of South Gujarat Heavy Rainfall Zone (AES-III) are advised to apply either biocompost @ 15 t/ha or poultry manure @ 5 t/ha or castor cake @ 2 t/ha and fertilize the crop with 125% recommended dose of nitrogen (312.5 kg/ha in plant and 375 kg/ha in ratoon crop) and 100% recommended dose of phosphorus and potassium (125-125 kg P_2O_5-K_2O/ha in plant and 62.5-125 kg P_2O_5-K_2O in ratoon crop, respectively) along with *Acetobactor* 2 kg/ha as soil application to sugarcane variety CoN 05071 for obtaining higher cane yield, net return and sustaining soil health.

*(**Action**: Research Scientist, Sugarcane, MSRS, NAU, Navsari)*

10.2.3.9 Integrated weed management in *kharif* sorghum

The farmers of South Gujarat Agro-climatic Zone-II growing *kharif* sorghum GJ-38 are advised to apply Atrazine 0.75 kg/ha as pre-emergence herbicide + one hand weeding at 50 DAS for effective weed control and getting higher yield and net return.

*(**Action**: Associate Research Scientist, Agronomy, MSRS, NAU, Surat)*

10.2.3.10 Response of *rabi* green gram (*Vigna radiata* L.) to land configuration and inorganic fertilizer with and without FYM under south Gujarat condition

The farmers of AES-III of South Gujarat Heavy Rainfall Zone growing *rabi* green gram (Co 4) in *kyari* land are advised to adopt raised bed system of sowing and fertilize the crop as per recommended dose (20-40-0 N-P_2O_5-K_2O kg/ha) for obtaining higher yield and net return.

*(**Action**: Professor & Head, Department of Agronomy, NMCA, NAU, Navsari)*

Information for scientific community

10.2.3.11 Study the influence of different temperature regimes on growth and yield of rice

On the basis of two seasons experiment under controlled environmental conditions, it has been realized that there is need to develop new rice varieties in context of future global warming. The significant yield reduction was recorded in all three rice varieties *viz.* Jaya, Gurjari and GNR 2. The yield reduction was to the tune of 18% and 36.6% when rice crop experienced rise of 1.3 ^{0}C and 2.7 ^{0}C, respectively, in average daily temperature above average temperature of last 10 years (Max. 32.1 ^{0}C and Min. 21.6 ^{0}C).

*(**Action**: Professor, NRM, ACHF, Navsari)*

10.2.4 SARDARKRUSHINAGAR-DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Recommendations for farming community

10.2.4.1-3 Evaluation of organic farming modules for green gram (*kharif*), chickpea (*rabi*) and groundnut (summer)

The farmers of North Gujarat Agro-climatic Zone (AES-1) are advised to adopt following modules for for green gram (*kharif*), chickpea (*rabi*) and groundnut (summer) crops for obtaining higher yield and net returns under organic farming system.

1. Green gram (*kharif*)

(a) Soil application of 20 kg N/ha through vermicompost (2.5 t/ha) + *Trichoderma viride* @ 1.5 kg/ha.
(b) Seed treatment with *Rhizobium* and PSB (PSB 10) each 30 g/kg seed.
(c) Install 50 bird perches/ha.
(d) Spray neem base product @ 30 ml/10 L of water when number of pod borer larvae/m row length exceeds 5 or nymphs of sucking pest exceeds 5/compound leaf.

2. Chickpea (*rabi*)

(a) Soil application of 20 kg N/ha through vermicompost (2.5 t/ha) + *Trichoderma viride* @ 1.5 kg/ha.
(b) Seed treatment with *Rhizobium* and PSB (PSB 10) each 30 g/kg seed.
(c) Install 50 bird perches/ha.
(d) Planting of marigold on border of the plot.
(e) Spray neem base product @ 30 ml/10 L of water or HaNPV @ 350 LE/ha in 500 L of water when *Helicoverpa armigera* larval population exceeds 5 larvae/m row length.

3. Groundnut (summer)

(a) Soil application of 25 kg N/ha through FYM + *Trichoderma harzianum* @ 1.5 kg/ha.
(b) Seed treatment with *Rhizobium* (local) and PSB (PSB 10) @ 30 g/kg seed each.
(c) Install 50 bird perches and 8 pheromone traps/ha.
(d) Spray neem base product @ 30 ml/10 L of water when *Halicoverpa armigera* larval population exceeds 5 larvae/m row length.
(e) Spraying of HaNPV @ 450 LE/ha in 500 L water.
(e) Spray Spinosad @ 75 g a.i./ha when Helicoverpa population exceeds 5 larvae/m row length.

*(**Action**: Associate Professor, Department of Agronomy, CPCA, SDAU, Sardarkrushinagar)*

10.2.4.4 Effect of herbicides on weed control and yield of groundnut (*Arachis hypogaea* L.)

The farmers of North Gujarat Agro-climatic Zone (AES-I) are advised to keep their groundnut (*kharif*) crop weed free up to peg penetration or carry out two hand weedings and interculturing at 20 and 40 DAS for higher pod yield and net return. However, under constraint of labourers they should apply pendimethalin 1.0 kg/ha followed by imazethapyr 75 g/ha as post emergence at 15-20 DAS. No phytotoxic effect of herbicides was observed on succeeding wheat crop.

*(**Action**: Professor, Department of Agronomy, CPCA, SDAU, Sardarkrushinagar)*

10.2.4.5 Fertigation study in Bt cotton

The farmers of North Gujarat Agro-climatic Zone (AES-I) growing Bt. Cotton are advised to adopt drip method of irrigation (1.0 PEF) and fertilize @ 25% N (60 kg N/ha) as basal and 75% N (180 kg N/ha) in three equal splits at 30, 60 and 90 DAS in the form of urea through drip system to get higher yield and net return.

System details:

System Details	**Operating Schedule on alternate day**	
	Month	**Time (minutes)**
Lateral spacing : 120 cm	June	100
Dripper distance : 60 cm	July - February	40-80
Dripper discharge : 8 LPH	March to Maturity	95
Operating pressure : 1.2 kg/cm^2		

*(**Action**: Research Scientist, CWMPR&RE, SDAU, Sardarkrushinagar)*

10.2.4.6 Feasibility study of sprinkler irrigation in mustard

The farmers of North Gujarat Agro-climatic Zone (AES-I) growing mustard (GM 3) are advised to irrigate through sprinkler at 1.0 IW/CPE for obtaining higher yield and net return over surface method of irrigation.

System details:

Detail of sprinkler system		**Month**	**Irrigation Interval (Days)**
Lateral spacing	9 m	Nov.-Dec.	11
Sprinkler spacing	9 m	January	12
Flow rate of sprinkler	450 LPH	February (If needed)	9
Operating pressure	2.5 kg/cm^2	In water scarce conditions:	
Time of irrigation	7.2 hrs	Nov. - Dec.	14
		January	15
		February (if needed)	12

*(**Action**: Research Scientist, CWMPR&RE, SDAU, Sardarkrushinagar)*

10.2.4.7 Effect of rate and time of nitrogen application on growth and yield of cumin

The farmers of North Gujarat Agro-climatic Zone (AES-IV) growing cumin on light textured soils are advised to apply 40 kg N/ha in three equal splits *i.e.,* at sowing, 8-10 DAS and 30 DAS in addition to recommended dose of 15 kg P_2O_5/ha as basal for obtaining higher seed yield and net return.

*(**Action**: Research Scientist, Centre for Research on Seed Spices, SDAU, Jagudan)*

10.2.4.8 Effect of ferrous and zinc enriched FYM on yield and quality of cumin

The farmers of North Gujarat Agro-climatic Zone (AES-IV) growing cumin on light textured soils deficit in Fe and Zn are advised to apply 1.0 t FYM enriched with 1.5 kg Fe and 0.75 kg Zn/ha beside recommended dose (30-15 N-P_2O_5 kg/ha) for obtaining higher seed yield and net return along with sustaining soil fertility.

*(**Action**: Research Scientist, Centre for Research on Seed Spices, SDAU, Jagudan)*

10.2.4.9 Agronomic evaluation of wheat varieties under restricted irrigation

Farmers of North-Gujarat Agro-climatic Zone (AES-IV) growing wheat crop under limited irrigation water are advised to prefer variety GW-11 and apply recommended dose of fertilizers (120-60-0 kg N-P_2O_5-K_2O/ha). Four irrigations each of 60 mm depth should be applied *i.e.*, 1st at CRI stage (18-21 DAS), 2nd at boot stage (50-55 DAS), 3rd at flowering stage (65-70 DAS) and 4th at milking stage (75-80 DAS) for higher yield and net return.

*(**Action**: Research Scientist, Centre of Excellence for Research on Wheat, SDAU, Vijapur)*

Information for scientific community

10.2.4.10 Study on development of nutrient deficiency symptoms of castor

The following well defined deficiency symptoms of N, P and K were developed.

Element	Symptoms
N	Yellowing of older leaves
P	Browning on older leaves
K	Necrosis of leaf margin of older leaves

*(**Action**: Research Scientist, Main Castor-Mustard Research Station, SDAU, Sardarkrushinagar)*

NEW TECHNICAL PROGRAMMES

Sr. No.	Title	Suggestions	Action to be taken by
10.2.1	**ANAND AGRICULTURAL UNIVERSITY, ANAND**		
10.2.1.1	Effect of manures on efficiency of atrazine applied for weed management in summer pearl millet	• Approved	Professor & Head, Department of Agril. Chem. & Soil Sci., AAU, Anand
10.2.1.2	Effect of different levels of nitrogen and phosphorus on dry biomass yield of Dodi (*Leptadenia reticulata*)	• Split nitrogen dose as 25% basal, 25% at 45 DAP, 25% after 1st cut and 25 % after 2nd cut	Research Scientist, Medicine & Aromatic Plant Research, AAU, Anand
10.2.1.3	Assessment of premix broad spectrum herbicides for weed management in wheat	• Add species wise weed count at 30, 60 DAS and at harvest in observations	Research Scientist, DWSR, AAU, Anand
10.2.1.4	Effect of cutting management and fertility levels on growth and seed yields of multicut fodder sorghum var. CoFS-29	• Add HCN content at 50% flowering in observations	Research Scientist, MFRS, AAU, Anand
10.2.1.5	To study the castor based intercropping system preceding *kharif* maize under middle Gujarat conditions	• Add LER, crop equivalent yield in observations • Change RDF as 20-40-0 N-P_2O_5-K_2O kg/ha	Research Scientist, RRS, AAU, Anand
10.2.1.6	Nitrogen management in summer sesamum under drip irrigation system in *goradu* soil of middle Gujarat conditions	• Keep irrigation levels 1 to 3 Vs T_4 • Keep RBD (Factorial) • Add observation on oil content • Keep spacing as 30-30 cm x 15 cm : 60 cm • Lateral at 90 cm • Dripper at 45 cm • Discharge 4 lph	Associate Research Scientist, ARS, AAU, Thasara
10.2.1.7	The effect of nutrient management in Bt cotton to break the yield stagnation	• Keep nitrogen levels: 2 N_1: 180 N kg/ha N_2: 240 N kg/ha • Keep potash levels: 3 K_0: Control K_1: 50 K_2O kg/ha K_2: 100 K_2O kg/ha • Give observations in detail	Associate Research Scientist, ARS, AAU, Thasara

Sr. No.	Title	Suggestions	Action to be taken by
10.2.1.8	Isolation and characterization of native *Rhizobium* isolates from summer groundnut of Chhota-Udaipur district (Sukhi River command area) of middle Gujarat	• Approved	OSD, Agri Wing, AAU, Jabugam
10.2.1.9	Efficacy testing of native *Rhizobium* isolates in summer groundnut	• Keep design: RBD (Factorial) • Change Treatments as: • FYM levels: 2 F_0: Control F_1: 10 t FYM/ha • Nitrogen levels: 2 N_1: 50%RDN N_2:75% RDN • Biofertilizer levels: 3 B_1: Native *Rhizobium* 1 B_2: Native *Rhizobium* 2 B_3: *Rhizobium* standard check • T_{13}: 100% RDN • T_{14}: Absolute control • Add oil content in observation	OSD, Agri Wing, AAU, Jabugam
10.2.1.10	Standardization of crop geometry and its effect on yield and fibre quality of *desi* cotton under rainfed condition	• Recast treatments as below: T_1: 45 cm x 15 cm T_2: 45 cm x 30 cm T_3: 60 cm x 15 cm T_4: 60 cm x 30 cm T_5: 90 cm x 15 cm T_6: 90 cm x 30 cm T_7: 120 cm x 15 cm T_8: 120 cm x 30 cm	Associate Research Scientist, ARS, AAU, Viramgam
10.2.1.11	Area estimation of cotton and sugarcane crop in Gujarat	• Approved	Professor & Head, Department of Meteorology, BACA, AAU, Anand
10.2.1.12	Web based Gramin Krishi Mausam Sewa portal GKMS	• Approved	Professor & Head, Department of Meteorology, BACA, AAU, Anand

Sr. No.	Title	Suggestions	Action to be taken by
10.2.1.13	To evaluate the date of sowing and varieties during *rabi* season of soybean in middle Gujarat agro-climatic condition	• Delete Devgadh Baria location • Recast title as "Effect of sowing time on productivity of soybean varieties in middle Gujarat Agro-climatic condition"	PC, KVK, AAU, Dahod
10.2.1.14	To evaluate the date of sowing on productivity of chickpea in middle Gujarat agro-climatic condition	• Recast title as "Effect of date of sowing on productivity of chickpea in middle Gujarat Agro-climatic condition • Record weather data • Workout economics as per farm gate prices	PC, KVK, AAU, Dahod
10.2.1.15	Integrated nutrient management in castor	• Keep fix site • Recast treatment T_4: Sunnhemp (GM) + CC 1 t/ha • Add observation on green biomass of sunnhemp, N% in sunnhemp and oil% in castor • Add initial and after harvest soil analysis	Research Scientist ARS, AAU, Derol
10.2.1.16	Effects of bio-fertilizers and their method of application on yield of pigeonpea in relation to varying fertilizer levels	• Approved as feeler trial	Research Scientist ARS, AAU, Derol
10.2.1.17	Effect of organic manures, bio-fertilizers and levels of phosphorus on soybean and its residual effect on *rabi* maize under middle Gujarat conditions	• Change plot size accordingly • Change treatments as below: B_1: No biofertilizer B_2: *Rhizobium* + PSB • Add treatments for maize as: F_0: Control F_1: 75% RDF	Associate Research Scientist, TRTC, AAU, Devgadh Baria
10.2.1.18	Effect of intercropping pattern on soybean and maize yield in middle Gujarat condition	• Apply fertilizer on area basis • Delete observation on number of nodules	Associate Research Scientist, TRTC, AAU, Devgadh Baria

Sr. No.	Title	Suggestions	Action to be taken by
10.2.1.19	Response of various soil amendments on growth and yield of *kharif* paddy through SRI (Modified)	• Keep large plot technique • Revise treatments are as under: T_1: RDF T_2: RDF + FYM 10 t/ha T_3: RDF + 50% GR T_4: RDF + Press mud 4 t/ha T_5: Dhaincha + 50% GR	Professor, Polytechnics in Agriculture, AAU, Vaso
10.2.1.20	To find out critical limit of Ni for soil	• Add observation on nickel content in soil and plant	Associate Research Scientist, Micronutrient, AAU, Anand
10.2.1.21	Isolation and identification of strain for bio-remediation of heavy metals	• Approved	Associate Research Scientist, Micronutrient, AAU, Anand
10.2.1.22	Feasibility of wheat + lucerne mix cropping	• This experiment is approved for S.K.Nagar. The house decided to conduct this experiment at Anand and Junagadh also.	Professor & Head, Department of Agronomy, AAU, Anand
10.2.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
10.2.2.1	Integrated weed management in *rabi* drilled fennel	• Analysis as per DNMRT • HW and IC at 20 and 40DAS • Add treatments T_{11}: Oxyfluorfen 240g/ha as POE T_{12}: Oxadiargyl 75g/ha as POE • Add observation on number of of umbellates/umbel	Professor & Head, Department of Agronomy, JAU, Junagadh
10.2.2.2	Integrated weed management in Indian bean	• Keep local variety instead of GIB-2	Professor & Head, Department of Agronomy, JAU, Junagadh

Sr. No.	Title	Suggestions	Action to be taken by
10.2.2.3	Weed management in *kharif* groundnut	• Approved	Professor & Head, Department of Agronomy, JAU, Junagadh
10.2.2.4	Integrated weed management in okra	• Record picking wise fruit yield	Professor & Head, Department of Agronomy, JAU, Junagadh
10.2.2.5	Evaluation of precision land levelling in wheat	• Mention depth of irrigation 50 mm	Professor & Head, Department of Agronomy, JAU, Junagadh
10.2.2.6	Tillage practices for residue management in groundnut-wheat cropping sequence	• Delete observation on wheat • Add observation on bulk density	Professor & Head, Department of Agronomy, JAU, Junagadh
10.2.2.7	Response of summer groundnut to fertilizer doses and plant population under drip and check basin method (AICRP)	• Approved	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
10.2.2.8	Standardization of periodicity and rates of sulphur, zinc and iron fertilization in prevalent *kharif* groundnut-based cropping system (AICRP)	• Approved	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
10.2.2.9	Response of castor to potash at varying crop geometry (AICRP)	• Approved	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
10.2.2.10	Evaluation of drip fertigation on castor productivity (AICRP)	• Approved	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
10.2.2.11	Standardization of periodicity and rates of sulphur, zinc and iron fertilization in prevalent summer groundnut-based cropping system (AICRP)	• Approved	Research Scientist, Main Oilseeds Research Station, JAU, Junagadh
10.2.2.12	Irrigation management in flat bed sowing system of chickpea	• Change title as "Irrigation management through critical stages of chickpea"	Research Scientist, Pulses Research Station, JAU, Junagadh
10.2.2.13	Optimizing spacing for medium duration pigeonpea under protected irrigations	• Approved	Research Scientist, Pulses Research Station, JAU, Junagadh
10.2.2.14	Yield maximization in medium duration pigeonpea crop	• Approved	Research Scientist, Pulses Research Station, JAU, Junagadh

Sr. No.	Title	Suggestions	Action to be taken by
10.2.2.15	Integrated weed management in rainfed pearlmillet	• Delete the word 'economics' from objectives	Research Scientist, Millet Research Station, JAU, Jamnagar
10.2.2.16	Weed management in autumn planted sugarcane–chickpea intercropping system	• Add fibre content in observation	Research Scientist, Sugarcane Research Station, JAU, Kodinar
10.2.2.17	Nutrient management in gram under conserve soil moisture condition	• Approved	Assistant Research Scientist, Dry Farming Research Station, JAU, Vallabhipur
10.2.2.18	Effect of multi-micronutrient formulations on garlic	• Delete T_9	Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, 9Junagadh
10.2.2.19	Soil test based fertilizer recommendation for targeted yields of summer groundnut	• Approved	Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, Junagadh
10.2.2.20	Effect of saline irrigation water on onion crop	• Delete SAR from observation	Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, Junagadh
10.2.2.21	Establishment of critical limit of sulphur for cotton crop in medium black calcareous soils	• Approved	Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, Junagadh
10.2.2.22	Relative salinity tolerance of different castor varieties	• Approved	Professor & Head, Department of Agril. Chemistry & Soil Science, JAU, Junagadh
10.2.2.23	Response of groundnut to phosphorus under rainfed condition	• Experiments on response of various crops to phosphorus have been started by AAU and SDAU. Hence the house decided to conduct such type of large scale trials in JAU at Dhari, Targhadia, Jam Khambhalia and Junagadh.	Assistant Farm Manager, Sagadividi Farm, Department of Seed Science & Tech., JAU, Junagadh
10.2.2.24	Response of groundnut to phosphorus under rainfed condition		Associate Research Scientist, Grassland Research Station, JAU, Dhari
10.2.2.25	Response of groundnut to phosphorus under rainfed condition		Research Scientist, Main Dry Farming Research Station, JAU, Targhadia
10.2.2.26	Response of groundnut to phosphorus under rainfed condition		Assistant Research Scientist, Dry Farming Research Station, JAU, Jam Khambhalia

Sr. No.	Title	Suggestions	Action to be taken by
10.2.2.27	Feasibility of wheat + lucerne mix cropping	• This experiment is approved for S.K.Nagar. The house decided to take same experiment at Anand and Junagadh also.	Professor & Head, Department of Agronomy, JAU, Junagadh
10.2.3	**NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI**		
10.2.3.1	Effect of different colour shade nets on biomass yield and quality of fenugreek, coriander and garlic	• Measure light intensity using radiometer	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.2	Study on rain water harvesting and it efficient utilization in tribal area	• Also present in Agril. Engg. sub-committee	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.3	Survey related to feed back of SSD farmers	• Approved	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.4	Study on intercropping in drip irrigated bottle gourd	• Delete economics from observations	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.5	Quantify the contribution of each factor towards productivity of banana	• Approved	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.6	Integrated nutrient management in *kharif* okra under coastal areas of south Gujarat	• Give observations in detail	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.7	Study the N and K requirement of beet root grown on coastal soils of south Gujarat	• Give observations in detail	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.8	Effect of Fe on rice varieties under south Gujarat conditions	• Add T_8: Two sprays of 1% banana pseudo stem enriched sap at tillering and panicle initiation stage	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.9	Comparative performance of hybrid and variety of rice under different spacing and age of seedling in south Gujarat conditions	• Approved	Research Scientist, Soil & Water, SWMRU, NAU, Navsari
10.2.3.10	Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity	• Approved	Research Scientist, MSRS, NAU, Navsari

Sr. No.	Title	Suggestions	Action to be taken by
10.2.3.11	Optimization of nutrient requirement for AVT genotypes	• Approved	Associate Research Scientist, NRS, NAU, Vanarasi
10.2.3.12	Optimization of niger production under resource constraints	• Approved	Associate Research Scientist, NRS, NAU, Vanarasi
10.2.3.13	Effect of spacing and nitrogen levels on yield in aerobic rice	• Approved	Associate Research Scientist, RRRS, NAU, Vyara
10.2.3.14	Refinement of sowing dates for *kharif* grain sorghum varieties/promising lines under changing climate of south Gujarat	• Keep design RBD (Factorial)	Associate Research Scientist, Agronomy, MSRS, NAU, Surat
10.2.3.15	Impact of different summer green manures on succeeding *kharif* paddy under integrated nutrient management	• Add observation on dry matter production/m^2 • Mention observations of physical properties.	Professor & Head, Department of Agronomy, NMCA, NAU, Navsari
10.2.3.16	Effect of row spacing and seed rate on growth and yield of sunnhemp seed crop during *rabi* season	• Approved	Professor & Head, Department of Agronomy, NMCA, NAU, Navsari
10.2.3.17	Integrated nutrient management in lucerne under south Gujarat condition	• Delete the observation Leaf : stem ratio • OC content should be determined by Combustion method.	Professor & Head, Department of Agronomy, NMCA, NAU, Navsari
10.2.3.18	Nutrient management in Guinea grass (*Panicum maximum* Jacq) under south Gujarat condition	• Delete the observation Leaf : stem ratio • OC content should be determined by Combustion method. • Do not mention number of cuttings per year.	Professor & Head, Department of Agronomy, NMCA, NAU, Navsari
10.2.3.19	Analysis of rainfall variability and trends using 112 years of rainfall data over south Gujarat	• Approved	Assistant Professor, Agril. Meteorology, NMCA, NAU, Navsari
10.2.3.20	Markov Chain and Incomplete Gamma distribution analysis of weekly rainfall for heavy rainfall zone of South Gujarat	• Approved	Assistant Professor, Agril. Meteorology, NMCA, NAU, Navsari
10.2.3.21	Analysis of climatic variability at heavy rainfall zone of south Gujarat	• Approved	Assistant Professor, Agril. Meteorology, NMCA, NAU, Navsari

Sr. No.	Title	Suggestions	Action to be taken by
10.2.3.22	Assessment of impacts of air pollution on mango	• Add observation on quality parameters • Take observation on SPM for two sizes	Professor, NRM, ACHF, NAU, Navsari
10.2.3.23	Estimation of Green House Gases (GHGs) emission from paddy fields	• Approved	Professor, NRM, ACHF, NAU, Navsari
10.2.3.24	Effect of different organics on finger millet (Nagli)	• Add *Azotobacter* and PSB in T_1 to T_5	Associate Professor, Agronomy, CoA, NAU, Waghai
10.2.3.25	Effect of zinc on growth and yield of finger millet	• Approved	Associate Professor, Agronomy, CoA, NAU, Waghai
10.2.3.26	Fertility status of cultivated soils at varying physiographic situation of Dangs district	• Take stratified/ proportionate samples (cultivated area basis) • Collect profile sample	Associate Professor, Agronomy, CoA, NAU, Waghai
10.2.3.27	Screening of pigeonpea varieties for salinity tolerance	• Approved	Associate Professor, SSAC, CoA, NAU, Bharuch
10.2.3.28	Survey and assessment of nutrient responsible for leaf reddening in cotton	• Approved	Associate Professor, SSAC, CoA, NAU, Bharuch
10.2.3.29	Effect of foliar spray of silicon on growth and yield of paddy	• Withheld • Discuss with Dr. K.C. Patel and finalize treatments and present in next meeting	SMS, Agronomy, KVK, Navsari
10.2.4	**SARDARKRUSHINAGAR- DANTIWADA AGRICULTURAL UNIVERSITY, S.K. NAGAR**		
10.2.4.1	Nitrogen management through organics on the basis of STV in sorghum (dry fodder) – lucerne cropping system	• Delete Note 1 • Add biofertilizers common in all treatments • Revise treatments as: FYM VC T_1: 100% - T_2: 50% 50% T_3: 50% - T_4: 50% 25% T_5: 33% 33% T_6: RDN through inorganic fertilizer outside the organic plot	Research Scientist, AICRP on IFS, SDAU, Sardarkrushinagar

Sr. No.	Title	Suggestions	Action to be taken by
10.2.4.2	Response of wheat to foliar spray of fertilizer mixture	• Keep 3 treatments as per feeler trial • Conduct experiment for one season at three locations	Associate Professor, Department of Agronomy, CPCA, SDAU, Sardarkrushinagar
10.2.4.3	Effect of FYM and sources of water on growth, yield and quality of wheat	• Approved	Assistant Research Scientist, Department of Agril. Chemistry & Soil Science, CPCA, SDAU, Sardarkrushinagar
10.2.4.4	Effect of iron and zinc enriched FYM on yield and quality of wheat in loamy sand	• Approved	Assistant Research Scientist, Department of Agril. Chemistry & Soil Science, CPCA, SDAU, Sardarkrushinagar
10.2.4.5	Response of castor to potassium and zinc	• Recast treatments as: Factor-I Levels of K_2O: 3 K_0: Control K_1: 50 kg K_2O/ha K_2: 75 kg K_2O/ha Factor-II Levels of $ZnSO_4$: 3 Zn_0: Control Zn_1: 15 kg $ZnSO_4$/ha Zn_2: 30 kg $ZnSO_4$/ha	Assistant Research Scientist (Agronomy), Main Castor Mustard Research Station, SDAU, Sardarkrushinagar
10.2.4.6	Long term fertility experiment in mustard based cropping system	• Approved	Assistant Research Scientist (Agronomy), Main Castor Mustard Research Station, SDAU, Sardarkrushinagar
10.2.4.7	Enhancing WUE of Indian mustard under deficit and adequate irrigation scheduling with hydrogel	• Mention depth of irrigation 50 mm	Assistant Research Scientist (Agronomy), Main Castor Mustard Research Station, SDAU, Sardarkrushinagar
10.2.4.8	Study of phosphatase enzyme activity in soil, in the experiment of "Effect of bio-phos on the performance of castor	• Change title as “Study of phosphatase activity in soil under the influence of biophos in castor”	Assistant Research Scientist (Agril. Chemistry), Main Castor Mustard Research Station, SDAU, Sardarkrushinagar
10.2.4.9	Integrated crop management in mungbean	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar

Sr. No.	Title	Suggestions	Action to be taken by
10.2.4.10	Weed management in mungbean	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.11	Integrated crop management in fieldpea	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.12	Integrated crop management in rajmash	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.13	Resource management in cowpea for yield maximization under rainfed condition	• Add PSB in T_8	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.14	Survey and status report on arid legume based farming situation and production constraints in different agro-climatic zones (cluster bean crop)	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.15	Optimizing spacing for medium duration pigeonpea under protected irrigation (at flowering and pod formation)	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.16	Yield maximization in pigeonpea	• Approved	Assistant Research Scientist, Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar
10.2.4.17	Performance of grain amaranth vis-a-vis other crops at sub-optimal levels of management	• Approved	Associate Research Scientist, Centre for Crop Improvement, SDAU, Sardarkrushinagar
10.2.4.18	Modification of agro-techniques in cumin in relation to temperature	• Change time of sowing as: D_1: 1st week of Nov. D_2: 3rd week of Nov. D_3: 1st week of Dec. D_4: 3rd week of Dec.	Research Scientist, Agronomy, Centre for Research in Seed Spices, SDAU, Jagudan

Sr. No.	Title	Suggestions	Action to be taken by
10.2.4.19	Modification of agro-techniques in ajwain in relation to temperature	• Change time of sowing as: D_1: 3rd week of Oct. D_2: 1st week of Nov. D_3: 3rd week of Nov. D_4: 1st week of Dec.	Research Scientist, Agronomy, Centre for Research in Seed Spices, SDAU, Jagudan
10.2.4.20	Effect of weed management practices on ajwain and their residual effect on green gram	• Replace oxadiazon with oxyfluorfen • Keep the rate of herbicide as 180 g/ha in Treatment 6 to 9 • Add observation on species wise weed count at 30, 60 Das and at harvest	Research Scientist, Agronomy, Centre for Research in Seed Spices, SDAU, Jagudan
10.2.4.21	Feasibility of wheat - lucerne mix cropping	• It is decided to conduct this experiment at Anand and Junagadh also. • Dr. A.M. Patel, ADR, SDAU will work as convener for this experiment.	Assistant Research Scientist, Agronomy, Centre of Excellence for Research on Wheat, SDAU, Vijapur
10.2.4.22	Efficient water management in wheat using micro irrigation	• Decide number of laterals per plot	Assistant Research Scientist, Agronomy, Centre of Excellence for Research on Wheat, SDAU, Vijapur
10.2.4.23	Response of spacing and fertility management on hybrid maize in *kharif* season	• Approved	Assistant Research Scientist, Maize Research station, SDAU, Bhiloda
10.2.4.24	Agronomic requirements of newly developed Bt. cotton hybrid GTHH-49 BG II	• Recast title as "Nutrient requirements of newly developed Bt cotton hybrid GTHH-49 BG-II" • Keep K levels as 0, 60 and 120 kg K_2O/ha • Record observations as per cotton expt. • Add observation on nutrient status before and after harvest of crop	Assistant Research Scientist, Cotton Research Scheme, SDAU, Talod

Sr. No.	Title	Suggestions	Action to be taken by
10.2.4.25	Modification of agro-techniques in isabgul in relation to temperature	• Mention week instead of date in sowing time • Apply FYM 5 t/ha every year instead of 10 t/ha every three years • Keep fertilizer levels as: F_1: 50% RDF F_2: 100% RDF F_3: 150% RDF • Add observation on nutrient status before and after harvest of crop	Assistant Research Scientist, Agricultural Research Station, SDAU, Kholwada

10.2.3 General suggestions

1) Direct recommendation from P.G. Research work shall not be allowed in any circumstances. If department interested to make recommendation from P.G. research, same research work must be continue for minimum two years after approval of technical programme in ZREAC/AGRESCO.
2) Scientists working on irrigation experiments particularly on MIS should be trained at least 2-3 days by Soil and Water Management Research Unit, NAU, Navsari
3) When the number of treatments is more than eight, the data should be analyzed using DNMRT. In weed experiments, always use DNMRT.
4) To validate the response of various crops to phosphorus, trials have been started at AAU and SDAU. The house decided to conduct such type of trials in JAU at Dhari, Targhadia, Jam Khambhalia and Junagadh.
5) It is decided to organize the meeting of permanent plot experiments committee and Professor & Head, Department of Agronomy, JAU, Junagadh will continue as convener of the committee. All the members of this committee have to submit the report to the convener.

PROCEEDING OF THE TENTH COMBINED JOINT MEETING OF PLANT PROTECTION SUB-COMMITTEE OF AGRESCO OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JAU, JUNAGADH DURING APRIL 9-11, 2014

Technical Session I: **PRESENTATION OF RECOMMENDATIONS**			
Date :	**09.04.2014**	**Chairman:**	Dr. A. N. Sabalpara, Director of Research, NAU, Navsari
Time :	**11:30 to 18:30**	**Co Chairman:**	1. Dr. D. M. Korat, Asso. Director of Research, AAU, Anand 2. Dr. D. S. Patel, Professor, SDAU, SardarKrishinagar
Venue:	Seminar Hall, Department of Entomology, College of Agriculture, JAU, Junagadh	**Rapporteurs:**	1. Dr. P. K. Borad, Professor and Head, AAU, Anand 2. Dr. L. F. Akbari, Asso.Res. Sci., Dept. of Pl. Path., JAU, Junagadh

Summary of recommendation and new technical programme

Sr. No.	**Name of University**	**Recommendation for farming community**		**Recommendation for scientific community**		**New Technical Programmes**	
		Presented	**Approved**	**Presented**	**Approved**	**Presented**	**Approved**
1	AAU	8	8	6	6	30	29
2	JAU	6	6	0	0	14	14
3	NAU	10	10	12	12	41	41
4	SDAU	2	0	0	0	4	4
	Total	**26**	**24**	**18**	**18**	**89**	**88**

10.3.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Dr. R. N. Pandey, Convener, Plant Protection Sub Committee Presented proposal for recommendation during 10th PPSC AGRESCO meeting.

AGRICULTURAL ENTOMOLOGY

Recommendations for farming community:

10.3.1.1	**Bioefficacy of insecticides against Legume pod borer- *Maruca vitrata* (Fab.) of mungbean**
	The farmers of middle Gujarat Agro-climatic Zone –III growing mungbean in *Kharif* season are advised to spray chlorantraniliprole 20 SC @ 0.006 % (3 ml / 10 litre of water; 30 g a.i./ha) or flubendiamide 48 SC @ 0.01% (2 ml / 10 litre of water; 48 g a.i./ha) at the time of 50 per cent flowering on plants for effective control of legume pod borer, *Maruca vitrata* (F.). The PHI (Pre harvest interval) for both the insecticides is 30 days.
	મધ્ય ગુજરાતમાં મગની ખેતી કરતાં ખેડૂતોને ફૂલ તથા શિંગો કોરી ખાનાર ઈયળના અસરકારક નિયંત્રણ માટે ક્લોરેન્ટ્રાનીલીપ્રોલ ૨૦ એસસી @ ૦.૦૦૬ % (૩ મિ.લિ./૧૦ લિટર પાણી; ૩૦ ગ્રામ સ.ત./ હેક્ટર) અથવા ફ્લુબેન્ડીયામાઈડ ૪૮ એસસી @ ૦.૦૧% (૨ મિ.લિ./૧૦ લિટર પાણી; ૪૮ ગ્રામ સ.ત. / હેક્ટર) પાકમાં ૫૦% ફૂલ આવવાની અવસ્થાએ

	છંટકાવ કરવાની સલાહ આપવામાં આવે છે. આ બન્ને દવાઓ માટે છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૩૦ દિવસનો સમય ગાળો જાળવવો

Year	Crop	Pest	Pesticides with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. Schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (litre)				
2014	Mung bean	Legume pod borer *M. Vitrata*	Chlorantraniliprole 20 SC	30	150	500	3 ml	Spray at flowering on 50 % of plants	30	-
			Flubendiamide 48 SC	48	100	500	2 ml		30	-

	[Action: Asstt. Research Scientist, (Ento.), Pulse Research Station, ARS, AAU, Vadodara]
10.3.1.2	**Bioefficacy of newer insecticides against pod borer *Helicoverpa armigera* and Pod fly *Melanogromyza obtusa* of pigeonpea.**
	The farmers of middle Gujarat Agroclimatic Zone-III growing pigeonpea are advised to apply first spray of chlorantraniliprole 20 SC @ 0.006 % (3 ml/ 10 litre water; 30 g a.i./ ha) at 50 per cent flowering and second at 50 per cent pod setting for the effective control of *Helicoverpa armigera* and *Melanagromyza obtusa*. The PHI for this insecticide is 29 days.
	મધ્ય ગુજરાતમાં તુવેરની ખેતી કરતા ખેડૂતોને લીલી ઇયળ તથા શિંગમાખીના અસરકારક નિયંત્રણ માટે ક્લોરેન્ટ્રાનીલીપ્રોલ ૨૦ એસસી @ ૦.૦૦૬ %(૩ મિ. લિ/૧૦ લિટર પાણી; ૩૦ ગ્રામ સ.ત. /હેક્ટર) કીટનાશકનો પ્રથમ છંટકાવ ૫૦ ટકા ફૂલ આવવાની તથા બીજો છંટકાવ ૫૦ ટકા શિંગો બેસવાની અવસ્થાએ કરવાની સલાહ આપવામાં આવે છે. આ કિટકનાશકના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૨૯ દિવસનો સમય ગાળો જાળવવો

Year	Crop	Pests	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. Schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (litre)				

	2014	Pigeon pea	Pod borer and pod fly	Chlorantraniliprole 20 SC	30	150	500	3 ml	First spray at 50 % flowering and 2nd at 50 % pod setting	29	-

[Action: Asstt. Research Scientist (Ento.), Pulse Research Station, ARS, AAU, Vadodara]

10.3.1.3 Bio-efficacy of synthetic insecticides against gram pod borer of chickpea

The farmers of middle Gujarat growing chickpea are advised to give two sprays, either of chlorantraniliprole 20 SC 0.006% (3 ml/ 10 litre water; 30 g a.i./ha) or emamectin benzoate 5 WG 0.0025% (5 g/ 10 litre water; 12.5 g a.i./ha) for the control of pod borer. The first spray should be given at pod formation on 50 per cent plants and the second at 15 days after the first spray. The PHI for chlorantraniliprole 20 SC and emamectin benzoate 5 WG is 11 and 14 days, respectively.

મધ્ય ગુજરાતના ચણાની ખેતી કરતા ખેડૂતોને પોપટા કોરી ખાનાર ઇયળના નિયંત્રણ માટે ક્લોરાન્ટ્રાનીલિપ્રોલ ૨૦ એસ.સી. @ ૦.૦૦૬% (૩ મિ.લિ./૧૦ લિટર પાણી ; ૩૦ ગ્રામ સ.ત./હે) અથવા એમામેકટીન બેંઝોએટ ૫ ડબલ્યુ.જી. @ ૦.૦૦૨૫% (૫ ગ્રામ/૧૦ લિટર પાણી ; ૧૨.૫ ગ્રામ સ.ત./હે)ના બે છંટકાવ કરવાની સલાહ આપવામાં આવે છે .પ્રથમ છંટકાવ ૫૦% છોડ ઉપર પોપટા બેસે ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવનાં ૧૫ દિવસ બાદ કરવો ક્લોરાન્ટ્રાનીલિપ્રોલ ૨૦ એસ.સી..અને એમામેકટીન બેંઝોએટ ૫ ડબલ્યુ.જી.ના છેલ્લા છંટકાવ અને કાપણી વચ્ચે અનુક્રમે ૧૧ અને ૧૪ દિવસનો ગાળો જાળવવો .

Year	Crop	Pest	Pesticides with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. Schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (litre)				
2014	Chick pea	Pod borer	Chlorantraniliprole 20 SC	30	150	500	3 ml	1st spray at pod formation on 50 % plants and 2nd 15 days after first spray	11	-
			Emamectin benzoate 5 WG	12.5	250	500	5 g		14	-

[Action : Asstt.Res. Sci., (Ent.), ARS, AAU, Derol]

10.3.1.4 **Bio-efficacy of insecticides against pigeon pea Pod fly and pod borer**

The farmers of middle Gujarat growing pigeon pea are advised to spray the crop twice with thiamethoxam 25 WG 0.01% (4 g in 10 litres of water; 60 g a. i. /ha) for the control of pod fly. The first spray should be applied at pod formation on 50 per cent plants and second at 15 days after the first spray. The PHI of this insecticide is 29 days.

મધ્ય ગુજરાતના તુવેરની ખેતી કરતા ખેડૂતોને શિંગ માખીનાં નિયત્રણ માટે થાયામેથોક્ઝામ ૨૫ ડબલ્યુ. જી. , ૦.૦૧% (૪ ગ્રામ પ્રતિ ૧૦ લિટર પાણી; ૬૦ ગ્રામ સ.ત. /હે) નાં બે છંટકાવ કરવાની સલાહ આપવામાં આવે છે. પ્રથમ છંટકાવ ૫૦% છોડ ઉપર શિંગો બેસે ત્યારે કરવો અને બીજો છંટકાવ પ્રથમ છંટકાવનાં ૧૫ દિવસ બાદ કરવો. આ કીટકનાશકના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૨૯ દિવસનો સમય ગાળો જાળવવો.

Year	Crop	Pest	Pesticides with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. Schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (litre)				
2014	Pigeon pea	Pod fly	Thiamethoxam 25 WG	60	240	600	4 g	First spray at the time of pod formation on 50% plants and second at 15 days after the first spray.	29	-

[Action : Asstt. Res. Sci., (Ent.), ARS, AAU, Derol]

10.3.1.5 **Combine impact of number of bird perches and pheromone traps on incidence of gram pod borer, *Helicoverpa armigera* (Hubner) Hardwick, pod damage and yield in chickpea crop raised under conserved soil moisture condition of *Bhal* and Coastal Zone.**

The farmers of Bhal and Coastal Agro-climatic Zone VIII are advised to install 40 bird perches and 20 pheromone traps with lure in one hectare area for effective and economical management of gram pod borer (*Helicoverpa armigera*). The bird perches and traps should be installed 15 days after sowing at three and one foot height above the crop canopy, respectively covering the whole field uniformly. The lure should be changed at an interval of 21 days.

