

**PROCEEDING OF THE TWELFTH MEETING OF
COMBINED JOINT AGRICULTURAL RESEARCH
COUNCIL OF SAUs AND KAMDHENU
UNIVERSITY- 2015-16**

ORGANIZED BY

**NAVSARI AGRICULTURAL UNIVERSITY
(APRIL 11-13, 2016)**



**DIRECTORATE OF RESEARCH
NAVSARI AGRICULTURAL UNIVERSITY
NAVSARI- 396 450**

PROCEEDING OF THE TWELFTH COMBINED JOINT AGRESKO
MEETING OF STATE AGRICULTURAL UNIVERSITIES AND KAMDHENU
UNIVERSITY HELD AT NAVSARI AGRICULTURAL UNIVERSITY,
NAVSARI DURING 11-13 APRIL, 2016.

The Twelfth Combined Joint meeting of the Agricultural Research Council (AGRESKO) of State Agricultural Universities of Gujarat and Kamdhenu University was held at Navsari Agricultural University, Navsari during 11-13 April, 2016 under the Chairmanship of Dr. C.J. Dangaria, Hon. Vice Chancellor, NAU, Navsari. Shri. Mansinhbhai K. Patel, Chairman, Gujarat State Federation of Co-operative Sugar Factories Ltd. Gandinagar graced the inaugural function as inaugurator and chief guest. Dr. N.C. Patel, Hon. Vice Chancellor, AAU, Anand and Dr. A.R. Pathak, Hon. Vice Chancellor, JAU, Junagadh were the guest of honour and Dr. R. A. Sherashiya, Director of Horticulture, Government of Gujarat was the special guest. Besides, Dr. A. N. Sabalpara, Director of Research and Dean PGS, NAU, Navsari and Dr. G.R. Patel, Director of Extension Education, NAU, Navsari, Directors of Research of all SAUs, Principals and Deans of various faculties of SAUs, officers from Line Department of Gujarat state, the Associate Directors of Research, the conveners of different sub-committees of SAUs, the senior scientists/professors of SAUs attended the meeting.

At the outset, Dr. A.N. Sabalpara, Director of Research, NAU, Navsari welcomed the dignitaries and all the participants. In his welcome address he briefed the summary of recommendation and new technical programmes approved in AGRESKO Sub-committees and Joint AGRESKO meeting of respective Universities, which were to be presented and discussed during the Twelfth Combined Joint Agresko Meeting. He also gave a brief account on success of Gujarat in Agricultural sector and opined that the credit goes to visionary planning of Government and sincere efforts made by Line department and State Agricultural Universities and hard work of industrious and responsive farmers of the state.

Dr. C. J. Dangaria, Hon. Vice Chancellor, NAU, Navsari welcomed Shri. Mansinhbhai K. Patel and other dignitaries by offering floral bouquets as a symbol of love and affection. All the dignitaries joined their hands for lighting the lamp and inaugurated the XIIth Combined Joint AGRESKO meeting. The august gathering also released informative publications viz., Salient Research Achievements 2004-2014, Research Accomplishments and Recommendations, 2014-15, *Adhunik Khetina Vaigyanik Sawal Jawab*, from NAU, Navsari and three folders from Junagadh Agricultural University, Junagadh.

Dr. R.A. Sherashiya, Director of Horticulture, GOG, Gujarat highlighted horticulture scenario of Gujarat state as well as of India and emphasized on need of undertaking research in priority areas like high density planting and rejuvenation of old mango orchards, protected cultivation, post harvest technology, development of disease resistant varieties of vegetables and fruit crops, introduction and development of package of practices for new crops like *Kantola*, orchids and pomegranate. Further he also expressed the need of production of quality planting material of coconut and mango with salinity resistant root stocks for coastal region as well as diversification in coconut products.