ભાલ અને દરિયાકાંઠા ખેત આબોહવાકીય વિભાગ-૮ માં ચણાની ખેતી કરતા ખેડૂતોને લીલી ઈયળના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે હેક્ટરે ૪૦ બેલીખડા (પક્ષીઓને બેસવા માટેના ટેકા) છોડની ઉંચાઈથી ૩ ફૂટ ઉંચે રહે તેમ અને ૨૦ નંગ ફેરોમોન ટ્રેપ લીલી ઈયળની લ્યુર સાથે છોડની ઉંચાઈથી ૧ ફૂટ ઉંચે રહે તેમ; ચણાની વાવણી પછી ૧૫ દિવસે

	એકબીજાથી સરખા અંતરે ગોઠવવા અને ફેરોમોન લ્યુર દર ૨૧ દિવસે બદલવાની સલાહ આપવામાં આવે છે.
	[Action: Res. Scientist, Agril. Research Station, Arnej, AAU, Anand]
Recommendations for scientific community	
10.3.1.6	**Community structure of birds feeding in Cabbage crop**
	In middle Gujarat, sixteen bird species visiting in cabbage crop are all predators of insect pests, particularly the cabbage aphid, *Lipaphis erysimi* Kalt and hence should be encouraged as biocontrol agents and be included in IPM strategy in cabbage. Important birds are Red-wattled Lapwing (*Vanellus indicus*), Yellow Wagtail (*Motacilla flava*), common Swallow (*Hirundo rustica*) and Common Myna (*Acridotheres tristis*).
	[**Action: Res. Scientist, AINP on Agril. Ornithology, AAU, Anand]**
10.3.1.7	**Community structure of birds feeding in mustard crop**
	In middle Gujarat, twenty one insectivorous and nine omnivorous bird species visiting in mustard crop are all predators of insect pests, particularly the mustard aphid, *Lipaphis erysimi* and hence should be encouraged as biocontrol agents and be included in IPM strategy in mustard crop. Important bird species are Yellow wagtail (*Motacilla flava*), Common Swallow (*Hirundo rustica*), Dusky Crag Martin (*Hirundo concolor*), Jungle Babbler (*Turdoides striatus*) and Rosy Starling (*Sturnus roseus*). [**Action: Res. Scientist, AINP on Agril. Ornithology, AAU, Anand]**
10.3.1.8	**Residue and persistence of acephate 75 SP in/on okra**
	Two foliar sprays of acephate 75 SP in okra at 10-day interval @ 560 g a.i. ha^{-1} starting from fruiting stage resulted in its residues below the MRL of 0.05 µg g^{-1} (LOQ-Limit of Quantitation) in okra if fruits are harvested from 10^{th} day after the second spray. Therefore, pre-harvest interval (PHI) of 10-day could be suggested if acephate is recommended on okra. **[Action: Residue Analyst, AINP on Pesticide Residue, AAU, Anand]**
10.3.1.9	**Residue and persistence of profenophos 50EC in/on okra**
	Two foliar sprays of profenophos 50 EC in okra at 10-day interval @ 500 g a.i. ha^{-1} starting from fruiting stage resulted in its residue below MRL 0.05 µg g^{-1} (LOQ-Limit of Quantitation) in okra fruits if harvested 5 days after the second spray. Therefore, PHI of 5-day could be suggested if profenophos is recommended on okra. **[Action: Residue Analyst, AINP on Pesticide Residue, AAU, Anand]**
10.3.1.10	**Residue and persistence of triazophos 40 EC in/on okra**
	Two foliar sprays of triazophos 40 EC in okra at 10-day interval @ 500 g a.i. ha^{-1} starting from fruit initiation stage resulted in its residue below the MRL of 0.05 µg g^{-1} (LOQ) in okra if fruits are harvested 5 days after the second spray. Therefore, PHI of 5 days could be suggested if triazophos is recommended on okra. **[Action: Residue Analyst, AINP on Pesticide Residue, AAU, Anand]**

PLANT PATHOLOGY

Recommendations for farming community

10.3.1.11 **Management of Bean Common Mosaic in mungbean vis-à-vis its vector (Aphid) through insecticides**

The farmers of middle Gujarat Agro Climatic Zone - III growing mungbean crop in *Kharif* are advised to treat the seeds with thiamethoxam 35 FS @ 10 ml/kg seed (3.5g a.i./kg) at the time of sowing and apply two sprays of thiamethoxam 25 WG 0.01% (4 g/10 litre of water; 30 g a.i./ha) first at 30 days and second at 45 days after sowing for the effective and economical management of aphid (vector) and thereby management of Bean Common Mosaic disease of mungbean. The PHI of thiamethoxam 25 WG is 45 days.

મધ્ય ગુજરાત ખેત આબોહવા વિસ્તાર-3 ના ખરીફ ઋતુમાં મગ ઉગાડતા ખેડૂતોને સલાહ આપવામાં આવે છે કે મગની મોલો અને તેનાથી ફેલાતા સામાન્ય પચરંગીયા રોગના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે મગના બીજને થાયામીથોક્ઝામ ૩૫ એફએસ ૧૦ મિલિ/કિલો બીજ (૩.૫ ગ્રામ સક્રિય તત્વ/કિલો બીજ) પ્રમાણે પટ આપી વાવેતર કરવુ . ત્યારબાદ થાયામીથોક્ઝામ ૨૫ ડબલ્યુજી (૦.૦૧ ટકા) ૪ ગ્રામ/૧૦ લિ પાણી; ૩૦ ગ્રામ સક્રિય તત્વ/હેક્ટર પ્રમાણેનો પ્રથમ છંટકાવ વાવેતર પછી ૩૦ દિવસે અને બીજો છંટકાવ વાવેતરના ૪૫ દિવસે કરવો.. આ કીટકનાશકના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૪૫ દિવસનો સમય ગાળો જાળવવો

Year	Crop	Pest	Pesticide with Formulation	Dosage/ha.				Application schedule	Wait. period/ PHI (Days)
				a.i. (g)	Qty. of Formu. (g/ml)	Water required (liter)	Dilution of formu. in Water (10 l)		
2014	Mungbean	Aphid	Thiamethoxam 35 FS	52.5 (per 15 kg of seeds)	150 (15 kg of seeds)	--	NA	Seed Treatment	NA
			Thiamethoxam 25 WG	30	120	300	4 g	First spray at 30 days after sowing and second at 15 days after first spray	45 days

[Action: Prof.& Head, Dept. of Pl. Pathology, BACA, AAU, Anand]

10.3.1.12 Management of Damping-off using New Fungicides in Bidi Tobacco Nursery

For effective and economical management of damping-off in bidi tobacco nursery, farmers are advised to apply two to three spray drenches of azoxystrobin 23 SC 0.023 % (230 ga.i/ha; 10 ml/10 litre. water/100 m^2) at the initiation of the disease and as and when required thereafter**.**

બીડી તમાકુના ધરૂવાડીયામાં કોહવારાના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે રોગની શરૂઆતથી એઝોક્ષીસ્ટ્રોબીન ૨૩ એસ.સી. @ ૦.૦૨૩% (૨૩૦ ગ્રા. સ.ત./હે. : ૧૦ મિ.લિ./૧૦ લિ. પાણી/૧૦૦ ચો.મી.) પ્રમાણે જરૂરિયાત મુજબ બે થી ત્રણ છંટકાવ રેલાવીને કરવાની ખેડૂતોને સલાહ આપવામાં આવે છે.

Year	Crop	Pest	Pesticide with Formu.	Dosage/ha. a.i. (g)	Qty. of Formu. (g/ml)	Water required (liter)	Dilution of formulation in Water (10 l)	Application schedule	Wait. period/ PHI (Days)
2014	Bidi Tobacco (Nursery)	Damp.-off	Azoxystrobin 23 SC	230	1000	1000	10 ml	Spray drench in nursery at the initiation of the disease and as and when required thereafter	Not required

[Action: Res. Sci. (Pl. Path), BTRS, AAU, Anand]

10.3.1.13 Evaluation of New Fungicides for the management of Frog-eye spot Disease in Bidi Tobacco Nursery

For effective and economical management of frog eye spot disease in bidi tobacco nursery, farmers are advised to apply two sprays of carbendazim + mancozeb (75 WP) 0.225 % (1.125 kg. a.i./ha.; 30 g/10 liter water /200 m^2) at 10 days interval starting from initiation of the disease.

બીડી તમાકુના ધરૂવાડીયામાં સફેદ ચાંચડી રોગના અસરકારક અને અર્થક્ષમ નિયંત્રણ વ્યવસ્થા માટે કાર્બેન્ડાઝીમ + મેન્કોઝેબ (૭૫ વે.પા.) ૦.૨૨૫ % (૧.૧૨૫ કિ.ગ્રા. સ.ત./હે. : ૩૦ ગ્રા./૧૦ લિ. પાણી/૨૦૦ ચો.મી.) પ્રમાણે રોગની શરૂઆતથી ૧૦ દિવસના આંતરે બે છંટકાવ કરવાની ખેડૂતોને ભલામણ કરવામાં આવે છે.

Year	Crop	Pest	Pesticides with Formulation	Dosage/ha. a.i. (g)	Qty. of Formu. (g/ml)	Water required (liter)	Dilution of formu. in Water (10 l)	Application schedule	Wait. period / PHI (Days)
2014	Bidi Tobacco (Nursery)	Frog-eye spot	Carbendazim + Mancozeb 75 WP	1125	1500	500	30 g	Spraying at the initiation of the disease and thereafter at 10 days interval	Not required

[Action: Res. Sci. (Pl. Path), BTRS, AAU, Anand]

Recommendations for scientific community	
10.3.1.14	**Integrated Management of cumin blight**
	Seed treatment of thiram @ 5 g/kg seed, coupled with 4 sprays of combi-product of carbendazim 12% + mancozeb 63% @ 0.2 % (26.6 g/ 10 litre of water) starting at 30 days of sowing and at 10 days interval either in row sowing (30 x 10 cm, with 12 kg seed /ha) or broadcasting (20 kg seed/ha) method was found effective for the management of blight disease of cumin. However, due to high levels of dithiocarbamate residue (16.5 mg) in cumin seed, this can not be recommended for farmers. **[Action: Prof.& Head, Dept. of Pl. Pathology, BACA, AAU, Anand]**

10.3.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Dr. K. L. Raghvani, Convener, Plant Protection Sub Committee Presented proposal for recommendation during 10th PPSC AGRESCO meeting.

AGRICULTURAL ENTOMOLOGY

Recommendations for farming community

10.3.2.1	**Testing Bio-efficacy of insecticides against sucking pest in summer groundnut**
	The farmers of South Saurashtra Agro-climatic Zone growing summer groundnut are advised to spray imidacloprid 17.8 SL 0.005 % (3 ml/ 10 litre water; 25 g a.i./ha) twice at 15 days interval starting after initiation of pest for effective and economical management of sucking pests in groundnut. The pre harvest Interval (PHI) of this insecticide is 40 days.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ઉનાળુ મગફળીનું વાવેતર કરતા ખેડૂતોને ચૂસિયાં પ્રકારની જીવાતોના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ઈમીડાકલોપ્રીડ ૧૭.૮ એસ એલ ૦.૦૦૫ ટકા (૩.૦ મિલિ/૧૦ લિટર પાણી; ૨૫ ગ્રામ સ.ત./હેકટર) પ્રમાણે દવાનો પ્રથમ છંટકાવ જીવાતનો ઉપદ્રવ જોવા મળે ત્યારે અને બીજો છંટકાવ પ્રથમ છંટકાવના ૧૫ દિવસ બાદ કરવાની ભલામણ કરવામાં આવે છે. આ દવાના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૪૦ દિવસનો સમય ગાળો જાળવવો.

Year	Crop	Pests	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Groundnut	Sucking pests	midacloprid 17.8 SL	25	140	500	3 ml	Two spray at initiation of pest and second at 15 days after the first spray	40	

[Action :- Research Scientist (Groundnut), Main Oilseed Research Station, JAU, Junagadh]

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

Farmers of North Saurashtra Agro-climatic Zone growing *kharif* pearl millet are advised to treat the seeds with thiamethoxam 35 FS @ 9.0 ml/kg (3.15 g a.i./kg) or imidacloprid 600 FS @ 8.75 ml/kg (5.25 g a.i./kg) seed at the time of sowing followed by spray of either profenophos 40% + cypermethrin 4.0%, 44 EC 0.044% (10 ml/10 litre water; 220 g a.i./ha) or cartap hydrochloride 50 SP 0.05% (10 g/ 10 litre water; 250 g a.i./ha) or thiodicarb 75 WP 0.015% (2 g/10 litre water; 75 g a.i./ha) at 30 days after germination of the crop for the effective management of shoot fly and stem borer. The PHI for these insecticides is 61 days

ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારનાં ચોમાસુ બાજરી ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, સાંઠા માખી તેમજ ગાભમારાની ઈયળના અસરકારક નિયંત્રણ માટે બાજરાના બીજને વાવેતર વખતે થાયામિથોકઝામ ૩૫ એફ એસ (૯.૦ મિલિ / કિ.ગ્રા.બીજ; ૩.૧૫ ગ્રામ સ.ત./ કિ.ગ્રા.બીજ) અથવા ઈમિડાકલોપ્રીડ ૬૦૦ એફ એસ (૮.૭૫ મિલિ/ કિ. ગ્રા.બીજ; ૫.૨૫ ગ્રામ સ.ત./ કિ.ગ્રા.બીજ) નો પટ આપ્યા બાદ પાકના ઉગાવા પછી ૩૦ દિવસે પ્રોફેનોફોસ ૪૦% + સાયપરમેથ્રીન ૪ % ૪૪ ઈસી ૦.૦૪૪% (૧૦ મિલિ / ૧૦ લિટર પાણી; ૨૨૦ ગ્રામ સ.ત./હેકટર) અથવા કારટેપ હાઈડ્રોકલોરાઈડ ૫૦ એસ પી ૦.૦૫ % (૧૦ ગ્રામ / ૧૦ લિટર પાણી; ૨૫૦ ગ્રામ સ.ત./હેકટર) અથવા થાયોડીકાર્બ ૭૫ ડબલ્યુ પી ૦. ૧૫ % (૨ ગ્રામ/૧૦ લિટર પાણી; ૭૫ ગ્રામ સ.ત./હેકટર) નો છંટકાવ કરવો. આ દવાઓના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૬૧ દિવસનો સમય ગાળો જાળવવો.

Year	Crop	Pests	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period / PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2 0 1 4	Pearl Millet	Shoot fly, Stem Borer	Thiamethoxam 35 FS	3.15	9 ml/kg	-	9 ml/kg	Seed Treatment	NA	
			Imidacloprid 600 FS	5.25	8.75 ml	-	8.75 ml		NA	
			Profenophos 40% + cypermethrin 4.0%, 44 EC	220	500	500	10 ml	Spray at 30 days after germination	61	-
			Cartap hydrochloride 50 SP	250	500	500	10 ml		61	-
			Thiodicarb 75 WP	75	1000	500	2 g		61	

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

10.3.2.3 **Chemical control of thrips (*Thrips tabaci* L.) in onion through newer insecticides**

For effective and economical management of thrips in onion, two sprays of spinosad 45 SC 0.009% (2 ml / 10 litre water; 45 g a.i./ha) or chlorfenapyr 10 EC 0.008% (7.5 ml /10 litre water; 37.5 g a.i./ha) or fipronil 5 SC 0.007% (14 ml / 10 litre water; 35 g a.i./ha) at 10 days interval starting from thrips infestation are recommended under North Saurashtra Agro-Climatic Zone.

The PHI for spinosad, chlorfenapyr and fipronil is 34 days.

ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ડુંગળી પાકમાં નુકસાન કરતી થ્રિપ્સના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે સ્પીનોસાડ ૪૫ એસસી ૦.૦૦૯ % (૨.૦ મિલિ/૧૦ લિટર પાણી; ૪૫ ગ્રામ સ.ત./હેકટર) અથવા ક્લોરફેનપાયર ૧૦ ઈસી ૦.૦૦૮ % (૭.૫ મિલિ/૧૦ લિટર પાણી; ૩૭.૫ ગ્રામ સ.ત./હેકટર) અથવા ફિપ્રોનીલ ૫ એસસી ૦.૦૦૭ % (૧૪ મિલિ/૧૦ લિટર પાણી; ૩૫ ગ્રામ સક્રીય તત્વ/હેકટર) પ્રમાણે બે છંટકાવ, પ્રથમ છંટકાવ થ્રિપ્સનો ઉપદ્રવ જોવા મળે ત્યારે અને બીજો છંટકાવ ત્યારબાદ દસ દિવસ પછી કરવાની ભલામણ છે.

આ કીટનાશક દવાઓના છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમય ગાળો ૩૪ દિવસનો જાળવવો.

Year	Crop	Pest	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Onion	Thrips	Spinosad 45 SC	45	100	500	2 ml	First spray at initiation of pest & second at 10 days interval	34	-
			Chlorfenapyr 10 EC	37.5	375	500	7.5 ml		34	-
			Fipronil 5 SC	35	700	500	14 g		34	

(Action :- Associate Research Scientist (Plant Breeding), Grassland Research Station, JAU, Dhari)

10.3.2.4 **Management of sucking pests of *kharif* groundnut through newer insecticides**

For effective and economical management of sucking pests in *kharif* groundnut, two sprays of imidacloprid 17.8 SL 0.005% (2.8 ml/10 litre water; 25 g a.i./ha) or fipronil 5 SC 0.007% (14 ml / 10 litre water; 35 g a.i./ha) or difenthiuron 50 SP 0.05% (10 g/10 litre water; 250 g a.i./ha) at 15 days interval starting from the pest infestation are recommended under North Saurashtra Agro-climatic Zone . The PHI for imidacloprid, fipronil and difenthiuron is 27 days.

	ઉત્તર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં ચોમાસું મગફળી પાકમાં નુકસાન કરતી ચૂસીયા પ્રકારની જીવાતોના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે ઈમિડાકલોપ્રીડ ૧૭.૮ એસએલ ૦.૦૦૫ % (૨.૮ મિલિ/૧૦ લિટર પાણીમાં; ૨૫૦ ગ્રામ સ.ત./હેકટર) અથવા ફિપ્રોનીલ ૫ એસસી ૦.૦૦૭ % (૧૪ મિલિ/૧૦ લિટર પાણીમાં; ૩૫ ગ્રામ સ.ત./હેકટર) અથવા ડાયફેન્થ્યુરોન ૫૦ એસપી ૦.૦૫ % (૧૦ ગ્રામ/૧૦ લિટર પાણીમાં; ૨૫૦ ગ્રામ સ.ત./હેકટર) પ્રમાણે બે છંટકાવ, પ્રથમ છંટકાવ જીવાતોનો ઉપદ્રવ શરૂ થાય ત્યારે તથા બીજો છંટકાવ ત્યારબાદ પંદર દિવસ પછી કરવાની ભલામણ છે. આ કીટનાશક દવાઓના છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમય ગાળો ૨૭ દિવસનો જાળવવો.

Year	Crop	Pests	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Groundnut	Sucking pests	Imidacloprid 17.8 SL	25	140	500	2.8 ml	First spray at initiation of pests & second at 15 days interval	27	-
			Fipronil 5 SC	35	700	500	14 g		27	-
			Difenthiuron 50 SP	250	500	500	10 g		27	

	(Action :- Associate Research Scientist (Plant Breeding), Grassland Research Station, JAU, Dhari)
10.3.2.5	**Efficacy of new molecules against *Helicoverpa armigera* in chickpea**
	For effective and economic control of pod borer *(Helicoverpa armigera*) in chickpea crop, farmers of South Saurashtra Agro-climatic Zone are advised to apply two sprays of chlorantraniliprole 20 SC 0.003% (1.5 ml/ 10 liter water; 15 g a.i./ha) or emamectin benzoate 5 SG 0.001% (2 g/ 10 liter water; 5 g a.i./ha) or profenophos 50 EC 0.1% (20 ml/ 10 liter water 500 g a.i./ha). First spray should be appliled at 50% flowering and second at 15 days after first spray. The PHI for these insecticides is 27 days.
	દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને ચણાનાં પાકમાં લીલી ઈયળનાં અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે કલોરાન્ટ્રાનીલીપ્રોલ ૨૦ એસસી ૦.૦૦૩% (૧.૫ મિલિ/ ૧૦ લિટર પાણી; ૧૫ ગ્રામ સ.ત./હેકટર) અથવા ઈમામેકટીન બેન્ઝોએટ ૫ એસજી ૦.૦૦૧% (૨ ગ્રામ/ ૧૦ લિટર પાણી; ૫ ગ્રામ સ.ત./હેકટર) અથવા પ્રોફેનોફોસ ૫૦ એસસી ૦.૧% (૨૦ મિલિ/ ૧૦ લિટર પાણી; ૫૦૦ ગ્રામ સ.ત./હેકટર)નાં બે છંટકાવ કરવાની ભલામણ છે. પ્રથમ છંટકાવ ૫૦% ફૂલ અવસ્થાએ અને બીજો છંટકાવ પ્રથમ છંટકાવ બાદ ૧૫ દિવસે કરવો. આ કીટનાશક દવાઓના છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમય ગાળો ૨૭ દિવસનો જાળવવો.

Year	Crop	Pest	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period / PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Chick pea	*H. armigera*	Chlorantraniliprole 20 SC	15	75	500	1.5 ml	First spray should be appliled at 50% flowering and second at 15 days after first spray	27	-
			Emamectin benzoate 5 SG	5	100	500	2 g		27	-
			Profenophos 50 EC	500	1000	500	20 g		27	

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

10.3.2.6 Testing bio-efficacy of certain insecticides against pod borer complex on pigeonpea

Farmers of South Saurashtra Agro-climatic Zone are advised to apply two sprays of spinosad 45 SC 0.009% (2 ml/ 10 litre water; 45 g a.i/ha) or thiodicarb 75 WP 0.075% (10 g/ 10 litre water; 375 g a.i/ha) or flubendiamide 48 SC 0.0096% (2 ml/ 10 litre water; 48 g a.i/ha) or chlorantraniliprole 20 SC 0.003% (1.5 ml/ 10 liter water; 15 g a.i./ha) starting from 50 per cent flowering and second spray at 15 days after first spray for the control of pod borer complex in pigeonpea. The PHI for these insecticides is 30 days.

દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં તુવેરનો પાક ઉગાડતા ખેડૂતોને શિંગો કોરી ખાનારી ઈયળોનાં અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે સ્પીનોસાડ ૪૫ એસએલ ૦.૦૦૯% (૨ મિલિ/ ૧૦ લિટર પાણી; ૪૫ ગ્રામ સ.ત./હેકટર) અથવા થાયોડીકાર્બ ૭૫ ડબલ્યુપી ૦.૦૭૫% (૧૦ ગ્રામ/ ૧૦ લિટર પાણી; ૩૭૫ ગ્રામ સ.ત./હેકટર) અથવા ફલુબેન્ડીયામાઈડ ૪૮ એસસી ૦.૦૦૯૬% (૨ મિલિ/ ૧૦ લિટર પાણી; ૪૮ ગ્રામ સ.ત./હેકટર) અથવા ક્લોરાન્ટ્રાનીલીપ્રોલ ૨૦ એસસી ૦.૦૦૬% (૩ મિલિ/ ૧૦ લિટર પાણી; ૨૨૦ ગ્રામ સ.ત./હેકટર)નાં બે છંટકાવ કરવાની ભલામણ છે. પ્રથમ છંટકાવ ૫૦% ફૂલ અવસ્થાએ અને બીજો છંટકાવ ૧૫ દિવસ બાદ કરવો. આ કીટનાશક દવાઓના છેલ્લા છંટકાવ અને કાપણી વચ્ચેનો સમય ગાળો ૩૦ દિવસનો જાળવવો.

Year	Crop	PestS	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period / PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Pigeonpea	Pod borer complex	Spinosad 45 SC	45	100	500	2 ml	First spray should be appliled at 50% flowering and second at 15 days after first spray	30	-
			Thiodicarb 75 WP	375	500	500	10 g		30	-
			Flubendiamide 48 SC	48	100	500	2 ml			
			Chlorantraniliprole 20 SC	15	75	500	1.5 g		30	

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

PLANT PATHOLOGY

Nil

10.3.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Dr. V. A. Solanki, Convener, Plant Protection Sub Committee Presented proposal for recommendation during 10th PPSC AGRESCO meeting.

AGRICULTURAL ENTOMOLOGY

Recommendations for farmerming community:

10.3.3.1	**Studies on varietals preference of mulberry silk worm (*Bombyx mori*)**
	For successful rearing of mulberry silkworm race PM X CSR_2, mulberry varieties S-30, S-36 and TR-10 are found more suitable and recommended to farmers of South Gujarat.
	દક્ષિણ ગુજરાતના રેશમ કીડા ઉછેર કરતા ખેડૂતોને શેતુરના રેશમના કીડાની સંકર જાત પીએમ X સીએસઆર-૨ ના સફળ ઉછેર માટે શેતુરની એસ-૩૦, એસ-૩૬ અને ટીઆર-૧૦ જાતોની ભલામણ કરવામાં આવે છે
	(Action: Prof.& Head , Dept. of Ento., NMCA, Navsari)
10.3.3.2	**Cost effective management strategies against fruit flies in mango**
	Mango growers of South Gujarat are advised to install commercially available methyl eugenol impregnated wooden block in plastic bottle used for mineral water as a trap @10/ha at marble stage of fruits to trap higher number of male fruit flies in mango orchard.
	દક્ષિણ ગુજરાતના આંબાની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે આંબામાં ફળમાખીના નિયંત્રણ માટે બજારમાં મળતા મિથાઈલ યુજીનોલ ધરાવતા લાકડાના ટુકડાને પ્લાસ્ટિક બોટલમાં લખોટી કદની કેરીઓ થાય ત્યારે હેક્ટરે ૧૦ ટ્રેપ મુજબ મુકવાથી વધારેમાં વધારે નર ફળમાખીને ટ્રેપ કરી શકાય છે.
	(Action: Research Scientist, Agricultural Experimental Station, NAU, Paria)
10.3.3.3	**Residues and dissipation of imidacloprid 17.8 SL in mango**
	For the control of hopper in mango, need base application of imidacloprid 17.8 SL at 15 days interval @ 3 ml/10 litre water /tree (0.53 g a.i./tree) up to marble stage do not pose residue problem. Considering the MRL of imidacloprid (0.2 µg/g) for mango, PHI of one day is recommended for the harvest of mango under south Gujarat conditions.
	આંબામાં મધીયાના નિયંત્રણ માટે ફળ લખોટી કદના થાય ત્યાં સુધી જરૂરિયાત મુજબ ઇમિડાક્લોપ્રિડ ૧૭.૮ એસએલ 3 મિલિ/૧૦ લિટર પાણી /ઝાડ (૦.૫૩ ગ્રામ સ.ત./ ઝાડ પ્રમાણે ૧૫ દિવસના આંતરે છંટકાવ કરતા, ફળમાં દવાના અવશેષો જોવા મળતા નથી. ઇમિડાક્લોપ્રિડની કોડેક્ષ પ્રમાણે મહત્તમ અવશેષ મર્યાદા ૦.૨ માઇક્રોગ્રામ પ્રતિ ગ્રામને ધ્યાનમાં રાખીને દક્ષિણ ગુજરાતના ખેડૂતોને છંટકાવ અને ઉતાર વચ્ચે એક દિવસનો સમયગાળો રાખવાની ભલામણ કરવામાં આવે છે.
	(Action: Prof.& Head , FQTL, NAU, Navsari)

Recommendation for scientific community

10.3.3.4	**Residue and dissipation pattern of indoxacarb, bifenthrin, fipronil and novaluron in brinjal**
	Foliar application of indoxacarb 15.8 EC, bifenthrin 10 EC and novaluron 10 EC @ 0.22, 0.125 and 0.5 kg a.i./ ha respectively, do not pose residue problem in brinjal when harvested one day after spray and therefore, PHI of one day is recommended in brinjal.
	(Action: Prof.& Head, FQTL, NAU, Navsari)
10.3.3.5	**Residue and dissipation pattern of indoxacarb, bifenthrin, fipronil and novaluron in okra**
	Foliar application of indoxacarb 15.8 EC, bifenthrin 10 EC and novaluron 10 EC @ 0.22, 0.125 and 0.5 kg a.i./ ha respectively, do not pose residue problem in okra when harvested one day after spray and therefore, PHI of one day is recommended in okra.
	(Action: Prof.& Head, FQTL, NAU, Navsari)
10.3.3.6	**Residue and dissipation pattern of fipronil in okra and brinjal**
	Application of fipronil 5 SC @ 0.05 kg a.i./ha, do not pose residue problem in okra and brinjal when harvested 5 and 7 days, respectively after spray.
	(Action: Prof.& Head, FQTL, NAU, Navsari)
10.3.3.7	**Relative toxicity of newer insecticides to egg parasitoid, *Trichogramma chilonis* (Ishii)**
	Imidacloprid 17.8 SL 0.005%, acetamiprid 20 SP 0.004% and spinosad 45 SC 0.002% were found safer to the *Trichogramma* wasp.
	(Action: Prof.& Head, Dept. of Ento., NMCA, NAU, Navsari)
10.3.3.8	**Relative toxicity of newer insecticides to predatory green lace wing, *Chrysoperla zastrowi sillemi* (Esben-Petersen)**
	Imidacloprid 17.8 SL 0.005%, thiamethoxam 25 WG 0.005%, clothianidin 50 WG 0.003%, and spinosad 45 SL 0.002% were found safer to the larvae of *Chrysoperla zastrowi sillemi* under laboratory condition.
	(Action: Prof.& Head, Dept. of Ento., NMCA, NAU, Navsari)
10.3.3.9	**Screening of sapota varieties against sapota mite *Tuckrerlla kumaonensis* Gupta (Acari:Tuckerelliae)**
	The sapota fruit mite, *Tuckrella kumaonensis* Gupta (Acari:Tuckrellidae) remains active round the year under south Gujarat conditions. However, the sapota varieties Cricket ball, Kalipatti, Murabba, Challa Collection-3 and Paria collection showed higher population of mite than the variety Zumakhiya
	(Action: Prof.& Head, Dept. of Ento.,NMCA, NAU, Navsari)
10.3.3.10	**Status of insecticide residue in farm gate samples of okra, brinjal and chilli**
	Farm gate samples of brinjal collected from Navsari (AES-III) found free from 41 pesticides but some of okra and chilli samples found positive with organophosphate insecticide such as monocrotophos, ethion and triazophos.

	(Action: Professor & Head, Food Quality Testing Laboratory, NMCA, NAU, Navsari)
10.3.3.11	**Monitoring of pesticide residue in market samples of okra and brinjal**
	Market samples of brinjal obtained from different talukas of Navsari, Surat and Tapi district were free from pesticide while that of okra samples were positive with organophosphate insecticides among them, monocrotophos was frequently detected.
	(Action: Professor & Head, Food Quality Testing Laboratory, NMCA, NAU, Navsari)
10.3.3.12	The peak activity of moths and larvae of *Helicoverpa armigera* in pigeonpea were showed during mid of November to March and end of October to December, respectively. Seasonal & yearly moth and seasonal larval activities of *H. armigera* were significantly negatively correlated with minimum temperature, morning & evening relative humidity, rainfall and rainy days, while it was significantly positive correlated with sun shine hours. *H. armigera* moths were significantly negatively correlated with maximum temperature and wind speed during crop season and year, respectively. Seasonal larval incidence and moth catches of *H. armigera* were showed significantly positive correlation **(Action: Research Scientist, National Agricultural Research Project, NAU, Bharuch)**

PLANT PATHOLOGY

Recommendation farming community

10.3.3.13	**Testing of different modules for the management of sigatoka leaf spot, leaf blight, wilts and rhizome rot of banana**
	The farmers of South Gujarat heavy rain fall zone AES III are advised to adopt the following integrated disease management module of banana for the effective management of sigatoka leaf spot and leaf blight for higher fruit yield. IDM Module: • Selection of healthy rhizome • Rhizome's dip in *Trichoderma viride* (CFU- 10^7/g) @ 10 g/litre for 30 minutes • Soil application of *Trichoderma viride* (CFU- 10^7/g) @ 50 g/plant + *Pseudomonas fluorescens* (CFU- 10^8/g) @ 15 ml/plant + *Paecilomyces lilacinus* (CFU- 10^7/g) @ 10 g/plant at the time of planting • Spraying of *Pseudomonas fluorescens* (CFU- 10^8/ml) @ 5 ml/l after 8^{th} month of planting and then spraying of propiconazole 25 EC @ 1 ml/l (0.025%; 150 g a.i./ha) after 9^{th} and 10^{th} month of planting with detergent powder (0.5 g/l) as sticker PHI for propiconazloe is 45 days

દક્ષિણ ગુજરાત ખેત આબોહવાકીય પરિસ્થિતિ – ૩ ના ખેડૂતોને ભલામણ કરવામાં આવે છે કે કેળમાંઆવતા પાનના ટપકાં અને પાનના સુકારાના રોગના અસરકારક નિયંત્રણ માટે નીચે મુજબનું સંકલિત રોગ વ્યવસ્થાપન મોડ્યુલ અપનાવવું.

સંકલિત રોગ વ્યવસ્થાપન મોડ્યુલ:

- તંદુરસ્ત કંદની પસંદગી કરવી
- કંદને ટ્રાયકોડર્મા વીરીડીના (સીએફયુ – ૧૦^{૭}/ગ્રા.) ૧૦ગ્રામ/લીટર ના દ્રાવણમાં ૩૦ મિનિટ માવજત આપવી
- જમીન માવજતમાં ટ્રાયકોડર્મા વીરીડીના (સીએફયુ – ૧૦^{૭}/ગ્રા.) ૫૦ ગ્રામ/છોડ + સ્યુડોમોનાસ ફ્લુરોસન્સ (સીએફયુ – ૧૦^{૮}/ગ્રામ) ૧૫ મિલિ/છોડ + પેસીલોમાઇસીસ લીલાસીનસ (સીએફયુ – ૧૦^{૭}/ગ્રામ) ૧૦ ગ્રામ/છોડ પ્રમાણે વાવતી વખતે આપવું
- વાવેતરના આઠમા મહિને સ્યુડોમોનાસ ફ્લુરોસન્સ (સીએફયુ – ૧૦^{૮}/મીલી) નો ૫ મિલિ/લિટર પ્રમાણે અને નવમા તથા દશમા મહિને પ્રોપીકોનાઝોલ ૨૫ ઇસી @ ૧ મિલિ/લિટર (૦.૦૨૫%; ૧૫૦ ગ્રામ સ.ત.) પ્રમાણે ૦.૫ ગ્રામ/લિટર ડીટરજન્ટ પાવડર સાથે ભેળવીને છંટકાવ કરવો

  આ ફૂગનાશક દવાના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૪૫ દિવસનો સમય ગાળો જાળવવો.

Year	Crop	Pest	Pesticide with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Banana	cigatoka leaf spot & leafblight	Propiconazole 25 EC	150	600	600	10 ml	spray during 9th & 10th month after planting	45	-

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

10.3.3.14 Effect of various biofertilizers on yield of banana fruits, soil and crop health

The farmers of South Gujarat heavy rain fall zone AES III are advised to use 10 ml/plant each of native azotobacter (NAUAZN-1) (cfu-10^{8}/ml) and native PSB

	(NAUPSB-1) (cfu-10^8/ml) mixed with 500 g FYM/plant two times, first at the time of planting and second at three months after the planting to improve the soil and crop health with saving of 50% chemical fertilizers (N & P) and realize higher yield of banana.
	દક્ષિણ ગુજરાત ખેત આબોહવાકીય પરિસ્થિતિ-૩ ના કેળનુ વાવેતર કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે કેળમાં જમીનની તથા પાકની તંદુરસ્તી જાળવવા તથા રાસાયણિક ખાતરની ભલામણના ૫૦ % નાઇટ્રોજન અને ફોસ્ફરસની બચત માટે સ્થાનિય એઝેટોબેક્ટર (NAUAZN-1) **સીએફયુ–૧૦૯/મિલિ** (૧૦ મિલિ/છોડ અને પીએસબી)NAUPSB-1 **સીએફયુ–૧૦૯/મિલિ (**૧૦ મિલિ/છોડ) સાથે ૫૦૦ ગ્રામ છાણિયુ ખાતર/છોડ બે હપ્તામાં છાણિયા ખાતર સાથે મિક્ષ કરી વાવેતર સમયે તેમજ ત્રીજા મહિને જમીનમાં આપવું.
	(Action :- Professor & Head, Department of Plant Pathology, NMCA, NAU, Navsari)
10.3.3.15	**Field evaluation of different fungicides for the control of turmeric leaf spot**
	The farmers of South Gujarat heavy rain fall zone AES III are advised for two sprays of propiconazole 25 EC @ 1 ml/litre (0.025%; 150 g a.i./ha) or carbendazim 50 WP @ 0.5 g/litre (0.025%; 150 g a.i./ha) at initiation of disease and second at 15 days after first spray for effective management of the turmeric leaf spot. The PHI for these fungicide is 70 days.
	દક્ષિણ ગુજરાત ખેત આબોહવાકીય વિસ્તારના ખેડૂતોને ભલામણ કરવામાં આવે છે કે, હળદરમાં આવતા પાનના ટપકાંના રોગના અસરકારક નિયંત્રણ માટે **પ્રોપીકોનાઝોલ ૨૫ ઇસી @ ૧ મિલિ/લિટર (૦.૦૨૫%; ૧૫૦ ગ્રામ સ.ત.) અથવા** કાર્બેન્ડાઝીમ ૫૦ વેપા નો ૦.૫ ગ્રામ/લિટર **(૦.૦૨૫%; ૧૫૦ ગ્રામ સ.ત.)** પ્રમાણે પ્રથમ છંટકાવ રોગની શરૂઆતમાં અને ત્યારબાદ ૧૫ દિવસના આંતરે બીજો છંટકાવ કરવો. આ ફૂગનાશક દવાના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૭૦ દિવસનો સમય ગાળો જાળવવો.

Year	**Crop**	**Pest**	**Pesticides with formulation**	**Dosage /ha**			**Formulation in water (10 lit)**	**Appl. schedule**	**Waiting period/ PHI (Days)**	**Remark**
				a.i. (g)	**Formulation (g/ml)**	**Water requirement (liter)**				
2014	Turmeric	Colletotrichum leaf spot	Carbendazim 50 WP	150	300	600	5 ml	spray at diseases initiation & after 15 days	70	-
			Propiconazole 25 EC	150	600	600	10 ml			

	(Action: Professor & Head, Department of Plant Pathology, NMCA, NAU, Navsari)
10.3.3.16	**Field evaluation of various fungicides, bioagents and phytoextracts for the management of finger millet blast**
	Finger millet growing farmers of south Gujarat are advised for three sprays of tricyclazole 75 WP @ 0.6 g/litre (0.045%; 225 g.a.i./ha) of water starting from initiation of disease and two subsequent sprays at an interval of 15 days for effective and economical management of blast disease. PHI for this fungicide is 35 days.
	દક્ષિણ ગુજરાતમાં નાગલીની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે નાગલીના કરમોડી રોગના અસરકારક નિયંત્રણ માટે ટ્રાયસાઇક્લાઝોલ ૭૫ વેપા નો ૦.૬ ગ્રામ/લિટર (૦.૦૪૫%; ૨૨૫ ગ્રામ સક્રિય તત્વ) પ્રમાણે ત્રણ છંટકાવ, પ્રથમ છંટકાવ રોગની શરૂઆતમાં અને ત્યારબાદ ૧૫ દિવસના આંતરે બે છંટકાવ કરવા. આ ફૂગનાશક દવાનાં છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૩૫ દિવસનો સમય ગાળો જાળવવો.

Year	**Crop**	**Pest**	**Pesticides with formulation**	**Dosage /ha**			**Formulation in water (10 lit)**	**Appl. schedule**	**Waiting period/ PHI (Days)**	**Remark**
				a.i. (g)	**Formulation (g/ml)**	**Water requirement (liter)**				
2014	Finger millet	Blast	Tricyclazole 75 WP	225	300	500	6 ml	first spray at initiation of diseases and two spray at 15 days innterval	35	-

	(Action: Professor & Head, Department of Plant Pathology, NMCA, NAU, Navsari)
10.3.3.17	**Efficacy of foliar sprays on intensity of foliar diseases of niger**
	Niger growing farmers of South Gujarat are advised for the effective management of Alternaria and Cercospora leaf spot diseases of niger, two sprays of carbendazim 12% + mancozeb 63%, 75 WP @ 2 g/litre (0.15%; 600 g.a.i./ha) first at the initiation of the disease and second at 15 days after first spray is recommended. PHI for this fungicide is 35 days.
	દક્ષિણ ગુજરાતમાં ખરસાણીની ખેતી કરતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે, કાર્બેન્ડેઝીમ ૧૨ % + મેન્કોઝેબ ૬૩%, ૭૫ વેપા ૨ ગ્રામ/લિટર (૦.૧૫%; ૨૨૫ ગ્રામ સ.ત.)ના દ્રાવણનો છંટકાવ રોગની શરુઆત થયાથી અને ત્યારબાદ ૧૫ દિવસે બીજો છંટકાવ કરવાથી અલ્ટરનેરીયા અને સર્કોસ્પોરા પાનના ટપકાના રોગનું અસરકારક નિયંત્રણ મેળવી પાકનુ વધુ ઉત્પાદન મેળવી શકાય છે. આ મિશ્રણનો છેલ્લો છંટકાવ અને કાપણી વચ્ચે ૩૫ દિવસનો સમય ગાળો જાળવવો.

Year	Crop	Pest	Pesticides with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period / PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Niger	Alternaria & Cercospora leafspot	Carbendazim 12% + Mancozeb 63% 75WP	600	800	400	20 ml	first spray at initiation of diseases and two spray at 15 days innterval	35	-

(Action: Assistant Research Scientist, Niger Research Station, NAU, Vanarasi)

10.3.3.18 Integrated management of bacterial rhizome rot (*Erwinia* sp. of banana cv. Grand Naine

Farmers of South Gujarat Heavy Rainfall Zone-I growing banana cv. Grand Naine are advised to plant healthy sucker of banana followed by drenching of Streptocyclin sulphate 9% + Tetracyclin hydroxide 1%-SP @ 500 ppm (0.5 g/litre) 1 litre (0.005%; 150 g a.i./ha) solution per plant at 15 days, 2 month and 4 months after planting with green manuring of sunhemp (three times) in the interspaces till 6 months of planting for effective management of bacterial rhizome rot disease. The PHI for this combination product is 180 days.

દક્ષિણ ગુજરાત ખેત આબોહવાકીય વધુ વરસાદવાળા વિસ્તારના કેળની ખેતી કરતાં ખેડૂતોને કેળના કંદના સડાના રોગના અસરકારક નિયંત્રણ માટે સ્ટ્રેપ્ટોસાયક્લીન સલફેટ ૯% + ટેટ્રાસાયકલીન હાયડ્રોક્સાઈડ ૫૦૦ પીપીએમ (૦.૫ ગ્રામ/લિટર) (૦.૦૦૫%; ૧૫૦ ગ્રામ સ.ત.)રોપણી બાદ ૧૫ દિવસે, બીજા અને ચોથા મહિને છોડ દીઠ એક લિટર દ્રાવણ થડની ફરતે જમીનમાં આપવું અને સાથે ૬ મહિના સુધીમાં ત્રણ વખત શણનો લીલો પડવાશ બે હાર વચ્ચે કરવાની ભલામણ કરવામાં આવે છે. આ તૈયાર મિશ્રણનો છેલ્લો છંટકાવ અને કાપણી વચ્ચે ૧૮૦ દિવસનો સમય ગાળો જાળવવો.