Dr. A.R. Pathak, Hon. Vice Chancellor, JAU, Junagadh expressed his views on agriculture research and need for investment in agriculture research which has more returns than any other enterprise. He added that the challenges and problems faced by farmers should

be at the focal point for undertaking research programmes. Considering the difficulty in unbiased biosafety testing in Genetically Modified crops, he recommended the use of Marker Assisted Selection as an option for GM crops, which is otherwise less exploited in SAUs. Further, he emphasized the need for undertaking research in frontier areas of nanotechnology, value addition in fruit crops, drip irrigation; especially in mango orchards, diversification in mango varieties and supply of organic inputs including seeds and proper demonstrations of organic farming to the farmers for the success of organic farming.

Dr. N.C. Patel, Hon. Vice Chancellor, AAU, Anand acquainted the august gathering to the research achievements of AAU, Anand. He also informed about the research activities related Agricultural engineering and dairy research being implemented at AAU, Anand. He appreciated the *Krishi Mahotsav* and said that the Soil health cards have benefited the farmers and there is reduction in use of chemical fertilizers. He urged the agricultural fraternity to hold research in light of changing climate and emphasized the need of development of stress resistant varieties in vegetable crops. Further he hoped that the resistant varieties of *mung* and *urad* bean to mosaic virus will soon be released.

Shri Mansinhbhai K. Patel, Chairman, Gujarat State Federation of Co-operative sugar Factories limited, Gandhinagar and Chairman, Mahuva Co-operative Sugar Factory, Mahuva, expressed his views on the importance of bridging scientist and farmers through *Krishi Mahotsav* programme and express his gratitude to the Hon. Prime Minister Shri Narendra Modi (the then Chief Minister of Gujarat) for initiating *Krushi Mahotsav* with holistic approach. He appreciated the efforts of scientific community for dissemination of scientific information and demonstration of new crops and varieties, package of practices and technological advancement to the farmers for increased productivity and quality production in different crops. He explained the importance of co-operative sector in agriculture and how it has benefited to the farmers of the Gujarat state. Further he expressed the need of conservation of local breeds of cattle and establishment of animal hostels.

In his chairman address, Dr. C.J. Dangaria, Hon. Vice Chancellor, NAU, Navsari congratulated the scientific fraternity of SAUs and Kamdhenu University for the valuable recommendations for the farming community and entrepreneurs. While explaining the agriculture scenario of Gujarat state, he gave credit to the harmony and whole hearted efforts of scientific community and the farmers along with synergistic impetus by policies laid down by Government lead by Smt. Anandiben Patel, Hon. Chief Minister, Government of Gujarat for increased share of agriculture in the state's GDP. He pointed out the major problems and constraints like depletion & degradation of land, soil nutrient deficiency, over use of fertilizers, climate change, new pest and diseases and water scarcity. He emphasized to plan new research programmes on the priority research areas of climate change, nutrient deficiency, farm mechanization, export standards for fruit crops, protected cultivation in horticulture, biosafety issues, high density planting and marker assisted selection in agriculture.

Dr. G.R. Patel, Director of Extension Education, NAU, Navsari proposed vote of thanks at the end of inaugural session.

12.1 CROP IMPROVEMENT:

Chairman:	Dr. A. R. Pathak, Hon. Vice Chancellor, JAU, Junagadh
Co-Chairman:	Dr. K. B. Kathiria, Director of Reseach, AAU, Anand Dr. B. D. Jadhav, Professor, NAU, Bharuch
Rapporteurs:	Dr. K. L. Dobariya, Research Scientist, JAU, Junagadh Dr. P. B. Patel, Associate Research Scientist, NAU, Navsari

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	03	03	00	00	03	03
NAU	17	14 +3*	00	00	16	15
JAU	03	03	00	00	07	07
SDAU	03	03	00	00	00	00
TOTAL	26	23 + 3*	00	00	26	25

(* Pre-release)

12.1.1 RECOMMENDATIONS / ENDORSEMENT FOR FARMING COMMUNITY

NAVSARI AGRICULTURAL UNIVERISTY	
12.1.1.4	Cotton : G. Cot. Hy. 10 BG-II (Endorsement)
	<p>This proposal was presented by Dr. B. G. Solanki, Convener, NAU, Navsari. Cotton hybrid G.Cot.Hy-10 (BG-II) recorded 2109 kg/ha seed cotton yield which was 92.1 % and 10.7 % higher over its non Bt counterpart and zonal check RCH-2 (BG-II), respectively. The proposed hybrid possesses staple length of 28.8 mm with good uniformity (48), average fineness (4.2 mv), medium fibre strength (22.6 g/tex) and good maturity (0.84). The proposed hybrid G.Cot.Hy-10 (BG-II) recorded below ETL population for major sucking pest. The proposed hybrid was found moderately resistant to bacterial leaf blight and alternaria leaf spot diseases and free from grey mildew. Hybrid G. Cot. Hy-10 (BG-II) is recommended for irrigated and rainfed areas of Gujarat. The proposal was approved for endorsement.</p> <p style="text-align: center;">(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)</p>
12.1.1.5	Cotton : G. Cot. Hy. 12 BG-II (Endorsement)
	<p>Cotton hybrid G.Cot.Hy-12 (BG-II) recorded 2115 kg/ha seed cotton yield which was 46.6 % and 11.1% higher over its non Bt counterpart and zonal check RCH-2 (BG-II), respectively. The proposed hybrid had comparatively bigger boll size (4.4 g) with good opening and stay green character. The proposed hybrid had staple length of 28.1 mm with good uniformity (47), average fineness (4.2 mv), medium fibre strength (21.7 g/tex) and good maturity (0.84). G.Cot.Hy-12 (BG-II) recorded below ETL population of major sucking pest and moderately resistant to bacterial</p>

	<p>leaf blight and alternaria leaf spot diseases and free from grey mildew. Hybrid G. Cot. Hy-12 (BG-II) is recommended for irrigated and rainfed areas of Gujarat. The proposal was approved for endorsement.</p> <p style="text-align: center;">(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)</p>
12.1.1.6	Cotton: GISV 272 GN Cot. 24 (Irrigated)
	<p>Cotton variety GISV 272 gave mean seed cotton yield of 1815 kg/ha which was 42.0, 28.8, 37.2 and 30.6% higher over checks G.Cot.10, G.Cot.20, GN.Cot.22 and LRA 5166, respectively. The lint yield produced by the proposed entry was 699 kg/ha which was 47.2, 42.2, 42.7 and 50.6 % higher than checks G.Cot.10, G.Cot.20, GN.Cot.22 and LRA 5166, respectively. The proposed genotype possessed medium long staple with 27.4 mm 2.5 % SL, 5.0 mv Fibre fineness and 20.5 g/tex of Fibre strength. The proposed entry GISV 272 recorded lower population of sucking pest (below ETL). The bollworms damage was found more or less similar to checks. The proposal was approved for pre release for irrigated conditions with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Generate data for pink ball worm infestation / damage. 2. Compare proposed variety with popular <i>Bt</i> hybrid. 3. Include data of HDP, if available. <p style="text-align: center;">(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)</p>
12.1.1.7	Cotton: GBHV 170 (GN Cot. 26) (Rainfed)
	<p>Cotton variety GBHV 170 had recorded 1640 kg/ha seed cotton yield which was 22.4 and 40.2 per cent higher than checks G.Cot.16 and NH 615, respectively under rainfed condition. GBHV 170 gave mean lint yield of 538 kg/ha which was 28.4 and 38.4% higher than checks G.Cot.16 and NH 615, respectively. It possessed medium long fibres (25.9 mm) with average fineness (4.5 mv) and average fibre strength (21.4 g/tex). It has recorded lower population of sucking pest and exhibited disease free reaction for wilt and alternaria leaf spot and observed resistant for bacterial leaf blight. The proposal was approved for pre release for South and Middle Gujarat with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Generate data for pink ball worm infestation / damage. 2. Compare proposed variety with popular <i>Bt</i> hybrid. 3. Include data of HDP, if available. <p style="text-align: center;">(Action:- Research Scientist (Cotton), MCRS, NAU, Surat)</p>
12.1.1.8	Rice : NVSR-6137 (GMR-5)
	<p>The proposed genotype of rice was derivatives of Jaya x GR-6. It has recorded grain yield of 5791 kg/ha which was 13.5 % and 21.4 % higher than checks Dandi and NAUR-1, respectively. The proposed genotype possessed easy threshability compared to checks. NVSR-6137 performed very well in the coastal salt affected soils of Umbharat - Danti in South Gujarat and inland saline areas of middle Gujarat. The proposed genotype was superior over check Dandi with respect to pest and disease reaction. It was also found better in quality traits including HRR % than Dandi. The</p>