Year	Crop	Pest	Pesticides with formulation	Dosage /ha			Formulation in water (10 lit)	Appl. schedule	Waiting period/ PHI (Days)	Remark
				a.i. (g)	Formulation (g/ml)	Water requirement (liter)				
2014	Banana	bacterial rhizome rot	Streptocyclin Sulphate 9% + Tetracyclin Hydrochloride 1%-SP	150	1500	3000	5 g	Drenching at 15 days, 2 month, 4 month after planting	180	-

(Action: Associate Research Scientist, Fruit Research Station, NAU, Gandevi)

10.3.3.19	**Integrated management of papaya ring spot virus**
	The farmers of South Gujarat Heavy Rainfall Zone-I, growing papaya are advised to raise the papaya seedlings under Nylon net (40-60 mesh) and spraying of acephate 75 SP 1.5 g/litre of water at 3 days before planting as well as use of two rows of border crop of maize sown 15 days before planting. Apply 1% Neem oil @ 2 ml/litre with acephate 75 SP 1.5 g/litre of water (0.11%; 675 g a.i./ha) at 15 days interval up to 5 month for effective management of papaya ring spot virus disease. PHI for Acephate is 240 days.
	દક્ષિણ ગુજરાત ખેત આબોહવાકીય વધુ વરસાદવાળા વિસ્તારના પપૈયાની ખેતી કરતાં ખેડૂતોને પપૈયાના રિંગ સ્પોટ વાયરસ રોગના અસરકારક નિયંત્રણ માટે પપૈયાના છોડને નાયલોન નેટ) ૪૦-૬૦ મેશ ની અંદર ઉગાડી રોપણીના ત્રણ દિવસ પહેલાં એસીફેટ ૭૫ એસપી ૧.૫ ગ્રામ /લિટર પાણી મુજબ છંટકાવ કરી રોપવા તથા પ્લોટ ફરતે મકાઇની બે લાઇન ૧૫ દિવસ પહેલાં વાવવી ત્યારબાદ એક ટકા લીમડાનું તેલ ૨ મિ.લિ. /લિટર અને એસીફેટ ૧.૫ ગ્રા/લી પાણી (૦.૧૧%; ૬૭૫ ગ્રામ સ.ત./હે) મુજબ ૧૫ દિવસના અંતરે ૫ મહિના સુધી છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. આ કિટનાશક દવાના છેલ્લા છંટકાવ અને કાપણી વચ્ચે ૨૪૦ દિવસનો સમયગાળો જાળવવો.

Year	**Crop**	**Pest**	**Pesticides with formulation**	**Dosage /ha**			**Formulation in water (10 lit)**	**Appl. schedule**	**Waiting period / PHI (Days)**	**Remark**
				a.i. (g)	**Formulation (g/ml)**	**Water requirement (liter)**				
2014	Papaya	Papaya ring spot virus	Acephate 75 SC	675	900	600	15 g	spray 15 days after transplanting to up to 5 months at 15 days interval	240	-

(Action: Associate Research Scientist, Fruit Research Station, NAU, Gandevi)

Recommendation for scientific community

10.3.3.20	**Title: Screening of Sugarcane varieties for smut resistance**
	Sugarcane genotypes Co 07008 and Co 07009 showed resistant reaction against smut disease, while Co 07012, PI 07131 and Co 07010 exhibited moderately resistant. **(Action: Research Scientist, Main Sugarcane Research Station, NAU, Navsari)**

10.3.3.21	**Title: Evaluation of the drinking water of Navsari and surroundings**
	Potable water samples collected from the Navsari and its surroundings were free from 41 pesticides while other chemical properties were under the acceptable limit *Escherichia coli* (bacteria) were detected across the seasons but found higher in winter followed by monsoon and summer seasons. **(Action: Professor & Head, Food Quality Testing Laboratory, NMCA, NAU, Navsari)**
10.3.3.22	**Title: Analysis of the microbial contaminant and adulteration in milk**
	The branded pasteurized milk samples procured from Navsari and its surrounding places found excellent to good while some of the raw milk samples were poor from the microbial quality point of view, across the seasons. Some of the raw milk samples were found positive with *Escherichia coli* (bacteria) out of which maximum positive samples were in winter followed by monsoon and summer. None of the pasteurized milk sample found positive with *E. coli* and none of the milk samples were found positive to chemical adulterant **(Action: Professor & Head, Food Quality Testing Laboratory, NMCA, NAU, Navsari)**

10.3.4 SARDAR KRISHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S.K.NAGAR

Dr. B. R. Patel, Convener, Plant Protection Sub Committee Presented proposal for recommendation during 10th PPSC AGRESCO meeting.

AGRICULTURAL ENTOMOLOGY

Recommendations for farming community

10.3.4.1	**Chemical control of fruit borer in ber**
	Farmers of North and North- West Gujarat Agro-climatic zone, growing ber are advised to apply three sprays of profenophos 50 EC 0.05 % (10 ml/10 litre water) or azadirachtin 3000 ppm @ 25 ml/10 litre water or Neem seed kernal extrate (NSKE) 5 % (500 g/10 litre water) at 15 days interval, starting from pea sized of ber fruits for effective and economical control of ber fruit borer.
	ઉત્તર અને ઉત્તર પશ્ચિમ ગુજરાત ખેત હવામાન વિસ્તારમાં બોરની ખેતી કરતાં ખેડૂતોને ફળ કોરી ખાનાર ઈયળના આર્થિક અને અસરકારક નિયંત્રણ માટે, પ્રોફેનોફોસ ૫૦ ઈસી ૦.૦૫ ટકા (૧૦ મિલિ ૧૦ લિટર પાણીમાં) અથવા એઝાડીરેકટીન ૩૦૦૦ પી.પી.એમ.(૨૫ મિલિ ૧૦ લિટર પાણીમાં) અથવા લીંબોળીના મીંજ નું ૫ ટકા નું દ્રાવણ (૫૦૦ ગ્રામ ૧૦ લિટર પાણીમાં) નાં ત્રણ છંટકાવ, બોર વટાણા કદના થાય ત્યારથી શરૂ કરી ૧૫ દિવસના અંતરે કરવાની ભલામણ કરવામાં આવે છે.
	Suggestions :- *Recommendation is pending due to lack of residue data, it will present in a next AGRESCO meeting with residue data.*
	(Action: Asso. Res. Sci. (Ento), Arid Fruit Research Station, SDAU, S.K.Nagar)

10.3.4.2	**Evaluation of different spray schedules of insecticides and botanicals against pest of chilli**
	Farmers of North Gujarat Agro-climatic zone growing chilli are advised to give the spray schedule in the pattern of neem seed kernel suspension 5 % (Neem seed kernel powder 500 g/10 litre water) at initiation of infestation followed by triazophos 40 EC 0.1% (25 ml /10 litre water; 500 g a.i./ha), dicofol 18.5 EC 0.028% (15 ml / 10 litre water; 138.75 g a.i./ha) and acetamiprid 20 SP 0.002% (1 g/10 litre water; 10 g a.i./ha) at 10 days interval for the effective and economical management of chilli pests.
	ઉત્તર ગુજરાત ખેત આબોહવાકીય વિસ્તારના મરચા ઉગાડતા ખેડૂતો ને મરચાની જીવાતો ના અસરકારક અને અર્થક્ષમ નિયંત્રણ માટે જીવાતના નુકશાનની શરૂઆત થયેથી ૧૦ દિવસના અંતરે ક્રમશઃ લીંબોળીના મીંજનું ૫ % દ્રાવણ, ટ્રાયઝોફોસ ૪૦ ઈસી ૦.૧% (૨૫ મિલિ/૧૦ લિટર; ૫૦૦ ગ્રામ સ.ત./હેકટર), ડાયકોફોલ ૧૮.૫ ઈસી ૦.૦૨૮% (૧૫ મિલિ/૧૦ લિટર; ૧૩૮.૭૫ ગ્રામ સ.ત./હેકટર) અને એસીટામીપ્રીડ ૨૦ એસપી ૦.૦૦૨% (૧ ગ્રામ /૧૦ લિટર; ૧૦ ગ્રામ સ.ત./હેકટર) પાણીમાં મેળવી છંટકાવ કરવાની ભલામણ છે.
	Suggestions :- *Recommendation is pending due to lack of residue data, it will present in a next AGRESCO meeting with residue data.*
	(Action:Asstt. Res. Sci. (Ento), ARS, SDAU, Ladol)

Technical Session II:

PRESENTATION NEW TECHNICAL PROGRAMME

PLANT PROTECTION SUB COMMITTEE

Date :	**10.04.2014**	**Chairman:**	Dr. I. U. Dhruj, Asso. Director of Research, JAU, Junagadh
Time :	**8:30 to 18:30**	**Co Chairman:**	3. Dr. D. M. Korat, Asso. Director of Research, AAU, Anand 4. Dr. G. G. Radadiya, Professor and Head, Dept. of Ento., NAU, Navsari
Venue:	Seminar Hall, Department of Entomology, College of Agriculture, JAU, Junagadh	**Reporters**:	3. Dr. V. N. Patel, Res. Sci. (Ento.), JAU, Junagadh 4. Dr. B. R. Patel, Professor (Ento.), SDAU, Sardarkrushinagar.

10.3.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Dr. R. N. Pandey, Convener, Plant Protection Sub Committee Presented proposal for new technical programmes during 10th PPSC AGRESCO meeting.

Sr.No.	Title/Centre	Suggestions	Remarks
AGRICULTURAL ENTOMOLOGY			
10.3.1.1	Bio-efficacy of various insecticides against aphid in cumin	Accepted with following suggestion/s 1. Add sticker in spray solution **(Action: Professor and Head, Dept. of Entomology, BACA, AAU, Anand)**	
10.3.1.2	Bio-efficacy of different insecticides against capsule borer, *Dichocrosis punctiferalis* guenee infesting castor	Accepted **(Action: Professor and Head, Dept. of Entomology, BACA, AAU, Anand)**	
10.3.1.3	Integrated management of termite in wheat	Accepted **(Action: Professor and Head, Dept. of Entomology, BACA, AAU, Anand)**	
10.3.1.4	BDAENC:89 Evaluation of synthetic insecticides for the control of *Spodoptera litura* fabricious infesting bidi tobacco under nursery conditions	Accepted **(Action: Associate Research Scientist (Entomology), BTRS, AAU, Anand)**	
10.3.1.5	Documentation and evaluation of indigenous techniques for wild boar management	Accepted with following suggestion/s 1. Give scientific base to the ITK **(Action: Res. Scientist, AINP on Ornithology, AAU, Anand)**	
10.3.1.6	PP/Pesticide Residues/2014/01 : Residues and persistence study of phenthoate 50 EC on cotton	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.7	PP/Pesticide Residues/2014/02 : Residues and persistence study of phosphamidon 40 SL on mustard	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.8	PP/Pesticide Residues/2014/03 : Residues and persistence Study of monocrotophos 36 SL on mustard	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.9	PP/Pesticide Residues/2014/04 : Residues and persistence study of monocrotophos 36 SL on pigeonpea	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.10	PP/Pesticide Residues/2014/05 : Residues and persistence study of monocrotophos 36 SL on castor	Accepted **(Action: Pesticide Residues, AAU, Anand)**	

10.3.1.11	PP/Pesticide Residues/2014/06 : Residues and persistence study of deltamethrin 2.8 EC on chickpea	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.12	PP/Pesticide Residues/2014/07 : Residues and persistence study of penflufen + trifloxystrobin 308 FS on chickpea	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.13	PP/Pesticide Residues/2014/08 : Residues and persistence study of fluopyram 200 SC on tomato (newer molecule)	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.14	PP/Pesticide Residues/2014/09 : Residues and persistence study of fluopyram 200 + tebuconazole 200 - 400 SC on chilli (newer molecule)	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.15	PP/Pesticide Residues/2014/10 : Residues and persistence study of ipconazole + metalaxyal on maize (newer molecule)	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.16	PP/Pesticide Residues/2014/11 : Study on pesticide residues from surface and ground water under SSP phase-II area	Accepted **(Action: Pesticide Residues, AAU, Anand)**	
10.3.1.17	Study on the detoxification of pesticide residues in/on tomato and chilli at field as well as in house environment using "AgrocleanTM**"**	1. Drop the technical programme **(Action : Pesticide Residues, AAU, Anand)**	
10.3.1.18	Impact of sowing periods on incidence of pest complex in Pigeon pea.	Accepted with following suggestion/s 1. Correlate weather and pest population data **(Action: Asstt. Research Scientist, Ento., Pulse Research Station, Vadodara)**	
10.3.1.19	Bio-efficacy of various insecticides against ear head worm, *Helicoverpa armigera* (Hubner) Hardwick infesting summer pearl millet	Accepted **(Action: Associate Professor (Ento.), College of Agriculture, Vaso)**	
10.3.1.20	Bio-efficacy of different insecticides against major lepidopteran pests of soybean	Accepted **(Action: Assistant Professor (Ento.), College of Agriculture, Jabugam)**	

10.3.1.21	Bio-efficacy of newer insecticidal molecules against cucumber leaf miner, *Liriomyza trifolii* (Burgress)	Accepted **(Action: Asst. Professor (Entomology), Polytechnic in Agriculture, AAU, Anand**	
10.3.1.22	Bio-efficacy of insecticides against girdle beetle of soybean	Accepted with following suggestion/s 1. The concentration of Emamectin benzoate in T1 should be 0.025% (5 gm/10 litre). **(Action: Tribal Research Cum Training Centre, DevgadhBaria and Subject Matter Specialist (Pl. Prot.), KVK, Muvaliya farm, AAU, Dahod)**	
10.3.1.23	Bio efficacy of different insecticides against stem borer infesting durum wheat	Accepted with following suggestion/s 1. The species of borer should be identified 2. Seed germination count should be recorded. **(Action: Associate Research Scientist, Ento.,Agril. Research Station, Arnej)**	
PLANT PATHOLOGY			
10.3.1.24	Survey and status of important diseases, pests and nematodes of selected vegetables grown under protected cultivation.	Accepted **(Action: Prof. & Head, Deptt. of Plant Pathology, BACA, AAU, Anand.)**	
10.3.1.25	Evaluation of bioagents for management of soil-borne diseases in mungbean through seed treatment and soil application.	Accepted **(Action: Prof. & Head, Deptt. of Plant Pathology, BACA, AAU, Anand.)**	
10.3.1.26	Evaluation of bioagents for management of soil-borne diseases in soybean through seed treatment and soil application.	Accepted **(Action: Prof. & Head, Deptt. of Plant Pathology, BACA, AAU, Anand.)**	
10.3.1.27	Identification of sources of resistance in mungbean against *Bean Common Mosaic Virus* (BCMV) disease	Accepted with following suggestion/s 1. Add observation of vector population **(Action: Prof. & Head, Deptt. of Plant Pathology, BACA, AAU, Anand.)**	
10.3.1.28	Management of seed associated *Fusarium oxysporum* f.sp. *ciceri* and *Macrophomina phaseolina* in chickpea through seed biopriming and soil application of *Trichoderma* spp.	Accepted **(Action: Prof. & Head, Deptt. of Plant Pathology, BACA, AAU, Anand.)**	

10.3.1.29	Effect of methods of application of *Trichoderma viride* i. e. Anubhav *Trichoderma* on incidence damping off and root rot of Tomato.	Accepted with following suggestion/s 1. Number of replication should be four **(Action: Prof. & Head, Deptt. of Plant Pathology, BACA, AAU, Anand.)**	
10.3.1.30	Effect of planting dates and topping levels on occurrence of diseases in bidi tobacco cv. GABT 11	Accepted with following suggestion/s 1. Std.week should be mentioned instead of date **(Action: Research Scientist. (Pl. Path.), BTRS, AAU, Anand.)**	

10.3.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Dr. K. L. Raghvani, Convener, Plant Protection Sub Committee Presented proposal for new technical programmes during 10th PPSC AGRESCO meeting.

Sr. No.	Title/Centre	Suggestions	Remarks
AGRICULTURAL ENTOMOLOGY			
10.3.2.1	Chemical control of sucking pests and leaf miner of fenugreek through seed treatment	*Accepted with following Suggestions :-* *1.* Use powder formulations for seed treatment if available **(Action :- Professor & Head, Department of Entomology, College of Agriculture, JAU, Junagadh)**	
10.3.2.2	Field efficacy of different insecticides against citrus pests	*Accepted with following Suggestions :-* 1. Follow standerd methodology (as per Nagpur research station) for recording the observations of whitefly and black fly. **(Action :- Professor & Head, Department of Entomology, College of Agriculture, JAU, Junagadh)**	
10.3.2.3	Evaluation of new seed treatment formulations in groundnut for managing sucking pests	*Accepted with following Suggestions :-* *1.*Delete the word "new" from the title **(Action :- Research Scientist (Groundnut), Main Oilseed Research Station, JAU, Junagadh)**	

10.3.2.4	Evaluation of different storage bag against the groundnut bruchid beetle *Caryeodon serratus* (Oliver) in storage	*Accepted* **(Action :- Research Scientist (Groundnut), Main Oilseed Research Station, JAU, Junagadh)**	
10.3.2.5	Survey of insect pests of summer bajra	*Accepted* **(Action :- Research Scientist (Pearl Millet), Pearl Millet Research Station, JAU, Jamnagar)**	
10.3.2.6	Effect of new packaging material (insecticide impregnated bags) on storability of seed under ambient condition (Chick pea)	*Accepted* **(Action :- Research Scientist (Pearl Millet), Pearl Millet Research Station, JAU, Jamnagar)**	
10.3.2.7	Testing of newer insecticides against sesame leaf webber/ capsule borer	*Accepted with following Suggestions :-* *1.*Delete the word "newer" from the title *2.* Mention a.i. per hectar *3.*Recorde the residues data of insecticide **(Action :- Research Scientist (Plant Breeding), Agricultural Research Station, JAU, Amreli)**	
10.3.2.8	Integrated pest management in cotton with emphasis on biotic stress	*Accepted* **(Action :- Research Scientist (Cotton), Cotton Research Station, JAU, Junagadh)**	
10.3.2.9	Study on determining storage losses of food grain in FCI and CWC were houses and to recommend norms for storage losses in efficient warehouse management	*Accepted with following Suggestions :-* 1. List out the parameters of the observations to be recorded **(Action :- Professor & Head, Department of Process & Food Engineering, College of Agricultural Engineering & Technology, JAU, Junagadh)**	

PLANT PATHOLOGY			
10.3.2.10	Efficacy of bio-agent against *Aspergillus flavus* and aflatoxin production in groundnut	*Accepted with following Suggestions :-* 1.Take the observation on stem rot 2. Delete the common seed treatment of fungicide **(Action :- Professor & Head, Department of Plant Pathology, College of Agriculture, JAU, Junagadh)**	
10.3.2.11	Chemical control of powdery mildew of cluster bean caused by *Leveillula taurica*	*Accepted with following Suggestions :-* 1.Recorde the seed yield **(Action :- Professor & Head, Department of Plant Pathology, College of Agriculture, JAU, Junagadh)**	
10.3.2.12	Refining integrated diseases management in groundnut	*Accepted* **(Action :- Research Scientist (Groundnut), Main Oilseed Research Station, JAU, Junagadh)**	
10.3.2.13	Efficacy of bio-agent and organic amendments against *Macrophomina* root rot and *Phytopthora* blight of sesame	*Accepted with following Suggestions :-* 1. Delete the word "amendments" with "cake" from the title 2.Record the incidence and intensity of the diseases **(Action :- Research Scientist (Plant Breeding), Agricultural Research Station, JAU, Amreli)**	
10.3.2.14	Wilt disease development in popular cultivars as influenced by different dates of sowing under changing climate in chickpea	*Accepted with following Suggestions :-* 1.Record the periodical parametres i.e. soil moisture & soil temperature **(Action :- Research Scientist (Chickpea), Pulse Research Station, JAU, Junagadh)**	

10.3.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Dr. V. A. Solanki, Convener, Plant Protection Sub Committee Presented proposal for new technical programmes during 10th PPSC AGRESCO meeting.

Sr. No.	**Title/Centre**	**suggestions**	**Remarks**
AGRICULTURAL ENTOMOLOGY			
10.3.3.1	Evaluation of certain acaro-insecticide for the management of yellow mite infesting capsicum under polyhouse conditions	Accepted with following suggestions: 1.First spray should be applied at ETL 2.Spray fluid @ 500 litre/ha 3.Residues at every peaking after	

		spraying 4.The treatments of experiment should be modified. The acaricides propergite 50 EC, fenpyroximate 5 EC and fenazaquin 10 EC should be tested at two dosage i.e. recommended & double dose with control (Total Seven treatments) 5.Mention the dosage of pesticides in concentration and g a.i./ha **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.2	Suppression of rice sheath mite *Steneotarsonemus spinki* Smiley (Acari: Tarsonemidae) infestation by using different acaricides	Accepted with following suggestions: 1.Mention the dosage of pesticides in concentration and g a.i./ha 2. Spray fluid @ 500 litre/ha **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.3	Bioefficacy of some pesticides against *Polyphagotarsonemus latus* (Banks) infesting sesame	Accepted with following suggestions: 1. Delete the word "some" from the title 2. Mention the season – Summer 3. In treatment 4 replace the ethion with abamectin **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.4	Survey of ectoparasitic *Varroa* mite infesting honey bee *Aphis mellifera*	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.5	Evaluation of different races of eri silkworm under laboratory conditions for its suitability	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.6	Influence of artificial diet on different economical parameters of the eri silkworm *Samia Cynthia* Boisduval under laboratory conditions	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.7	Effect of non-ionizing (UV) radiation on the development of egg parasitoid, *Trichogramma chilonis* (Ishii) (Hymenoptera: Trichogrammatidae)	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	

10.3.3.8	Seasonal abundance of major insect pests of capsicum under protected cultivation	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.9	Seasonal abundance of major insect pests of tomato under protected cultivation	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.10	Screening of Pigeon pea genotype (Early) against major pest under Preliminary Yield Trial	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.11	Screening of Pigeon pea genotype (Determinate) against major pest under Preliminary Yield Trial	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.12	Screening of Green gram genotype against major pest under Preliminary Yield Trial	Accepted **(Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.13	Screening of Black gram genotype against major pest under Preliminary Yield Trial	Accepted (**Action: Prof. and Head, Dept. of Ento, NMCA, Navsari)**	
10.3.3.14	Population dynamics of *Earias vittella* through pheromone trap in okra	Accepted with following suggestions: 1. Delete the words "through pheromone trap" from title and recast the methodology according the title and objectives **(Action: Assoc. Prof. (Ento) ACHF, NAU, Navsari)**	
10.3.3.15	Evaluation of newer acaricides against pigeon pea eriophid mite, *Aceria cajani*	Accepted with following suggestions: 1. Remove the word newer from the title 2. Mention the technical name in place of trade name in the treatment **(Action: Professor (Ento), COA, Bharuch)**	
10.3.3.16	Characterization of popular Nagli (Ragi) (Finger millet, *Eleusine coracana* L. Gaetn.) varieties against major Insect- pests	Accepted **(Action: Assoc. Prof., (Ento.) COA, Waghai)**	

10.3.3.17	Evaluation of newer insecticides against important insect pests of mango	Accepted with following suggestions: 1. Remove the word newer from the title **(Action: Assoc. Prof., (Ento.) COA, Waghai)**	
10.3.3.18	Biodiversity of fruit fly species and assessment of its infestation level in mango and important cucurbit crops in Dangs district	Accepted	
10.3.3.19	Identification of biochemical changes associated in different sorghum genotypes against shoot fly, *Atherigona soccata*	Accepted with following suggestions: 1. Title of the experiment should be changed as "Biochemical changes in sorghum genotypes against shoot fly, *Atherigona soccata* **(Action: Assoc. Prof., (Ento.) COA, Waghai)**	
10.3.3.20	Evaluation of newer insecticides against rice *gundhi* bug, *Leptocorisa acuta* (Thunberg)	Accepted with following suggestions: 1. Remove the word newer from the title (**Action: Assoc.Res. Scientist(Ento) , Main Rice Research Centre, NAU, Navsari)**	
10.3.3.21	Screening of germplasm against banana pseudostem weevil (*Odoiporus longicollis*)	Accepted with following suggestions: 1. Follow the standard methodology to catagorise the resistance of the germplasms 2. Observations of other pests should be recorded. **(Action: Associate Research Scientist (Ento), FRS, Gandevi)**	
10.3.3.22	Assessment of losses caused by seed borer, *Trymalitis margarisa* Meyrick in different varieties/hybrids of sapota	Accepted with following suggestions: 1. The title of the experiment should be changed as "Screening of sapota germplasms against seed borer, *Trymalitis margarisa* Meyrick" **(Action: Associate Research Scientist (Ento), FRS, Gandevi)**	
10.3.3.23	Chemical control of pest complex in cashew	Accepted with following suggestions: 1. Replce the trade name (sevin) with the technical name in treatment 2. The design of the experiment: CRD **(Action: Research Scientist (Fruit), AES, Paria)**	

10.3.3.24	Screening of cashew germplasms against major pests	Accepted with following suggestions: 1. Mention the detail methodology for thrips and mealy bug observations. **(Action: Research Scientist (Fruit), AES, Paria)**	
10.3.3.25	Monitoring of pesticide residues in major seasonal fruits	Accepted with following suggestions: 1. Replace the word "Monitoring" with "Status" 2. Non GC-MS amenable pesticides will be anlysed on LC-MS/MS at AAU, Anand. 3. Estimate the residues from rippen fruits. **(Action: I/C. Professor and Head, FQTL, NAU, Navsari)**	
PLANT PATHOLOGY			
10.3.3.26	Mapping the mycogeography of the macromycetes from Navsari campus and Dang district	Accepted with following suggestions: 1. Survey should be conducted in Dang district only and modify the title accordingly **(Action: Professor and Head, Dept. of Pl. Path., N.M.C.A., Navsari)**	
10.3.3.27	Isolation, characterization, identification and standardization of mass multiplication protocol of Zinc solubilizing microorganism	Accepted with following suggestions: 1. Specific area of survey should be mentioned in methodology **(Action: Professor and Head, Dept. of Pl. Path., N.M.C.A., Navsari)**	
10.3.3.28	Evaluation of different products for the supplementation of phosphorus and potash in sugarcane with graded chemical fertilizers	Accepted with following suggestions: 1. Mention the formulation of PSB either in liquid or powder **(Action: Professor and Head, Dept. of Pl. Path., N.M.C.A., Navsari)**	
10.3.3.29	Mapping and characterization of different Arbuscular Mycorrhizae from the south Gujarat ecosystem	Accepted with following suggestions: 1. Modify the title as "Isolation and characterization of different Arbuscular Mycorrhizae from the major banana growing areas of South Gujarat" **(Action: Professor and Head, Dept. of Pl. Path., N.M.C.A., Navsari)**	

10.3.3.30	Screening of genotypes/cultivars against multiple diseases of tomato	Accepted **(Action: Professor and Head, Dept. of Pl. Path., N.M.C.A., Navsari)**	
10.3.3.31	Evaluation of chilli germplasms against anthracnose (*Colletotrichum sp.*) and the thrips under field conditions	Accepted **(Action: Professor and Head (Pl. Patho.) ACHF, NAU, Navsari)**	
10.3.3.32	Epidemiology of rainfed cotton diseases under Bharuch condition	Accepted **(Action: Assoc.Professor(Pl.Path), COA, Bharuch)**	
10.3.3.33	Survey of major cotton diseases under Bharuch and Narmada district	Accepted **(Action: Assoc.Professor(Pl.Path), COA, Bharuch)**	
10.3.3.34	Isolation and evaluation of multifaceted microbes	Accepted **(Action: Assoc.Professor(Pl.Path), COA, Bharuch)**	
10.3.3.35	Isolation and characterization of endophytic bacteria from Finger millet	Accepted **(Action: Assoc.Professor(Pl.Path), COA, Bharuch)**	
10.3.3.36	Efficacy of fungicides and bioagents as seed treatment as well as foliar spray for the control of blast disease of finger millet	Accepted (**Action: Associate Professor (Patho.) COA, Waghai)**	
10.3.3.37	Evaluation of resistant nagli (Ragi) (Finger millet, *Eleusine coracana* Gaertn.) varieties against blast disease on the basis of biochemical parameters.	Accepted with following suggestions: 1. Modify the title as "Evaluation of finger millet (*Eleusine coracana* Gaertn.) germplasms for resistance to blast disease on the basis of biochemical parameters." (**Action: Associate Professor (Patho.) COA, Waghai)**	
10.3.3.38	Biological management of paddy blast	Accepted **(Action: Asstt.Res.Sci.(Pl.Path) , Main Rice Research Centre, NAU, Navsari)**	

10.3.3.39	Evaluation of fungicides for the management of false smut	Accepted with following suggestions: 1. Add the treatment tebuconazole 25.9 EC @ 1 ml/litre (total Nine treatments) **(Action: Asstt. Res. Sci.(Pl.Path) , Main Rice Research Centre, NAU, Navsari)**	
10.3.3.40	To identify current situation and status of rice false smut disease in south Gujarat	Accepted with following suggestions: 1. Remove the word "To identify" from the title. **(Action: Associate Rice Research Scientist (AB), Regional Rice Research Station, NAU, Vyara)**	
10.3.3.41	Evaluation and multiplication of rice genotypes to identify the source of resistance against false smut disease	Accepted **(Action: Associate Rice Research Scientist (AB), Regional Rice Research Station, NAU, Vyara)**	

10.3.4 SARDAR KRISHINAGARDANTIWADA AGRICULTURAL UNIVERSITY, S.K.NAGAR

Dr. B. R. Patel, Convener, Plant Protection Sub Committee Presented proposal for new technical programmes during 10th PPSC AGRESCO meeting.

Sr. No.	Title /Centre	Suggestions	Remarks
AGRICULTURAL ENTOMOLOGY			
10.3.4.1	Management of sucking pests of capsicum through biorationals in polyhouse	Accepted with following suggestions **1.** Remove the word "through biorationals " from the title **(Action: (Dept of Ento., CPCA, SDAU)**	
10.3.4.2	Management of Insect pests of mungbean through Insecticides	Accepted with following suggestions (**Action:Asstt.Res.Sci.(Ento.),Pulse, SKNagar)**	
PLANT PATHOLOGY			
10.3.4.3	Studies on plant protection schedule in cumin	Accepted **(Action:Res Sci. (Pl. Path), Jagudan)**	
10.3.4.4	Management of fungal diseases of tomato	Accepted with following suggestions	

	(*Lycopersicon esculentum* Mill.).	1. Residue analysis should be carried out 2. The observations should be recorded at 7 and 15 days after the spray **(Action: Asstt. Res.Sci. (Pl.Path), ARS, Ladol)**	

10.3.3 General Suggestion :

During the discussion in the plant protection group meeting of 10th combined joint AGRESCO of four SAU, following suggestions were made

1. Date of sowing, spraying, harvesting etc and quantity of spray fluid should be given.
2. Give individual years as well as pooled data in recommendation.
3. Residue data must be incorporated in proposal as per the CIB & RC guide- line. In vegetable crops, residue data should be generated for each picking and also mention PHI.
4. Quantity of fungicides should be given per 10 litre of water alongwith active ingredient.
5. Brief review should be given in new technical programme.

Special meeting on "Approved use of pesticides as per the central Insecticide Board & Registration committee"

Chairman: Dr. A. N. Sabalpara, Director of Research, NAU, Navsari

Co- Chairman: Dr. K. B. Jadeja, Professor and Head, JAU, Junagadh

Rapporteurs: Dr. V. N. Patel, Research Scientist, JAU, Junagadh

1. The letter received from the Director (PP-I) from Ministry of Agriculture, Department of Agriculture & Cooperation, New Delhi dated 20th February, 2014, was thoroughly discussed.
2. It was decided that CIB recommendation for insecticides, fungicides, weedicides and plant growth regulators should be translated in Gujarati (Crop wise as per CIB format with ml or g of formulations per 10 liter water to be included).
3. The recommendations so far approved for farmers which are not in line with CIB should be withdrawn from the University website or other sources.
4. The experiments which are not in line with CIB, should go as scientific recommendation. Data on bioefficacy could be utilized for recommendation in future.
5. For residue analysis – replication wise data needs to be generated, with recovery experiments.

PROCEEDING OF THE TENTH COMBINED JOINT MEETING OF HORTICULTURE & AGRO FORESTRY SUB-COMMITTEE OF AGRESCO OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JAU, JUNAGADH DURING APRIL 9-11, 2014

Technical Session-I **Dt.: 09.04.2014** **Time:12:00 Onwards**

Venue : Seminar Hall, Department of Horticulture	
Presentation of Recommendations	
Chairman	Dr. N. L. Patel, Dean, NAU
Co-Chairmen	Dr. R. M. Chauhan, DR, SDAU Dr. A. V. Barad, Dean, JAU
Rapporteurs	Dr. N. I. Shah, RS, Paria, NAU Dr. B. N. Satodia, AP, AAU
Statistician	: DR. N. J. Rankja, AP, JAU
Presentation	Conveners of the AAU, JAU, NAU and SDAU

Technical Session-II **Dt.: 10.04.2014** **Time: 9:00 Onwards**

Venue : Seminar Hall, Department of Horticulture	
Presentation of New Technical Programmes	
Chairman :	Dr. R. M. Chauhan, DR, SDAU
Co-Chairmen	Dr. N. L. Patel, Dean, NAU Dr. A. V. Barad, Dean, JAU
Rapporteurs	Dr. N. I. Shah, RS, Paria, NAU Dr. B. N. Satodia, AP, AAU
Statistician	: DR. N. J. Rankja, AP, JAU
Presentation :	Conveners of the AAU, JAU, NAU and SDAU

Summary of approved recommendations and NTPs

:

University	**Recommendations**				**NTP**	
	Farmers		**Scientific & Others**			
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**
AAU	00	00	00	00	**05**	**05**
JAU	02	02	01	01	**03**	**03**
NAU	11	11	02	02	**39**	**39**
SDAU	02	02	00	00	**04**	**04**
Total	**15**	**15**	**03**	**03**	**51**	**51**

10.4.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Recommendations for the farming community

10.4.1 ----Nil -------

10.4.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Recommendations for the farming community

10.4.2.0	**Vegetable Research Station, JAU, Junagadh**
	Proposal for release of Garlic Variety Gujarat Junagadh Garlic 5 (JG-07-13)
	This variety of garlic recorded 23.34 % and 26.93 % higher bulb yield over check varieties GG 4 and G 282, respectively during *rabi* season in Saurashtra and Middle Gujarat. The bulbs of this variety are medium in size, compact and white in color. This variety is approved for release in Saurashtra and Middle Gujarat. (**Action:** Research Scientist (O&G), Vegetable Research Station, JAU, Junagadh)
10.4.2.1	**Agricultural Research Station (F.C.), JAU, Mahuva**
	Effect of green manuring on yield of coconut cv. T x D and soil properties.
	Coconut growers of South Saurashtra Agro Climatic Zone are advised to grow Sunnhemp or Dhanchia as green manuring crop in adult coconut plantation (T x D hybrid) for improving soil fertility and to get more yield and net return. આથી દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારમાં નાળીયેરી ઉગાડતા ખેડુતોને ભલામણ કરવામાં આવે છે કે પુખ્ત ઉમરના બગીચા (ટી×ડી હાઈબ્રીડ જાત)માં શણ અથવા ઈકકડ લીલા પડવાસ તરીકે વાવવાથી જમીનની ફળદ્રુપતા સુધારી શકાય છે અને વધુ ઉત્પાદન સાથે ચોખ્ખો નફો મળે છે. **Accepted** (**Action:** Res. Sci., Agricultural Research Station (F.C.), JAU, Mahuva)
10.4.2.2	**Grassland Research Station, JAU., Dhari**
	Effect of different concentration of ethephon application on gum production from *Acacia senegal* (L.) Willd (Gorad).
	The farmers of North Saurashtra Agro Climatic Zone are recommended to apply 5 ml of 900 ppm ethephon [2.25 ml Ethrel (40%) in 1 liter of water] by drilling 5 cm hole of 1 cm diameter on stem at 1 m height above the ground of about five year age of *Acacia senegal* (Gorad) during first week of March for getting higher gum production and maximum net return. ઉતર સૌરાષ્ટ્ર ખેત આબોહવાકીય વિસ્તારનાં ખેડુતોને ભલામણ કરવામા આવે છે કે ૫ વર્ષથી વધુ ઉમરના ગોરડના થડમાં ૫ સેમી ઉડુ અને ૧ સે.મી. પહોળાઈનું કાણુ પાડી, ૫ મીલી ૯૦૦ પીપીએમ ઈથેફોનનુ દ્રાવણ (૨.૨૫ મીલી ઈથરલ (૪૦%) ૧લીટર પાણીમાં) માર્ચના પ્રથમ અઠવાડીયા દરમ્યાન આપવાથી વધારે ગુંદ અને વધુ ચોખ્ખો નફો મળે છે. **Accepted** (**Action:** Asso. Res. Sci., Grassland Research Station, JAU., Dhari)
	Recommendation for Scientific Community:
	Grassland Research Station, JAU, Dhari
10.4.2.3	**Effect of time of ethephon application and trunk diameter on gum production from *Acacia senegal* (L.) Willd Gorad**
	Recommendation for Scientific Community: It is recommended that application of 5 ml ethephon @ 100 ppm [0.25 ml Ethrel (40%) in 1 liter of water] to *Acacia senegal* (Gorad) above one meter ground level having 51-70 cm trunk girth during first fortnight of March resulted in higher gum production and higher net return. **Accepted** (**Action** Asso. Res. Sci., Grassland Research Station, JAU, Dhari)

10.4.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Recommendations for the farming community

10.4.3.0	**Regional Rice Research Station, Vyara**
	Release of rice variety IET-18654 (CRR 356-26) (PURNA)
	The proposed culture of rice IET-18654 is derived from a cross between Annada x RR 151-3 at CRURRS, Hazirabaug, Jharkhand. It performed well in South Gujarat and produced 22 % and 8.8 % higher grain yield over checks GR-5 and GR-9, respectively. This variety is approved for release in upland rice growing region of South Gujarat. **(Action:** Associate Research Scientist (AB), RRRS, NAU, Vyara)
10.4.3.1	**Fruit Science, ACHF, NAU, Navsari**
	Effect of foliar application of Ca, Zn, Fe and B on growth, yield and quality of papaya (*Carica papaya* L.) cv. Taiwan Red Lady
	The farmers of South Gujarat Heavy Rainfall Zone growing papaya cv. Taiwan Red Lady are advised to spray Calcium nitrate– 1000 + Borax– 30 + Zinc sulphate- 200 + Ferrous sulphate– 200 mg/l at 60, 90 and 120 days after transplanting along with the application of RDF. By adopting 3 foliar sprays of combined micronutrients, farmers can increase the yield with better quality of fruits along with higher net realization. દક્ષિણ ગુજરાત ભારે વરસાદવાળા વિસ્તારમાં પપૈયાની તાઈવાન રેડ લેડી જાત ઉગાડતા ખેડૂતોને પપૈયાની રોપણી બાદ ૬૦, ૯૦ અને ૧૨૦ દિવસ પછી કેલ્શીયમ નાઈટ્રેટ ૧૦૦૦ + બોરેક્ષ ૩૦ + ઝિંક સલ્ફેટ ૨૦૦ + ફેરસ સલ્ફેટ ૨૦૦ મી.ગ્રા. /લી. ના કુલ ત્રણ છંટકાવ કરવા અને સાથે **ભલામણ** મુજબ ખાતર આપવાની **ભલામણ** કરવામાં આવે છે, ગૌણ તત્વોના ત્રણ છંટકાવ કરવાથી ખેડૂતો સારી ગુણવત્તાવાળા ફળોનું વધુ ઉત્પાદન અને વધારે ચોખ્ખી આવક મેળવી શકે છે. **Accepted** **(Action:** *Research Scientist, RHRS, ACHF, NAU, Navsari)*
10.4.3.2	**Fruit Science, ACHF, NAU, Navsari**
	Feasibility of organic farming in Mango cv. Kesar The farmers of South Gujarat Heavy Rainfall Zone intend to adopt organic farming in mango cv. Kesar (20 years old tree) are advised to apply 100 % RDN through 17 kg Neem cake (4.5 % nitrogen) with 100 kg FYM + Azotobacter @ 250 g + PSB @ 250 g/plant in the month of June. By adopting this organic farming, farmers can get higher yield and better quality fruits in terms of TSS, acidity and shelf life and higher net realization as compared to inorganic farming. It also improves the soil properties. દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં આંબાની કેશર જાતમાં સેન્દ્રિય ખેતી પધ્ધતિ અપનાવવા માગતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ૨૦ વર્ષના કેસરના ઝાડ (૨૦ વર્ષે)ને ૧૦૦ ટકા નાઈટ્રોજનનો જથ્થો ૧૭ કિગ્રા લીંબોળી ખોળના (૪.૫% નાઈટ્રોજન) રૂપમાં અને ૧૦૦ કિ.ગ્રા. છાણિયુ ખાતર તેમજ ૨૫૦ ગ્રામ એઝોટોબેકટર અને ૨૫૦ ગ્રામ પી. એસ. બી. પ્રતિ ઝાડ જુન માસમાં આપવા. આ સેન્દ્રિય ખેતી અપનાવવાથી જમીનની ગુણવત્તામાં સુધારા સાથે સારી ગુણવત્તા જેમકે વધુ કુલ દ્રાવ્ય ક્ષારો, અમ્લતા તેમજ સારી ટકાઉ શકિતવાળા ફળોનું વધુ ઉત્પાદન અને વધારે ચોખ્ખી આવક મેળવી શકાય છે. **Accepted** **(Action:** *Research Scientist, RHRS, ACHF, NAU, Navsari)*

10.4.3.3	**AES, NAU, Paria**
	Pruning for rejuvenation of over crowed orchards of mango cv. Alphonso.
	The farmers of Gujarat growing mango cv. Alphonso and have a overcrowded orchard are advised to thinning up to the crowded branches and centre opening for obtaining higher number of fruits and yield with higher economic returns. ગીચ થઈ ગયેલ આફુસ જાતની આંબાવાડી ધરાવતા ગુજરાતના ખેડૂતોને ફળની વધુ સંખ્યા, ઉત્પાદન સાથે વધુ આર્થિક નફો મેળવવા ભલામણ કરવામાં આવે છે કે ઝાડના મધ્યભાગની ટોચની મુખ્ય ડાળી દૂર કરવી તેમજ ડાળીઓ ગીચ થઈ ગયેલ હોય ત્યાં સુધી છટણી કરવી. **Accepted** **(Action***: Research Scientist, AES, Paria)*
10.4.3.4	**AES, NAU, Paria**
	Effect of different chemicals on regulation of flowering and fruiting in mango cv. Kesar
	The farmers of Gujarat growing mango cv. Kesar are advised to spray 1% KH_2PO_4 (Potassium dihydrogen orthophosphate) alone or with 1% KNO_3 (potassium nitrate) during last week of October to first week of November (45 days after new vegetative flush) for obtaining higher yield and economic returns. ગુજરાતના આંબાની કેસર જાતમાં વધુ ઉત્પાદન અને વધુ આર્થિક વળતર મેળવવા ૧% પોટેશ્યમ ડાય હાઈડ્રોજન ઓર્થો ફોસ્ફેટ એકલું અથવા ૧% પોટેશ્યમ નાઈટ્રેટ સાથે ઓકટોબર ના છેલ્લા અઠવાડીયાથી નવેમ્બરના પહેલા અઠવાડીયા દરમ્યાન છંટકાવ (નવી પીલવણીના ૪૫ દિવસ બાદ) કરવાની ભલામણ છે. **Accepted** **(Action***: Research Scientist, AES, Paria)*
10.4.3.5	**AES, NAU, Navsari**
	Effect of foliar application of chemical on yield and quality of sapota cv. Kalipatti
	The farmers of South Gujarat, growing sapota cv. Kalipatti are advised to spray 1 g Gibbrelic Acid (GA_3) in 10 litre of water in first week of November, December and January for getting higher production of better sized quality fruits in winter season with higher economic returns. દક્ષિણ ગુજરાતમાં ચીકુની કાલીપત્તી જાતમાં શિયાળાની ઋતુ દરમ્યાન સારી ગુણવત્તા વાળા મોટા કદના ફળનું વધુ ઉત્પાદન તથા નફો મેળવવા ખેડૂતોને ભલામણ કરવામાં આવે છે કે નવેમ્બર–ડીસેમ્બર–જાન્યુઆરી માસના પ્રથમ અઠવાડીયા દરમ્યાન ૧ ગ્રામ જીબ્રેલીક એસીડ ૧૦–લિટર પાણીમાં ઓગાળી છંટકાવ કરવો. **Accepted** **(Action***: Research Scientist, AES, Paria)*
10.4.3.6	**Vegetable Science, ACHF, NAU, Navsari**
	Effect of plant density and sett size on growth and yield of elephant foot yam (*Amorphophallus paeoniifolius* Dennst.)
	The farmers of south Gujarat Heavy Rainfall Agro-climatic Zone growing elephant foot yam cv. Gajendra are advised to plant elephant foot yam at the distance of 60 cm × 60 cm by using seed corm sett of 250 g weight for obtaining higher BCR. By this way farmers can obtain higher yield and save the seed corm cost. દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તાર ના સુરણની ગજેન્દ્ર જાત વાવતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે સુરણની ૨૫૦ ગ્રામ વજનની ગાંઠ ૬૦ સેંમી × ૬૦ સેંમી ના અંતરે વાવવાથી વધારે નફાઃખર્ચનો ગુણોત્તર મેળવી શકાય છે. આ રીતે વધુ ઉત્પાદન અને બીયારણના ખર્ચમાં ઘટાડો થઈ શકે છે. **Accepted** **(Action:** *Professor, Vegetable Science, ACHF, NAU, Navsari)*