	<p>proposed genotype, NVSR-6137 possess 6.83 mm kernel length (long) with the kernel width of 1.72 mm having the L/B ratio of 3.97 categorizing as long slender grain. Rice genotype NVSR-6137 recommended for salt affected rice growing areas of Gujarat. The proposal was approved by the house.</p> <p style="text-align: right;">(Action:- Assoc. Res. Scientist, MRRC, NAU, Navsari)</p>
12.1.1.9	Rice: NVSR-2031 (GNR-6)
	<p>Rice variety NVSR-2031 developed from cross IR-28 x NAUR-1 which recorded 4046 kg/ha grain yield which was 8.5% higher than check IR 28 in overall performance. The genotype has recorded 4152 kg/ha grain yield which was 12.5% higher than check IR 28 in South Gujarat condition. The proposed genotype is moderately resistant to major pest and diseases and better than check IR-28. The proposed genotype GNR-6 has long slender grain with better HRR %. Variety GNR-6 recommended for South Gujarat very specific rainfed transplanted (RFTP) condition. The proposal was approved with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. In ancillary observations, give mean values alongwith range. 2. Exclude data of Nawagam centre from the proposal. <p style="text-align: right;">(Action:- I/c. Assoc. Res. Scientist, RRRS, NAU, Vyara)</p>
12.1.1.10	Rice: NVSR-H-1003 (GNRH-1)
	<p>NVSR-H-1003 is the first rice hybrid of Gujarat. The proposed hybrid has recorded 5077 kg/ha grain yield, which was 10.1% and 17.1 % higher over GR 7 and a popular hybrid Suruchi 5629, respectively. The proposed hybrid is moderately resistant against bacterial leaf blight, grain discolouration and sheath rot whereas tolerant reaction against insect pest. The hybrid NVSR-H-1003 also found superior in quality traits including HRR% over hybrids US 312, suruchi 5629 and NAUR-1. Rice Hybrid NVSR-H-1003 recommended for transplanted rice growing areas of Gujarat. The proposal was approved with following suggestion.</p> <p>Suggestion:</p> <ol style="list-style-type: none"> 1. In ancillary observations, give mean values along with range. <p style="text-align: right;">(Action:- Assoc. Res. Scientist, RRRS, NAU, Vyara)</p>
12.1.1.11	Sugarcane: CoN 9072 (GNS-9)
	<p>Proposed clone CoN 09072 (GNS 9) of sugarcane is an early maturing gave yield of 129.05 t/ha which is 27.3 %, 11.7 % and 16.6 % higher than CoC 671, GS-5 and GNS-8, respectively. GNS-9 has also recorded higher sugar yield (16.2 t/ha) and it is moderately resistant to red rot and wilt and resistant to whip smut. It is also a good ratooner and having non flowering habit. It is recommended for irrigated areas of South Gujarat.</p> <p style="text-align: right;">(Action:- Research scientist, Main Sugarcane Research Station, NAU, Navsari)</p>
12.1.1.12	Castor: NCH-1 (GNCH-1)
	<p>The proposed castor hybrid NCH-1 yielded 2444 kg/ha resulting 21.2%, 46.2% and 44.5% higher seed yield than hybrid checks GCH-7, DCH-519 and DCH-177, respectively. The hybrid NCH-1 having medium plant height and long primary as</p>

	<p>well as secondary spikes. The hybrid is resistant to wilt disease and tolerant to various larval and sucking pest of castor. The hybrid GNCH-1 is recommended for late-<i>kharif</i> and <i>rabi</i> season in South and Middle Gujarat in irrigated conditions under rice based cropping system.</p> <p style="text-align: center;">(Action:- Asst. Res. Sci., Pulse and Castor Project, NAU, Navsari)</p>
12.1.1.13	Pigeon pea: BP-06-33 (GNP-2)
	<p>Pigeon pea variety BP-06-33 is the first dual purpose (grain and vegetable) in the state. The proposed culture recorded green pod yield of 3394 kg/ha which was 19.5 %, 47.8 % and 16.0 % higher than checks GT-1, AVPP-1 and Vaishali, respectively. Similarly it gave grain yield of 1255 kg/ha which was 17.2%, 49.5% and 20.9% higher than checks GT-1, AVPP-1 and Vaishali, respectively. It is moderately tolerant for pod fly and pod borer and moderately resistant to wilt and SMD. The genotype is with indeterminate growth habit having dark green foliage. The pods are green in colour with 4 to 5 grains with prominent constriction compared to GT-1. BP-06-33 is recommended for <i>Kharif</i> pigeon pea cultivating areas of South and North Gujarat. The proposal was approved with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Recast proposal as per the prescribed proforma points. 2. Provide quality parameters data of green pods. 3. Specify agency responsible for breeder seed production. 4. Delete grain yield data in table 10. <p style="text-align: center;">(Action:- Assoc. Res. Sci., Pulse and Castor Project, NAU, Navsari)</p>
12.1.1.14	Sweet Potato: CIP-440127 (Bhukanti) Endorsement
	<p>Sweet potato culture CIP-440127 gave 33.24 t/ha tuber yield which was 84.0% higher over the national check Gouri. It possesses good amount of Beta carotene content <i>i.e.</i>, 2.36 (mg/100g) as against 1.18 (mg/100g) in the national check Gouri. The proposal was approved as pre-release for South Gujarat with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Test for one more year over locations with local check / variety. 2. Recast proposal by using data of Navsari centre for endorsement (Do not consider National level data). 3. Correct average yield in proposal. 4. Remove matter given in point 15, 17 of the proposal for screening under stress condition. 5. Give quality data and compare with locally available variety grown by farmers. <p style="text-align: center;">(Action:- Assoc. Professor, ACHF, NAU, Navsari)</p>
12.1.1.15	Finger Millet: WWN-25 (GNN-7)
	<p>The finger millet culture WWN-25 was found superior in grain yield (2477 kg/ha) by 19.48% over local check GN-5 and 18.41% over national check variety VL-149. It has bold grain size, medium duration and synchronous in maturity (120-130</p>