10.4.3.7	**Agri. Chem. & Soil Chem., ACHF, NAU, Navsari**
	Effect of banana pseudostem sap and vermiwash spray on organically grown onion
	The farmers of South Gujarat Heavy Rainfall Zone growing onion organically are advised to apply recommended 125 kg N/ha through organic manure as well as apply liquid organic fertilizer as per scheduled given bellow to get higher yield and net profit. • After transplanting, 62.5 kg N/ ha should be applied through 1.2 t/ha Biocompost (1.74% nitrogen), 0.45 t/ha castor cake (4.63% nitrogen) and 1.6 t/ha vermicompost (1.32% nitrogen). Repeat the same dose one month after transplanting. • Foliar spray of enriched banana pseudo stem sap @ 2% should be applied after transplanting at 15, 30 and 45 days. **Note:** • Treat the seedlings with 0.1% *Tricoderma* solution for about 5 minutes and transplant at 15 cm x 10 cm spacing on raised bed. • Maize should be grown as trap crop at the border. • Sticky trap should be used @ 40/ha. દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા વિસ્તારમાં સેન્દ્રિય ખેતીથી ડુંગળી ઉગાડતા ખેડૂતોને ડુંગળીમાં વધુ ઉત્પાદન અને વળતર મેળવવા ભલામણ મુજબનો નાઈટ્રોજન (૧૨૫ કિગ્રા /હે.) સેન્દ્રિય ખાતર દ્વારા અને પ્રવાહી સેન્દ્રિય ખાતર નીચે જણાવેલ સમય પત્રક મુજબ આપવું. • ફેરરોપણી સમયે ૧.૨ ટન/હે. બાયોકમ્પોસ્ટ (૧.૭૪% નાઈટ્રોજન) , ૦.૪૫ ટન/હે. દિવેલી ખોળ (૪.૬૩% નાઈટ્રોજન) અને ૧.૬ ટન/હે. વર્મીકમ્પોસ્ટ (૧.૩૨% નાઈટ્રોજન) આપવો. આજ પ્રમાણેનો જથ્થો ફેરરોપણીના એક મહીના બાદ આપવો. • પાક ઉપર ૨% નો એન્રીચ્ડ બનાના સ્યુડોસ્ટેમ સેપનો છંટકાવ ફેરરોપણી બાદ ૧૫, ૩૦ અને ૪૫ દિવસે કરવો. **નોંધ :** • ફેરરોપણી સમયે ધરૂને ૦.૧% નાં ટ્રાયકોડર્માનાં દ્રાવણમાં આશરે ૫ મીનીટ સુધી બોળી ૧૫ સેમી. × ૧૦ સેમી.નાં અતરે ગાદી કયારા બનાવી રોપવા. • પાકની ફરતે મકાઈનો પિંજર પાક ઉગાડવો. • પ્રતિ હેકટર ૪૦ સ્ટીકી ટ્રેપ લગાવવા. **Accepted** **(Action:** *Professor, Ag. Chem. & Soil Ssci., ACHF, NAU, Navsari)*
10.4.3.8	**Agri. Chem. & Soil Chem., ACHF, NAU, Navsari**
	Feasibility of organic farming in tomato cv. Junagadh Tomato -3
	The farmers of South Gujarat Heavy Rainfall Zone growing tomato organically are advised to apply recommended 75 kg N/ha through organic manures as per schedule given bellow to get higher yield and net profit. • At the time of transplanting, 1.03 t/ha biocompost (1.74% N) + 0.44 t/ha castor cake (4.63% N) or 0.21 t/ha neem cake (4.5% N) + 2.32 t/ha vermicompost (1.32% N) should be applied. Repeat the same dose one month after transplanting. **Note:** • Apply common dose of *Azotobacter* biofertilizer @ 2 kg/ha. • Treat the seedlings with 0.1% *Tricoderma* solution for about 5 minutes and transplant at 60 cm x 60 cm spacing. • After transplanting apply foliar spray of vermiwash @ 0.5% and cow urine@ 1% at monthly interval. • Maize should be grown as trap crop at the border. દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા વિસ્તારનાં ખેડૂતો કે જેઓ સેન્દ્રિય ખેતીથી ટામેટાં ઉગાડે છે તેઓએ વધુ ઉત્પાદન અને વળતર મેળવવા ભલામણ મુજબનો ૭૫ કિગ્રા નાઈટ્રોજન/હે. સેન્દ્રિય ખાતર દ્વારા નીચે જણાવેલ સમય પત્રક મુજબ આપવો. • ફેરરોપણી સમયે ૧.૦૩ ટન/હે. બાયોકમ્પોસ્ટ (૧.૭૪% નાઈટ્રોજન) ૦.૪૪ ટન/હે. દિવેલી ખોળ (૪.૬૩% નાઈટ્રોજન) અથવા ૦.૨૧ ટન/હે. લીંબોળી ખોળ (૪.૫% નાઈટ્રોજન) ૨.૩૨ ટન/હે. વર્મીકમ્પોસ્ટ (૧.૩૨% નાઈટ્રોજન) આપવું. આજ

	પ્રમાણેનો જથ્થો ફેરરોપણીના એક મહીના બાદ આપવો. **નોંધ :** • ૨ કિગ્રા/હે. એઝેટોબેકટર બાયોફર્ટીલાઈઝર સામાન્ય માવજત તરીકે આપવું. • ફેરરોપણી સમયે ધરૂને ૦.૧% નાં ટ્રાયકોડર્માનાં દ્રાવણમાં આશરે ૫ મીનીટ સુધી બોળી ૬૦ સેમી. × ૬૦ સેમી.નાં અતરે રોપવા. • ફેરરોપણી બાદ એક– એક મહિનાનાં આંતરે ૦.૫% નો વર્મીવોશ અને૧ % નો ગૌમૂત્રનો છંટકાવ કરવો. • પાકની ફરતે મકાઈનો પિંજર પાક ઉગાડવો. • પ્રતિ હેકટર ૪૦ સ્ટીકી ટ્રેપ લગાવવા. **Accepted** **(Action:** *Professor, Ag. Chem. & Soil Ssci., ACHF, NAU, Navsari)*
10.4.3.9	**Floriculture and Landscape Architecture, ACHF, NAU, Navsari**
	Integrated weed management in gladiolus (*Gladiolus grandiflorus*) var. American Beauty
	The farmers of South Gujarat growing gladiolus are advised to spray Pendimethalin as pre-emergence herbicide @ 0.75 kg ha^{-1} (one day after first irrigation) + one hand weeding at 50 DAP or follow hand weeding at 25, 50, 75 DAP for effective weed control and getting higher net realization and quality flowers. દક્ષિણ ગુજરાતના ગ્લેડીયોલસની ખેતી કરતા ખેડૂતોને અસરકારક નિંદણ નિયંત્રણ માટે નિંદણનાશક પેન્ડીમીથાલીન પ્રીઈમરજન્સ તરીકે ૦.૭૫ કિ.ગ્રા./હે. (પ્રથમ પિયતના એક દિવસ બાદ)પ્રમાણે છંટકાવ કરી ત્યારબાદ ૫૦ દિવસે હાથથી નિંદામણ કરવા અથવા ૨૫, ૫૦ અને ૭૫ દિવસે હાથથી નિંદામણ કરવાની ભલામણ કરવામાં આવે છે, જેથી હેકટરે વધુ ચોખ્ખી આવક તેમજ સારી ગુણવત્તાયુકત ફૂલોનું ઉત્પાદન મેળવી શકાય છે. **Accepted** **(Action:** *Professor, Floriculture & Landscape Architecture, ACHF, NAU, Navsari)*
	Recommendation for Processors
10.4.3.10	**Post Harvest Technology, ACHF, NAU, Navsari**
	Standardization of banana pseudostem central core candy processing
	The processors are recommended to prepare banana pseudostem central core candy which is rich in iron, digestible fibre and vitamins. Further, flavoured candy can also be prepared by using any natural as well as synthetic flavour. Candy prepared from central core is delicious with acceptable sensory parameters. Since, the procedure for preparing banana pseudostem central core candy is patented by NAU, Navsari; the processors need to take licence for commercial scale production and marketing of banana central core candy. પ્રોસેસર્સને કેળના થડના મધ્યગરમાંથી લોહતત્વો, પાચન થઈ શકે તેવા રેશા તથા વિટામીનથી ભરપૂર એવી કેન્ડી બનાવવા ભલામણ કરવામાં આવે છે. આ કેન્ડીમાં કુદરતી તેમજ કુત્રિમ સોડમ પણ ઉમેરી શકાય છે. આ કેન્ડી લિજજતદાર અને સ્વાદિષ્ટ હોય છે. આ મધ્યગરની કેન્ડી બનાવવાની પધ્ધતિ નવસારી કૃષિ યુનિવર્સિટી, નવસારી ધ્વારા પેટન્ટ કરેલ હોય, પરીરક્ષકોએ ઔદ્યોગિક ધોરણે ઉત્પાદન અને વેચાણ માટે પરવાનો લેવો જરૂરી છે. **Accepted** **(Action:** *Professor, PHT, ACHF, NAU, Navsari)*

	Recommendation for Processors and Housewives
10.4.3.11	**Post Harvest Technology, ACHF, NAU, Navsari**
	Standardization of pickle from central core of banana pseudostem Housewives/processors are recommended to prepare traditional pickles by using 25% banana pseudo stem central core cube with other raw materials using groundnut oil + fenugreek + unripe mango & lime. This reduces the processing cost without affecting quality of pickles. ગૃહિણીઓ / પ્રોસેસર્સને ભલામણ કરવામાં આવે છે કે, પારંપરીક અથાણાં કે જેમાં મગફળીનું તેલ + મેથી + કાચી કેરી અને લીંબુનો ઉપયોગ કરવામાં આવે છે તેમાં કેળના થડના મધ્યગરના ટુકડાનું ૨૫% મિશ્રણ કરવાથી અથાણાંની ગુણવત્તાને અસર કર્યા સિવાય અથાણાંના કાચા માલના ખર્ચમાં ઘટાડો કરી શકાય છે. **Accepted** **(Action:** *Professor, PHT, ACHF, NAU, Navsari)*

	Recommendation for Scientific community:
10.4.3.12	**Food Quality Testing Lab., NAU, Navsari**
	Qualitative analysis of mango varieties, Kesar and Alphonso
	The nutritional quality of mango varied with variety, crop management practices under south Gujarat condition. The findings is mentioned below: • Nutritional quality of Alphonso and Kesar was more or less same but Fe, Mn, Zn, P, K, Ca, Mg, and Na contents were higher in Alphonso. • Organically grown mango was superior in protein, total antioxidant capacity, vitamin-C, folic acid, P, K, Mg, Fe, Mn, Zn and Cu content than inorganically grown mangoes. • Total antioxidant power, vitamin-C, folic acid, Ca and Cu content in non-irrigated mango were higher than irrigated mango. **Accepted** **(Action:** *Professor, FQTL, NAU, Navsari)*
10.4.3.13	**Fruit Science, ACHF, NAU, Navsari**
	Standardization of preservative solution for different fruits as sample
	The fresh fruits of different varieties of mango and citrus can be preserved with their natural colour at acceptable level up to six months in Ethanol 75% solution compared to other solutions viz. general solution (50ml Formaldehyde 40% + 300 ml Ethyl Alcohol 95% + 2000 ml water) and Hessler's solution. Banana fruits could not be preserved in any tested solution. **Accepted** **(Action:** *Research Scientist, RHRS, ACHF, NAU, Navsari)*

10.4.4 SARDARKRUSHINAGAR-DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

Recommendations for farming community

10.4.4.1	**Department of Horticulture; C. P. College of Agriculture; SDAU; Sardarkrushinagar**
	Evaluation of MPTs on farm boundary plantation in respect of timber value under North and North West Gujarat Agro-climatic condition
	The farmers of North and North West Gujarat Agro-climatic Zone are advised to grow Ardusa (*Ailanthus excelsa*) at 3 m spacing in single line on the farm boundary which gives higher fuel wood, timber production and net return at the end of 12th year of plantation under rainfed conditions.

	ઉત્તર અને ઉત્તર પશ્ચિમ ગુજરાત ખેત હવામાન વિસ્તારના ખેડૂતોને અરડુસાના વૃક્ષને ૩ મીટરના અંતરે એક હારમાં ખેતરની ફરતે ઉછેરવાની સલાહ આપવામા આવે છે કે તે બિનપિયત વિસ્તારમાં બાર વર્ષના અંતે વધુ બળતણનુ લાકડુ, ઈમારતી લાકડુ અને ચોખ્ખી આવક આપે છે. **Accepted** **(Action:** Dept of Horticulture; SDAU; Sardarkrushinagar)
10.4.4.2	**Date Palm Research Station; SDAU; Mundra – Kachchh**
	Studies on receptivity of pistillate flowers of date palm cv. Barhee
	The date palm cv. Barhee growers are advised to pollinate their palms within two days after spathe opening to obtain higher yield of fresh fruits. બરહી ખારેક ઉગાડતા ખેડૂતોને ખારેકના માદા ફુલો (હાથા) ખુલ્યા પછી બે દિવસસુધીમાં પરાગનયનની (નરવાની) ક્રિયા કરવાની ભલામણ છે. જેના દવારા તાજા ફળોનું મહતમ ઉત્પાદન મેળવી શકાય છે. **Accepted** **(Action:**Date Palm Research Station; SDAU; Mundra - Kachchh)

NEW TECHNICAL PROGRAMMES

10.4.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Sr.	Title/ Centre	Suggestions	Remarks
1.	To evaluate the different varieties of cucumber under natural ventilated poly house	Accepted with following suggestion/s 1.Tilte should be- Comparative performance of parthenocarpic varieties of cucumber under control conditions 2..Include observation-Number of fruits/vine 3.Use $CaNO_3$ as N source 4.Apply borax 50g/plant at 30 DAP **(Action:** Professor, Dept. of Horticulture, A.A.U., Anand)	Accepted
2.	Effect of integrated nutrient management on growth, flowering and flower yield of annual white chrysanthemumb (*C. coronarium* L.) cv. Local	Accepted with following suggestion/s 1.Title should be-Effect of integrated nitrogen management on growth, flowering and flower yield of annual white chrysanthemum (*C. coronarium* L.) cv. Local Include observation-No. of fingers/bunch 2.Specify the time of application of PGPR consortium in treatments **(Action:** Professor, Dept. of Horticulture, A.A.U., Anand)	Accepted
3.	Evaluation of different varieties of banana as a lam crop in tribal area of Chhotaudepur Region of Middle Gujarat	Accepted with following suggestion/s 1. Title should be: Evaluation of different varieties of banana as a ratoon crop in tribal area of Chhotaudepur Region of Middle Gujarat **(Action:** Research Scientist, A R S, A.A.U., Jabugam)	Accepted
4	Evaluation of the possibility of inter-cropping system with banana cultivation in tribal area of Chhotaudepur region of Middle Gujarat.	Accepted **(Action: :** Research Scientist, A R S, A.A.U., Jabugam)	Accepted

5	Determination of effect of different sowing time for potato cultivars under Middle Gujarat condition.	Accepted with following suggestion/s 1.Add plot size and spacing 2.Take variety as a main plot and time of sowing as sub plot 3.Arrange observation in proper order **(Action:** Research Scientist, A R S, A.A.U., Khambholaj)	Accepted

10.4.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title/ Centre	Suggestions	Remarks
1.	Evaluation of tomato hybrids under net house and polyhouse condition.	Accepted with following suggestion/s 1. Mention the training which should be with two shoot **(Action:** Assoc. Prof., Dept. of Horticulture, JAU, Junagadh)	Accepted
2.	Effects of different doses of N and K with split application through fertigation system on yield and quality of banana (*Musa paradisiaca* L.) cv. Grand Naine	Accepted with following suggestion/s 1. In factor B: modify the treatment as 1. 10 split with 21 days interval, 2. 15 splits with 14 days interval and 3. 30 splits with 7 days interval. 2. Add soil analysis of NPK and observation regarding insect and pest incidence 3. Add leaf analysis at 3rd leaf stage **(Action:** Asst. Prof., Dept. of Horticulture, JAU, Junagadh)	Accepted
3.	Effect of plant growth regulators, nutrients and pruning on growth flowering, yield and fruit quality of mango (*Mangifera indica L.*) cv. Kesar under Saurashtra region	Accepted with following suggestion/s 1. Delete treatment No. T4, T6 & T12 from the experiment **(Action:** Assoc. Prof., Dept. of Horticulture, JAU, Junagadh)	Accepted

10.4.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

SN	Titles	Suggestions	Remarks
Fruit Science, ACHF, NAU, Navsari			
1	Effect of GA_3 and CPPU on yield and quality of mango (*Mangifera india* L.) cv. Kesar	Accepted with following suggestion/s 1. Add observation of organoleptic taste. **(Action:** *Research Scientist, RHRS, ACHF, NAU, Navsari)*	Accepted
2	Use of Pellet form of fertilizer- a new approach in sapota	Accepted with following suggestion/s 1. Mension recommended dose of fertilizers. 2. Mension methods for application of pallets. **(Action:** *KVK & RHRS, NAU, Navsari)*	Accepted
3	Comparative assessment of some Jamun genotypes under South Gujarat agro-climatic conditions	Accepted with following suggestion/s 1. Add observation regarding stone/pulp ratio, fruit length, girth and shelf life 2. Remove observation - number of picking **(Action:** *Research Scientist, AES, NAU, Paria)*	Accepted

4	Intercropping of different vegetables in rejuvenated mango orchard	Accepted with following suggestion/s 1. Remove treatment of Sunhemp and observation of plant spread in intercrops 2. Remove observation regarding number of pods in intercrops **(Action:** *Research Scientist, AES, NAU, Paria)*	Accepted
5	Nutrient Management for yield maximization in Cashew	Accepted **(Action:** *Research Scientist, AES, NAU, Paria)*	Accepted
6	Evaluation of production potential of newly developed variety Jhargram-2 at different spacings	Accepted with following suggestion/s 1. Add name of crop in title 2. Statistical analysis should be done of two varieties planted at same distance by t test **(Action:** *Research Scientist, AES, NAU, Paria)*	Accepted
VEGETABLE SCIENCE, ACHF, NAU, Navsari			
1	Response of Okra to foliar application of Silicon	Accepted with following suggestion/s 1. Add observations regarding days to flowering, first picking and No of pickings . **(Action:** *Professor, Vegetable Science, ACHF, NAU, Navsari)*	Accepted
2	AICRP on Vegetable 1. Tomato (Determinate) IET 2. Tomato (Determinate) AVT-I 3. Tomato (Indeterminate) IET 4. Tomato (Indeterminate) AVT-I 5. Chillies IET 6. Chillies AVT-I 7. Chillies AVT-II 8. Pumpkin IET 9. Ash Gourd IET 10. Ash Gourd AVT-II	Accepted with following suggestion/s 1. Check and correct year and season of experiment in all AICRP trials **(Action:** *Professor, Vegetable Science, ACHF, NAU, Navsari)*	Accepted
3	Performance of grafted v/s non grafted brinjal during rainy season under South Gujarat conditions	Accepted **(Action:** *Professor, Vegetable Science, ACHF, NAU, Navsari)*	Accepted
4	Multi location evaluation of Ravaiya type Brinjal (*Solanum melongena* L.) under South Gujarat condition	Accepted with following suggestion/s 1. Mark three varieties as Surati Ravaiya (Pink), Surati Ravaiya (Purple) and Junagadh Ravaiya as checks **(Action:** *Professor, Vegetable Science, ACHF, NAU, Navsari)*	Accepted

5	Standardization of growing media for terrace gardening for brinjal and tomato.	Accepted with following suggestion/s 1. Remove observation of fresh and dry weight of plants and root length 2. Analize all media before used 3. To take the observation on growth parameter at first harvest **4.** Clarified the number of bags per treatment **(Action:** *KVK, NAU, Surat)*	Accepted
6	Influence of chitosan on germination, growth, vigor, and disease and pest attack in vegetable seedling (brinjal, capsicum, cucumber and tomato)	Accepted with following suggestion/s 1. Clarify drenching method of chitosan. 2. Take as filler trial **(Action:** *KVK, NAU, Surat)*	Accepted
7	Effect of IBA and its combinations with NAA on propagation of Pointed Gourd and Little Gourd in Plug trays	Accepted with following suggestion/s 1. Use Variety GNPG-1 for Pointed Gourd and GNLG-1 for little Gourd 2. In observation use words percentage of success instead of rate of success. **(Action:** *KVK, NAU, Vyara)*	Accepted
8	Effect of stages and levels of growth hormones on vegetative growth, sex expression and yield of Bitter gourd	Accepted with following suggestion/s 1. Add absolute control and so total treatments will be 17. **(Action:** *KVK, NAU, Vyara)*	Accepted
Floriculture & Landscape Architecture, ACHF, NAU, Navsari			
1	Influence of various media on growth and flowering parameters in gerbera under naturally ventilated poly house	Accepted **(Action:** *Professor, Floriculture & LA, ACHF, NAU, Navsari)*	Accepted
2	Assessment of Genetic diversity in gladiolus	Accepted with following suggestion/s 1. Add observations regarding seed setting, seed viability and seed germination 2. Take 15 no of plants per treatments **(Action:** *Professor, Floriculture & LA, ACHF, NAU, Navsari)*	Accepted
3	Response of gladiolus cv. Sancerre to different levels of fertilizer (N & P) and spacing in respect to growth and yield parameters	Accepted with following suggestion/s 1. Remove the level of 175 and 225 kg/ha nitrogen as well as 75 and 125 kg/ha phosphorus from treatments . **(Action:** *Professor, Floriculture & LA, ACHF, NAU, Navsari)*	Accepted

4	Standardization of nitrogen and phosphorus in Chrysanthemum var 'Ratlam Selection'	Accepted with following suggestion/s Add word level in title – New title – 'Standardization of nitrogen and phosphorus levels in Chrysanthemum var 'Ratlam Selection' **(Action:** *Professor, Floriculture & LA, ACHF, NAU, Navsari)*	Accepted
	PHT		
1	Development of protocol for preparation of Aonla candy	Accepted **(Action:** *Asso. Professor, PHT, ACHF, NAU, Navsari)*	Accepted
2	Development and evaluation of the Machine for osmotic dehydration for Candy preparation	Accepted **(Action:** *Asso. Professor, PHT, ACHF, NAU, Navsari)*	Accepted
3	Effect of pre treatments on quality attributes of dehydrated green chilli powder	Accepted **(Action:** *Asso. Professor, PHT, ACHF, NAU, Navsari)*	Accepted
4	Preparation and standardized technique of guava and papaya blended RTS	Accepted **(Action:** *Principal, CoA, NAU, Bharuch)*	Accepted
5	Evaluation of Nisin for Biopreservation of Mango Nectar	Accepted with following suggestion/s 1. Verify use of KMS in mango and if needed use Sodium benzoate **(Action:** *Assoc. Professor, PHT, ACHF, NAU, Navsari)*	Accepted
6	Effect of different types of processing on the nutritional quality of green gram, kidney bean and chick pea	Accepted **(Action:** *Asso. Professor, ACSS, ACHF, NAU, Navsari)*	Accepted
7	Standardization of color extraction technique from *Butea monosperma* flowers for preparing herbal gulal	Accepted **(Action:** *KVK, NAU, Surat)*	Accepted

	Forestry/ NRM		
1	Development of integrated rainwater resource management (iRaM) module for Coastal areas of South Gujarat	Accepted **(Action:** *Professor, NRM, College of Forestry, NAU, Navsari)*	Accepted
2	Estimation of Green House Gases (GHGs) emission from paddy fields	Accepted with following suggestion/s 1. Mention the organic and inorganic sources **(Action:** *Professor, NRM, College of Forestry, NAU, Navsari)*	Accepted
3	Assessment of impact of air pollution on mango	Accepted with following suggestion/s 1. Add observation under Air analysis CO2, CO, CFC 2. Add one location of ATUL **(Action:** *Professor, NRM, College of Forestry, NAU, Navsari)*	Accepted
4	Study of growth and bark biomass potential of Ashok (*Saraca asoca syn. S. indica*…spacing	Accepted **(Action:** *Professor, College of Forestry, NAU, Navsari)*	Accepted
5	Study of carbon sequestration potential of important tree species in NAU campus	Accepted **(Action:** *Professor, College of Forestry, NAU, Navsari)*	Accepted

10.4.4 SARDARKRUSHINAGAR- DANTIWADA AGRICULTURAL UNIVERSITY, S.K. NAGAR

Sr.No.	Title/ Centre	Suggestions	Remarks
1.	Effect of spacing and nitrogen fertilizer on growth and yield of Gaillardia cv. Lorenziana	Accepted with following suggestion/s 1.Use world shelf life instead of Vase life 2.Mension variety local 3.Mension spacing as main treastment **(Action:** Fruit Research Station; SDAU; Dehgam	Accepted
2.	Effect of spacing and fertility levels on growth, yield and quality of carrot (*Daucus carrota* L.) cv. GDC 1	Accepted **(Action:** VRS**,** Center for Research on Seed Spices ,S. D. A. U., Jagudan - Mehsana)	Accepted
3.	Storability studies of pollens of date palm under different storage conditions and containers	Accepted **(Action:** Date palm Research Station, SDAU, Mundra)	Accepted
4.	Effect of pollination time on fruit setting in date palm cv. Barhee	Accepted **(Action:** Date palm Research Station, SDAU, Mundra)	Accepted

PROCEEDING OF THE TENTH COMBINED JOINT MEETING OF AGRICULTURAL ENGINEERING, FOOD PROCESSING TECHNOLOGY, DAIRY SCIENCE AND AIT GROUP SUB-COMMITTEE OF AGRESCO OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JAU, JUNAGADH DURING APRIL 9-11, 2014

Chairman	:	Dr. N. C. Patel, Hon. Vice Chancellor JAU, Junagadh
Co-Chairman	:	Dr. D. C. Joshi, AAU, Anand Dr. B. P. Shah, AAU, Anand
Rapporteurs	:	Dr. S. H. Suthar, SDAU, SK Nagar Dr. R. Subbaiah, JAU, Junagadh.

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

Universities	Recommendations				New Technical Programme	
	Farming/Industry Community		Scientific Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	22	20	3	2	25	24
JAU	8	8	2	2	10	10
NAU	5	5	1	1	6	6
SDAU	-	-	2	2	4	3
Total	35	33	8	7	45	43

10.5.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Recommendations for the farming community

10.5.1.1 Development and evaluation of pedal operated Maize Sheller

The house approved the recommendation with recasted language subject to the approval to the release committee formulated by house.

The revised recommendation is

A pedal operated maize sheller developed by Anand Agricultural University is recommended for effective shelling of the maize cobs by small and marginal farmers. The machine delivers high shelling efficiency and saving in shelling cost compared to traditionally used hand operated sheller.

આણંદ કૃષિ યુનિવર્સિટી દવારા વિકસાવવામાં આવેલ પગથી ચાલતુ મકાઈના ડોડામાંથી દાણા છુટા પાડવાના મશીનની ભલામણ નાના અને સીમાંત ખેડુતો માટે કરવામાં આવે છે. આ મશીનથી દાણા છુટા પાડવાની ઉચ્ચ કાર્યક્ષમતા આવે છે અને હાથથી ચાલતા મશીનની સરખામણીએ ખર્ચમાં સારી બચત થાય છે.

(Action: PI/HOD/Principal, CAET, Godhra)

10.5.1.2 A Web Based Soil Health Card Application: Decision Support System for Agriculture Development

The house approved the recommendation.

The recommendation is

By the use of AAU developed Soil health card Portal (http://shc.gujarat.gov.in, http://shc.aau.in) farmer can get the Agricultural information of their lands. After evaluation of their soil samples, nutrient elements values pH, EC, organic carbon, Phosphorus, Potash and micro nutrient elements can be extracted. By using the soil analysis results they can get the information on new crops and cropping system suitable for their soils, season wise and also can develop a better cropping pattern.

જમીન આરોગ્ય પત્રકની ઉપયોગીતાને ધ્યાન માં લઈને, આણંદ કૃષિ યુનિવર્સિટી દવારા વિકસાવવામાં આવેલ સોઈલ હેલ્થકાર્ડ પોર્ટલનો (http://shc.gujarat.gov.in, http://shc.aau.in) ઉપયોગ કૃષિ વિષયક માહીતી મેળવવા માટે ખેડુતોને ભલામણ કરવામાં આવે છે. તેના મારફત જમીનનાં નમુનાનું પૃથ્થકરણ આધારીત મુલ્યાંકન કરીને જમીનમાં રહેલ ભેજ, મુખ્ય પોષકતત્વ જેવા કે નાઈટ્રોજન, પોટાશ, ફોશફરસ, પી.એચ, ઈસી અને સુક્ષ્મ તત્વો નું પ્રમાણ કેટલા ટકા છે તેનુ તારણ મેળવી, પોતાના ખેતરોમાં કઈ ઋતુમાં કયો પાક વાવવો, કઈ પધ્ધતીથી ઉગાડવો તથા કયા ખાતર કેટલા પ્રમાણમાં નાખવો વિગેરે બાબતોની જાણકારી મેળવી સારી પાક પધ્ધતી વિકસાવી શકે છે.

(Action: PI / Director IT, Anand)

10.5.1.3 Development of technology for value-addition in indigenous and western dairy products

The house approved the recommendation with following suggestion.

The recommendation is

A Probiotic culture *Lactobacillus rhamnosus* MTCC-5462 isolated by AAU, along with Yoghurt Culture (Yo-Flex) is recommended for probiotic shrikhand manufacture, which has a shelf-life of 28 days on storage at 7±2°C temperature.

પ્રોબાયોટીક શ્રીખંડ બનાવવામાટે આણંદ કૃષિ યુનિવર્સિટી દ્વારા આઈસોલેટ કરેલ પ્રોબાયોટીક કલ્ચર લેકટોબેસીલસ રેમ્નોસસ ોતહહ–૫૪૬૨ ની સાથે યોગર્ટ કલ્ચર ૮થઃઢાભ્શ૯ વાપરવાની ભલામણ કરવામાં આવે છે જે ૭ફ્ય૨૦ સેં તાપમાને ૨૮ દીવસ સુધી સાચવી શકાય છે.

Suggestion:

1. Provide quantity of the ingredients
2. Revised recommendation accordingly.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.4 Standardization of method for preparation of reduced-fat paneer using whey protein concentrate and selected emulsifiers

The house approved the recommendation.

The recommendation is

Technology for manufacture of reduced fat paneer from 2% fat milk developed by Anand Agricultural University is recommended to dairy industries to have 12% fat and 22% protein as compared to 23% fat and 17% protein in normal paneer. The reduced fat paneer has about 10 % lower cost of production.

૨% ફેટ યુકત દુધમાંથી આણંદ કૃષિ યુનિવર્સિટી, દવારા ઘટાડેલા ફેટની પનીર બનાવવાની તકનિકીની ડેરી ઈન્ડસ્ટ્રીઝને ભલામણ કરવામાં આવે છે. આથી પનીરમાં ૧૨% ફેટ અને ૨૨% પ્રોટીન હોય છે, જયારે સામાન્ય પનીરમાં ૨૩% ફેટ અને ૧૭% પ્રોટીન હોય છે. સદર પનીરનો ઉત્પાદન ખર્ચ સામાન્ય પનીર કરતા અંદાજ ૧૦% ઓછો આવે છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.5 Exploring finger millet (ragi) as an ingredient for value addition to ice cream
The house approved the recommendation.

The recommendation is
A technology for production of medium-fat chocolate flavored ice cream supplemented with 4% malted ragi flour (on dry basis) developed by AAU is recommended to produce ice cream having lower cost and added advantage of higher fiber content compared to the standard ice cream.

આણંદ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ મધ્યમ ચરબી ચોકલેટ આઈસક્રીમ માટે ૪ % ફણગાવેલી રાગી ઉમેરવાની ભલામણ કરવામાં આવે છે આથી તેની કિમંત સામાન્ય આઈસક્રીમ કરતા ઓછી થાય છે તથા ફાઈબરનો લાભ મળે છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.6 Assessing the suitability of sweet cream buttermilk in preparation of burfi
The house approved the recommendation.

The recommendation is
A technology for dairy industries to prepare *burfi* from sweet cream buttermilk is developed by A.A.U., Anand. The product was prepared by using sweet cream butter milk standardized to 6 % fat and addition of 34% sugar to buttermilk *khoa*. The sweet cream butter milk *burfi* packed in PVC tray box has shelf-life of 4 days at 37±2°C and 28 days at 7±2°C.

આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા ડેરી પ્લાન્ટમાટે સ્વીટક્રીમ બટરમીલ્ક(મોળી/મીઠીછાસ) માંથી બરફી બનાવવાની પધ્ધતી વિકસાવવામાં આવેલ છે. આ બરફી સ્વીટક્રીમ બટર મીલ્કને ૬% ફેટ સ્ટાર્ન્ડાઈઝડ રીતમાંથી બનાવેલ માવામાં ૩૪% ખાંડ ઉમેરી બનાવવામાં આવે છે. આ બરફીને પી.વી.સી. બોક્ષમાં પેક કરી ૩૭<u>ત્ર</u> ૨° સે.તાપમાને ૪ દીવસ તથા ૭ <u>ત્ર</u> ૨° સે. તાપમાને ૨૮ દીવસ સુધી સંગ્રહ કરી શકાય છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.7 Process standardization for manufacture of *chamcham*
The house approved the recommendation.
The recommendation is
A technology to manufacture *Cham Cham* is developed by Anand Agricultural University, Anand. The product was prepared from milk standardized to 4.8% fat, coagulating it at 87°C followed by cooking in 60°Brix sugar syrup. The *cham cham* packed in PVC tray box has shelf life of 4 days at 30±2°C and 14 days at 7±2°C.
આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા ચમચમ બનાવવાની પધ્ધતી વિકસાવવામાં આવેલ છે. તે માટે દુધને ૪.૮% ફેટ સ્ટાર્ન્ડાઈઝ કરી, ૮૭ °સે પર કોઈગ્યુંલેટ કરી ૬૦° બ્રીક્ષના ખાંડના દ્રાવણમાં કુકીંગ કરવામાં આવે છે. આ ચમચમને પીવીસી ટ્રેબોક્ષમાં પેક કરી ૩૭<u>ત્ર</u> ૨° સે તાપમાને ૪ દિવસ તથા ૭<u>ત્ર</u> ૨°સે તાપમાને ૧૪ દિવસ સુધી સંગ્રહ કરી શકાય છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.8 Standardization of technological parameters for manufacturing *paneerburfi*
The house approved the recommendation.
The recommendation is
A technology to manufacture *Paneer based Burfi*i developed by AAU, Anand. It can be prepared from *Paneer* employing standardized milk having 0.65 Fat: SNF ratio, 79°C coagulation temperature of milk and addition of 27.27 % sugar. The *Paneer based Burfi* packed in PVC tray box has shelf life of 4 days at 30±2°C and 21 days at 7±2°C.

આણંદકૃષિ યુનિવર્સિટી, આણંદ દ્વારા પનીર આધારીત બરફી બનાવવાની પધ્ધતી વિકસાવવામાં આવેલ છે આ બરફી બનાવવા માટે દુધને ૦.૬૫ ફેટઃએસ.એન.એફ ગુણોતર સ્ટાન્ડર્ડાઈઝ કરી ૭૯° સે પર કોઈગ્યુલેટ કરી ૨૭.૨૭% ખાંડ નાખવામાં આવે છે આ પનીર આધારીત બરફીને પીવીસી ટ્રેબોક્ષમાં પેક કરી ૩૦<u>ત્ર</u> ૨° સે.તાપમાને ૪ દિવસ તથા ૭<u>ત્ર</u> ૨° સે. તાપમાને ૨૧ દિવસ સુધીમાં સંગ્રહ કરી શકાય છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.9 Process standardization for the manufacture of *thabdipeda*

The house approved the recommendation.

The recommendation is

A technology for manufacture of *Thabdi Peda* is developed by A.A.U., Anand. *Thabdi Peda* is prepared from milk standardized to 6 % fat, 9 % SNF and 8.33 % sugar to have optimum qualities.

આણંદ કૃષિ યુનિવર્સિટી, આણંદ દ્વારા થાબડી પેંડા બનાવવાની પધ્ધતી વિકસાવવામાં આવેલ છે. થાબડી પેંડા દુધને ૬% ફેટ અને ૯% એસએનએફસ્ટાન્ડર્ડાઈઝ કરી તેમાં ૮.૩૩% ખાંડ ઉમેરી બનાવવામાં આવે તો ઈષ્ટત ગુણવતા પ્રાપ્ત કરી શકાય છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.10 Shelf-life study of *peda* using selected packaging techniques

The house approved the recommendation.

The recommendation is

Thabdi *Peda* can be stored in Polyester/PE pouches up to 6 days when stored at 37 ± 2^0C and 20 days at 20 ± 2^0C when packed under partial vacuum (110 mm of Hg) and N_2 gas flushing.

થાબડી પેંડાને પોલીસ્ટર / પીઈપાઉપમાં આંશીક શૂન્યાવકાશ (૧૧૦ ?? :) જ-) અને નાઈટ્રોજન વાયુભરી ને પેક કરવામાં આવે તો ૭ત્રર ºસે પર ૬ દિવસ અને ૨૦ત્રર ºસે પર ૨૦ દિવસ સુધી રાખી શકાય છે.

[Action: Prof & Head, Dept of DT, DSC]

10.5.1.11 Performance evaluation of refrigeration system of bulk milk cooler with evaporative cooling system

The house approved the recommendation.

The recommendation is

The supply of evaporative cooled air from air cooler having pads of 140 mm X 65 mm X 25 mm size, to an air cooled condenser having 200kg capacity of Bulk Milk Cooler decreases the condensing pressure of the refrigeration system. It reduces electrical power consumption in the order of about 10 to 15% in the month of March, April and May when the evaporative cooling system is maintained at 80-85% efficiency depending on the environmental dry bulb and wet bulb temperature of the air.

એર કુલરના ૧૪૦ મીમી × ૬૫ મીમી × ૨૫ મીમી માપવાળા પેડ ઉપર બાષ્પીકૃત હવાને એરકુલ્ડ કન્ડેન્સર પરથી પસાર કરતા ૨૦૦ કિ.ગ્રાની ક્ષમતાવાળા બલ્ક મિલ્ક કુલરનુ કન્ડેન્સિંગ પ્રેસર ઘટે છે. ઈવેપોરેટીવ કુલીંગ સિસ્ટમને ૮૫–૮૦% કાર્યક્ષમતા પર જાળવી રાખતા, વાતાવરણમાંની હવાના ડ્રાય અને વેટ બલ્બ તાપમાન પ્રમાણે માર્ચ, એપ્રિલ એ મે મહિનામાં ૧૦ થી ૧૫ % જેટલો વીજવપરાશમાં ઘટાડો થાય છે.

[Action: Prof & Head, Dept of DE, DSC]

10.5.1.12 Drying behaviour of carrots and its utilization in preparation of ethnic food products

Not Approved. Scientists are advised to collect adequate data on drying with respect to the quality and cost of the dried product.

[Action: Prof & Head, Dept of DE, DSC]

10.5.1.13 Development of ragi (*eleusinecoracana*) fortified probiotic ice cream

The Recommendation is approved with the suggestion that the tannin content in the product be determined and reported to the Director of Research, AAU, Anand. It was also suggested that the cost of process should be given for each product in future.

Probiotic ice-cream supplemented with 4% malted ragi (dry basis) and incorporated with probiotic *Lb. helveticus* MTCC 5463 at the rate 0.1% (w/w) in concentrated form, could be prepared with

comparable acceptability with normal ice cream (non-probiotic, non-ragi) and with viability of probiotic cultures above 8 log cfu/g maintained until 90 days of storage at -20ºC.

સાદા આઈસ્ક્રીમની જેવી સમાન ગુણવતાવાળાો પ્રોબાયોટીક આઈસ્ક્રીમ ૪% ના દરે માલ્ટેડ રાગી (ડ્રાય બેઝીસ) તેમજ ૦.૧% ના દરે લેકટોબેસીલસ હેલ્વેટીકસ ોતહહ ૫,ણઘ નું કલ્ચર ઉમેરીને મેળવી શકાય છે. જેમાં ૮ લોગ સીએફયુ/ગ્રામ થી વધારે પ્રોબાયોટીક બેકટેરીયા ૯૦ દિવસ સુધીના – ૨૦º સે. સંગ્રહ દરમ્યાન મેળવી શકાય છે.

[Action: Prof & Head, Dept of DM, DSC]

10.5.1.14 Production technology of wheat grass juice

The Recommendation is approved after incorporating the suggestions given during the discussion.

The recommendation is

The entrepreneurs and food processors interested in production of wheat(Jawara) juice are advised to use technology developed for this purpose by Anand Agricultural University wherein the undiluted juice is extracted from the foliage of 7 days old wheat seedling after germination and is processed using sonication at 70 % amplitude for 10 minutes for extension of shelf life up to 10 days at refrigerated temperature (7±2^{o}C).

ઘઉના જવારાના રસનું ઉત્પાદન કરવામાં રસ ધરાવતા સાહસિકો અને ઉધોગકારોને આણંદ કૃષિ યુનિવર્સિટી ધ્વારા વિકસાવવામાં આવેલ ટેકનોલોજીનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ ટેકનોલોજીમાં પલળેલા ઘઉને ઉગ્યા બાદ ૭ દિવસનાં જવારાને કાપી તેમાંથી પાણી ઉમેર્યા વગર રસ કાઢી સોનીકેશન પધ્ધતિ દવારા પ્રોસેસ કરી પેકીંગ કરવામાં આવે છે, આમ પ્રોસેસ કરેલ જવારાના રસને જ્ઞજ્ય×ંહ તાપમાને ૧૦ દિવસ સુધી સાચવી શકાય છે.

[Action: Prof & Head, Dept of PHE, FPTBE]

10.5.1.15 Precooling protocol to maximize shelf life of tomato fruits

The Recommendation is approved after incorporating the suggestions given during the discussion.

The recommendation is

The farmers, entrepreneurs, agro- processing units involved in post harvest handling of tomato fruits are advised to precool tomato fruits for extending shelf life. Based on minimum Physiological Loss in Weight and superior quality, precooling using forced air at 4^{o}C @ 150 cum/min for storing tomato under room temperature. For storage under refrigerated transport condition, hydro- precooling with chilled water at 8^{o}C and @25 lit/min is recommended. Such precooling will result in 12-15 days additional extension in shelf-life compared to tomatoes stored under ambient conditions without precooling.

ટામેટાની કાપણી પછીના વ્યવસ્થાપનમાં જોડાયેલા ખેડુતો, ઉધોગસાહસિકો, એગ્રો પ્રોસેસીંગ એકમોને આંણદ કૃષિ યુનિવર્સિટી ધ્વારા વિકસાવેલ પ્રીકુલીંગ ટેકનોલોજી વાપરવાની ભલામણ કરવામાં આવે છે. આ ભલામણ મુજબ ટામેટાને ,ં સે. તાપમાનની ઠંડી હવા(% ક્ષપડ '?ળ?ધ્વ) દવારા અથવા ટ ંહ તાપમાનના ઠંડા પાણી (%×૫ ધ્ત્ળ?ધ્વ) દવારા ઠંડા કરીને સામાન્ય તાપમાને ૧૨ દિવસ વધારે અને કોલ્ડ સટોરેજમાં ૧૫ દિવસ વધારે સંગ્રહ કરી શકાય છે.

[Action: Prof & Head, Dept of PHE, FPTBE]

10.5.1.16 Production technology for bottle gourd juice

The house approved the recommendation with modification in wording.

The recommendation is

The entrepreneurs and food processors interested in production of bottle gourd juice are advised to use juice processing technology developed by AAU. The technology includes hot water blenching (85^{0}C for 3 Min.), thermal processing at 85^{0} C for 4 min. and hot filling. It enables production of juice from bottle gourds without addition of chemical preservatives. The final product can be stored up to 15 days under ambient (30±2^{o}C) and 30 days under refrigerated (7±2^{o}C) conditions with good organoleptic quality.

દુધીના જયુસ ઉત્પાદનમાં રસ ધરાવતા ઉધોગકારો અને સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી ધ્વારા વિકસાવવામાં આવેલ જયુસને પ્રોસેસ અને સાચવવાની તકનીકનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ તકનીકમાં ગરમ પાણી દવારા બ્લેન્ચીંગ (ટપ૬હ):ચ ઘોધ્ય) અને પ્રોસેસીંગ (ટપ૬ હ):ચ , ?ધ્ય) કરી જયુસનું ઉત્પાદન કોઈપણ જાતનાં રાસાયણિક પ્રિઝર્વેટીવ ઉમેર્યા સિવાય થઈ શકે છે. આ રીતે તૈયાર થયેલ જયુસની સંગ્રહશકિત સામાન્ય તાપમાને ૧૫ દિવસ સુધીની તથા રીફ્રેજરેટેડ તાપમાને ૩૦ દિવસ સુધીની હોય છે.

[Action: Prof & Head, Dept of PHE, FPTBE]

10.5.1.17 Standardized recipe and process for the mechanized *Kajukatli* production.

The house approved the recommendation.

The recommendation is

The entrepreneurs, food processors involved in commercial Kajukatli preparation are advised to use the standardized recipe and process developed by Anand Agricultural University. The technology includes wet grinding of presoaked kaju, incorporating 35 % sugar and cooking (80-90 ^{0}C for 30 Min.). A superior quality product with longer shelf-life can be produced without addition of any chemical preservative. The kajukatli can be safely stored at refrigerated condition (7±2°C) for 24 days.

કાજુ કતરીના વ્યવસાયમાં રસ ધરાવતા ફુડ પ્રોસેસર અને સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી ધ્વારા આ અંગે નિર્ધારિત કરેલ તકનીકનો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે. આ તકનીકમાં પલાળેલ કાજુની વેટ ગ્રાઈડીંગ કરી, ઘપ ૫ ખાંડ ઉમેરી, કુકીંગ (ટડઢઠડ ૬હ):ચ ઘડોધ્ય) કરવાનો સમાવેશ કરવામાં આવે છે. આ પધ્ધતિથી કોઈપણ રાસાયણિક પ્રિઝવેટીવ વિના લાબી સંગ્રહ શકિત ધરાવતી કાજુ – કતરીનું ઉત્પાદન કરી શકાય છે. આ કાજુ–કતરીનેજ્ઞજ્ઞય×ંહ તાપમાને ૨૪ દિવસ સુધી સાચવી શકાય છે.

[Action: Prof & Head, Dept of FE, FPTBE]

10.5.1.18 Production technology for aonla juice.

The house approved the recommendation.

The recommendation is

The entrepreneurs and food processors interested in production technology of superior quality of aonla juice are recommended to use the production technology developed by Anand Agricultural University for this purpose. This technology involves maximum recovery of juice from aonla fruits using steam blanching, shredding and destoning, pulverization and thermal treatment (85 ^{0}C for 3 min.) without addition of any preservative. The product is microbiologically stable and acceptable for 6 months under ambient conditions.

સર્વોતમ ગુણવર્તાયુકત આમળા જયુસના ઉત્પાદનમાં રસ ધરાવતા ઉધોગ સાહસીકો અને ફુડ પ્રોસેસરોને આણંદ કૃષિ યુનિવર્સિટી ધ્વારા વિકસાવવામાં આવેલ તકનીક વાપરવાની ભલામણ કરવામાં આવે છે. આ તકનીકમાં આમળાને વરાળથી ગરમ કરી છીણી, ઠોળીયા કાઢી અને ઉષ્મા પ્રકિયા (ટપ ૬હ):ચ ઘ ?ધ્ય) કરીને મહતમ જયુસ મેળવી શકાય છે. આ રીતે તૈયાર કરેલ જયુસને ૩૭ ત્ર ×૬હ તાપમાને કોઈપણ પ્રિઝર્વેટીવ વગર ૬ મહિના માટે સાચવી શકાય છે.

[Action: Prof & Head, Dept of FPT, FPTBE]

10.5.1.19 Production Technology for okara based extruded RTE product.

The house approved the recommendation.

The recommendation is

The entrepreneurs and food processors interested in production of extruded snack food using soymilk by-product "Okara" are advised to follow the protocol for recipe and extrusion process developed by Anand Agricultural University. The technology includes incorporation of dried okara powder at the rate of 10 % and extrude at 115^{0}C. The technology enables production of protein rich snack item using by-product of soymilk processing.

સોય દુધના ઉત્પાદનની ઉપ–પૈદાશ (બાયો–પ્રોડકટ) "ઓકારા" ના ઉપયોગથી એક્ષ્ટુડેડ નાસ્તાના ઉત્પાદનમાં રસ ધરાવતા ફુડ પ્રોસેસરો / ઉધોગ સાહસિકોને આણંદ કૃષિ યુનિવર્સિટી ધ્વારા વિકસાવેલ તકનીક આપવવા ભલામણ કરવામાં આવે છે. આ તકનીકમાં ૧૦% સુકા ઓકારાને ઉમેરીનેક્ષ્ક્ષપ૬હ તાપમાને એકટ્રુજન કરી પ્રોટીન સભર નાસ્તો બનાવી શકાય છે.

[Action: Prof & Head, Dept of FPT, FPTBE]

10.5.1.20 Technology for production of bio diesel from Rice Bran oil (RBO).

The Recommendation is approved with the suggestion that the data may be generated in future on engine performance using RBO biodiesel.

For efficient production of biodiesel from high FFA Rice Bran Oil (RBO), the combined process of esterification followed by trans-esterification developed by Anand Agricultural University is recommended. The process will yield more than 90% biodiesel from the low grade non edible crude rice bran oil.

વધુ ફ્રી ફેટી એસીડ ધરાવતા ચોખાની કુસ્કીના અખાધ તેલ માંથી કાર્યક્ષમ બાયો ડીઝલ બનાવવા આણંદ કૃષિ યુનિવર્સિટી, ધ્વારા વિકસાવેલ તકનીકનો ઉપયોગ કરવા ભલામણ કરવામાં આવે છે. આ પધ્ધતિમાં પ્રથમ એસ્ટરીફીકેશન અને ત્યારબાદ ટ્રાન્સએસ્ટરીફીકેશન પ્રકિયા કરવામાં આવે છે. આ તકનીક દવારા વધુ ફ્રી ફેટીએસિડવાળા ચોખાના તેલમાંથી આશરે ૯૦ ટકા બાયો ડીઝલ તૈયાર થાય છે.

[Action: Prof & Head, Dept of FQA, FPTBE]

10.5.1.21 Protein fortification of mixed fruit bar using Whey Powder

The house approved the recommendation.

The recommendation is

The food processors interested in development of low cost nutritious mixed fruit bar are advised to follow the protocol developed by Anand Agricultural University. The technology involves mixing of fresh pulps of papaya and banana fruits in the proportion of 75:25, processed further and packed in metallized cast polypropylene (MPP). The product can be stored at ambient storage condition (27◦C/ 65%RH) for 6 months.

જે ફુડ પ્રોસેસરો સસ્તી અને પ્રોષ્ટિક મીકક્ષ ફુડબાર વિકસાવવામાં રસ ધરાવે છે. તેમને આણંદ કૃષિ યુનિવર્સિટી, ધ્વારા વિકસાવવામાં આવેલી પધ્ધતી અનુસરવાની ભલામણ કરવામાં આવે છે. ૭૫:૨૫% ના પ્રમાણમાં પપૈયા અને કેળાના પલ્પને મીશ્રણ કરી, પ્રોસેસ કરી મીકસડ ફુટબાર ઉત્પાદન કરી મેટલાઈઝડ કાસ્ટ પોલીપ્રોલીન ટો..૯ માં પેક કરીને સામાન્ય તાપમાને ૬ મહીના સુધી રાખી શકાય છે.

[Action: Prof & Head, Dept of FQA, FPTBE]

10.5.1.22 Studies on storage behavior of dehydrated aonla powder of different cultivars prepared through different drying techniques.

The Recommendation is not approved as the majority of the treatments gave non significant difference.

[Action: Prof & Head, Dept of Horticulture, BACA]

Scientific Recommendation

10.5.1.23 A Web Based Soil Health Card Application: Decision Support System for Agriculture Development

The house approved the recommendation.

The recommendation is

Soil Health Card Portal (http://shc.gujarat.gov.in, http://shc.aau.in) developed by Anand Agricultural University Anand is recommended for agricultural scientists/ line department and decision makers for providing recommendation and suggestion for Taluka action plan, Villages action plan, crop planning and management, farming methods, fertilizer management, weather forecast, rain fall details etc.

કૃષિ વૈજ્ઞાનીકો , વિભાગના અધિકારીઓને આણંદ કૃષિ યુનિવર્સિટી દવારા વિકસાવવામાં આવેલ સોઈલ હેલ્થ કાર્ડ પોર્ટલ (http://shc.gujarat.gov.in, http://shc.aau.in) ના ઉપયોગ કરવા ભલામણ કરવામાં આવે છે. જેથી કૃષિ સબંધીત વિવિધ ફીલ્ડ જેવા કે તાલુકા અને ગામનો ખેત ઉત્પાદન કાર્યક્રમ, પાકનું પ્લાનીંગ અને વ્યવસ્થા, ખેતી પધ્ધતીઓ, ખાતરનું મેનેજમેન્ટ, હવામાન વિગત,વરસાદની વિગત વિગેરે, માં જુદા જુદા અભિપ્રાય અને મંતવ્યો આપવા માટે ઉપયોગ કરી શકાય.

(Action: PI / Director IT, Anand)

10.5.1.24 Web User Interface Assisted Live Stock Research Station Management Information System

The house approved the recommendation with the suggestion that the critical/threshold limits of data should be given in the software.

The recommendation is

A web based LRS system (http://LRS.AAU.IN) is recommended for the management of LIVE STOCK data like herd management, service details, roll call details, milk production details, etc. and to generate different kinds of reports as per the needs.

વેબબેઈઝ્ડ ીચક સીસ્ટમ (http://LRS.AAU.IN) દવારા લાઈવસ્ટોક માહીતીના મેનેજમેન્ટ માટે ભલામણ કરવામાં આવે છે આ સીસ્ટમમાં હર્ડની માહીતી, દુધની માહીતી તથા જુદાજુદા રજીસ્ટરની માહીતીનો સંગ્રહ કરીને તેના દવારા જુદાજુદા રીપોર્ટ બનાવી શકાય છે.

(Action: PI / Director IT, Anand)

10.5.1.25 A Critical Analysis of Internet usages by the faculty members of Anand Agricultural University

The house did not approve the recommendation. House suggested that findings can be considered as useful information and project is concluded.

(Action: PI / Director IT, Anand)

10.5.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

10.5.2.1 Standardization of packaging technology of fresh & processed guava fruits

The house approved the recommendation with the suggestion to make two separate recommendations instead of one.

The recommendations are

Recommendation-1

The farmers, processors and exporters are recommended to adopt packaging technique developed by Junagadh Agricultural University for increasing the shelf life of guava fruit up to 18 days at room temperature by packing in 50 µ polyethylene bag at a vacuum level of 700 mm Hg.

ભલામણ : ૧

આથી ખેડૂતો, પ્રોસેસરો અને નિકાસકારોને જામફળની સંગ્રહક્ષમતા વધારવા માટે જુનાગઢ કૃષિ યુનિવર્સીટી દ્વારા વિકસાવવામાં આવેલ પેકેજીંગ ટેકનીક મુજબ જામફળને ૫૦ માઈક્રોન પોલીઈથીલીન બેગમા તથા ૭૦૦ મીમી એચ.જી. વેકયુમ દબાણે સંગ્રહ કરવાની ભલામણ કરવામાં આવે છે. આ રીતે જામફળને ૧૮ દિવસ સુધી રૂમ તાપમાને સારી રીતે સંગ્રહી શકાય છે.

Recommendation-2

The farmers, processors and exporters are recommended to adopt hot air drying technique developed by Junagadh Agricultural University for preparing of guava powder by drying of fresh guava slices (3 mm thick) pretreated with 1 % $CaCl_2$ + 2 % KMS solution for 10 minutes at 60 ^{0}C drying air temperature and 1.25 m/s air velocity in drying period of 17 hours. The powder prepared by this method can be stored up to 80 days at room temperature by packing in 50µ polyethylene bag at a vacuum level of 700 mm Hg.

ભલામણ : ૨

આથી ખેડૂતો, પ્રોસેસરો અને નિકાસકારોને જામફળનો પાવડર બનાવવા માટે જુનાગઢ કૃષિ યુનિવર્સીટી દ્વારા વિકસાવવામાં આવેલ ગરમ હવાથી સુકવણીની ટેકનીક મુજબ જામફળની ૩ મીમી જાડાઈ પતરીને ૧ % કેલ્શિયમ કલોરાઈડ અને ૨ % પોટેશીયમ મેટા

બાયસલ્ફાઈટના દ્રાવણમા ૧૦ મીનીટ ડુબાડીને ૬૦ મસે. ઉષ્ણતામાનવાળી અને ૧.૨૫ મી/સે. વેગવાળી હવા દ્વારા સુકવવાની ભલામણ કરવામા આવે છે. આ રીતે જામફળની પતરીઓની સુકવણી કરતા ૧૭ કલાક જેટલો સમય લાગે છે. આ રીતે સુકવેલ જામફળના પાવડરને ૫૦ માઈક્રોન પોલીઈથીલીન બેગમા તથા ૭૦૦ મીમી એચ.જી. વેકયુમ દબાણે ૮૦ દિવસ સુધી રૂમ તાપમાને સારી રીતે સંગ્રહી શકાય છે.

(Action: Professor & Head, PFE, CAET, JAU, Junagadh)

10.5.2.2 Preparation of custard apple powder by freeze drying methods

The house approved the recommendation with recasting the language.

The revised recommendation is

The processors and exporters are recommended to adopt freeze drying technique developed by Junagadh Agricultural University for preparing custard apple powder by freeze drying of fresh custard apple pulp (1.5 kg) pretreated with 5 % maltodextrine at -40 ^{0}C temperature with a drying period of 41 hours. The custard apple powder obtained by this method has better product quality and could be stored for up to 90 days at room temperature when packed in 50 µ polyethylene bag at a vacuum level of 700 mm Hg.

આથી પ્રોસેસરો અને નિકાસકારોને સીતાફળનો પાવડર બનાવવા માટે જુનાગઢ કૃષિ યુનિવર્સીટી દ્વારા વિકસાવવામાં આવેલ સુકવણીની ટેકનીક મુજબ સીતાફળના પલ્પ (૧.૫ કિલો) ને ૫ % માલ્ટોડેક્ષટ્રીનની માવજત આપ્યા બાદ –૪૦ મસે. ઉષ્ણતામાને ફ્રીજ ડ્રાયરમાં સુકવવાની ભલામણ કરવામા આવે છે. આ રીતે સીતાફળના પલ્પની સુકવણી કરતા ૪૧ કલાક જેટલો સમય લાગે અને તેની ગુણવતા જણવાઈ રહે છે. આ રીતે સુકવેલ સીતાફળના પાવડરને ૫૦ માઈક્રોન પોલીઈથીલીન બેગમા તથા ૭૦૦ મીમી એચ.જી. વેકયુમ દબાણે ૯૦ દિવસ સુધી રૂમ તાપમાને સારી રીતે સંગ્રહી શકાય છે.

(Action: Professor & Head, PFE, CAET, JAU, Junagadh)

10.5.2.3 Extraction of enzymes from potato peels substrate using Bacillus group of bacteria

The house approved the recommendation with recasting the language.

The revised recommendation is

Potato processors and entrepreneurs are recommended to adopt a process technology developed by Junagadh agricultural university for the production of Alpha-amylase and protease enzymes through microbial and biochemical methods from bio waste (potato peel) using Bacillus Subtilis bacteria. This process is beneficial (BCR 7.54:1) as compared to readymade available enzymes in market.

બટાકાના પ્રોસેસીંગ ઉદ્યોગકારો અને ઉદ્યોગ સાહસીકો માટે જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવેલ બેસીલસ સબટીલીસ પ્રકારના બેકટેરીયાના ઉપયોગ દ્વારા બટાકાની છાલમાંથી સુક્ષ્મ જૈવિક તેમજ જૈવ–રાસાયણીક પધ્ધતી દ્વારા આલ્ફા એમાઈલેઝ તેમજ પ્રોટીએઝ નામના ઉત્સેચકો મેળવવાની પ્રોસેસ ટેકનોલોજી અપનાવવાની ભલામણ કરવામાં આવે છે. આ પધ્ધતિ બજારમાં તૈયાર મળતાં ઉત્સેચકો કરતાં લાભકારક છે (આવક – ખર્ચનો ગુણોત્તર ૭.૫૪:૧ મળેલ છે).

(Action: Research Engineer, PHTS,PFE, CAET, JAU, Junagadh)

10.5.2.4 Development of Manually Operated Sapota Cleaner

The house approved the recommendation with recasting the language.

The revised recommendation is

The farmers growing sapota are recommended to use hand operated Junagadh Agricultural University developed sapota cleaner(capacity: 120 kg/h) having perforated metal sheet drum (45 cm diameter and 90.5cm length) lined with jute cloth on inner surface and be operated at 65 rpm for 90 seconds with 66% free space (in batch) for cleaning and shining the sapota surface after harvesting to reduce human drudgery.

ખેડુતોને ચીકુ ઝાડ પરથી ઉતાર્યા બાદ ચીકુની સપાટીને સાફ અને ચળકતી કરવા માટે જૂનાગઢ કૃષિ યુનિવર્સિટી દવારા વિકસાવવામાં આવેલ હાથથી ચાલતા છિદ્રોવાળા ધાતુની શીટમાંથી બનાવેલ ૪૫ સેમી વ્યાસ, ૯૦.૫ સેમી લંબાઈના અને અંદરની બાજુ શણના કાપડની લાઈનીંગ સાથે ડ્રમની અંદર ૬૬ ટકા મુકત અવકાશ સાથે ૬૫ આરપીએમ ૯૦ સેકન્ડ સુધી ચલાવી શકાય તેવા ચીકુ સાફ કરવાના મશીન(ક્ષમતાઃ ૧૨૦ કિ.ગ્રા/કલાક)નો ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે જેથી માનવ મહેનતમાં ઘટાડો કરી શકાય છે.

(Action: Research Engineer, PHTS, PFE, CAET, JAU, Junagadh)

10.5.2.5 Development of tractor drawn plant thinning device for row crops

The house approved the recommendation with recasting the language.

The revised recommendation is

Farmers and manufacturers are recommended to use JAU developed Mini tractor drawn two row plant thinning device for maintaining plant spacing of 10 to 12 cm for small seed crops like Pearl millet and Sesamum. High thinning efficiency can be achieved using this device. As compared to manual thinning, approx. 70 % man-hours/ha can be saved.

ખેડુતો અને ઉત્પાદકો ને જૂનાગઢ કૃષિ યુનિવર્સિટી દ્વારા વિકસાવાયેલ મિની ટ્રેકટરથી ચાલતું બે હાર ધરાવતા પાક પારવણી ઓજાર નાના બીજ ધરાવતા બાજરી, તલ જેવા પાકની પારવણીથી બે છોડ વચ્ચેનું ૧૦ થી ૧૨ સે.મી. જેટલુ અંતર જાળવવા માટે વાપરવાની ભલામણ કરવામાં આવે છે. આ ઓજારથી ઉચ્ચ પારવણી ક્ષમતા મેળવી શકાય છે. હાથથી કરવામાં આવતી પારવણીની સરખામણીમાં અંદાજે ૭૦ % જેટલી માનવ કલાક પ્રતિ હેકટરે બચાવી શકાય છે.

(Action: Professor & Head, FMP, CAET, JAU, Junagadh)

10.5.2.6 Study on watershed development activities conducted in dark zone area of Junagadh district.

The Recommendation is approved after incorporating suggestions given.

The revised recommendation is

The Planners, Designers, NGOs, Field Officers, and Government Departments of Junagadh district are recommended to use below given daily rainfall-runoff prediction equations for estimating daily runoff which are derived by JAU Junagadh using practically derived SCS Curve number (73.03) and adopting Remote Sensing approach. The groundwater contribution for the district can be taken as 12.67% of the above estimated runoff for efficient watershed planning. Additionally the updated Land Capability Classification for Ozat catchment in Junagadh can be taken as provided in the below table.

A) Rainfall – Runoff Relationships for Ozat Catchments (Daily basis)

Sr. No.	Catchment Name	Rainfall (x) – Runoff (y) Equation*	R^2
1	Ambajal Catchment	y = 0.6403x - 11.459	0.9237
2	Motagujariya Catchment	y = 0.4599x - 5.9043	0.8317
3	Zanjeshri Catchment	y = 0.5525x - 7.7979	0.8971
4	Dhrafad Catchment	y = 0.5748x - 8.2758	0.8706
5	Ozat Weir-2 Catchment	y = 0.366x - 3.4271	0.7299
6	Ozat Weir-Shapur Catchment	y = 0.4994x - 5.9403	0.8571
7	Ozat Weir-Vanthli Catchment	y = 0.459x - 5.1273	0.8493
8	Ozat River Catchment	y = 0.5366x - 7.3009	0.8591

* Rainfall and Runoff are in mm

B) Updated Land Capability Classification for Ozat Catchment

Sr. No	Particular	Area, km²	Percent (%)	Remark
1	CLASS - I	975.34	69.22	Cultivable land
2	CLASS - Il	7.67	0.54	

3	CLASS - IV	131.16	9.31	
4	CLASS - V	14.42	1.02	Uncultivable land
5	CLASS - VI	233.12	16.54	
6	Village	20.52	1.46	
7	River, Reservoir	26.93	1.91	
	Total	1409.16	100.00	

ભલામણ(આયોજકો, ડિજાઈનર્સ, સ્વૈચ્છિક સંસ્થાઓ, ફિલ્ડ ઓફિસર અને સરકારી વિભાગ):

જૂનાગઢ જીલ્લાના આયોજકો, ડિજાઈનર્સ, સ્વૈચ્છિક સંસ્થાઓ, ફિલ્ડ ઓફીસર અને સરકારી વિભાગોને ઓઝત નદીના વિવિધ જળસ્ત્રાવ વિસ્તાર માટે જૂ.કૃ.યુ., ધ્વારા કર્વ નંબર (૭૩.૦૩) પધ્ધતી અને રીમોટ સેન્સિંગનો ઉપયોગથી તૈયાર કરવામાં આવેલ દૈનિક વરસાદ અને વરસાદમાંથી ઉદ્‌ભવી વહેતા પાણી વચ્ચેના સંબધો નીચે જણાવ્યા મુજબ ભલામણ કરવામાં આવે છે. ઓઝત કેચમેન્ટમાં વરસાદમાંથી ભૂગર્ભ જળ રિચાર્જ ૧૨.૬૭% થાય છે. ઓઝત કેચમેન્ટમાં જમીનની ગુણવતતા અને ક્ષમતાનું સુધારેલ વર્ગીકરણની નીચે મુજબ ભલામણ કરવામાં આવે છે.

અ. ઓઝત કેચમેન્ટના દૈનિક વરસાદ અને વરસાદમાંથી ઉદ્‌ભવી વહેતા પાણી વચ્ચેના સબંધો

ક્રમ નં.	જળસ્ત્રાવ વિસ્તારનું નામ	વરસાદ ૮૪૯અને તેમાંથી ઉદ્‌ભવી વહેતા પાણી૮૪૯વચ્ચેનો સંબંધ (દૈનિક)*	સહસબંધ ગુણાંક
૧	આંબાજળ જળસ્ત્રાવ	y = 0.6403 x - 11.459	0.9237
૨	મોટા ગુજરીયા જળસ્ત્રાવ	y = 0.4599 x - 5.9043	0.8317
૩	ઝાંઝેશ્રી જળસ્ત્રાવ	y = 0.5525 x - 7.7979	0.8971
૪	ધ્રાફડ જળસ્ત્રાવ	y = 0.5748 x - 8.2758	0.8706
૫	ઓઝતવિયર–૨ જળસ્ત્રાવ	y = 0.366 x - 3.4271	0.7299
૬	ઓઝત વિયર–શાપુર જળસ્ત્રાવ	y = 0.4994 x - 5.9403	0.8571
૭	ઓઝતવિયર–વંથલી જળસ્ત્રાવ	y = 0.459 x - 5.1273	0.8493
૮	ઓઝતનદિ જળસ્ત્રાવ	y = 0.5366 x - 7.3009	0.8591

* વરસાદઅને તેમાંથી ઉદ્‌ભવી વહેતા પાણી મી.મી. માં લેવા.

બ. ઓઝત કેચમેન્ટનુ જમીનની ગુણવતા અને ક્ષમતાનું સુધારેલ વર્ગીકરણ

ક્રમ નં.	જમીનની ક્ષમતાનું વર્ગીકરણ	વિસ્તાર વર્ગ કિ.મી.	ટકાવારી (%)	નોંધ
૧	વર્ગ–૧	975.34	69.22	ખેતી લાયક જમીન (ખેડવાણ જમીન)
૨	વર્ગ–૨	7.67	0.54	
૩	વર્ગ–૪	131.16	9.31	
૪	વર્ગ–૫	14.42	1.02	બીન ખેડાયેલ જમીન
૫	વર્ગ–૬	233.12	16.54	
૬	ગામતળ	20.52	1.46	
૭	નદિ, તળાવ	26.93	1.91	
કુલ		1409.16	100.00	

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

10.5.2.7 Geometry of wetting pattern under trickle irrigation

The Recommendation is approved

The revised recommendation is

The following three models developed by JAU can be used to decide the lateral and emitter spacing in drip irrigation design for a particular emitter discharge in loamy soil.

Case: a) If moisture data before irrigation is not monitored

Planners Designers, NGO's, Field officers and Govt. Departments are recommended to use the following expression for determining the wetting dimensions if moisture information is not available

$$W = 0.516\ V^{0.393} (K_s / q)^{0.062} \qquad (R^2 = 0.983)$$

$$Z = 0.069\ V^{0.303} (K_s / q)^{-0.060} \qquad (R^2 = 0.965)$$

Where W = Diameter of wetted spread on the ground surface, *m*; q= emitter discharge in lph; V = volume of water application, *l*, and K_s = saturated hydraulic conductivity, *m/sec*; and Z= depth of wetting front below the emitter, *m*.

Case: b) If moisture data before irrigation is monitored then

The Planners Designers, NGO's, Field officers and Govt. Departments are recommended to use the following expression for determining the wetting dimensions if moisture information is available

$$R = \Delta\theta^{-452.978}\ v^{0.393}\ q^{-0.062}\ K_s^{-17352.497} \qquad (R^2 = 0.983)$$

$$Z = \Delta\theta^{-439.643}\ v^{0.303}\ q^{0.060}\ K_s^{-16840.965} \qquad (R^2 = 0.965)$$

Where R = Radius of wetted spread on the ground surface, *cm*; q= emitter discharge in *ml/h*; V = volume of water application *ml*; and K_s = saturated hydraulic conductivity, *cm/h*; and Z= depth of wetting front below the emitter, *cm*.

Case: c) If time of application is mentioned

The Planners Designers, NGO's, Field officers and Govt. Departments are recommended to use revised Debral (2012) model for greater accuracy for determining the wetting dimensions if time of irrigation is known:

$$W = 15.081\ t^{0.418}\ q^{0.448}\ K_s^{0.091} \qquad (R^2 = 0.960)$$

$$Z = 27.185\ t^{0.303}\ q^{0.363}\ K_s^{0.174} \qquad (R^2 = 0.965)$$

Where W= Diameter (*m*); q = emitter discharge cumec; t = time of application sec; Ks = saturated hydraulic conductivity, *m/sec*; Z = depth of wetting front below the emitter (*m*).

જે.એ.યુ.,જૂનાગઢ દ્વારા વિકસાવેલ નીચે મુજબના ત્રણ મોડલ દ્વારા ગોરાડુ જમીન માટે ટપક સિંચાઈની ડિઝાઈનમાં ડ્રીપરના જે તે પ્રવાહ માટે બે ડ્રીપ લાઈન તેમજ ડ્રીપર વચ્ચેનું અંતર નકકી કરી શકાય છે.

કેસ–૧) પિયત આપતા પહેલા જો જમીનનો ભેજ તપાસવામાં આવેલ ન હોય તો

આયોજકો, ડિઝાઈનર્સ, સ્વૈચ્છિક સંસ્થાઓ, ફિલ્ડ ઓફિસર અને સરકારી વિભાગોને આથી ભલામણ કરવામાં આવે છે કે, પિયત આપતા પહેલા જો જમીનનો ભેજ તપાસવામાં આવેલ ન હોય તો, જમીનની ભીનાશના પરિમાણો નીચે મુજબની અભિવ્યકિતથી જાણી શકાય છે.

$$W = 0.516\ V^{0.393} (K_s / q)^{0.062} \qquad (R^2 = 0.983)$$

$$Z = 0.069\ V^{0.303} (K_s / q)^{-0.060} \qquad (R^2 = 0.965)$$

જયાં, ધ્ર જમીનની સપાટી પરની ભીનાશના ફેલાવાનો વ્યાસ (મી), ⅃ ડ્રીપરનો સ્ત્રાવ (લી/કલાક), અ્આપવામાં આવેલ પાણીનો

જથ્થો(લી) અને છ્રસેચ્યુરેટેડ હાઈડ્રોલીક કંડકટીવીટી (મી/સે),રૂટ્રીપરની નીચે થયેલ ભીનાશની ઉંડાઈ (મી)

કેસ–૨) પિયત આપતા પહેલા જો જમીનનો ભેજ તપાસવામાં આવેલ હોય તો

આયોજકો, ડિઝાઈનર્સ, સ્વૈચ્છિક સંસ્થાઓ, ફિલ્ડ ઓફિસર અને સરકારી વિભાગોને આથી ભલામણ કરવામાં આવે છે કે, પિયત આપતા પહેલા જો જમીનનો ભેજ તપાસવામાં આવેલ હોય તો, જમીનની ભીનાશના પરિમાણો નીચે મુજબની અભિવ્યકિતથી જાણી શકાય છે.

$$R = \Delta\theta^{-452.978} \; v^{0.393} \; q^{-0.062} \; K_s^{-17352.497} \qquad (R^2 = 0.983)$$

$$Z = \Delta\theta^{-439.643} \; v^{0.303} \; q^{0.060} \; K_s^{-16840.965} \qquad (R^2 = 0.965)$$

જયાં, ચ્ર જમીનની સપાટી પરની ભીનાશના ફેલાવાની ત્રિજયા (સેમી), ્ર ડ્રીપરનો સ્ત્રાવ (મીલી લી/કલાક, અ્ર આપવામાં આવેલ પાણીનો જથ્થો(મીલી લી) અને છ્રસેચ્યુરેટેડ હાઈડ્રોલીક કંડકટીવીટી (સેમી/કલાક),રૂટ્રીપરની નીચે થયેલ ભીનાશની ઉંડાઈ (સેમી)

કેસ–૩)જો પિયત આપવાનો સમય તપાસવામાં આવેલ હોય તો

આયોજકો, ડિઝાઈનર્સ, સ્વૈચ્છિક સંસ્થાઓ, ફિલ્ડ ઓફિસર અને સરકારી વિભાગોને આથી ભલામણ કરવામાં આવે છે કે, જો પિયત આપવાનો સમય માલુમ હોયતો, નીચે મુજબનાસુધારેલ દેબરાલ (૨૦૧૨)ના મોડલ દ્વારા જમીનની ભીનાશના પરિમાણો વધુ ચોકસાઈથી જાણી શકાય છે.

$$W = 15.081 \; t^{0.418} \; q^{0.448} \; K_s^{0.091} \qquad (R^2 = 0.960)$$

$$Z = 27.185 \; t^{0.303} \; q^{0.363} \; K_s^{0.174} \qquad (R^2 = 0.965)$$

જયાં, ધ્ર જમીનની સપાટી પરની ભીનાશના ફેલાવાનો વ્યાસ (મી), ્ર ડ્રીપરનો સ્ત્રાવ (કયુમેક), ્ર પાણી આપવાનો સમય (સેકન્ડ) અને છ્રસેચ્યુરેટેડ હાઈડ્રોલીક કંડકટીવીટી (મી/સે),રૂટ્રીપરની નીચે થયેલ ભીનાશની ઉંડાઈ (મી)

(Action: RS (Agril. Engg.), RTTC, JAU, Junagadh)

Scientific Recommendation

10.5.2.8 Geometry of wetting pattern under trickle irrigation

The Recommendation is approved.

The revised recommendation is

The Scientists of South Saurashtra agro-climatic zone are advised to keep the following suggestions while using the following developed equations by various scientists for predicting the wetting geometry in Loamy Soils

a) Healy and Warrick (1981) model predicted wetting geometry (width (R^2 = 0.3141) and depth (R^2 = 0.1918) at lower discharges with poor accuracy and failed to predict at higher emitter discharges (> 8 lph)
b) Philips (1984) model predicted wetting geometry (both width and depth) at lower and higher emitter discharges with good accuracy
c) Accuracy of original Debral (2012) dimensional analysis model is low in predicting wetting geometry (both depth below the emitter (R^2 = 0.845) and width at the surface (R^2 = 0.895)).
d) BEN-ASHER Hemi Spherical Model (1985) predicted both depth (R^2 = 0.962) and width (R^2 = 0.9774) with good accuracy
e) Steady state Wooding model (1968), Steady state Raats model and moment analysis approach predicted both steady width with low accuracy.

(Action: RS (Agril. Engg.), RTTC, JAU, Junagadh)

10.5.2.9Ambient temperature trend analysis for the North Saurashtra region in view of climate change

The Recommendation is approved.

The revised recommendation is

1. Weekly maximum temperature showed significantly increasing trend in MSW 8, 14, 15 and 18

where as significantly decreasing trend was observed in MSW 28, 37 and 39. Generally 28th MSW (9th July to 15th July) is the initial stage of groundnut, cotton and other kharif crops. Whereas MSW 37 and 38th (10th Sept. to 23rd Sept.) is the pegging stage of groundnut.

2. Weekly minimum temperature showed significantly increasing trend in MSW 3, 8, 9, 12, 13, 15, 19, 44, 45, 48, 51 and 52. The MSW 44-45th (Oct. 29 to Nov. 11) is the mid season of cotton crop. MSW 48 (Nov. 26 to 2nd Dec) and MSW 51 and 52 (Dec. 17th to 30th Dec) is the germination and booting stage of wheat and growing and flowering stage of cumin respectively

(Action: RS, Main Dry Farming Research Station, JAU, Targhadia)

10.5.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

10.5.3.1 Effect of Pre-Cooling Treatments and Packaging Materials for Extending the Initiation of Ripening and Self Life of Mango c.v. *Alphonso*.

The Recommendation is approved after considering the suggestions.

The recast recommendation is

Farmers and merchants are advised to pre-cool the Alphonso mango fruit at 10°C in pre-cooling room with air movement of 300-350 m^3/min for 8h to achieve the fruit core temperature of 10±1ºC, and pack them in 75micron polypropylene bag to store at 11±1ºC with 90-95% RH. This could delay the initiation of ripening process up to 15days of storage and extend the shelf life up to 30 days.

ખેડુતો અને વેપારીઓ ને ભલામણ કરવામા આવે છે કે, હાફૂસ કેરીના ફળ ઊતાર્યા બાદ ફળને પ્રિકુલીંગ રૂમમાં ૧૦° સે. તાપમાને અને ૩૦૦–૩૫૦મી^{3}/મી હવાના પ્રવાહમાં ૮ કલાક સુધી પ્રિકુલ કરવા જેથી ફળનુ મધ્ય તાપમાન ૧૦ ફ્ય૧° સે. લાવી શકાય અને ત્યાર બાદ ૭૫ માઈક્રોનની પોલીપ્રોપેલીનની બેગમાં બંધ કરી ૧૧ ફ્ય ૧° સે. તાપમાન અને ૯૦–૯૫ % આદ્રતા એ સંગ્રહ કરવાથી તેની પાકવાની પ્રક્રિયા ૧૫ દિન સુધી મોડી કરી શકવાની સાથે સાથે તેની ટકાઉ ક્ષમતા ૩૦ દિવસ સુધી વધારી શકાય છે.

(Action: I/c. PHTC, NAU, Navsari)

10.5.3.2 Study on ripening of banana using ethylene gas.

The house approved the recommendation with recasting the language.

The recast recommendation is

The farmers and venders are recommended to ripe the Grand Naine banana in sealed ripening chamber for 48hours at 16^0c and 90-95% rh with air movement of 150-200m^3/min as well as 100ppm ethylene gas concentration and then putting the banana under same circulatory air for 48 hours, which resulted in uniform yellow colour and ripening.

ખેડુતો અને વેપારીઓ ને ભલામણ કરવામા આવે છે કે, સામાન્ય રીતે 'ગ્રાન્ડ નાઈન' કેળાને પકવવા માટે, ૧૬° સે. તેમજ ૧૦૦ પીપીએમ ઈથીલીન ગેસમાં બંધ પકવવાના કોઠારમાં ૯૦–૯૫ % આદ્રતા એ ૧૫૦–૨૦૦મી^{3}/મી હવાના પ્રવાહમા ૪૮ કલાક રાખી ત્યાર બાદ ૪૮ કલાક ફરતી હવામાં રાખવા જેથી એક સરખા પીળા કલરના કેળા પાકે છે.

(Action: I/c. PHTC, NAU)

10.5.3.3 Study on roof water harvesting to tackle the problem of drinking water scarcity in rural areas of South Gujarat.

The house approved the recommendation with recasting the language.

The re-casted recommendation is

Part-A

Roof top rain water harvesting is recommended for collecting potable water. Storage capacity of tank should be approximately 1000 L/ capita/yr., constructed in such a way that no light or air enters inside to prevent bacterial growth and the tank may at least 0.5 m above ground level to prevent direct entry of runoff water. Water from the tank could be pumped out by means

of hand pump or electric operated self priming shallow lift pump.

Precautions to be adopted are:

- Roof tops and conveyance pipes should be thoroughly cleaned at the time of onset of monsoon. First flush of rain water should be allowed to bypass the storage tank, as well as during long gaps between two rainy events.
- Roof water may be allowed to pass through gravel – sand filter, consisting of layers (30 -50 cm) of coarse sand, 25 mm gravel, 50 mm gravel to remove organic impurity.
- Calcium Carbonate powder kept in earthen pots (7 L capacity / 5000 L), tied with muslin cloth on the mouth may be submerged into the storage tank.
- Walls of tank could be white washed with lime solution.
- Anaerobic bacteria may develop with time which could be removed by boiling / adding 0.5 g tablet of chlorine in 20 L of water / storage of water in copper vessel for 8 – 10 hrs / by using commercially available UV filter.

Part-B

To disinfect drinking water against any microbial activity, water could be safely stored in a copper vessel for 12 h and 24 h to reduce Total Coliform by 85% and 90 % and total bacterial count by 67 and 81 %, respectively.

ભાગ–અ

જે વિસ્તારોમાં ચોમાસા પછી પીવાના પાણીની તીવ્ર અછત્ત હોય ત્યાં મકાનની છત પરથી વરસાદનું પાણી સંગ્રહ કરવાની ભલામણ કરવામાં આવે છે. સુક્ષ્મ જીવાણુઓનો વિકાસ ન થાય તે માટે ૧૦૦૦ લીટર/વ્યકિત/વર્ષ ક્ષમતા ધરાવતી ટાંકી એવી રીતે બનાવવી કે જેથી પ્રકાશ અને હવાની અવર જવર ન થાય. પાણીની ટાંકી જમીનની સપાટીથી અડધો મીટર (૦.૫ મીટર) ઉપર રાખવી કે જેથી વરસાદ ના કારણે જમીનના ધોવાણવાળુ પાણી ટાંકીની અંદર આવતું રોકી શકાય. આ વરસાદી પાણીને ડંકી અથવા ઈલેકટ્રીક મોટર વડે બહાર કાઢી તેનો જરૂરીયાત મુજબનો વપરાશ કરી શકાય.