	<p>days) and non-lodging type. It is moderately resistant to leaf, neck and finger blast and foot rot disease. It is recommended for Zone- I, II and III <i>i.e.</i>, finger millet growing region of Gujarat. The proposal was approved with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Compile and combine data of AICRP trials / locations. 2. Remove MLT data of the year 2015-16. <p style="text-align: right;">(Action:- Assoc. Res. Sci., HMRS, NAU, Waghai)</p>
12.1.1.16	Little Millet: WV-125 (GNV-3)
	<p>The genotype, GNV-3 found superior in grain yield (2864 kg/ha) by 8.77 % and 43.92 % over the existing checks <i>i.e.</i> GV-2 (LC) and CO-2 (NC), respectively. It is early and synchronous in maturity (107-118 days) and multi-tillering and non-lodging type. It showed resistant reaction to diseases like blast (Leaf, neck and panicle) and moderately resistant to grain smut (%) and sheath blight. It is recommended for Zone- I, II and III <i>i.e.</i>, littet millet growing region of Gujarat. The proposal was approved with following suggestion.</p> <p>Suggestion:</p> <ol style="list-style-type: none"> 1. Include data of hulling recovery percentage. <p style="text-align: right;">(Action:- Assoc. Res. Sci., HMRS, NAU, Waghai)</p>
12.1.1.17	Sorghum: SR-2917 (GNJ-1)
	<p>The sorghum genotype, SR-2917 recorded 3431 kg/ha which was 33.8%, 16.4% and 21.1% higher than checks GJ- 38, GJ-42 and CSV-20, respectively. SR-2917 found grain mold resistant, less incidence of ergot disease and stem borer. SR-2917 having desirable characteristics like well peduncle exertion resulted in disease resistance. It has long panicle and tall stature suitable for dual purpose. SR-2917 is recommended for rainfed areas of Gujarat. The proposal was approved by the house.</p> <p style="text-align: right;">(Action:- I/c. Res. Scientist, MSRS, NAU, Surat)</p>
12.1.1.18	Niger: NRS-1304 (GNN-1)
	<p>Niger variety NRS-1304 has recorded higher seed yield of 406 kg/ha which was 35.8% and 31.4% increase over the national check IGPN-2004-1 (299 kg/ha) and local check GN-2 (309 kg/ha) respectively. It recorded oil yield of 132 kg/ha which was 53.5% and 36.1% higher over the national check IGPN-2004-1 (86 kg/ha.) and local check GN-2 (97 kg/ha). NRS-1304 also found resistant to the Alternaria and Cercospora leaf spot diseases and moderately resistant to semilooper and caterpillar. It is recommended for South Gujarat. The proposal was approved with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Follow SAU patterns for naming the variety. 2. Specify breeding method with detailed generation advancement. 3. Reanalyze the insect / pest data. Follows standard pattern for recording incidence. 4. Specify seed production technique in proposal.

	(Action:- Asst. Res. Scientist, NRS, NAU, Vanarasi)
12.1.1.19	Turmeric: NVST-64 (GNT-2)
	<p>A turmeric culture NVST-64 yielded 28.7 t/ha with yield increment of 22.5 % and 26.5 % over checks GNT-1 and Pratibha. It contains more number of mother rhizomes (4-5) per plant, fingers per rhizome (30-34), higher curcumin content (4.10 %), dry weight recovery (20.70%), powder recovery (87.0%) and medium reddish yellow powder colour. Resistant against rhizome rot and moderately resistance against leaf blotch diseases. It is recommended for South Gujarat. The proposal was approved with following suggestions.</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Follow SAU norms for naming the variety. 2. Specify the year/location of source material and generation advancement. <p style="text-align: right;">(Action:- I/c. Prof. and Head, NAU, Navsari)</p>
12.1.1.20	Brinjal: NSRP-1 (GNRB-1)
	<p>The brinjal culture, NSRP-1 recorded 308.6 q/ha fruit yield which was 22.6 % and 18.0 % higher over standard checks GJB-3 (251.6 q/ha) and GOB-1 (261.5 q/ha), respectively. Under South Gujarat condition, GNRB-1 registered 23.0 and 22.7% higher fruit yield over GJB-3 and GOB-1 respectively. The fruits of genotype are round, dark purple in colour and has purple green leaves. GNB-1 had low incidence of little leaf disease reaction (3.90 %) and shoot borer (3.35 %). GNRB-1 is recommended for general cultivation in brinjal growing areas of South Gujarat. The proposal was approved with following suggestion.</p> <p>Suggestion:</p> <ol style="list-style-type: none"> 1. Specify year of collection made and procedure followed for generation advancement. <p style="text-align: right;">(Action:- Assoc. Professor, ACHF, NAU, Navsari)</p>