ધ્યાનમાં રાખવા જેવી બાબતો

- ચોમાસામાં વરસાદ આવતા પહેલાં અગાસીની છત અને ટાંકીની જોડાણવાળી પાઈપો સાફ કરવી તેમજ પહેલા વરસાદના પાણીનો સંગ્રહ ન કરતાં તેને પાઈપ દ્વારા બહાર જવા દેવું.
- છતના પાણીમાં રહેલી સેન્દ્રીય અશુધ્ધિઓ દુર કરવા પાણીના સંગ્રહની ટાંકી પહેલા તેને ૩૦ – ૫૦ સેમી.ના અનુક્રમે રેતી, નાની કાંકરી અને મોટી કાંકરી ના આવરણ માંથી પસાર કરવું.
- ૫૦૦૦ લીટર ની ક્ષમતા ધરાવતી પાણીની ટાંકી માં ૭ લીટર ની ક્ષમતા વાળા માટીના માટલામાં કળીચુનો ભરી તેને માજરપાટના કપડાથી બાંધી ટાંકીમાં ડુબાડી દેવું.
- ટાંકીની દીવાલોને પણ કળીચુનાથી રંગવી.
- ઉપરોકત કાળજીઓ છતાં સમય જતાં અનએરોબીક બેકટેરીયાનો વિકાસ થઈ શકે છે. તેને અટકાવવા માટે પાણીનો ઉપયોગ કરતાં પહેલા તેને ગરમ કરવું અથવા ૦.૫ ગ્રામ કલોરીનની ગોળી ૨૦ લીટર પાણીમાં નાખવી અથવા પાણીનો ઉપયોગ કરતા પહેલા તેને ૮ – ૧૦ કલાક કોપરના વાસણ/પાત્રમાં રાખવું અથવા બજારમાં મળતા યુવી ફિલ્ટરનો ઉપયોગ કરવો.

ભાગ–બ

પીવાના પાણીને કોઈ પણ પ્રકારના સુક્ષ્મ જીવાણઓ રહીત કરવા માટે તેને કોપરના પાત્રમાં ૧૨ અને ૨૪ કલાક સંગ્રહ કરવાથી અનુક્રમે ૮૫ અને ૯૦ % ટોટલ કોલીફોર્મ અને તથા ૬૭ અને ૮૧ % ટોટલ બેકટેરીયલ કાઉન્ટ ઘટાડી શકાય છે.

(Action: Professor and Head, NRM, COF, Navsari)

10.5.3.4 Rainfall analysis of Dediapada taluka of Narmada district of Gujarat.

The house approved the recommendation with following suggestion.

The recast recommendation is

Farmers of Dediapada taluka are recommended to proceed for kharif sowing operations from 27th SMW(first week of July). Farmers are also advised for *in-situ* moisture conservation and runoff collection in tanks during active monsoon for providing supplemental irrigation at critical stages of rain-fed crops after the withdrawal of rainfall i.e. 36th SMW (first week of September) to get maximum production.

ડેડીયાપાળા તાલુકા વિસ્તારોના ખેડૂતોને જુલાઈ મહિનાના પ્રથમ અઠવાડિયાથી વાવેતર કરવાની ભલામણ કરવામાં આવે છે. ખેડૂતોને વરસાદનું પાણી પોતાના ખેતરમાં રોકવા માટે બંધપાળા તેમજ વહેતા પાણીનો સંગ્રહ કરવા ખેત તલાવડી બનાવવાની ભલામણ કરવામાં આવે છે કે જેથી વરસાદી પાકોમાંથી મહત્તમ ઉત્પાદન મેળવવા સપ્ટેમ્બર મહિનાના પ્રથમ અઠવાડિયા પછી પાકોને પુરક પિયત કરી શકાય.

Suggestion:

1. **"**first week of July" is to be replaced with "onset monsoon" and accordingly SMW

(Action: Principal, PAE, Dediapada)

10.5.3.5 Effect of irrigation and mulching on productivity of summer seasamum in South Gujarat condition.

The house approved the recommendation.

The recommendation is

The farmers of South Gujarat heavy rainfall zone-I are advised to grow sesamum during summer instead of paddy by keeping row spacing of 45 cm on flat bed or 4 rows at 30 cm on raised bed of 120 cm top width and furrow of 60 cm wide and 15-20 cm deep. They are further advised to apply total of 8-9 irrigations at an interval of 10-12 days. Mulching with paddy straw was not found economical in sesamum (s) crop despite of significant increase in seed yield due to mulching.

દક્ષિણ ગુજરાત ભારે વરસાદ ખેત આબોહવાકીય વિભાગ –૧ ના ખેડૂતોને ભલામણ કરવામાં આવે છે કે, ઉનાળુ ડાંગરના બદલે ઉનાળુ તલનું વાવેતર બે હાર વચ્ચે ૪૫ સે.મી.નું અંતર રાખી કરવુ અથવા ૬૦ સે.મી. પહોળાઈ અને ૧૫– ૨૦ સે.મી. ઉંડાઈની નીક સાથેના ૧૨૦ સે.મી. પહોળાઈના ગાદી કયારા બનાવી તેના પર ૩૦ સે.મી.ના અંતરે ચાર હારનું વાવેતર કરવુ. તલ પાકને કુલ ૮–૯ પિયત ૧૦–૧૨ દિવસના અંતરે આપવાની ભલામણ કરવામાં આવે છે. જો ઉનાળુ તલના પાકને ડાંગરના પરાળનું આવરણ કરવામાં આવે તો ઉત્પાદનમાં વધારો થાય છે. પણ આર્થિક દ્રષ્ટિએ પોષણક્ષમ નથી.

(Action: Research Scientist, SWMRU, Navsari)

Scientific Recommendation

10.5.3.6 Rainfall analysis of Dediapadataluka of Narmada district of Gujarat.

The house approved the recommendation.

The recommendation is

- 27th SMW receives 24 mm, 26 mm and 35 mm rainfall amount at 75 %, 71 % and 60% probability respectively.
- Rainfall is withdrawn after 39th, 38th and 36th SMW at 50 %, 60 % and 75 % probability respectively.
- The length of *kharif* season is 112, 105 and 70 days at 50 %, 60 % and 75 % probability respectively.
- There are 60 and 75 % probability to get sufficient rainfall for rainfed crops (> 10 mm) for continuous 11 SMW (77 days) with 31 rainy days from 27th to 37th week and 10 SMW (70 days) with 21 rainy days from 27th to 36th week respectively. Supplementary irrigation is not required during this period.
- Log-Pearson type III distribution is best fitted among the Normal, Log-normal, Pearson, Log-Pearson and Gumbel distribution for maximum one-day rainfall as it gives lowest chi-square value of 22.83.
- Spillway may be designed for maximum one-day rainfall for different returns periods from Log-Pearson type III distribution i. e. 5, 10, 15, 20, 25, 50 and 100 years are respectively 189, 245, 280, 307, 329, 405 and 493 mm.

(Action: Principal, PAE, Dediapada)

10.5.4 SARDARKRISHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SKNAGAR

Scientific Recommendation

10.5.4.1 Preperationof Flavoured Milk Using Stevia (Rebaudioside A) - A Natural Sweetner.
The house approved the recommendation with recasting the language.

The revised recommendation is
Up to fifty per cent sugar can be replaced by its equivalent quantity (0.0133 g/100ml) of stevia (rebaudioside A)(intense sweetner) for preparation of flavoured milk, without bitterness which is recommended by SDAU for the dairy industries.

ડેરી ઈન્ડસ્ટ્રીઝને ફ્લેવર્ડ મીલ્ક (દુધ) બનાવવા માટે ૫૦ ટકા ખાંડની જગ્યાએ સ.દાં.કૃ.યુ. ધ્વારા ભલામણ કરેલ સ્ટીવીયા (નેચરલ સ્વીટનર) સુકોઝની મીઠાસની યોગ્ય માત્રા પ્રમાણે વાપરવા ભલામણ કરવામાં આવે છે.

(Action: Department of LPT, College of Veterinary Science and Animal Husbandry, S.D.A.U., Sardarkrushinagar.)

10.5.4.2 Study on Technological Parameters for Preparation of Sandesh from Buffalo Milk.
The house approved the recommendation with recasting the language.

The revised recommendation is
Good quality sandesh can be prepared from Buffalo milk standardized to 5 % fat, addition of 0.3 % sodium citrate prior to heating and coagulation, homogenization of milk at 1500 and 500 psi pressure, final heating at 90 ^{o}C, coagulation temperature of 70 ^{o}C and cooking temperature of 70 ^{o}C for 20 minute. The standardized process developed to prepare sandesh by SDAU is recommended for entrepreneurs and Indian dairy industries.

આથી મીઠાઈ બનાવતા એકમ તેમજ ડેરી ઉદ્યોગકારોને ભેંસના દુધમાંથી સારી ગુણવતા ધરાવતુ સંદેશ બનાવવા ૫% ફેટનુ લેવલ રાખવુ તેમજ ૦.૩ % સોડીયમસાઈટ્રેટ દુધને ગરમ અને કોગ્યુલેશન કરતા પહેલા ઉમેરવુ. ત્યારબાદ આ દુધને ૧૫૦૦ અને ૫૦૦ પીએસઆઈ પ્રેસરે હોમોજીનાઈઝેશન કરવું અને છેલ્લે ૯૦° સેન્ટીગ્રેડ તાપમાને ગરમ કરવુ. કોગ્યુલેશન તાપમાન ૭૦° સેન્ટીગ્રેડ રાખી ૨૦ મીનીટ સુધી ૭૦° સેન્ટીગ્રેડ કુકીંગ તાપમાને રાંધવુ.આ પદ્ધીયાથી બનાવેલ સંદેશ ખુબજ સારી ગુણવતાવાળુ બને છે.

(Action: Department of LPT, College of Veterinary Science and Animal Husbandry, S.D.A.U., Sardarkrushinagar.)

New Technical Progrsmmes :

Sr. No.	Title	Suggestion	Action to be taken by
10.5	**ENGINEERING, FOOD PROCESSING**		
10.5.1	**ANAND AGRICULTURAL UNIVERSITY, ANAND**		
10.5.1.1	Use of Basil (Tulsi-Leaves) as flavouring ingredient in the manufacture of ice cream	Approved	[Action: Prof & Head, Dept of DT, DSC]
10.5.1.2	Application of Solar Energy in Unit Operations for Milk & Milk Product Processing	Approved	[Action: Prof & Head, Dept of DE, DSC]
10.5.1.3	Development of Technology for production of ACE-inhibitory Bioactive peptides through fermentation of soy milk and bovine milk	Approved	[Action: Prof & Head, Dept of DM, DSC]

10.5.1.4	Evaluation of selected natural food additives for their suitability to enhance the quality of dairy products	Approved	[Action: Prof & Head, Dept of DC, DSC]
10.5.1.5	Development of blend juice based on bottle gourd	Approved	[Action: Prof & Head, Dept of PHET, FPTBE]
10.5.1.6	Development of Solar-Hybrid Refrigeration technology for on-farm safe transient storage of horticultural produce.	Approved	[Action: Prof & Head, Dept of PHET, FPTBE]
10.5.1.7	Design and Development of Grader for Aonla Fruits.	Approved	[Action: Prof & Head, Dept of FPT, FPTBE]
10.5.1.8	Development of osmotically dehydrated whole aonla fruit.	Approved	[Action: Prof & Head, Dept of FPT, FPTBE]
10.5.1.9	Development of Nutri-rich Pumpkin Bar	Approved	[Action: Prof & Head, Dept of FQA, FPTBE]
10.5.1.10	Evaluation of synthetic food colours in selected food products	Approved	[Action: Prof & Head, Dept of FQA, FPTBE]
10.5.1.11	Development of high fibre bakery products using anola and carrot pulp after juice extraction	Approved	[Action: Prof & Head, Dept of Horticulture, BACA]
10.5.1.12	Development of a modified manual twin wheel weeder	Approved with following suggestion/s Availability and performance of various twin wheel weeders needs to be taken in consideration by incorporating more intensive observations on machine components & field applications.	(Action: PI/HOD/Principal, CEAT, Godhra)
10.5.1.13	Development of a low cost planting unit for conventional plough	Approved with following suggestion/s 1. Height of hopper /seed metering mechanism needs to be lowered 2. Additional observation on soil properties, field conditions, draft, weight, seed damage ,germination percentage etc needs to be	(Action: PI/HOD/Principal, CEAT, Godhra)

		ensured. 3. Information on metering configuration, number and size of blade must find place in the study with possibility of reduced hopper size & alternate location of wheel.	
10.5.1.14	Development of Solar Powered Air Cooler	Project was Not Approved House differed the project	(Action: PI/HOD/Principal, CEAT, Godhra)
10.5.1.15	Performance Evaluation of the developed biomass combustor for drying of ginger & turmeric	Approved with following suggestion/s 1. Title should be framed in tune with the objectives 2. Refine the Objectives 3. Design and development aspects of dryer should be taken with biomass combustion for drying ginger and turmeric	(Action: PI/HOD/Principal, CEAT, Godhra)
10.5.1.16	Design and development of a throat type down draft biomass gasifier for thermal application	Approved with following suggestion/s Adopt updraft biomass gasifier for maize cob as it is used for thermal application	(Action: PI/HOD/Principal, CEAT, Godhra)
10.5.1.17	Comparative Study on Various Drying Techniques of Cluster Bean	Approved with following suggestion/s Pretreatment of cluster bean to be accounted before drying	(Action: PI//Principal, PAE, Dahod)
10.5.1.18	Parameterization of probability models for SUH derivation using Geomorphological model of a catchment response	Approved	(Action: PI//Principal, PAE, Dahod)
10.5.1.19	Web-Based Farm Management Information System	Approved	(Action: PI/HOD, Principal, AIT, Anand)

10.5.1.20	Web-based Pesticide Information System (WPIS) for Chilli crop	Approved with following suggestion/s Incorporate the provision for making availability of weather/ metrological based data/ information on the system/ web portal	(Action: PI/HOD, Principal, AIT, Anand)
10.5.1.21	Web Based Application: e-Student Corner with Attendance and Result Modules	Approved with following suggestion/s Incorporate some of the critical parameters like fees paid and its relevant information for each student on the proposed portal	(Action: PI/HOD, Principal, AIT, Anand)
10.5.1.22	Web User Interface Assisted Document Management System	Approved	(Action: PI/Director IT, Anand)
10.5.1.23	Web based Capacity Building programme for the AAU	Approved	(Action: PI/Director IT, Anand)
10.5.1.24	Online Objective/MCQ examination for Anand Agricultural University	Approved	(Action: PI/Director IT, Anand)
10.5.1.25	Fertilizer recommendation for the Web Based Soil Health Card Portal	Approved	(Action: PI/Director IT, Anand)
10.5.2	**JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH**		
10.5.2.1	Study on determining storage losses of food grains in fci and cwc warehouses and to recommend norms for storage losses in different warehouse management	Approved	(Action: RE, PHTS, PFE, CAET, JAU, Junagadh)
10.5.2.2	Separation of extruded product from flour of amaranth grain, sago and defatted groundnut	Approved with following suggestion/s Drynig, Packaging and shelf life to be incorporated.	(Action: RE, PHTS, PFE, CAET, JAU, Junagadh)
10.5.2.3	Assessment of microbial floral strength during post harvest handling of mango, custard apple and lemon	Approved	(Action: RE, PHTS, PFE, CAET, JAU, Junagadh)
10.5.2.4	Development of power operated sapota cleaner	Approved with following suggestion/s Drum speed should be used in place of cleaner speed	(Action: RE, PHTS, PFE, CAET, JAU, Junagadh)
10.5.2.5	Evaluation of recharge techniques for Junagadh region	Approved with following suggestion/s Write “ground water recharge” in place of “recharge” in the project title	(Action: Professor & Head, Department of SWE, CAET, JAU, Junagadh)

10.5.2.6	Estimation of irrigation demand for different crops of Ozat river basin using Remote Sensing and GIS	Approved	(Action: Professor & Head, Department of SWE, CAET, JAU, Junagadh)
10.5.2.7	Irrigation scheduling of wheat under high discharge drip irrigation	Approved	(Action: Professor & Head, Department of SWE, CAET, JAU, Junagadh)
10.5.2.8	Response of groundnut to salt tolerance	Approved with following suggestions Replace "salinity levels" by "irrigation water salinity levels" in the experiment title.	(Action: Research Scientist (Agril. Engg.), RTTC, JAU, Junagadh)
10.5.2.9	Development of an online programme for HRD management	Approved	(Action: Prof.& Head, PFE, CAET, JAU, Junagadh)
10.5.2.10	Development of a resting stand to be used after milking for the prevention of mastitis in milch animals	Approved	(Action: Professor & Head, Department of FMP, CAET, JAU, Junagadh)
10.5.3	**NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI**		
10.5.3.1	Estimation of wet & dry spells in Dediapada region using stochastic analysis of long-term weather data	Approved with following suggestions. "weekly" should be used in place of "daily".	(Action: Asst. Prof., CAE, Dediapada)
10.5.3.2	Study relating to formulating long-term mechanization strategy for Dediapada taluka	Approved	(Action: Asst. Prof., CAE, Dediapada)
10.5.3.3	Effect of pre-treatment on quality attributes of dehydrated green chilli powder	Approved with following suggestions. The objectives-1 and 2 should be interchanged.	(Action: Asst. Prof., PHTC, Navsari)
10.5.3.4	Feasibility study to assess the use of recycled grey water for irrigation	Approved	(Action: Prof.& Head, NRM, ACF, Navsari)
10.5.3.5	Development of integrated rain water resource management module for coastal areas of South Gujarat	Approved	(Action: Prof. & Head, NRM, ACF, Navsari)
10.5.3.6	Study on sub-surface placement of lateral having inline dripper of varying discharge rates and spacing in sugarcane	Approved	(Action: Asstt. Res. Sci., SWMRU, Navsari)
10.5.4	**SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY,S.K.NAGAR**		
10.5.4.1	Studies on fresh and stored goat meat patties fortified with dietary fibers.	Approved with following suggestions. 1. Approved only as a	(Action: Prof. & Head, Department of

		feeler trial 2. Experimental details with complete plan of work should be presented in Next AGRESCO	Livestock Products Technology, College of Veterinary Science and Animal Husbandry, S.D.A.U., Sardarkrushinagar.)
10.5.4.2	Development of value added kalakand using papaya fruit.	Approved with following suggestions. 1. Addition of pulp and sugar in the milk instead of replacement 2. Stage of addition of pulp should be highlighted	(Action: Prof. & Head, Department of Livestock Products Technology, College of Veterinary Science and Animal Husbandry, S.D.A.U., Sardarkrushinagar.)
10.5.4.3	Studies on chicken seekh kabab Incorporated with citrus fruit by-products.	Approved with following suggestions. 1. Approved only as a feeler trial 2. Experimental details with complete plan of work should be presented in Next AGRESCO	(Action: Prof. & Head, Department of Livestock Products Technology, College of Veterinary Science and Animal Husbandry, S.D.A.U., Sardarkrushinagar.)
10.5.4.4	Development and Evaluation of Nutritious and cost effective weaning food.	Project was Not Approved House differed the project	(Action: Prof. & Head, Dept. of Food Science and Nutrition, ASPEE College of Home Science & Nutrition, S.D.A.U., Sardarkrushinagar)

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10.6 BASIC SCIENCES

Chairman	**:**	**Dr. R. S. Fougat, Professor & Head, Department of Agril. Biotechnology, AAU, Anand**
Co-Chairman	**:**	**1. Dr. (Miss). C. K. Manadavia, Professor & Head, GPB, JAU, Junagadh** **2. Dr. B. A. Golakia, Professor & Head, Biotechnology, JAU, Junagadh**
Repporteurs	**:**	**1. Dr. S. R. Vyas, SDAU, Sardarkrushinagar** **2. Dr. Chintan Kapadia, NAU, Navsari**
Speakers	**:**	**Respective Convenors AAU, JAU, NAU & SDAU**

Number of recommendations and new technical programmes presented, discussed and approved

Name of SAUs	**No. of Recommendations**				**No. of New Technical Programmes**	
	For Farming Community		**For Scientific Community**			
	Proposed	**Approved**	**Proposed**	**Approved**	**Proposed**	**Approved**
AAU	-	-	2	2	7	7
JAU	2	2	-	-	6	5
NAU	1	1	-	-	22	20
SDAU	-	-	-	-	4	3
Total	**3**	**3**	**2**	**2**	**39**	**35**

10.6.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Information for the scientific community

10.6.1.1	**Department of Agril. Biotechnology, AAU, Anand**
	Survey and Collection of Saffron germplasm
	"Flowering can be successfully induced in Saffron outside its natural habitat under controlled environmental conditions (Temperature: 20-25°C, Humidity: 35-70% and Direct Sunlight: 10 hours per day) for carrying out downstream gene expression and molecular biology studies related to colour and flavour principles". Approved (Action : Professor & Head, Department of Agril. Biotechnology, AAU, Anand)
10.6.1.2	**Department of Agril. Biotechnology, AAU, Anand**
	Validation of newly developed SSR markers of *Plantago ovata*
	"Genomic SSR markers of *Plantago ovata* are highly transferable among its allied species and hence can be successfully utilized for improvement of isabgol crop

	through marker assisted breeding". Approved with a suggestion that sequence of SSR markers should be given. (Action : Professor & Head, Department of Agril. Biotechnology, AAU, Anand)

10.6.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Recommendations for the farming community

10.6.2.1	**Regional Cotton Research Station, JAU, Junagadh**
	Effect of NAA on seed cotton (*Gossypium hirsutum* L.) yield
	The farmers of South Saurashtra Agro Climatic Zone growing Bt cotton under irrigated condition are advised to spray growth promoter Naphthalene Acetic Acid (NAA) @ 30 ppm(300 mg /10 lit. water) at 50 DAS & 70 DAS for better growth to obtain higher seed cotton yield and net return. This is due to high chlorophyll content, increase in plant height, thickness of leaves, length of sympodia, number of squares and number of bolls. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં પિયત બી.ટી. કપાસનું વાવેતર કરતા ખેડૂતોને વધારે ઉત્પાદન, વધુ આર્થિક વળતર અને ખર્ચના પ્રમાણમાં વધુ નફો મેળવવા માટે કપાસની સારી વૃધ્ધિ કરવા કપાસમાં ૫૦ દિવસે અને ૭૦ દિવસે ૩૦ પીપીએમ (૩૦૦ મીલીગ્રામ/૧૦ લી. પાણીમાં) વૃધ્ધિ વર્ધક નેપ્થેલીન એસિટીક એસિડનો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. પાનનાં હરિતદ્રવ્ય, છોડની ઉંચાઈ, પાનની જાડાઈ, ચાંપવા, સિમ્પોડીયાની લંબાઈ તેમજ જીંડવાની સંખ્યામાં વધારાના કારણે ઉત્પાદનમાં વધારો થાય છે. Approved (Action : Research Scientist (Cotton), Regional Cotton Research Station, JAU, Junagadh)
10.6.2.2	**Regional Cotton Research Station, JAU, Junagadh**
	Effects of plant growth regulators on buds and bolls shedding in cotton (*Gossypium hirsutum* L.).
	The farmers of South Saurashtra Agro Climatic zone growing Bt cotton under irrigated condition are advised to spray growth inhibitor Cycocel / Chlormequat Chloride (CCC) @ 40 ppm at 90 DAS (400 mg / 10 lit. water) for minimizing buds and bolls shedding to obtain higher seed cotton yield and net return. This is due to high chlorophyll content, increase in thickness of leaves, number of squares, number of bolls and minimum boll shedding. દક્ષિણ સૌરાષ્ટ્ર ખેત આબોહવાકિય વિસ્તારમાં પિયત બી.ટી. કપાસનું વાવેતર કરતા ખેડૂતોને ચાંપવા અને જીંડવા ખરતા અટકાવી વધારે ઉત્પાદન, વધુ આર્થિક વળતર અને ખર્ચના પ્રમાણમાં વધુ નફો મેળવવા માટે કપાસ પાકમાં ૯૦ દિવસે ૪૦ પીપીએમ(૪૦૦ મીલીગ્રામ/૧૦લી.પાણીમાં) વૃધ્ધિનિયંત્રક સાયકોસેલ / કલોરમેકવેટ કલોરાઈડ (સીસીસી) નો છંટકાવ કરવાની ભલામણ કરવામાં આવે છે. પાનનાં હરિતદ્રવ્યમાં તથા જાડાઈમાં વધારો તેમજ જીંડવાનું ખરણ ઘટતા જીંડવાની સંખ્યામાં વધારો થવાના કારણે ઉત્પાદનમાં વધારો થાય છે. Approved **(Action :** Research Scientist (Cotton), Regional Cotton Research Station, JAU, Junagadh)

10.6.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Recommendations for the farming community

10.6.3.1	**Physiology, NARP, NAU, Navsari**
	"Effect of growth substances on growth and yield of rice variety NAUR-1 in summer season"
	The farmers of AES III of south Gujarat zone growing transplanted rice during summer are advise to treat the seed with thiourea @1000 ppm for 12 h before sowing and also spray thiourea solution of 1000 ppm(1 g/l) at second leaf stage of rice nursery for obtaining higher grain yield. Approved with following text: The farmers of AES III of South Gujarat Zone growing transplanted rice during summer are advised to treat the seed with thiourea @1000 ppm (1 g / 1 litre of water) for 12 h for raising the seedlings and also spray thiourea solution of 1000 ppm (10 g/ 10 litre of water) at second leaf stage of rice nursery for obtaining higher grain yield. The house also approved Gujarati recommendation with following text. દક્ષિણ ગુજરાતના ખેત આબોહવાકીય પરિસ્થિતી–૩ ના ઉનાળુ ડાંગર વાવતા ખેડૂતોને સલાહ આપવામાં આવે છે કે, ધરૂ નાંખતા પહેલા બિયારણને ૧૨ કલાક સુધી ૧૦૦૦ પી.પી.એમ. થાયોયુરીયા (૧ ગ્રામ/ ૧ લીટર પાણી) ના દ્રાવણમાં માવજત આપવી અને ધરૂનું બીજુ પાન નીકળે ત્યારે થાયોયુરીયાનું દ્રાવણ ૧૦૦૦ પી.પી.એમ. (૧૦ ગ્રામ/ ૧૦ લીટર) નો છંટકાવ કરવાથી ડાંગરનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે. **(Action :** Res. Sci., SWMRU, N.A.U., Navsari)

10.6.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

NEW TECHNICAL PROGRAMMES

Sr. No.	Title	Suggestions	Action to be taken by
10.6.1.1	Mining and validation of EST-SSR for gum (galactomannan) in Gur	Approved with following suggestions. 1. Include the name of varieties. 2. The objectives should be modified as under I. Data mining and processing of EST sequences of guar related to gum. II. Validation of EST-SSR in selected varieties of guar for gum content.	Professor & Head, Department of Agril. Biotechnology, AAU, Anand

10.6.1.2	Mining and validation of EST-SSR for fibre development in cotton	Approved with following suggestions. 1. Include the name of varieties. 2. The objectives should be modified as under I. Data mining and processing of EST sequences of cotton related to fibre quality. II. Validation of EST-SSR in selected varieties of cotton for fibre quality.	Professor & Head, Department of Agril. Biotechnology, AAU, Anand
10.6.1.3	Micro propagation technology development in pomegranate var. Bhagwa	Approved with following suggestions. 1. Design should be simple CRD instead of Factorial CRD. 2. Repetition : 3 3. Observations should be recorded on 10 explants per treatment. **4.** Treatments should be laid down with basal medium + different concentrations of growth hormones.	Professor, Plant Tissue Culture Laboratory, Department of Agril. Biotechnology, AAU, Anand
10.6.1.4	Green synthesis of metallic nanoparticles and their antimicrobial activity against plant pathogens	Approved with following suggestions. 1. Concentrate on one nanoparticle especially Zinc instead of many metallic nanoparticles.. 2. In plant extract to be used, include Ardusa. 3. Instead of molecular weight of particle, measure zeta potential.	Professor & Head, , Department of Nanotechnology, AAU, Anand
10.6.1.5	Morphological and physiological effects of hydrophobic soil on growth of maize.	Approved with following suggestions. 1. Include soil respiration and total soil microbes count in observation.	Professor & Head, , Department of Nanotechnology, AAU, Anand

10.6.1.6	Influence of plant growth regulators and chemicals on growth and yield attributes parameters in Isabgol (*Plantago ovata* L.)"	Approved with following suggestions. 1. Plot size should be corrected. 2. Name of the variety, GI 2 should be mentioned. 3. Record the physiological parameters at 60 DAS, 90 DAS and at harvest. 4. Include the test weight in yield parameters and delete leaf area from physiological parameters. 5. Chemicals and PGR will be sprayed after 45 DAS; not after transplanting of 45 of days. 6. Replace the word chemicals in title with KCI.	Research Scientist, Medicinal and Aromatic Plants Project, AAU, Anand
10.6.1.7	"Heat stress management in wheat in resilience with climate change under conserved moisture conditions"	Approved with following changed title. Sustaining the yield of un-irrigated wheat crop in Bhal region through PGRs and chemicals. The following change was also suggested. 1. Include glycine betaine content in biochemical observations.	Associate Research Scientist, AAU, Dhandhuka

10.6.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

NEW TECHNICAL PROGRAMMES

Sr. No.	Title	Suggestions	Action to be taken by
10.6.2.1	Effect of various seed treatments on germination behaviour of *Kydia calycina* Roxb.	Approved with a suggestion to delete the word "behaviour" from the title of the experiment and in treatment No. 14, the word cracking should be replaced with scrubbing.	Professor & Head, DGPB, Junagadh

10.6.2.2	Effect of date of sowing and pre-treatment of seeds with GA_3 on seed germination and seedling vigour of cumin.	Approved	Professor & Head, DGPB, Junagadh
10.6.2.3	Biochemical and Molecular characterization of Brinjal varieties and promising genotypes.	Approved	Professor & Head, Biotech Department, Junagadh
10.6.2.4	Biochemical and Molecular characterization of Phosphate solubilising bacteria from different soil rhizophere.	Approved	Professor & Head, Biotech Department, Junagadh
10.6.2.5	Effect of organic seed treatment on storability of wheat.	Approved	Professor & Head, DSST, JAU, Junagadh
10.6.2.6	Preparation of extruded products of Amaranth grain, sago and defatted groundnut.	Not approved because the objectives of the proposed experiment were not clear and did not match with the observations to be recorded.	Professor & Head, Department of Processing and Food Engineering, JAU, Junagadh

10.6.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

NEW TECHNICAL PROGRAMMES

Sr. No.	Title	Suggestions	Action to be taken by
10.6.3.1	"Post harvest effect of salicylic acid (SA) on shelf life and quality characteristics of banana"	Approved with following suggestions. 1. Recast the title as "Effect of salicylic acid (SA) on shelf life and quality characteristics of banana". 2. Time Intervals for recording observations should be mentioned. 3. Selection of fruits for observation should be done from middle portion of loom. 4. Observations on fruit weight, firmness, shelf life should be recorded at an interval of 2 days till the fruit ripen. 5. All other observations should be recorded at fruit ripening stage. 6. A separate experiment may be	Professor, GABI, Surat

		framed for gene expression studied based on the outcome of the proposed experiment. 7. In observation, lycopene should be removed.	
10.6.3.2	"Metabolic profiling and anatomical study of jassid resistance and susceptible genotype of cotton"	Approved with following suggestions. 1. Include score of jassid population. 2. Replace the word "thickness of phloem" with "width of phloem".	Res. Sci. (Cotton), Surat
10.6.3.3	"Biochemical basis for powdery mildew resistance in mango genotypes "	Approved with following suggestions. 1. Phenol profiling and total soluble sugar should be included. 2. Biochemical studies should be carried out in leaf also.	Professor, GABI, Surat
10.6.3.4	Effect of different cooking conditions on antioxidant properties of some cucurbit vegetables"	Approved with following suggestions. 1. Total antioxidant activities should be estimated in all the treatments. 2. *Parwal* (Pointed gourd) and *Kankoda* (Spine gourd) should be used as experimental material. 3. Parameters for partial/complete cooking should be specified.	Prof. of Agri. Chem, NMCA, Navsari
10.6.3.5	"Identification of RGA markers linked to powdery mildew disease resistance gene in mango resistant genotypes"	Approved with following suggestions. 1. Recast the title as "Identification of R-gene analogues for powdery mildew resistance in mango". 2. Delete second objective.	Professor, GABI, Surat
10.6.3.6	"Development of SCAR marker linked to sex determination in papaya cv. Madhu Bindu"	Not approved Since, similar work is being carried out by JAU, Junagadh and there is no need to repeat the experiment.	Professor, GABI, Surat

10.6.3.7	"Identification of biochemical changes associated in different sorghum genotypes against shoot fly, *Atherigona soccata*"	Approved with following suggestions. 1. Recast the title as "Identification of biochemical changes associated with shoot fly (*Atherigona soccata*) infestation in sorghum genotypes".	Professor, GABI, Surat
10.6.3.8	"Identification of sex linked DNA markers for sex determination in Date palm *(Phoenix dactylifera*)."	Approved with following suggestions. 1. Validate the identified SSR markers on seed raised progenies.	Professor, GABI, Surat
10.6.3.9	"Structural and Functional studies of NAL1 protein using bioinformatics approach in several cereal crops".	Not approved Due to insufficient experimental details.	Professor, GABI, Surat
10.6.3.10	**ACHF, NAU, Navsari** "Molecular diversity assessment in geographical collection of Eucalyptus germplasm using DNA based marker system"	Approved	Head, Forest Biotechnology, Navsari
10.6.3.11	"Development of EST-SSR markers in Chilli"	Approved with a suggestion that EST-SSR markers should be targeted for specific traits (anthracnose).	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.12	"Refinement of sucker tip decontamination technique for mass multiplication of banana".	Approved with following suggestions. 1. Recast the title as "Refinement of sucker tip decontamination technique for mass multiplication of banana through tissue culture". 2. Take separate observations on bacterial and fungal contamination. 3. Observation should be recorded at weekly interval.	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.13	"Analysis of genetic fidelity of *in vitro* raised banana plantlets at different subculture level using molecular marker".	Approved with a suggestion that in place of AFLP, SSR markers should be used.	Head of the Department, Biotechnology, ACHF, Navsari

10.6.3.14	"Development of low cost technology for *in vitro* mass multiplication of banana".	Approved	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.15	"Standardization of micropropagation technique in spine gourd. (*Momordica dioca* Roxb.) ".	Approved	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.16	"Micropropagation of *Anthurium*"	Approved	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.17	"Standardization of *in vitro* protocol for clonal propagation of orchids ".	Approved	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.18	"Genetic diversity analysis among promising Nagli (*Eleusine coracana* L.*)* genotypes"	Approved with a suggestion that ISSR markers should be used.	Head of the Department, Biotechnology, ACHF, Navsari
10.6.3.19	**Microbiology** **GABI, NAU, Surat,** "Isolation of endophytes from *Terminalia* species for plant growth".	Approved with following suggestions. 1. Species of *Terminalia* should be specified. 2. Use only non leguminous crop i.e. sorghum. 3. Mention the dose of endophytes to be used. 4. Methodology for identification of endophytes having PGPR activity should be mentioned.	Professor, GABI, Surat
10.6.3.20	**FQTL, NAU, Navsari** "Microbial pigment as food additive to replace chemically synthesized colour"	Approved with following suggestions. 1. Mention the methods of testing toxicity. 2. Characterize colour of pigments using Hue, Value and Chroma parameters. 3. Measure antioxidant activity of colour pigment. 4. Isolated bacterial strains should be categorised in to pathogenic and non-pathogenic and only non-pathogenic strains should be used for food additives.	Professor, FQTL, Navsari

10.6.3.21	"Isolation of microorganisms as single cell protein for food supplement"	Approved with following suggestions. 1. Recast the title as "Isolation and identification of cynobacteria as a source of single cell protein". 2. In objectives, the word "microbes" should be replaced with "bacterial strains". 3. Under methodology, remove the word "pathogenecity" and also include procedure for toxicity testing.	Professor, FQTL, Navsari
10.6.3.22	"Agro waste management with simultaneous Xylanase production for industrial application"	Approved with following suggestions. 1. Recast the title as "Isolation, identification and exploitation of microbes from composting sites for xylanase production for agro waste management"' 2. Pathogenecity of isolated microbes should be checked. 3. Identify the strains by 16S rDNA. 4. Specify the agro waste product. 5. Set the criteria for assessing the level of decomposition.	Professor, FQTL, Navsari

10.6.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

NEW TECHNICAL PROGRAMMES

Sr. No.	Title/Centre	Suggestions	Action to be taken by
10.6.4.1	Quality Profiling of Seed Spices with Respect to Major Constituents and Hazardous Residues.	Approved with following suggestions. 1. Delete the word mandatory from focus crops. 2. Delete minerals from objective no. 6. 3. In objective no. 2, residue analysis for other latest formulations should also be carried out.	Res. Scientist (Seed Spices), SDAU, Jagudan

10.6.4.2	Development of novel bioformulations using organic and inorganic carriers for enhancing PGPR survival in soil for cumin crop.	Not approved Recast the experiment with clear cut objectives and present in next AGRESCO.	Dean, CBSH, SDAU, S. K. Nagar
10.6.4.3	Biochemical and Nutritional Evaluation Of Different Varieties of Maize (*Zea mays* L.)	Approved with following suggestions. 1. Group the genotypes in different categories i.e. variety, hybrid, and land races /genotypes. 2. Carry out Amino Acid and Oil-lipid profiling.	Dean, CBSH, SDAU, S. K. Nagar
10.6.4.4	Development of plant tissue culture protocol for elite papaya (*Carica papaya*) cvs. Honeydew and Coorg Honeydew)	Approved with following suggestions. 1. Mention the explants to be used. 2. Rearrange the sequence of objectives.	CIL, DOR, SDAU, S. K. Nagar

Technical session I & II:

Chairman : Dr. P. P. Patel, DEE, AAU, Anand

Co-Chairman : Dr. A. M. Parakhia, DEE, JAU, Junagadh

: Dr. K. A. Thakkar, DEE, SDAU, S. K. Nagar

Rapporteurs : Dr. Y. C. Zala, Prof. & Head, Agril. Econ., BACA, AAU, Anand

: Dr. N. J. Ardeshna, Asso. Res. Sci., Dep't. of Agril. Econ., JAU, Junagadh

Technical session III & IV:

Chairman : Dr. P. P. Patel, DEE, AAU, Anand

Co-Chairman : Dr. A. M. Parakhia, DEE, JAU, Junagadh

: Dr. K. A. Thakkar, DEE, SDAU, S. K. Nagar

Rapporteurs : Dr. Y. C. Zala, Prof & Head, Agril. Econ., BACA, AAU, Anand

: Dr. N. J. Ardeshna, Asso. Res. Sci., Dep't. of Agril. Econ., JAU, Junagadh

Name of University	Recommendations				New Technical Programme	
	Scientific Community		Farming Community			
	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	**06**	**01**	**-**	**-**	**41**	**40**
JAU	**-**	**-**	**-**	**-**	**05**	**05**
SDAU	**-**	**-**	**-**	**-**	**19**	**19**
NAU	**-**	**-**	**-**	**-**	**22**	**22**

10.7.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Information for the scientific community

Out of six recommendations only one recommendation was approved which is given below.

10.7.1.1	**Agricultural Economics, Agricultural Statistics, Extension Education, Agricultural / Dairy Business Management of AAU, Anand**
	Diversification of Cropping Pattern During Recent Decade in Gujarat State
	• Decline in area of some food-grain crops (like bajra, jowar, and maize), some pulse crops (like pigeon pea, green gram and black gram) and oilseeds (like groundnut and sesamum) in recent decade is a serious concern and needs proper attention by the government.

	• Cotton has emerged as dominant crop in Gujarat State during recent decade and therefore its marketing and export becomes more crucial. A suitable export policy is required for benefit of cotton growers. • The increased area, production and productivity of horticultural crops have resulted into wide scope for its processing and export. Suitable policy measures are required to tap this new opportunity. • Decline in diversification needs more attention towards other measures like crop insurance, value addition, minimum support price, future trading, contract farming, etc for better risk management. Recommended for **Policy Implications** (Action : Prof. & Head, Dept. of Agril. Economics, BACA, AAU, Anand)

10.7.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

NEW TECHNICAL PROGRAMMES

1.	Title : Economic Analysis of Production and Marketing of Soyabean in Middle Gujarat The house accepted the technical programme. (Action: Prof & Head, Department of Agricultural Economics, BACA, AAU, Anand)
2.	Title : A Comparative study of Minimum Support Price (MSP), Farm Harvest Price (FHP) and their Effect on Area of Major Food-grain Crops of Gujarat state House approved with the following suggestions: 1. Use the word "association" instead of "correlation" in objective one. 2. To use multiple regression to address the third objective. (Action: Prof & Head, Department of Agricultural Economics, BACA, AAU, Anand)
3.	Title : Challenges, opportunities and expectation of stakeholders of Dairy Industries of Gujarat House approved with the suggestion to mention the number of districts, talukas and respondents to be selected for the study. (Action :Professor& Head, Department of Dairy Business Management, DSC, AAU, Anand)
4.	Title : Optimized feed model for dairy farmers of Anand taluka in Anand District of Gujarat House approved with the following suggestions: 1. Modify the title of study as "Optimization of feed quantity for dairy farmers of Anand taluka of Anand district of Gujarat". 2. Use random sampling instead of stratified sampling. (Action : Principal, International Agri-Business Management Institute, AAU, Anand)
5.	Title : A comparative study on credit accessibility among farmers of middle Gujarat: Tribal and Non-tribal area House approved with the suggestion to use random sampling technique for the study. (Action : Principal, International Agri-Business Management Institute, AAU, Anand)

6.	Title : Comparative study of milk producer companies vis-à-vis traditional milk cooperatives in Saurashtra region of Gujarat House approved. (Action : Principal, International Agri-Business Management Institute, AAU, Anand)
7.	Title : A study of occupational health problems faced by tobacco farm workers in Anand taluka House approved with the suggestion to replace all the objectives with only two objectives. (i) To study the profile of tobacco farm workers (ii) To identify the health problems of tobacco farm workers. (Action : Principal, International Agri-Business Management Institute, AAU, Anand)
8.	Title : Use of linear programming model to determine the optimum cropping pattern and income level- A case study House approved with the suggestion to change the title of the study as "Determination of optimum cropping pattern and income level – A case study" (Action : Dr. S. K. Meher & P. S. Parsania College of Food Processing Technology and Bio-Energy, AAU, Anand)
9.	Title : Post harvest handling of fresh selected vegetables in Anand district House approved with the suggestion to replace the word in the title "fresh selected" by "selected fresh". (Action: Er. K. V`. Vala (Bio Energy), Er. Rishabh Gupta (Post harvest Engg) and Dr. D. C. Joshi College of FPT & BE)
10	Title : An Enquiry into the problem and prospects of green house in Anand District: A Case Study House approved with the following suggestions: 1. Modify the title of study as "Problems and prospects of green house in Anand district: A case study" 2. Select successful and non successful high cost green house for the study. (Action: Dr. B. L. Dudhat, Asstt. Prof.,&Dr. B.N. Satodiya, Assoc. Prof., College of Horticulture, AAU, Anand)
11	Title: An Economic analysis of summer groundnut production of Tribal area of Chhotaudaipur district (Sukhi Command area) of Middle Gujarat. House approved. (Action: Prof. H. C. Parmar. Asstt. Prof., ARS, AAU, Jabugam,)
12	Title: Grouping of rice (*Oryza sativa* L.) genotypes using cluster analysis. House approved. (Action : Dr. A. N. Khokhar, Assoc. Res. Sci., Main Rice Research Station, AAU, Nawagam)

13	Title: Development and standardization of attitude scale of farmers towards the use of mineral mixture in cattle. House approved. (Action : Dr. J. B. Patel & Dr. N. B. Chauhan, Dept. of Extension Education, BACA, Anand)
14	Title: Development and standardization of attitude scale of farmers towards dehorning in cattle. House approved. (Action : Dr. B. M. Patel & Dr. N. B. Chauhan, Dept. of Extension Education, BACA, Anand)
15	Title : Opinion of the livestock farmers regarding the Ambulatory services provided by Veterinary Science Collage , AAU, Anand House approved. (Action : Dr A.C. Vaidhya, Prof. , Dept. of Veterinary Extension Education, Veterinary College, AAU, Anand)
16	Title: Impact of the Mahila Pasupalan TalimYojana programme on trained women House approved. (Action : Dr. AnkitaKilladar, Prof. & Head, RBRU, Veterinary College, AAU, Anand)
17	Title: Effectiveness of Training methods of Trainers performing at Extension Education Institute, Anand as perceived by Trainees House approved. (Action : Dr. C. P. Desai, Dr. G.M. Patel & Dr. A.C. Patel, Extension Education Institute, Anand)
18	Title: Assessment of training needs of the state officials of agriculture and allied departments of western India House approved. (Action : Dr. M. R. Patel, Extension Education Institute), Anand)
19	Title: Attitude of Brinjal growers about CV. Gujarat oblong Brinjal- 1 (GOB-1) released by AAU. House approved with the following suggestions: 1. Modify the objective " to measure the attitude of brinjal growers about Cv. Gujarat Oblong Brinjal -1. " 2. Add second objective as "to test the reliability of the above mentioned scale." (Action : Dr. D. D. Patel, Extension Education Institute, Anand)
20	Title: Attitude of Extension Functionaries towards ATMA. House approved. (Action :Prof. B. D. Patel& Prof. A. G. Sukhadia, Extension Education Institute, Anand)

21	Title: Agricultural Journalism skill among under graduate students of Agricultural College of Anand Agricultural University of Gujarat. House approved with the suggestion to add objective "To study the agricultural journalism skill among under graduate students of agricultural college. (Action: Dr. Meenaben C. Patel and Dr. P. M. Bhatt, Institute of Distance Education (IDEA), Anand.)
22	Title: Perception of parents and Anganwadi workers about effectiveness of Anganwadi scheme regarding supplementary nutrition for children registered with ICDS Anganwadies. House approved. (Action : Smt. H. H. Chawada and Minaxi R. Prajapati, Polytechnic in Food Science and Home Economics, Anand)
23	Title : A study on scientific knowledge and adoption level of trained and untrained paddy growers of Kheda district House approved. (Action : Dr. A. R. Macwan, Polytechnic in Agriculture, Vaso)
24	Title: Extent of knowledge and adoption of wheat production technology by farmers of Vaso taluka of Kheda district. House approved. (Action : Dr. Bindu Christian,Polytechnic in Agriculture, Vaso)
25	Title : Adoption of scientific cultivation of Maize in middle Gujarat Zone-III House approved. (Action: Dr. K.H. Patel, Maize Res. Station, Godhra. & Dr. U.M. Patel, Dahod.)
26	Title : Survey on technical problems faced by the Poultry farmers of Anand taluka House approved with the suggestion to delete the word "survey on" from the title. (Action : Dr. Hirani, Poultry Training centre, Anand)
27	Title : Success story of successful and unsuccessful trainees of Mali Training centre, BACA, AAU, Anand House suggested to drop the study because of lack of methodology. (Action: Prof. J. S. Patel, Asstt. Prof., Mali Training Centre, BACA, Anand)
28	Title: Knowledge and adoption regarding freshwater aquaculture among fish farmers of Kheda district. House approved. (Action: Dr. G. G. Patel, Prog. Co-ordinator, Krushi Vigyan Kendra, Devataj)

29	Title :Health status study of Bhal region community House approved with the suggestion to remove the word "study" from the title. (Action : Dr. Gayatree Jadeja, Krushi Vigyan Kendra, Arnej)
30	Title : A study of technological gaps in adoption of improved chickpea cultivation practices in Dahod district House approved with the suggestion to remove the word "A study" from the title. (Action: Dr. Umesh R. Patel, Prog. Co-ordinator, Krushi Vigyan Kendra, Dahod)
31	Title : A study on knowledge and adoption of green gram production technology by green gram growers in Chotaudaipur district of Gujarat House approved with the suggestion to remove the word "A title" from the title (Action : Dr. B.L. Bhayal, Krushi Vigyan Kendra, Mangalbharti)
32	Title : Study of knowledge & adoption of Sponge gourd & Ivy gourd production technology by Sponge gourd & Ivy gourd growers in Kheda & Mahemdavad Taluka of Kheda district House approved. (Action : Dr. P. K. Sharma, Krushi Vigyan Kendra, Dethali)
33	Title: Impact of training program on knowledge and adoption level of fruit production technology by KVK Panchmahal. House approved. (Action :Smt. Kanaklata, Krushi Vigyan Kendra, Vejalpur)
34	Title: Impact study of improved sickle by KVK Panchmahal. House approved. (Action :Smt. Kanaklata, Krushi Vigyan Kendra, Vejalpur)
35	Title: Adoption of 'No cost' and 'Low cost' technologies of animal husbandry by the dairy farmers in operational area of DVK. House approved. (Action : Dr. J. K. Patel, DVK, Vejalpur)
36	Title: Adoption of 'No cost' and 'Low cost' technologies of animal husbandry practices by the dairy farmers in operational area of PVK. House approved. (Action : Dr. S. G. Vohra, PVK, Limkheda)

37	Title : A study on knowledge and adoption of castor growers in Ahmedabad district House approved with the suggestion to remove the word “Castor production by” and “A study” from the title. (Action : Dr. Jakasania, TOT, Arnej)
38	Title: A study on knowledge and adoption of castor production technology by castor growers in Anand district. House approved with the suggestion to remove the word “Castor production by” and “A study” from the title. (Action :Dr. H. B. Patel, Assoc. Ext. Edu., DEE, A.A.U., Anand & Programme Coordinator, KVK, A.A.U., Devataj)
39	Title : Knowledge of the trained farmers regarding application of bio-fertilizers House approved. (Action :Dr. Mukesh R. Patel, SSK,DOEE, Anand)
40	Title: Technical problems faced by the tribal farmers in major crops of Dahod district. House approved. (Action : Scientist in-charge, Agri-Polyclinic, Dahod)
41	Title: Growth and nutritional status of school going children (7-10 Years). House approved. (Action :Miss Dipti Patel, TRTC & TFWTC, Devgadh-Baria)

10.7.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

NEW TECHNICAL PROGRAMMES

1.	Title: Growth Performance of Major Horticultural Crops in Gujarat State. House approved. (Action: Professor and Head, Agril. Economics, JAU, Junagadh)
2.	Title: Assessment of Agri clinic and Agribusiness Centers in Saurashtra Region. House approved. (Action: Principal, PGIABM, JAU, Junagadh)
3.	Title : A Study on Entrepreneurial Attitude of the Students of Agricultural and Allied Sciences House approved with the suggestion to modify the first objective as "To study entrepreneurial characteristics of agricultural and allied science students." (Action: Principal, PGIABM, JAU, Junagadh)
4.	Title: A comparison of Mathematical Modules to Describe the Lactation Curve in Gir Cow House approved with the suggestion to replace the words "mathematical modules" by "statistical model" from the title and objective. (Action: Professor and Head, Dep't. of Agril. Statistics, JAU, Junagadh)
5.	Title: Documentation and Analysis of Success Stories and Their Horizontal Spread in Saurashtra Region. House approved. (Action : Professor and Head, Dept. of Agri. Ext., JAU, Junagadh)

10.7.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

NEW TECHNICAL PROGRAMMES

1.	**Title:** Fruit growers' behavior about the use of pesticides in Navsari district House approved with the following suggestions: 1. Modify the title as " Fruit growers' behaviour about the use of pesticides in Navsari district 2. Specify the behaviour of fruit growers in methodology 3. Modify third objective as "assess the level of knowledge about measure of selected fruit crops" (**Action to be taken:** Prof. & Head, Dept. of Ext. Edu., NMCA)

2	**Title:** Attitude of paddy growers towards SRI technique of paddy cultivation in Navsari district House approved with the suggestion to the technique to be employed for attitude measurement must be specified in methodology. (**Action to be taken:** Prof. & Head, Dept. of Ext. Edu., NMCA)
3	**Title:** Assessment of livelihood pattern of tribal women in Narmada district of Gujarat House approved with the following suggestions: 1. Modify the second objective as "To identify the constraints faced by tribal farm women in livelihood pattern" 2. Technique to measure the livelihood should be incorporated in methodology (**Action to be taken:** Prof. & Head, Dept. of Ext. Edu., NMCA)
4	**Title:** Bio security management level of commercial poultry farmers in south Gujarat region House Approved. (**Action to be taken:** Prof. & Head, Dept. of Ext. Edu., VCVSAH)
5	**Title:** ICT penetration level of dairy co - operative farmers in south Gujarat region House Approved. (**Action to be taken:** Prof. & Head, Dept. of Ext. Edu., VCVSAH)
6	**Title:** Impact of FLDs on knowledge and adoption of improved paddy production technology House approved with the suggestion to add the word "To measure the" in second objective. (**Action to be taken:** PC, KVK, Surat)
7	**Title:** Adoption of improved dairy husbandry practices by the tribals of Surat district House approved with the following suggestions: 1. Add the word "To measure the" in second objective. 2. Remove third objective. 3. Modify the fourth objective as "To identify the factors responsible for extent of variation in knowledge and adoption. (**Action to be taken:** PC, KVK, Surat)
8	**Title:** Sustenance cropping system in tribal area of Surat district House approved with the following suggestions:

	1. Replace “extent of” by “to study” in first objective 2. Modify the third objective as “To compare performance of cropping system” (**Action to be taken:** PC, KVK, Surat)
9	**Title:** Adoption of improved Indian bean production technology House approved with the following suggestions: 1. Remove word ‘Selected’ from first objective 2. Modify the third objective as “To know association between dependent and independent variables” (**Action to be taken:** PC, KVK, Dediapada)
10	**Title:** Impact assessment of contract farming for sweet corn in Navsari district House approved with the suggestion to add the objective related to impact assessment. (**Action to be taken:** PC, KVK, Navsari)
11	**Title:** Impact assessment of FLD beneficiaries of paddy of Navsari district House approved with the following suggestions: 1. Impact assessment related objective should be added. 2. Modify the title as “Impact of FLD on paddy growers in Navsari district” (**Action to be taken:** PC, KVK, Navsari)
12	**Title:** Socio-economic status of tribal women Self Help Groups in adopted villages of KVK, Tapi House approved with the following suggestions: 1. Modify the title as “Impact of Self Help Groups on Socio-economic status of tribal women in adopted villages of KVK, Tapi” 2. Remove the word “personal” from fist objective. 3. Modify the second objective as “To study the impact of SHGs on socioeconomic status of beneficiaries.” 4. Appropriate sampling procedure should be followed with consultation of statistician. (**Action to be taken:** PC, KVK, Vyara)
13	**Title:** Knowledge and adoption level of farmers about scientific cultivation of cashew House Approved. (**Action to be taken:** Res. Sci., AES, Paria)
14	**Title:** Study on Impression of NAU visitors House approved with the following suggestions: 1. Modify the title as “Opinion of NAU visitors about farmers’ related activities of NAU” 2. Replace the word “visitor farmers” by “visiting farmers” (**Action to be taken:** Programme Organizer, SSK, Navsari)

	Agricultural Economics
15	**Title**: Economic Analysis of Production and Marketing of Pigeon Pea in Bharuch District of South Gujarat House suggested to conduct the same study for two to three vegetable crops instead of pegionpea. (**Action to be taken:** Asso. Prof., Agril. Eco., COAB, NAU, Bharuch)
16	**Title**: Transition of food consumption pattern in South Gujarat House Approved. (**Action to be taken:** Asst. Prof., Agril. Eco., CAW, NAU, Waghai)
17	**Title**: Comparative economics of drip and flood method of irrigation in banana crop in South Gujarat House approved with the suggestion to modify the title as "Comparative economics of drip and flood irrigation method in banana crops in South Gujarat." (**Action to be taken:** Professor & Head, Agril. Eco., NMCA,NAU, Navsari)
18	**Title**: The economic impact of climate change on Agriculture and Implications for Food Security in South Gujarat House Approved. (**Action to be taken:** Associate Professor, Agril. Eco., ACHF, NAU, Navsari)
	Agricultural Statistics
19	**Title**: Uniformity trial in rain fed Pigeon Pea House Approved. (**Action to be taken:** Asso. Prof., Dept. of Agril. Statistics, COA, NAU, Navsari)
22	**Title**: Pre harvest forecasting of Ragi (Hill Millet) in Dang district House Approved. (**Action to be taken:** Asst. Prof., Dept. Agril. of Statistics, COA, NAU, Waghai)
23	**Title**: Comparative efficiency of statistical models for lactation curves in Surti buffalo House Approved. (**Action to be taken:** Prof. and Head, Dept. of Agril. Stat., NMCA, NAU, Navsari)
24	**Title**: Plot technique study in banana House approved with the suggestion to modify the title as "Optimum plot size in Banana". (**Action to be taken:** Asso. Prof., Dept. of Statistics, ACHF, NAU, Navsari)

10.7.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, SARDARKRUSHINAGAR

NEW TECHNICAL PROGRAMME

1.	Title:Adoption of recommended mustard cultivation practices by the mustard growers. House approved with the suggestion to work out the practices wise adoption using four quantum i.e. faulty adoption, below recommendation, as per recommendation and above recommendation instead of methodology given by Sengupta (1967). (Action: Dr. K. S. Patel, Asstt.Prof. (Ext.), ATIC, SDAU,Sardarkrushinagar.)
2.	Title: Training needs assessment of pomegranate growers. House approved with the suggestion to use methodology training needs of farmers as decided by the house in 10th Combined Joint AGRESCO meet. (Action: Dr. A.J.Patel, Programme coordinator, Krishi Vigyan Kendra, SDAU, Deesa)
3.	Title: Impact of FLDs on adoption of Maize production Technology. House approved with the suggestion to replace the word "to study" by "to estimate" in objective three. (Action: Dr.G.J. Patel, KrishiVigyan Kendra, SDAU, Khedbrahma.)
4.	Title: Awareness of tribal youth regarding rural development activities in Danta & AmirgadhTaluka of Banaskantha District. House approved with the following suggestions: 1. Add objective regarding the awareness of tribal youth. 2. Remove name of taluka from the title 3. Rural development activity should be identified concerning DRDA (Action: Dr. V.V.Prajapati, Principal, Polytechnic Amirgadh)
5.	Title: Awareness regarding certified seeds among the farmer of Banaskantha District House approved with the suggestion to give detail of second objective including all the parameters in the questionnaire. (Action: Dr. R.R.Prajapati, Assistant Professor. &V.T.Patel Associate Professor, CPCA, SKNagar.)
6.	Title: Assessment of utilization of chaff cutter by Dairy farmers of Banaskantha District. House approved. (Action: Prof. M.H.Desai, Principal, Deesa)

7.	Title: Acceptability of selected Gender Friendly Tools by Women Farmers House approved with the following suggestions: 1. Modify the title as "Acceptability of selected women friendly tools by women farmers 2. Remove first objective 3. Add the objective of association of acceptability of tools and socio-economic characteristics (Action: Dr. (Mrs.) Santosh Ahlawat, Professor and Head &Surabhi Singh, Assistant Professor)
8.	Title: Career and Family values of Girl students of SDAU, Gujarat House approved with the following suggestions: 1. Select the sample size of 75 girls. 2. Modify the title as "Measurement of career and family values of girls students of SDAU, Gujarat" (Action: Ms. Serene Shekhar, Assistant Professor; &Ms.Sarita Sanwal, Asstt Professor)
9.	Title: Anxiety level among students of Sardarkrushinagar Dantiwada Agricultural University House approved with the suggestion to clarify the comprehensive anxiety as well as title of the study concerning the DEE, SDAU, SK Nagar. (Action: Sarita Sanwal, Assistant Professor & Ms. Serene Shekhar, Assistant Professor)
10	Title: Acceptability of supplementary nutrition provided to pregnant and lactating women under ICDS House approved (Action: Dr. Pragaya Dashora Assistant Professor & Dr. Neeta Khandalwal. Asstt Professor)
11	Title: Indigenous knowledge and practices used by rural women for animal health House approved with the suggestion to modify the title as "Documentation of indigenous practices and their rationality as perceived by farm women for animal health" (Action: Dr. Neeta Khandelwal, Asstt Professor &Dr.PragyaDashora, Asstt Professor)
12	Title: A Study on nutritional status of tribal women of Sabarkantha district. House approved with the following suggestions: 1. Remove word "A study on" from the title

	2. Replace the words "to study" by "to estimate" 3. Need to specify the second objective (Action: Preeti H. Dave, Assistant Professor& Dr. J. J. Mistry, Subject Matter Specialist(Extn.), Krishi Vigyan Kendra, SDAU, Khedbrahma)
13	Title: Resource use efficiency and returns to scale in production of castor in North Gujarat House approved with the following suggestions: 1. Remove second and third objective 2. Add second objective as "To work out the existing and optimum level of resource use" (Action: Dr.K.P.Thakar, Assistant Professor &Prof.S.M.Patel, Assistant Professor)
14	Title: Economic analysis of production of fennel in North Gujarat. House approved with the following suggestions: 1. Remove first, third and fourth objective 2. Add two objective i.e. (a) To study the disposal pattern of fennel (b) To study marketing efficiency of fennel 3. Modify the title as "Economic analysis of production and marketing of fennel in North Gujarat" 4. Select appropriate numbers of intermediaries in order to address the objective of marketing efficiency (Action: Dr.D.A.Patel, Associate Professor, ABM, SKNagar.)
15	Title: Marketing of Pomogranate in Banaskantha District. House approved with the suggestion toSelect appropriate numbers of intermediaries in the sample size. (Action: Prof.R.M.Patel, Assistant Professor, ABM, Sardarkrushinagar.)
16	Title: Marketing of Ber in Mehsana District House approved. (Action: Dr.R.R.Patel, Assistant Professor, Jagudan.)
17	Title: Statistical investigation on association between weather parameters and yield of Potato crop in Banaskantha district of North Gujarat House approved with the following suggestions: 1. Modify the second objective as "To predict the potato yield using weather parameter" 2. Modify the title as "Prediction of potato yield using weather parameter in Banaskantha district of North Gujarat" (Action: Dr. M. K. Chaudhari, Assistant Professor (Ag.Stat.) & Dr. B. H. Prajapati, Prof. & Head, Dept. of (Ag. Stat.)

18	Title: Optimum size and shape of plots for field experiments on Fenugreek (*Trigonellafoenum graecum*) House approved (Action: R.I.Prajapati, Asstt.Prof. and J.K.Patel, Professor and Head, Dept. of Computer Sciences, CPCA, SKNager)
19	Title: Selection Index study for different genotypes of ashwagandha. House approved (Action: Dr. B. H. Prajapati Professor & Head & Dr. G.K.Chaudhary Assistant Professor, Department of Agril Statistics, CPCA, SKNager)

10.7.3 General guideline for adoption and knowledge related extension activities:

House decided that in all the adoption studies, adoption should be measured for each and every practice. To understand adoption of each practice, information should be collected in four point quantinum *viz*. faulty adoption, below recommendation, as per recommendation and above recommendation. The results of the study should be presented as mentioned above instead of presenting it in three groups *viz*. low, medium and high. The study on knowledge should also be carried out on similar pattern.

(**Action**: Respective Conveners of SAUs)

PROCEEDING OF THE TENTH COMBINED JOINT MEETING OF ANIMAL HEALTH, ANIMAL PRODUCTION, ANIMAL SCIENCE AND FISHERIES SCIENCES SUB-COMMITTEE OF AGRESCO OF STATE AGRICULTURAL UNIVERSITIES OF GUJARAT HELD AT JAU, JUNAGADH DURING APRIL 9-11, 2014

SUMMARY OF RECOMMENDATIONS AND NEW TECHNICAL PROGRAMMES

University	Sub-committee Groups	Recommendations				New technical programmes	
		Farmers		Scientists			
		Presented	Approved	Presented	Approved	Presented	Approved
AAU, Anand	Animal Production	(3+3*)	(3+3*)	3	3	19	19
	Animal Health	-	-	4	4	12	12
Sub- Total		**6**	**6**	**7**	**7**	**31**	**31**
JAU, Junagadh	Animal Science	2	2	6	3	14	14
	Fisheries Science	4	4	5	5	5	5
Sub- Total		**6**	**6**	**11**	**8**	**19**	**19**
NAU, Navsari	Animal Production and Fisheries Science	2	2	2	2	11	9
	Animal Health	-	-	3	3	9	9
Sub- Total		**2**	**2**	**5**	**5**	**20**	**18**
SDAU, Dantiwada	Animal Production	-	-	3	0	9	6
	Animal Health and Fisheries	-	-	-	-	18	17
Sub- Total		**-**	**-**	**3**	**0**	27	23
Total		**11+3***	**11+3***	**23**	**20**	**97**	**91**

*Three poultry strains/strain-cross release

TECHNICAL SESSION-I

Date: 9-10, April 2014 **Time: 11:30 Onwards**

Chairman : Dr. N. M. Shah, Principal & Dean, COVSAH, SDAU
Co-Chairman : 1. Dr. A. Y. Desai, Principal & dean, College of Fisheries, JAU
2. Dr. N. H. Kelawala, Principal & Dean, COVSAH, NAU
Rapporteurs : 1. Dr. S. Parnerkar, Research Scientist & Head, ANRS, AAU
2. Dr. B.N. Suthar, Prof. & Head, Dept. of ARGO, COVSAH, SDAU

10.8.1 ANAND AGRICULTURAL UNIVERSITY, ANAND

Recommendations for the Poultry Farmers

ANIMAL PRODUCTION

Dr. D.N. Rank, Convenor, Animal Production group, AAU, Anand presented total 9 recommendations of animal production group. Amongst them, 3 were for scientific community, 3 for farming community and 3 new strain-crosses of poultry were recommended for release. All recommendations were approved with minor modifications.

10.8.1.1 Title: Release of strain cross (IWN X IWP) - "Anand Commercial Layer"
Recommendation:
A high yielding White Leghorn poultry strain-cross (IWN X IWP) has average annual egg production of 300 eggs with more than 52 g egg weight and excellent liveability. The egg production and egg weight have been found comparable with commercial layers available in country. Hence, the IWN x IWP strain-cross is recommended for release as "Anand Commercial Layer" for commercial poultry farming.

ખેડૂતોપયોગી સંશોધન ભલામણ:

વધુ ઉત્પાદન ધરાવતી વ્હાઇટ લેગહોર્ન મરઘાંની વિકસાવેલ સંકર જાત એન.ડબલ્યુ.આઇ). X આઇપી.ડબલ્યુ.. ઇંડા આપે છે અને સારી જીવાદોરી ૩૦૦ ગ્રામથી વધુ વજનના વાર્ષિક સરેરાશ (બાવન) ૫૨ (આ જાત .ધરાવે છેનાં પક્ષીઓનુ ઇંડા ઉત્પાદન તથા ઇંડાનુ વજન વ્યાવસાયિક ધોરણે ભારતમાં ઉપલબ્ધ અન્ય પક્ષીઓની સમકક્ષ જોવા મળે છે જેથી આ સંકર જાતને ."આણંદ કોમર્સિયલ લેયર " જાત તરીકે વ્યાવસાયિક ધોરણે મરઘાં પાલન માટે બહાર પાડવા ભલામણ છે.

Approved **(Action:** *Research Scientist, Poultry Complex, AAU, Anand***)**

10.8.1.2. Title: Proposal for release of poultry line "Anand Synthetic White Leghorn"
Recommendation:
A Synthetic White Leghorn line developed for high egg weight has shown potential of laying on an average 234 eggs at 64 weeks of age and 280 eggs at 72 weeks of age with more than 50 g egg weight at 28 weeks and more than 54 g egg weight at 40 weeks of age. Hence, this line is recommended for release as "Anand Synthetic White Leghorn" for improving egg weight.

મરઘાં ઉદ્યોગ માટે ભલામણ:

વ્હાઈટ લેગહોર્નની વધુ વજનવાળા ઇંડા માટે વિકસાવેલ સિન્થેટિક જાત ૬૪ અઠવાડિયાની ઉંમરે સરેરાશ ૨૩૪ ઇંડા અને ૭૨ અઠવાડિયાની ઉંમરે સરેરાશ ૨૮૦ ઇંડાં તેમજ ૨૮ અઠવાડિયાની ઉંમરે ૫૦ ગ્રામ અને ૪૦ અઠવાડીયાની ઉંમરે સરેરાશ ૫૪ ગ્રામથી વધુ વજનવાળા ઈંડાં આપે છે આથી પક્ષીઓમાં ઇંડાનું વજન વધારવા માટે આ જાતને "આણંદ સિન્થેટિક વ્હાઈટ લેગહોર્ન " તરીકે બહાર પાડવા ભલામણ કરવામાં આવે છે .

Approved *(**Action**: Research Scientist, Poultry Complex, AAU, Anand)*

10.8.1.3. Title: Proposal for release of poultry breed "Anand Bantamised White Leghorn"
Recommendation:
A feed efficient Bantamised White Leghorn is developed with better feed efficiency consumes on an average 10 g less feed to produce one egg as compared to normal White Leghorn strain during

21-64 weeks of age. It has potential of laying on an average 252 eggs at 64 weeks of age and 302 eggs at 72 weeks of age with more than 50 g egg weight at 40 weeks of age. Hence, this breed is recommended for release as "Anand Bantamised White Leghorn".

મરઘાં ઉદ્યોગ માટે સંશોધન ભલામણ :

સારી ખોરાક રૂપાંતરણ ક્ષમતા ધરાવતી બેન્ટમાઇઝડ વ્હાઈટ લેગહોર્નની વિકસાવેલ જાત ૨૧ અઠવાડિયા ૬૪-ગ્રામ ઓછો ખોરાક ૧૦ દરમિયાન એક ઇંડાંના ઉત્પાદન માટે સામાન્ય વ્હાઈટ લેગહોર્ન પક્ષી કરતા સરેરાશ .ખાય છેતદઉપરાંત આ પક્ષીઓ ૬૪ અઠવાડિયાની ઉમરે સરેરાશ ૨૫૨ ઇંડા અને ૭૨ અઠવાડિયાની ઉમરે સરેરાશ ૩૦૨ ઇંડા તેમજ ૪૦ અઠવાડિયાની ઉમરે ૫૦ ગ્રામથી વધુ વજનવાળા ઇંડા આપે છે તેથી આ . જાતને"આણંદ બેન્ટમાઇઝડ વ્હાઈટ લેગહોર્ન" તરીકે બહાર પાડવા માટે ભલામણ કરવામાં આવે છે.

Approved. *(**Action**: Research Scientist, Poultry Complex, AAU, Anand)*

Recommendations for the farming community

10.8.1.4. Title: Effect of feeding bypass fat during prepartum and during early lactation to buffaloes.

Recommendation:

The dairy farmers are recommended that inclusion of bypass fat @100 g/day for 30 days before parturition and 15g/kg milk yield after parturition for 120 days in the ration of buffaloes improves yield of whole milk, fat, 6% FCM, feed conversion efficiency, income per buffalo and birth weight of calves and reduces service period.

ખેડૂતોપયોગી સંશોધન ભલામણ:

ગાભણ ભેંસોના દાણ મિશ્રણમાં વિયાણ અગાઉ એક માસ દૈનિક ૧૦૦ ગ્રામ બાયપાસ ફેટ અને વિયાણ બાદ ૧૨૦ દિવસ સુધી ૧૫ ગ્રામ બાયપાસ ફેટ પ્રતિ કિગ્રા દુધ આપવાથી ભેંસોમાં દૂધ ઉત્પાદન, દુધની ચરબીના ટકા, ભેંસ દીઠ દૈનિક આવક તેમજ તાજા જન્મેલા પાડીયાંના વજનમાં વધારો થાય છે અને ભેંસ વહેલી સગર્ભા થાય છે .

Approved. *(**Action**: Research Scientist, ANRS, AAU, Anand)*

10.8.1.5. Title: Study of nutritional status of dairy animals of Anand district.

Recommendation:

Farmers of Anand district are advised to feed daily additional 1.0 kg compound concentrate mixture to the lactating crossbred cows yielding daily 7 to 9 kg milk during monsoon and winter and daily 1.5 kg throughout the year to cows yielding daily 15-18 kg milk.

ખેડૂતોપયોગી સંશોધન ભલામણ :

આણંદ જીલ્લામાં સંકર ગાયો ધરાવતા પશુપાલકોને દૈનિક ૭ થી ૯ કિ.ગ્રા. દુધ આપતી ગાયોને ચોમાસા અને શિયાળામાં દરરોજ ૧ કિ.ગ્રા. અને ૧૫ થી ૧૮ કિ.ગ્રા. દુધ આપતી ગાયોને બધી જ ઋતુઓમાં દરરોજ ૧.૫ કિ.ગ્રા. વધારાનું સમતોલ દાણ આપવા ભલામણ છે.

Approved *(**Action**: Research Scientist, ANRS, AAU, Anand)*

10.8.1.6. Title: Study of nutritional status of dairy animals of Anand district.

Recommendation:

Farmers of Anand district are advised to feed daily additional 1.0 kg compound concentrate mixture to buffaloes yielding daily 5.5 to 10 kg milk during summer and monsoon, and 1.5 kg during winter.

ખેડૂતોપયોગી સંશોધન ભલામણ :

આણંદ જીલ્લાના પશુપાલકોને દૈનિક ૫.૫ થી ૧૦ કિ.ગ્રા. દૂધ આપતી ભેંસો ને ઉનાળા અને ચોમાસામાં દરરોજ ૧.૦ કિ .ગ્રા. અને શિયાળામાં ૧.૫ કિ.ગ્રા. વધારાનું સમતોલ દાણ આપવા ભલામણ છે.

Approved **(*Action:* *Research Scientist, ANRS, AAU, Anand*)**

Information for the scientific community

10.8.1.7. Title: Effect of Solid State Fermentation (SSF) biomass on digestibility and nutritional utilization in goats.

Recommendation

It is recommended to scientific community that supplementation of Solid State Fermentation Biomass (SSF) @ 4% in the Jowar hay-based TMR (75% roughage:25% concentrate) significantly improves rumen Total Volatile Fatty Acids Production by 11% and digestibility of Dry Matter, Organic Matter, Ether Extract, Nitrogen Free Extract and Neutral Detergent Fiber by 8-11% in Surti goats compared to TMR without SSF Biomass.

Approved. *(**Action**: Research Scientist, ANRS, AAU, Anand)*

10.8.1.8. Title: Supplementation of appropriate mineral mixture to anestrous and repeat breeder buffaloes in tribal areas of Vadodara and Panchmahal district.

Recommendation:

It is recommended to scientific community that the anestrous and repeat breeder buffaloes respond favourably to supplementation of appropriate mineral mixture in ionic/organic form. But chelated mineral mixture (comprising of Zn in chelate form added extra @ 25% to ionic) resulted in better response with 25 & 34% and 27 & 42% lesser cost of rearing for correction of anestrous and repeat breeding in buffaloes in Panchmahal and Vadodara districts, respectively.

Approved

*(**Action**: Research Scientist, ANRS, AAU, Anand)*

10.8.1.9. Title: Development of area specific mineral mixture formulations for Ahmedabad district.

Recommendation:

It is recommended to scientific community that based on the prioritization of limiting minerals in Ahmedabad district, the following area specific mineral mixture has been formulated which would make up the deficiency when fed @ 30g/head/day to dairy animals in addition to the current feeding practices.

Sr.	Mineral element	Requirement (%)	Mineral salt	Quantity (kg)
1	Calcium	20.00	Dicalcium phosphate Calcite powder	13.26
2	Phosphorus	12.01	DCP	66.72
3	Magnesium	4.61	Magnesium oxide	8.54
4	Sulphur	1.00	Sodium thiosulphate	2.56
5	Copper	0.10	Copper sulphate	0.40
6	Zinc	1.80	Zinc sulphate	5.46
7	Manganese	0.51	Manganese sulphate	1.64
8	Iron	0.40	Ferrous sulphate	1.33
9	Cobalt	0.01	Cobalt sulphate	0.06
10	Iodine	0.03	Potassium iodide	0.03
			Total	**100.00**

Approved. *(**Action**: Research Scientist, ANRS, AAU, Anand)*

ANIMAL HEALTH

Dr. A. J. Dhami, Convenor, Animal Health group, AAU, Anand presented total 4 recommendations of animal health group. All recommendations were approved for scientific community.

Information for the scientific community

10.8.1.10. Title: Evaluation of immunomodulatory activity of *Prosopis juliflora* alkaloids in the treatment of bovine sub-clinical mastitis

Recommendation:

The intramammary administration of 10 ml of 1% aqueous formulation of *Prosopis juliflora* alkaloids once daily for 5 consecutive days in sub-clinically affected mastitic quarter results in immunopotentiation, hence it is recommended to scientific community for use as a treatment regimen**.**

Approved

*(**Action**: Professor and Head, Dept. of Veterinary Medicine, COVSAH, AAU, Anand)*

10.8.1.11. Title: (i) Augmenting Fertility in Infertile Dairy Cows and Buffaloes Using Controlled Breeding Techniques under Amul Milk-shed Area

(ii) Augmenting Reproductive Efficiency of Infertile Dairy Animals using Controlled Breeding Techniques in Tribal Areas

Recommendation:

It is recommended to scientific community that the true anoestrus crossbred dairy cows and buffaloes having average body condition under field conditions can be treated by the field veterinarians, using estrus synchronization protocols, *viz*., (i) intra/vaginal insertion of progesterone releasing device (CIDR/PRID) for 7 days and Inj. $PGF_2\alpha$ 25 mg i/m at its removal followed by Inj. Busereline acetate (GnRH) 20 µg i/m on day 9, with fixed time double inseminations performed at 0 and 24 hrs later; and (ii) Ovsynch treatment protocol, comprising Inj. Busereline acetate (GnRH) 20 µg i/m on day 0, Inj. $PGF_2\alpha$ 25 mg i/m on day 7, second Inj. GnRH 10 µg i/m on day 9 and fixed time insemination 16-24 hrs later, to have more than 90 per cent induction of ovulatory estrus, and conception rates of 40 to 50 per cent at induced estrus and of 70 to 80 per cent for overall three cycles post- treatment.

Approved (***Action***: *HOD, Dept. of ARGO, COVSAH, AAU, Anand)*

10.8.1.12. Title:

(i) Augmenting Fertility in Infertile Dairy Cows and Buffaloes Using Controlled Breeding Techniques under Amul Milk- shed Area

(ii) Augmenting Reproductive Efficiency of Infertile Dairy Animals using Controlled Breeding Techniques in Tribal Areas

Recommendation:

It is recommended to scientific community that under field conditions, the repeat breeding crossbred cows and buffaloes, having average body condition with a palpable mid-cycle CL, and without any palpable or visible genital abnormalities, can be treated/managed by the field veterinarians, by inducing more than 90 per cent ovulatory estrus using Inj. $PGF_2\alpha$ 25 mg i/m (from day 8 to 12), with conception rates of 40 to 50 per cent at induced estrus and of 70 to 80 per cent for overall three cycles post-treatment.

Approved (***Action***: *HOD, Dept. of ARGO, COVSAH, AAU, Anand)*

10.8.1.13. Title:

(i) Augmenting Fertility in Infertile Dairy Cows and Buffaloes Using Controlled Breeding Techniques under Amul Milk-shed Area

(ii) Augmenting Reproductive Efficiency of Infertile Dairy Animals using Controlled Breeding Techniques in Tribal Areas

Recommendation:

It is recommended to scientific community that under field conditions, the repeat breeding crossbred cows and buffaloes in standing estrus, having average body condition without any palpable or visible genital abnormalities, can be treated/managed by the field veterinarians, using Inj. Busereline acetate (GnRH) 20 µg i/m with AI using good quality frozen-thawed semen with an improvement of conception rate up to 30 to 40 per cent at first service.

Approved (***Action***: *HOD, Dept. of ARGO, COVSAH, AAU, Anand)*

10.8.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Dr. P.H. Vataliya, Convenor, Animal Science and Fisheries Science group, JAU, Junagadh presented a total of 17 recommendations of animal science and fisheries science group out of which 11 were for scientific community and 6 for farmers. Amongst them 14 recommendations were approved with minor modifications and 3 were not approved.

ANIMAL SCIENCE

Recommendation for Dairy Farmers

10.8.2.1. Title: Morbidity and mortality in Gir cattle herd

Recommendation:

In South Saurashtra region, in an organized dairy farm of Gir cattle:

1. Overall annual mortality averages around 6 per cent in the herd. Higher mortality occurs from birth to 1 month of age especially, during November–December months on account of colibacillosis and pneumonia.
2. Mastitis, colibacillosis, fever and pneumonia are major health disorders in Gir cattle.

Therefore, dairy farmers of Gir cattle are advised to take all possible care and precautions during first month of calfhood especially during November-December months to keep incidence of diseases and mortality at the minimum

ગૌશાળાધારકો / સંચાલકો માટે ભલામણ :

દક્ષિણ સૌરાષ્ટ્ર વિસ્તારમાં, દૂધાળ પશુઓ ધરાવતી ગીર ગાયોની મોટી ગૌશાળામાં –

૧) વાર્ષિક મૃત્યુ દર એકંદરે ૬ % જેટલો રહે છે. જન્મ થી ૧ માસ વય–જુથમાં, ખાસ કરીને નવેમ્બર–ડિસેમ્બર સમયગાળમાં અતિસાર (ઝાડા) અને ન્યુમોનિયાને કારણે નોંધપાત્ર રીતે વધુ મરણ થાય છે.

૨) ગીર ગાયોના ધણમાં આઉનો સોજો, અતિસાર, અલ્પકાલિક તાવ (વલો) અને ન્યુમોનિયા માંદગીના મુખ્ય કારણો છે.

તેથી ગીર ગાયોનાં ગૌશાળાધારકો / સંચાલકોને, તેમના ધણમાં પશુઓનાં જન્મ થી ૧ માસ વય–જુથમાં, ખાસ કરીને નવેમ્બર–ડિસેમ્બરમાં અટકાયતી પગલાં લઈ રોગોનું પ્રમાણ અને મૃત્યુ દર ન્યુનતમ રાખવા સલાહ આપવામાં આવે છે.

Approved.

(Action: Res. Sci. (AGB), CBF, *JAU, Junagadh /Dept. LPM, Vet.Coll., JAU, Junagadh* **)**

10.8.2.2. Title: Morbidity and mortality in Jaffrabadi buffalo herd

Recommendation:

In South Saurashtra region, in large dairy farm of Jaffrabadi buffaloes:

1. Overall annual mortality averages around 11 per cent in the herd. Higher mortality occurs from birth to 1 month of age group especially, during September-October months on account of colibacillosis and pneumonia.
2. Colibacillosis, fever, mastitis and gastroenteritis are major health disorders in Jaffrabadi buffaloes.

Therefore, dairy farmers of Jaffrabadi buffalo are advised to take all possible care and precautions during first month of calfhood especially during September-October to keep incidence of diseases and mortality at the minimum.

તબેલાધારકો / સંચાલકો માટે ભલામણ :
દક્ષિણ સૌરાષ્ટ્ર વિસ્તારમાં, દૂધાળ પશુઓ ધરાવતા જાફરાબાદી ભેંસોના મોટા તબેલામાં–
૧). વાર્ષિક મૃત્યુ દર એકંદરે ૧૧ % જેટલો રહે છે. જન્મ થી ૧ માસ વય–જુથમાં, ખાસ કરીને સપ્ટેમ્બર–ઓકટોબર સમયગાળામાં અતિસાર (ઝાડા) અને ન્યુમોનિયા ને કારણે નોંધપાત્ર રીતે વધુ મરણ થાય છે.
૨). જાફરાબાદી ભેંસોનાં ઘણમાં અતિસાર, અલ્પકાલિક તાવ (વલો), આઉનો સોજો અને જઠર–આંતરડાનો ચેપ માંદગીના મુખ્ય કારણો છે.
Approved.

(Action: Res. Sci. (AGB), CBF, *JAU, Junagadh /Dept. LPM, Vet.Coll., JAU, Junagadh* **)**

Information for the scientific community

10.8.2.3. Title: Estimation of Bulk milk Somatic Cell Count (SCC) from the raw milk of Gir cattle and Jaffrabadi buffalo
Recommendation:
The scientific community is informed that average bulk tank milk somatic cell count - BTMSCC/ml milk of Gir cows (720,278 SCC/ml) and Jaffrabadi Buffaloes (623,625 SCC/ml) were lower than the US standards for "Grade A" milk (750,000 SCC /ml) without significant effect of Season and time of milking in organized dairy farm"
Approved.

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

10.8.2.4. Title : Incidence of parasitic infections in bovines in and around Junagadh city
Recommendation:
The veterinary professionals are informed that cattle and buffalo in and around Junagadh region were found predominately infected with *Toxocara vitulorum*, *Fasciola* spp., strongyles, *Strongyloides papillosus*, amphistomes, coccidia (*Eimeria* spp. and *Cryptosporidium* spp.) and *Buxtonella sulcata* (ciliates) parasites.
Approved.

(*Action*: *HOD, Dept. of Vet. Parasitology, College of Vet. Science & A. H., JAU, Junagadh*)

10.8.2.5. Title : Abattoir survey of reproductive abnormalities in Jaffrabadi buffaloes (*Bubalus bubalis*)
Recommendation:
It is informed to scientific community that about half of the culled Jaffrabadi buffaloes have acquired cervical affections, which include kinked cervix (72.6%) and cervical ectropion (25.8%) as major abnormalities which should be noted as a point of concern by scientific community.
Approved.

(Action: HOD, *Dept. Vet. Gyn. & Obst., College of Vet. Science & A. H., JAU, Junagadh*)

FISHERIES SCIENCE

Recommendation for Fish Farmers

10.8.2.6. Title : Evaluation of stocking density of carp fry in rearing pond
Recommendation:
"Fish farmers of Saurashtra region are recommended to stock rohu fry @1.00 lakh per hectare in rearing ponds for obtaining better growth and survival rate."
મત્સ્ય ખેડૂત ઉપયોગી ભલામણ:
દક્ષિણ સૌરાષ્ટ્ર આબોહવાકીય વિસ્તારમા મત્સ્ય ખેતી કરતા ખેડૂતોને ભલામણ કરવામા આવેછે કે, ઉછેર તળાવમાં રોહૂ ફ્રાય ના ઉત્તમ વિકાસ તથા જીવંત દર મેળવવા માટે પ્રતિ હેકટર સંગ્રહ દર ૧.૦૦ લાખ રાખવો.
Approved.

(Action: *Principal, College of Fisheries Science, JAU, Veraval)*

10.8.2.7. Title: Effect of different levels of protein diet on the growth and survival of *Mugil cephalus* (Linnaeus) fry

Recommendation:

Fish farmers of Saurashtra are recommended to feed gray mullet *Mugil cephalus* fry reared in seawater with 35% protein incorporated diet in first 45 days for obtaining higher growth and survival.

મત્સ્યખેડૂતોને ભલામણ:

સૌરાષ્ટ્રના મત્સ્યખેડૂતોને ભલામણ કરવામાં આવે છે કે દરિયાના પાણીમાં બોડકી (મલેટ)ના બચ્ચા(ફાય)ના ઉછેરમાં પ્રથમ ૪૫ દિવસમાં વધારે વિકાસ તેમજ જીવન્તદર મેળવવા માટે ૩૫ % પ્રોટીનયુક્ત ખોરાક આપવો જોઈએ.