12.1.2 NEW TECHNICAL PROGRAMMES

NAVSARI AGRICULTURAL UNIVERISTY		
Item No.	Title/Centre	Suggestions
Centre:- Research Scientist (Cotton), NAU, Surat (Cotton)		
12.1.2.4	Exploration of cotton germplasms for various characters from Gujarat	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. Change the title as "Collection, evaluation and development of promising cotton hybrids with big ball size." <p style="text-align: right;">(Action:- Research Scientist (Cotton), NAU, Surat)</p>
Centre:- Associate Research Scientist (PB), MRRC, NAU, Navsari (Rice)		

12.1.2.5	Induction of salt tolerance in rice by mutagenesis	Accepted by the house. (Action:- Associate Research Scientist (PB), MRRC, NAU, Navsari)
12.1.2.6	Effect of different priming treatments on seed germination and early growth of rice	Accepted by the house. (Action:- Associate Research Scientist (PB), MRRC, NAU, Navsari)
Centre:- Nodal officer & Unit Head, Pulse and Castor Res. Station, NAU, Navsari		
12.1.2.7	Effect of seed coating polymer on seed quality of cotton	Differed by the house. (Action:- Nodal officer & Unit Head, Pulse and Castor Res. Station, NAU, Navsari)
12.1.2.8	Effect of priming on seed germination and seedling vigour of Pigeon pea (<i>in vitro</i> condition)	Accepted with following suggestion/s 1. Take experiment in FCRD design. (Action:- Nodal officer & Unit Head, Pulse and Castor Res. Station, NAU, Navsari)
12.1.2.9	To study the effect of different seed priming treatments on chickpea.	Accepted with following suggestion/s. 1. Specify dose in the treatments. (Action:- Nodal officer & Unit Head, Pulse and Castor Res. Station, NAU, Navsari)
Centre:- : Professor & Head, Dept. of Genetics and Pl. Breeding, NMCA, Navsari		
12.1.2.10	Improvement in yield and quality parameters in turmeric through mutagenesis	Accepted by the house. (Action:- Professor & Head, Dept. of Genetics and Pl. Breeding, NMCA, Navsari)
Centre:- Professor & Head, Dept. of Genetics and Pl. Breeding, Co. of Agri., Bharuch		
12.1.2.11	Exploitation of genomic resources to developed biofortified pigeon pea	Accepted with following suggestion/s. 1. Change title as “Exploitation of genetic resources to develop biofortified pigeonpea”. 2. Collect different lines from other research stations and ICRISAT. (Action:- Professor & Head, Dept. of Genetics and Pl. Breeding, Co. of Agri., Bharuch)
Centre:- Asso. Research Sci. (PB), Hill Millet Research Station, Waghai		
12.1.2.12	Evaluation of promising genotypes of Finger millet (<i>Eleusine</i>	Accepted with following suggestion/s. 1. Include variety GPU-28 in conventional breeding programme.

	<i>coracana</i> L.) developed through gamma rays induced mutation	<ol style="list-style-type: none"> Add LD₅₀ value. Artificial inoculation in M₂ generation should be done. <p>(Action:- Asso. Research Sci. (PB), Hill Millet Research Station, Waghai)</p>
Centre:- Asso. Research Sci. (PB), NRS, NAU, Vanarasi		
12.1.2.13	Collection and evaluation of niger genotypes for seed oil and quality aspects.	<p>Accepted by the house.</p> <p>(Action:- Asso. Res. Sci. (PB), Vanarasi)</p>
Centre:- Asso. Research Sci. (PB), Hill Millet Research Station, Waghai		
12.1.2.14	Collection and evaluation of superior cucumber (<i>Cucumis sativus</i> L.) genotypes suitable for cultivation in Southern Gujarat region	<p>Accepted with following suggestion/s.</p> <ol style="list-style-type: none"> Collect more local germplasm from surrounding areas. <p>(Action:- Asso. Research Sci. (PB), Hill Millet Research Station, Waghai)</p>
12.1.2.15	Collection, Multiplication and Maintenance of Elephant Foot Yam germplasm for evaluation as well as Selection of Superior Genotypes suitable for cultivation in Southern Gujarat region	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> Planting material should be used with equal size and weight. Collect more germplasm from various sources. First year trial should be conducted as PET only at one location i.e. Waghai. <p>(Action:- Asso. Research Sci. (PB), Hill Millet Research Station, Waghai)</p>
Centre:- Assistant Research Scientist, ARS, NAU, Tanchha, Dist: Bharuch		
12.1.2.16	Selection and development of promising chickpea genotype suitable for cultivation under conserved soil moisture condition	<p>Accepted with following suggestion/s.</p> <ol style="list-style-type: none"> Add protein content in observation. <p>(Action:- Assistant Research Scientist, ARS, NAU, Tanchha, Dist: Bharuch)</p>
Centre:- Agricultural Research Station, NAU, Tanchha		
12.1.2.17	Development of molecular markers linked to fragrance in indigenous medium	<p>Accepted by the house.</p> <p>(Action:- Agricultural Research Station, NAU, Tanchha)</p>