Approved.

(Action: *Research Officer, Fisheries Research Station, JAU, Okha***)**

10.8.2.8. Title: Effect of different salinities on density of *Chaetoceros calcitrans*

Recommendation:

Hatchery owners of Saurashtra region are recommended to use 30 PPT saline water to grow *Chaetoceros calcitrans* for higher yield.

મત્સ્યખેડુત લક્ષી ભલામણ

સૌરાષ્ટ્ર વિસ્તારના હેચરી ધારકોને કિટોસીરોઝ કેલ્સીટ્રાન્સના વધુ ઉત્પાદન માટે ૩૦ પીપીટી ખારાશ ધરાવતા પાણીમાં ઉછેર કરવા ભલામણ કરવામાં આવે છે.

Approved.

(Action*: Research Officer, Fisheries Research Station, JAU, Sikka)*

10.8.2.9. Title: Effect of monospecies and mixed species' diet on growth and survival of pearl oyster (*Pinctada fucata*)

Recommendation:

Hatchery entrepreneurs of Saurashtra region are recommended to use 50% Isochrysis galbana and 50% *Chaetoceros calcitrans* as a feed for pearl oyster rearing for better growth and profit."

મત્સ્યખેડુત લક્ષી ભલામણ: સૌરાષ્ટ્ર વિસ્તારમાં હેચરી ધરાવતા સાહસીકોને ભલામણ કરવામાં આવે છે કે મોતિ છીપના ઉછેર માટે ૫૦ % આઈસોક્રાઈસીસ ગાલ્બાના અને ૫૦ % કિટોસીરોઝ કેલ્સીટ્રાન્સનો ખોરાક તરીકે ઉપયોગ કરવાથી વધુ ઝડપી વૃદ્વિ અને વધુ આવક મળી શકે છે.

Approved.

(Action*: Research Officer, Fisheries Research Station, JAU, Sikka***)**

Information for the scientific community

10.8.2.10. Title : Qualitative and quantitative analysis of phytoplankton of Sikka region

Recommendation:

The Sikka coast, located in Gulf of Kachchh, Gujarat harbours 36 genera/species of phytoplankton, among which, *Amphora* spp., *Bacillaria paradoxa*, *Biddulphia mobilensis*, *Chaetoceros calcitrans*, *Chaetoceros curvisetus*, *Coscinodiscus granii*, *Ditylum sol*, Gyrosigma spp., *Nitzschia closterium*, *Pluerosigma* spp. and *Rhizosolenia* spp. were found abundant. Hence, it is recommended to scientific community to target these species for further biodiversity studies.

Approved.

(Action: *Research Officer, Fisheries Research Station, JAU, Sikka***)**

10.8.2.11. Title: Diversity and distribution of brachyuran crab at off shore Sikka

Recommendation:

The Sikka Coast, located in Gulf of Kachchh, Guajrat harbours 22 species of Brachyuran crab, among which, *Pilumnus vespertilio*, *Atergatis integerrimus*, *Scylla serrata*, *Charybdis acutifrons*, *Parasesarma pictum*, *Menippe rumphii*, *Ocypode ceratophthalmus* and *Portunus pelagicus* were found abundant. Hence, it is recommended to scientific community to target these species for further biodiversity studies.

Approved.

(Action: *Research Officer, Fisheries Research Station, JAU, Sikka***)**

10.8.2.12. Title: Study of catch composition of trawl net operated along the Veraval coast, Gujarat

Recommendation:

A total of 90 marine species (70 finfish and 20 shell fish) were recorded in the trawl net fishery. Ribbon fish, thread fin bream, squid, lizard fish and cuttle fish forms a major proportion of catch. Hence, it is recommended to scientific community to consider these species for further catch spectrum analysis.

Approved. **(*Action*:** *Principal, College of Fisheries, JAU, Veraval***)**

10.8.2.13. Title: Analysis of plankton in brackish water shrimp culture pond

Recommendation:

Ten genera of phytoplankton *viz*., *Chaetoceros, Skeletonema, Pleurosigma, Gyrosigma, Scenedesmus, Oscillatoria, Navicula, Nitzchia, Coscinodiscus* and *Chlamydomonas* and four genera of zooplankton viz., *Moina, Brachionus, Keratella* and *Pseudodiaptomus* are commonly observed in brackish water shrimp culture ponds of the Saurashtra region. Hence, it is recommended to scientific community to consider these species as feed in shrimp culture.

Approved. **(Action:** *Principal, College of Fisheries, JAU, Veraval***)**

10.8.2.14. Title: Survey for cultivable sea water shrimps seed along Jafrabad and Mahuva coast

Recommendation:

The fisheries scientists are recommended that cultivable shrimp seeds of *Metapenaeus kutchensis, Fenneropenaeus merguiensis, Fenneropenaeus indicus* and *Penaeus monodon* are available during month of September to January at Mahuva and at Jafrabad coast during April to May for shrimp farming purpose.

Approved.

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

10.8.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

ANIMAL PRODUCTION

Dr. A. B. Fulsounder, Convenor, Animal Production, NAU, Navsari presented total 4 recommendations of animal production group. Amongst them 2 were for scientific community and 2 for dairy farmers. All recommendations were approved with minor modifications.

Recommendations for the farming community

10.8.3.1. Title: Feeding of sugar beet (*Beta vulgaris* L.) as a replacer of green fodder in lactating buffaloes.

Recommendation:
It is recommended to the farmers that feeding of ration containing concentrate (25%), cotton seed cake (7%), hybrid napier grass (28%) and paddy straw (40%) can be replaced during lean period by a ration containing 19% concentrate mixture, 13% cotton seed cake, 14% hybrid napier grass, 37% paddy straw and 17% sugar beet tubers without affecting milk production, composition and cost of feeding in Surti buffalo.

- **પશુપાલકો માટે ભલામણઃ**

આથી પશુપાલકોને ભલામણ કરવામાં આવે છે કે સુરતી ભેંસોના આહારમાં દાણ (૨૫ %), કપાસ ખોળ (૭ %), હાઈબીડ નેપીયર (૨૮ %) અને ડાંગર પરાળ (૪૦ %) જેવા ઘટકો ધરાવતો આહાર લીલાચારાની તંગીના સમયે ૧૯% દાણ, ૧૩ % કપાસ ખોળ, ૧૪ % હાઈબીડ નેપીયર, ૩૭ % ડાંગર પરાળ અને ૧૭ % સુગરબીટ કંદ ના આહાર વડે દુધ ઉત્પાદન, બંધારણ અને ખોરાકીય ખર્ચમાં નુકસાની વિના ફેરબદલ કરી શકાય.

Approved. *(Action: Res. Scientist, LRS, NAU, Navsari)*

10.8.3.2. Title: Study on milking behaviour of Surti buffalo.
Recommendation:
It is recommended to farming community that the primiparous Surti buffalos having docile temperament produce more milk (492.1 *vs*. 328.6 kg) during early lactation (100 days) than the animals having restless-nervous temperament. Therefore, farmers are advised to interact more generously with them particularly with first calver Surti buffaloes.

સુરતી ભેંસના પ્રથમ વિયાણના વેતરનાં શરૂઆતના ૧૦૦ દિવસો દરમ્યાન શાંત ભેંસોનું દુધ ઉત્પાદન તોફાની ભેંસોની સરખામણીમાં વધુ હોય છે (૪૯૨ ની સામે ૩૨૯ કિગ્રા) આથી પશુપાલકોને ભલામણ કરવામાં આવે છે કે, તોફાની સ્વભાવવાળી સુરતી ભેંસના પ્રથમ વિયાણના શરૂઆતના ૧૦૦ દિવસમાં અંગત કાળજી રાખવી જોઈએ.

Approved. *(Action: Prof. & Head, Dept. of LPM, CVSAH, NAU, Navsari)*

Recommendations for Scientific Community

10.8.3.3. Title: Influence of body condition score on performance and blood-biochemical profile in Surti buffalo.
Recommendation:
It is advised to maintain body condition score of Surti buffaloes between 3.25 and 3.5 at calving as it improves milk production (465.1 *vs*. 330.9 Kg/100 days & peak yield 7.3 *vs*. 5.8 Kg), postpartum interval to estrus (32.4 *vs*. 46.5 days), service period (61.9 *vs*. 75.5 days) and estrus intensity score (3.6 *vs*. 2.5).

Approved.

*(**Action**: Prof. & Head, Dept. of LPM, CVSAH, NAU, Navsari)*

10.8.3.4. Title: To study diaphoretic pattern of Surti buffalo.
Recommendation:
It is advised to prefer neck dorsum & lateral brisket and fore flank regions over other body regions for diaphoretic study in Surti buffalo.

Approved.

(Action: Prof. & Head, Dept. of Vet. Phy. & Bio., CVSAH, NAU, Navsari)

ANIMAL HEALTH

Dr. J. N. Mistry, Convenor, Animal Health Group, NAU, Navsari presented total 3 recommendations of animal health group. All recommendations for scientific community were approved with minor modifications.

Information for the scientific community

10.8.3.5. Title:

1. Studies on pharmacokinetics and pharmacodynamic relationship of Cefpirome in cow calves"
2. Studies on pharmacokinetics and pharmacodynamic relationship of Cefpirome in goats

Recommendation:

It is recommended to scientific community that Cefpirome is to be administrated at 10 mg/kg body weight intravenously then repeated at 8 hour interval or intramuscularly at 12 hour interval in cattle and goat.

Approved. *(Action: PI, Dept. of Vet. Pharm. & Toxicol.., CVSAH, NAU, Navsari)*

10.8.3.6. Title: Diagnosis of udder and teat disorders using ultrasonography in bovines

Recommendation:

It is recommended to scientific community that the direct contact technique of ultrasonography provides better visualization of proximal and middle portion of the teat whereas use of water bath technique provides better visualization of distal portion of the teat.

Approved. *(Action: PI, Dept. of Vet. Surg. & Radio., CVSAH, NAU, Navsari)*

10.8.3.7. Title: Epidemiological and techno-economic aspect of bovine brucellosis in south Gujarat

Recommendation:

It is recommended to scientific community that the overall prevalence of bovine brucellosis was 14.18% amongst various reproductive disorders in bovines in south Gujarat. Out of these reproductive disorders, the highest prevalence was in cases of abortion (39.44%) followed by retention of placenta (13.51%), metritis/endometritis (13.33%), repeat breeding (5.65%) and still birth (4.62%). The milk-ELISA proved best for screening of herd and individual animals in comparison to STAT, RBPT and MRT and is recommended for the use by veterinarians at field level.

Approved.

*(**Action**: PI, Dept. of Vet. Medi., CVSAH, NAU, Navsari)*

10.8.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S.K.NGAR

ANIMAL PRODUCTION

Dr. J. B. Patel, Convenor, Animal Production, SDAU presented 3 recommendations for scientific community. It was suggested to present in Joint Combined AGRESCO of Agricultural Engineering, Dairy and Food technology group for approval.

ANIMAL HEALTH

No recommendations.

TECHNICAL SESSION-II

Date: 10, April 2014 **Time: 14:30-19:30.**

Chairman : Dr. A. M. Thaker/ Dr. M. M. Pathak
Co-Chairman: 1. Dr. S.R. Chaudhary
2. Dr. P. H. Tank/ Dr. P. U. Gajbhiye
Rapporteurs : 1. Dr. D.S. Nauriyal
2. Dr. V.B. Kharadi

NEW TECHNICAL PROGRAMMES

10.8.1 ANAND AGRICULTURAL UNIVERSITY, ANANDANIMAL PRODUCTION

Sr. No	Title	Suggestions	Remarks
Centre: *Reproductive Biology Research Unit, AAU, Anand*			
10.8.1.1	To study the impact of Proactive measures in pregnant cows and buffaloes for reducing peri-partum complications and birth of viable calves.	1. Accepted with suggestion to ensure current status and re-submit (Action: PI, Reproductive Biology Research Unit, AAU, Anand)	
10.8.1.2	Study to find out optimum weight of Pubertal Surti and Marwadi female goat kids for first time breeding and subsequent delivery of viable kids.	Accepted with following suggestion/s 1. Age and weight at puberty should be recorded and then based on weight at puberty groups are to be made. (Action: PI, Reproductive Biology Research Unit, AAU, Anand)	
Centre: *Animal Nutrition Research Station, AAU, Anand*			
10.8.1.3	Effect of selected herbal feed additives on *in vivo* rumen fermentation and nutrient utilization Surti goats.	Accepted (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 4	To evolve area specific mineral mixture for dairy animals in Vadodara district.	Accepted (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 5	Studies on the effect of feeding bypass fat and yeast (*Saccharomyces cerevisiae*) supplemented total mixed ration to Surti goats during hot summer.	Accepted with following suggestion/s 1. Minimum experimental period should be 45 days (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 6	Screening for determination of optimum level of dried date palm (*Phoenix dactylifera* L. [Arecaceae] leaves incorporation in Total Mixed Rations for livestock.	Accepted (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 7	Evaluation of using green date palm (*Phoenix dactylifera* L. [Arecaceae] leaves in the ration of bullocks.	Accepted (Action: PI, Animal Nutrition Research Station, AAU, Anand)	

10.8.1. 8	Effect of feeding bypass fat and concentrate mixture containing bypass protein on milk production from buffaloes.	Accepted with modified title "Effect of feeding bypass fat and concentrate mixture containing bypass protein on milk production in buffaloes" (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 9	Effect of feeding bypass fat, concentrate mixture containing bypass protein and appropriate mineral mixture on milk production from buffaloes of tribal areas of Panchmahal districts (TSP)	Accepted with modified title "Effect of feeding bypass fat, concentrate mixture containing bypass protein and area-specific mineral mixture on milk production in buffaloes of tribal areas of Panchmahal districts" (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 10	Methane mitigation in buffaloes using legume straw based total mixed ration.	Accepted with following suggestion/s 1. Minimum no. of animals/treatment should be six. (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 11	Study of nutritional status of dairy animals of Mahisagar district.	Accepted (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
10.8.1. 12	Studies on silage making in polypropylene silage bags	Accepted (Action: PI, Animal Nutrition Research Station, AAU, Anand)	
Centre: ***Poultry Complex***			
10.8.1. 13	To study the effects of feeding different quality maize on production performance and egg quality parameters of White Leghorn birds	Accepted (Action: PI, Poultry Complex, AAU, Anand)	
10.8.1. 14	Maintenance of Anand Bantamised White Leghorn	Accepted with modified title as "Maintenance and improvement of Anand Bantamised White Leghorn" (Action: PI, Poultry Complex, AAU, Anand)	
10.8.1. 15	Maintenance of Anand Synthetic White Leghorn.	Accepted with modified title as "Maintenance and improvement of Anand Synthetic White Leghorn" (Action: PI, Poultry Complex, AAU, Anand)	
Centre: ***Department of Animal Biotechnology***			
10.8.1. 16	Regulation of Activin receptor type IIB (ACVR2B) expression through RNA interference in Goat Myoblast Cells	Accepted (Action: PI, Dept. of Animal Biotechnology, COVSAH, AAU, Anand)	

10.8.1. 17	Development of Recombinant Viral Vectored Bivalent Vaccine against Marek's and Newcastle Disease Virus in Poultry	Accepted (Action: PI, Dept. of Animal Biotechnology, COVSAH, AAU, Anand)	
10.8.1. 18	SNPs Detection and Validation in Squamous Cell Carcinoma of Horn in Kankrej Cattle (*Bos indicus*) using Next Generation Sequencing	Accepted with modified title as "SNPs Detection and Validation in Squamous Cell Carcinoma of Horn in Kankrej Cattle (*Bos indicus*)" (Action: PI, Dept. of Animal Biotech., COVSAH, AAU, Anand)	
Centre: *Department of Animal Science, BACA*			
10.8.1. 19	Studies on dairy temperament and its association with milk yield and milkability traits in Kankrej, Gir and crossbred cows.	Accepted (Action: PI, Department of Animal Science, BACA, AAU, Anand)	

ANIMAL HEALTH

Sr. No.	Title	Suggestions	Remarks
10.8.1.20	To determine *in-vitro* antibacterial activity of aqueous, alcoholic and chloroform extracts of *Phyllanthus emblica* (Amla).	Accepted (Action: HOD, Dept. of Veterinary Pharma. & Toxicol., COVSAH, AAU, Anand)	
10.8.1.21	Toxicopathological studies of carprofen in broiler chicks	Accepted (Action: HOD, Dept. of Veterinary Pathology, COVSAH, AAU, Anand)	
10.8.1.22	Isolation and identification of Infectious Bronchitis Virus	Accepted (Action: HOD, Dept. of Veterinary Microbiology, COVSAH, AAU, Anand)	
10.8.1.23	Sequencing and analysis of Newcastle disease virus gene	Accepted (Action: HOD, Dept. of Veterinary Microbiology, COVSAH, AAU, Anand)	
10.8.1.24	Standardization and application of Polymerase Chain Reaction technique for diagnosis of *P. multocida* directly from blood and tissues	Accepted (Action: HOD, Dept. of Veterinary Microbiology, COVSAH, AAU, Anand)	
10.8.1.25	Evaluation of Relative Efficacy of Different Commercial Extenders for Refrigeration (5°C) and Cryopreservation (-196°C) of Buffalo Semen	Accepted (Action: HOD, Dept. of VGOB, COVSAH, AAU, Anand)	
10.8.1.26	Augmenting Fertility in Anoestrus and Repeat Breeding Cows and Buffaloes through Controlled Breeding Techniques in Tribal Areas of Panchamahal District	Accepted (Action: HOD, Dept. of VGOB, COVSAH, AAU, Anand)	

10.8.1.27	Studies on Follicular Dynamics using Ultrasonography of Spontaneous and Induced Oestrous Cycle in Gir and Crossbred (HF x K) Cattle	Accepted (Action: HOD, Dept. of VGOB, COVSAH, AAU, Anand)	
10.8.1.28	Isolation and characterization of *Campylobacter* spp. from Milk and Milk Products sources	Accepted (Action: HOD, Dept. of Veterinary Public Health, COVSAH, AAU, Anand)	
10.8.1.29	Isolation and characterization of Salmonellae from mutton and chevon	Accepted (Action: HOD, Dept. of Veterinary Public Health, COVSAH, AAU, Anand)	
10.8.1.30.	Isolation and characterization of Salmonellae from pork and slaughter house environment	Accepted (Action: HOD, Dept. of Veterinary Public Health, COVSAH, AAU, Anand)	
10.8.1.31.	Multilocus sequence typing of *Campylobacter jejuni* isolates	Accepted (Action: HOD, Dept. of Veterinary Public Health, COVSAH, AAU, Anand)	

10.8.2 JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH

Sr. No.	Title / Centre	Suggestions	Remarks
ANIMAL SCIENCE			
Cattle Breeding Farm, JAU, Junagadh			
10.8.2.1	"Efficacy comparison among different medicaments on anoestrous Gir heifers"	Accepted with following suggestion: 1. Use 0.25% Lugol's iodine instead of 1% in treatment III. 2. Experiment continued till sufficient number of animals is studied. (Action: Research Scientist (AGB), CBF, Junagadh)	
10.8.2.2	"Effect of stage and season of lactation on fat, SNF, and protein content in milk of Gir cattle".	Accepted with modified title and suggestion as follows: 1. Modify title as "Effect of season and stage of lactation on fat, SNF, and protein content in milk of Gir cattle" 2. Interaction effect between season X stage of lactation has to added in model. (Action: Research Scientist(AGB), CBF, Junagadh)	
College of Veterinary Science and A. H., JAU, Junagadh			
10.8.2.3	"Study the retrieval rate and grading of oocytes from ovary of culled Jaffarabadi buffaloes"	Accepted (Action: HOD, Dept. of ARGO, COVSAH, JAU)	
10.8.2.4	"Association of milk components with intra-mammary infection in Jaffrabadi buffaloes"	Accepted (Action: HOD, Dept. of LPM, COVSAH, JAU)	

10.8.2.5	"Study of acaricidal resistance status and species of ticks feed on livestock and pet animals visiting to TVCC, College of Veterinary Science & Animal Husbandry, JAU, Junagadh"	Accepted with modified title as "Study of acaricidal resistance status and species of ticks infesting animals presented at TVCC, Jungadh". (**Action**: HOD, Dept. of Parasitology, COVSAH, JAU*)*	
10.8.2.6	"Study of parasitic infections/infestations in livestock and pet animals visiting to TVCC, College of Veterinary Science & AH, JAU, Junagadh"	Accepted with modified title as "Study of parasitic infections/infestations in animals presented at TVCC, Junagadh" (**Action**: HOD, Dept. of Parasitology, COVSAH, JAU)	
10.8.2.7	"Appraisal of feeding practices of pet dogs in and around Junagadh city".	Accepted with following suggestions. 1. Add additional objective as below: To advise pet owners about nutritional requirements of their pets. (**Action**: HOD, Dept. of ANN, COVSAH, JAU*)*	
10.8.2.8	**"**Assessment of Blood cells' Immunocompetence around Parturition in Gir cows and Jafarabadi buffaloes"	Accepted with following suggestions. 1. Progesterone estimation is to be included. (**Action**: HOD, Dept. of VPB, COVSAH, JAU*)*	
10.8.2.9	"Clinical hematological and biochemical profiles of horses in and around Junagadh regions"	Accepted with modified title and following suggestions. 1. Modify title as "Hematobiochemical profiles of horses in and around Junagadh". 2. Minimum 30 animals should be studied. (**Action**: HOD, Dept. of VPB, COVSAH, JAU*)*	
10.8.2.10	"Quality assessment of raw milk at the production point"	Accepted (**Action**: HOD, Dept. of VPE, COVSAH, JAU*)*	
10.8.2.11	"Clinical Studies on brisket tumor in Jaffrabadi buffaloes"	Accepted (**Action**: HOD, Dept. of VSR, COVSAH, JAU*)*	
10.8.2.12	"Radiographic determination of heart size in Mongrel dogs using vertebral heart score system"	Accepted with modified title as "Radioanatomy of heart size in Mongrel dogs using vertebral heart score system" (**Action**: HOD, Dept. of VSR, COVSAH, JAU*)*	
10.8.2.13	"Aetio-Pathological studies on Broiler mortality in and around Junagadh"	Accepted (**Action**: HOD, Dept. of VPP, COVSAH, JAU*)*	
10.8.2.14	"Clinical epidemiology of patients visiting at Junagadh Veterinary Hospital"	Accepted with modified title as "Epidemiological study on animals presented with various disorders at TVCC, Junagadh" (**Action**: HOD, TVCC, COVSAH, JAU*)*	

Fisheries Sciences			
10.8.2.15	Fisheries College, JAU, Veraval "Effect of probiotics on survival, growth and biochemical changes in Labeo rohita fry"	Accepted (**Action***: Principal, Fisheries Coll. JAU, Veraval)*	
10.8.2.16	Fisheries Research Station, JAU, Okha **"**Effect of different salinities on growth and survival of juvenile Pacific white shrimp Litopenaeus vannamei *Litopenaeus vannamei"*	Accepted (**Action**: *Research Officer, FRS, JAU, Okha)*	
10.8.2.17	Fisheries Research Station, JAU, Okha **"**Estimation of in vitro antioxidant potential of the seaweeds at of Okha*"*	Accepted (**Action**: *Research Officer, FRS, JAU, Okha)*	
10.8.2.18	Fisheries Research Station, JAU, Okha **"**Effect of dietary supplement of Spirulina sp. on growth and survival in Pacific white shrimp *Litopenaeus vannamei"*	Accepted (**Action**: *Research Officer, FRS, JAU, Okha)*	
10.8.2.19	Fisheries Research Station, JAU, Okha **"**Effects of gamma irradiation on the quality of sun –dried croaker *(Johnius dussumieri)"*	Accepted (**Action**: Research Officer, FRS, JAU, Okha)	

10.8.3 NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Title/ Centre	Suggestions	Remarks
Animal Production			
10.8.3.1	Use of physical activity monitoring for estrus detection in Surti buffaloes.	Accepted with following suggestions: 1. Include field animals in study. (Action: HOD, Dept. of LPM, VCVS)	
10.8.3.2	Effects of rubber mat bedding on the lying behavior, cleanliness and hoof and hock injuries of crossbred cows.	Accepted with following suggestions: 1. No. Of animals per treatment should be six. (Action: HOD, Dept. of LPM, VCVS)	
10.8.3.3	Evaluation of buffalo management practices in peri-urban dairy farms of Surat city.	Referred to Social Science group. (Action: HOD, Dept. of LPM, VCVS)	
10.8.3.4	Study of Suckling behavior and mothering ability vis-à-vis production performance of Surti goat.	Accepted (Action: HOD, Dept. of LPM, VCVS)	

10.8.3.5	Analysis of chromosomal abnormalities in Surti buffalo using fluorescence in-situ hybridization (FISH).	Accepted (Action : HOD, Dept. of AGB, VCVS)	
10.8.3.6	Strategies to mitigate the impact of climate change.	Accepted with modified title as "Strategies to mitigate the impact of climate change by studying oxidative stress in Surti buffalos" (Action : HOD, Dept. of VPB, VCVS)	
10.8.3.7	Establishment of fibroblast culture.	Accepted (Action : HOD, Dept. of VPB, VCVS)	
10.8.3.8	A Study on congenital abnormalities found in dairy animals of south Gujarat region.	Accepted (Action : HOD, Dept. of ILFC, VCVS)	
10.8.3.9	Evaluation of phytogenic feed additive supplementation on growth performance, nutrient utilization, anti-oxidants and health status of Surti goat kids.	Accepted with following suggestions: 1. Number of animals per treatment should be six. (Action : HOD, Dept. of ANN, VCVS)	
10.8.3.10	In vitro evaluation of sugarcane bagasse treated with different level of urea and moisture.	Accepted with following suggestions: 1. Delete objective no. 3. (Action : HOD, Dept. of ANN, VCVS)	
10.8.3.11	Studies on development of milk product utilizing watermelon (*Citrullus lanatus*).	1. Referred to Dairy Science group. (Dairy Science group suggested for conducting filler trial and to include Dr. P. Pandit as Co-PI) (Action : HOD, Dept. of LPT, VCVS)	
Animal Health			
10.8.3.12	Department of Veterinary Anatomy "Gross and Histo-morphological Observation of Lingual Papillae of Small Ruminant"	Accepted (Action : HOD, Dept. of VAN, VCVS)	
10.8.3.13	Department of Veterinary Parasitology "Survey of Gastro-Intestinal Parasites in Captive Animals at Surat Municipal Corporation Zoo".	Accepted (Action : HOD, Dept. of VPA, VCVS)	
10.8.3.14	Department of Veterinary Pharmacology & Toxicology "Evaluation of *in-vitro* Antimicrobial and Anti-inflammatory Activity of ten Medicinal Plants".	Accepted with modified title and following suggestions. 1. Modify title as "Evaluation of *in-vitro* Antimicrobial and Anti-inflammatory Activity of selected Medicinal Plants" 2. Mention the names of plants (Action : HOD, Dept. of VPT, VCVS)	

10.8.3.15	Department of Veterinary Pharmacology & Toxicology "Studies on Pharmacokinetics and Pharmacodynamic Relationship of Cefquinome in Cow Calves."	Accepted. (Action : HOD, Dept. of VPT, VCVS)	
10.8.3.16	Department of Veterinary Pharmacology & Toxicology "Studies on Pharmacokinetics and Pharmacodynamic Relationship of Cefquinome in Goats"	Accepted (Action : HOD, Dept. of VPT, VCVS)	
10.8.3.17	Livestock Research Station and Department of Veterinary Medicine "Prevalence of haemoprotozoan infections in bovines of Navsari district"	Accepted (Action : PI, Dept. of LRS & VMD, VCVS)	
10.8.3.18	Livestock Research Station and Department of Veterinary Medicine "Sero-prevalence of brucellosis in goats of South Gujarat".	Accepted (Action : PI, Dept. of LRS & VMD, VCVS)	
10.8.3.19	Department of Veterinary Surgery & Radiology **"**Clinical study on neurological disorder in canines"	Accepted (Action : HOD, Dept. of VSR, VCVS)	
10.8.3.20	Department of Veterinary Surgery & radiology "Studies on the surgical management of membranous teat obstruction in dairy animals"	Accepted (Action : HOD, Dept. of VSR)	

10.8.4 SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY, S.K.NAGAR

Sr. No.	Title/ Centre	Suggestions	Remarks
Animal Production			
10.8.4.1	To study economics of mixed farming in S.D.A.U adopted village of Dantiwada Taluka	Accepted (Action: LRS, SDAU, S.K.Nagar)	
10.8.4.2	Retrospective study of reduced service period in Kankrej cattle and Mehsana buffaloes	Accepted (Action: LRS, SDAU, S.K.Nagar)	
10.8.4.3	To determine the effect of feeding cotton seed cake and mineral mixture on AFC in Kankrej cattle and Mehsana buffaloes	Accepted (Action: LRS, SDAU, S.K.Nagar)	
10.8.4.4	Study the hygienic score of lactating Kankrej cows reared on the dairy farm	Accepted (Action: HOD, Dept. of LPT, College of Vet. Sci. & AH, S.K.Nagar)	
10.8.4.5	Effects of supplementation of synthetic amino acids on the performance of broiler chicken	Accepted with following suggestion/s 1. Treatments to be modified in consultation with Dr. S. Parnerkar, RS, ANRS, AAU, Anand. (Action: HOD, Dept. of LPT, College of Vet. Sci. & AH, S.K.Nagar)	

10.8.4.6	Study the performance of White Giant and Soviet Chinchilla rabbits under Semi-arid climatic conditions of North Gujarat	Accepted (Action: HOD, Dept. of LPT, College of Vet. Sci. & AH, S.K.Nagar)	
10.8.4.7	Studies on fresh and stored goat meat patties fortified with dietary fibers	Referred to Dairy Science group. (Action: HOD, Dept. of LPM, College of Vet. Sci. & AH, S.K.Nagar)	
10.8.4.8	Development of value added kalakand using papaya fruit	Referred to Dairy Science group. (Action: HOD, Dept. of LPM, College of Vet. Sci. & AH, S.K.Nagar)	
10.8.4.9	Studies on chicken seekh kabab incorporated with citrus fruit by-products	Referred to Dairy Science group. (Action: HOD, Dept. of LPM, College of Vet. Sci. & AH, S.K.Nagar)	
Animal Health and Fisheries			
10.8.4.10	Pharmacokinetics of orbifloxacin and its combination with tolfenamic acid in buffalo calves	Accepted (Action:HOD, Dept. of VPT, College of Vet. Sci. & AH, S.K.Nagar)	
10.8.4.11	Development of osteoarthritis rat model by injection of iodoacetate into the femorotibial joints	Accepted (Action: HOD, Department of Pathology)	
10.8.4.12	Pathological studies on female genital tract of buffaloes	Accepted (Action: HOD, Department of Pathology)	
10.8.4.13	Pathological studies on broiler mortality in Banaskantha district	Accepted (Action: HOD, Department of Pathology)	
10.8.4.14	Studies on prevalence of canine cardiac diseases in local population and its diagnosis using electrocadiography and cardiac biomarkers	Accepted with suggestions: 1. Minimum 35 animals to be studied. 2. Duration of experiment may be extended to two years. (Action: HOD, Department of Medicine)	
10.8.4.15	Diagnosis of parasitic diseases in animals of North Gujarat	Accepted (Action: HOD, Department of Parasitology)	
10.8.4.16	Clinical trial of drugs against natural parasitic infection in dairy animals of Banaskantha district	Conditionally accepted with following suggestions: 1. Revise technical programme with the approval of Dean, Veterinary College, SDAU 2. Modify title as “Evaluation of efficacy of some drugs against natural parasitic infection/infestations in dairy animals of Banaskantha district” (Action: HOD, Department of Parasitology)	
10.8.4.17	Studies on status of acaricide resistance and development of alternate strategy to control ticks in North Gujarat	Deferred with suggestion to revise technical programme and re-submit next year. (Action: HOD, Department of Parasitology)	
10.8.4.18	Investigations on anestrus in rural buffaloes of Banaskantha	Accepted (Action: HOD, Department of Gynecology and Obstetrics)	
10.8.4.19	Clinical investigations on Transmissible Venereal Tumor:	Accepted (Action: HOD, Department of Gynecology	

	Therapeutics and its effects on blood indices of affected dogs	and Obstetrics)	
10.8.4.20	Evaluation of surgical treatment of obstructive urolithiasis in bovines in clinical cases	Accepted (Action: HOD, Department of Surgery and Radiology)	
10.8.4.21	Recording of characteristics of various lameness conditions in horses	Accepted with suggestions: 1. Duration of experiment should be three years with minimum 50 animals under study. (Action: HOD, Department of Surgery and Radiology)	
10.8.4.22	Studies on application of free-form external skeletal fixation technique for the repair of fractures in animals	Accepted with following suggestion 1. Title is to be modified as "Surgical management of mandibular fracture in camels using free-form external skeletal fixation technique" (Action: HOD, Department of Surgery and Radiology)	
10.8.4.23	Studies on incidence of congenital anomalies of GIT and their surgical corrections in ruminants	Accepted (Action: HOD, Department of Department of Surgery and Radiology)	
10.8.4.24	Studies on incidence of diaphragmatic hernia in Mehsana Buffaloes of Sabarkantha district	Accepted with modification in title as "Studies on incidence of diaphragmatic hernia in dairy animals of Sabarkantha district" (Action: HOD, Department of Surgery and Radiology)	
10.8.4.25	Studies on transabdominal approach to repair the D.H without positive pressure ventilator in Mehsana Buffaloes of Sabarkantha district	Accepted with modification in title as "Studies on transabdominal approach to repair the D.H without positive pressure ventilator in dairy animals of Sabarkantha district" (Action: HOD, Department of Surgery and Radiolog)	
10.8.4.26	Comparative evaluation of thickness of diaphragm in normal Mehsana buffaloes and those with D.H.	Accepted with modification in title as "Comparative evaluation of thickness of diaphragm in normal dairy animals and those with D.H." (Action: HOD, Department of Surgery and Radiology)	
10.8.4.27	Studies on usefulness of ultrasonography for diagnosis of D.H in bovines	Accepted (Action: HOD, Department of Surgery and Radiology)	

10.8.3 General suggestions

The house approved all the above mentioned recommendations and new technical programmes with suggestions and modifications. It was unanimously resolved by the house that all SAUs of Gujarat should uniformly have two separate sub-committees, 1) Animal Health and 2) Animal Production & Fisheries Science.

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Plenary Session:

Plenary session of 10th Combined Joint AGRESCO meeting of SAUs was Chaired by Dr. A. R. Pathak, Hon'ble Vice Chancellor of NAU, Navsari and Co Chaired by Dr. N. C. Patel, Hon'ble Vice chancellor, JAU, Junagadh and Officers Dr. K. B. Kathiria, Director of Research, AAU, Anand, Dr. R. M. Chauhan, Director of Research, SDAU, S.K. Nagar, Dr. A. N. Sabalpara, Director of Research, NAU, Navsari and Dr. K. B. Jadeja, Registrar, JAU, Junagadh remained present. After the formal welcome by Dr. C. J. Dangaria, Director of Research, JAU the session initiated with the presentation of proceedings of following sub committees by the respective conveners where in recommendations of different sub committees were approved are as under. Dr. M. M. Pathak, ADR, AAU, Anand, Dr. A. M. Patel, ADR, SDAU, S.K. Nagar, Dr. P. Mohnot, ADR, JAU, Junagadh and Dr. B. N. Patel, ADR, NAU, Navsari were the rapporteurs for this session.

Proceeding of Sub Committee	**Presented by**	**Universities**	**No. of Recommendations**				**No. of New Technical Programmes**	
			Farming Community		**Scientific Community**			
			Proposed	Approved	Proposed	Approved	Proposed	Approved
Crop Improvement	Dr. M. S. Pithia	AAU	07	06	-	-	04	04
		JAU	03	03	-	-	02	02
		NAU	05	05	-	-	05	05
		SDAU	03	02	02	02	06	05
		Total	**18***	**16***	**02**	**02**	**17**	**16**
Crop Production	Dr. R. G. Patil	AAU	15	14	01	01	22	22
		JAU	15	15	05	05	27	27
		NAU	11	10	-	01	29	28
		SDAU	10	09	-	01	25	25
		Total	**51**	**48**	**06**	**08**	**103**	**102**
Plant Protection	Dr. V. A. Solanki	AAU	08	08	06	06	30	29
		JAU	06	06	-	-	14	14
		NAU	10	10	12	12	41	41
		SDAU	02	-	-	-	04	04
		Total	**26**	**24**	**18**	**18**	**89**	**88**
Horticulture & Agro Forestry	Dr. Piyush Verma	AAU	00	00	00	00	05	05
		JAU	02	02	01	01	03	03
		NAU	11	11	02	02	39	39
		SDAU	02	02	00	00	04	04
		Total	**15**	**15**	**03**	**03**	**51**	**51**
Agril. Engg., Dairy Sc.,	Dr. P. M. Chauhan	AAU	22	20	03	02	25	24
		JAU	08	08	02	02	10	10

Proceeding of Sub Committee	Presented by	Universities	No. of Recommendations				No. of New Technical Programmes	
			Farming Community		Scientific Community			
			Proposed	Approved	Proposed	Approved	Proposed	Approved
FPT & BE, AIT and Group		NAU	05	05	01	01	06	06
		SDAU	-	-	02	02	04	03
		Total	**35**	**33**	**08**	**07**	**45**	**43**
Basic Sc. & Humanities, Plant Phy. & Bio Tech.	Dr. A. S. Joshi	AAU	-	-	02	02	07	07
		JAU	02	02	-	-	06	05
		NAU	01	01	-	-	22	20
		SDAU	-	-	-	-	04	03
		Total	**03**	**03**	**02**	**02**	**39**	**35**
Social Science	Dr. J. S. Patel	AAU	-	-	06	01	41	40
		JAU	-	-	-	-	05	05
		NAU	-	-	-	-	19	19
		SDAU	-	-	-	-	22	22
		Total	**-**	**-**	**06**	**01**	**87**	**86**
Animal Health, Animal Production, Fisheries	Dr. P. H. Vatalia	AAU	03+03**	03+03**	07	07	31	31
		JAU	06	06	11	08	19	19
		NAU	02	02	05	05	20	18
		SDAU	-	-	03	-	27	23
		Total	**11+3****	**11+3****	**23**	**20**	**97**	**91**
		Grand Total	**162**	**153**	**68**	**61**	**528**	**512**

* 16 varieties released

**Three poultry strains/strain-cross released

Dr. A. N. Sabalpara, Director of Research, NAU, Navsari based on deliberation in plant protection subcommittee, informed that common selling price of Rs 120/lit for bio fertilizer has been fixed for all the universities. He further, mentioned that the old recommendations of restricted chemicals must be withdrawn. Residue analysis of replicated samples is required and in case of vegetable crops replicated samples of each picking needs to be analyzed.

Dr. Kathiria, Director of Research, Anand Agricultural University, flagged the issue on withdrawing of recommendation of phosphorus on groundnut, cotton, rice, bajara etc. raised by Prof. M. R. Vaishnav Ex. Prof. Agril. Statistics through his several letters. He mentioned that Prof. Vaishnav was one of the members of the Agronomy Soil Science

subcommittee of GAU wherein the recommendation of phosphorus was finalized; hence, Prof. Vaishnav was one of the parties in the said recommendation. However, after retirement he has written many times, i.e., in 2008, 2009, 2010, 2012 to CM, Agril. Minister, Secretary (Agri.), VCs, DRs from time to time, suggesting to withdraw the phosphorus recommendations. Not only to this, he has blamed VCs, AAU, JAU, NAU and DR, AAU that they are doing injustice. Replies of Prof. Vaishnav queries were given to Govt. and all concerned from time to time with reasons. In spite of all efforts, recently Prof. Vaishnav represented said issue with old data to secretary (Agri.) & again blamed to VCs & DRs. Therefore this issue is required to be discussed and come to conclusion. It was informed that this has already been discussed in Agronomy subcommittee on 9 & 10/04/2014. As none of VCs or DRs were members in Agronomy subcommittee when the phosphorus recommendations was finalized, hence, two expert & learned members of that time & presently retired were invited for appraisal to the house & for their learned views.

Dr. D. D. Malaviya, Ex. Principal & Agronomist informed house that based on field data on groundnut, bajra and cotton, it was discussed at length and wherever required recommendation of phosphorous dose was reduced. Moreover, Prof. Vaishnav is arguing only the data of non-significant trials, which were of dry years but when monsoon was good and yield level was high (above 800 kg/ha) response of phosphorus was significant. Looking to immobile nature of 'P' element there is a requirement to apply it in some quantity so that 'P' level of soil doss not become very poor and later on it become difficult to build up 'P' in soil.

Dr. J. D. Gundaliya, Ex. Prof. Agril. Chemistry also informed in detail that Prof. Vaishnav has given his views based only on data of poor years without considering permanent trials data. He further stated that he was handling permanent trials on groundnut where in 'P' status in soil had drastically gone down and affected yield in no 'P' treatment. Moreover, when yield goes higher than 800 kg/ha, 'P' is required as 'P' level affects the yields. In good monsoon also significant 'p' response was observed.

Dr. R. G. Patil, Res. Sci. (Soil), NAU also informed that this issue was discussed in the sub-committee and all scientists opined that whatever level 'P' reduced must be added. The data used by Vaishnav were old, cropping system has been changed, hence new trials are required. Hence, the new trials/ experiments have been formulated.

Based on above discussion and clarification of experts, house opined that the allegations made by Prof. Vaishnav on VCs and DRs are baseless and the house condemned it.

Dr. N. C. Patel. Hon'ble Vice Chancellor, JAU suggested following points for future:

1. Award may be given to best research recommendation.
2. Research priorities may be fixed looking to the climate change and new proposals must be decided as per Vision documents prepared by all the four universities.
3. More emphasis should be given on applied research in mechanization, animal husbandry and fisheries science.
4. Promote use of bio fertilizer and organic farming.
5. Strengthening of PG research for the initial information before conducting departmental trials will be useful.
6. Increase the use of latest technology like sensors, satellite images, database and forecasting using remote sensing, etc.

Dr. A. R. Pathak, Hon'ble Vice Chancellor, NAU congratulated the scientists fraternity for their contribution in bringing out such a large number of research recommendations. He said that now it is the duty of Directorate of Extension Education and line departments for popularization and implementation of newly developed technologies and get feedback from farmers. He emphasized on application of Bio and nano technologies for quick results. Teachers should be competent and expert in their field of specialization and students should be motivated for JRF, SRF, ARS and NET examinations. He suggested to felicitate Farm Managers working at sub centers (remote area) for their valued contribution.

Dr. R. M. Chauhan, Director of Research, SDAU specially thanked the JAU as a host for the comfortable stay, food, excellent hospitability and facilities for the conduction of meeting at different places.

At the end of session Dr. K. B. Jadeja, Registrar, JAU, Junagadh thanked Dr. A. R. Pathak, Chairman & Hon.ble Vice Chancellor, NAU and Dr. N. C. Patel, Co-Chairman & Vice Chancellor, JAU for their gracious presence and valued remarks. He also thanked all Directors of Research, Board Member, Deans of Various faculties, University Officers, Conveners of various research sub committees, Officers from line departments, Scientists, Conveners for various committees for arrangements and finally the team of Directorate of Research for successful organization of the 10^{th} combined Joint AGRESCO meeting at Junagadh.