	grain aromatic rice genotypes	
Centre :- Vegetable Dept., ACHF, NAU, Navsari		
12.1.2.18	Assessment of genetic diversity in sweet potato	Accepted by the house. (Action:- Vegetable dept., ACHF, NAU, Navsari)
12.1.2.19	G x E interaction and stability for yield and quality components in greater Yam.	Accepted with following suggestion/s 1. Change title as "Genetic variability, G x E interaction and stability analysis for yield and quality components in greater Yam." 2. Collect more local germplasm and include in trial. (Action:- Vegetable dept., ACHF, NAU, Navsari)

12.2 CROP PRODUCTION AND NATURAL RESOURCE MANAGEMENT

Chairman	Dr. K.P.Patel, Principal and Dean (Agri.), B. A. College of Agriculture, AAU, Anand
Co-chairman	1. Dr. M. K. Arvadia, Principal and Dean (Agri.), N.M. College of Agriculture, NAU, Navsari 2. Dr. V. R. Patel, Professor and Head, Dept. of Agril. Chem & Soil Science, SDAU, Sardarkrushinagar
Rapporteurs	1. Dr. V.R.Bhatt, Professor and Head, Dept. of Agril. Chem & Soil Science, BACA, AAU, Anand 2. Dr. V. P. Usadadia, Research Scientist (Soil and Water), NAU, Navsari

SUMMARY

Universities	Recommendations				New Technical Programmes	
	Farming Community		Scientific Community		Proposed	Approved
	Proposed	Approved	Proposed	Approved		
AAU	11	10*	--	--	28	26
JAU	10	10	5	5	28	28
NAU	16	15	2	3	50	49**
SDAU	8	7	--	2	21	20
TOTAL	45	42	7	10	127	123

* Recommendation no. 4 and 5 are combined in one

** One technical programme approved in horticulture and agro forestry sub committee

12.2.3.1

Effect of irrigation and sulphur levels on yields of cluster bean under South Gujarat condition

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone (AES- III) intended to grow cluster bean (GG 2) during summer season are recommended to give six irrigations (60 mm depth) *i.e.*, first irrigation just after sowing, second at 7 to 10 DAS and remaining 4 irrigations at an interval of 13 to 15 days. Farmers are also advised to fertilize their crop at 20-40-00-30 NPKS kg/ha through urea and SSP *or* 20-40-00-40 kg NPKS/ha, through DAP, urea and gypsum (300 kg/ha) for getting higher yield and net return.

દક્ષિણ ગુજરાતનાં વધુ વરસાદવાળા વિસ્તાર (ખેત આબોહવાકીય પરિસ્થિતિ-૩) માં ઉનાળાની ઋતુ દરમિયાન ગુવાર (ગુજરાત ગુવાર ૨) ની ખેતી કરવા ઈચ્છતા ખેડૂતોને ગુવારનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે કુલ-૬ પિયત (૬૦ મિ.મિ. ઉડાઈ) આપવાની ભલામણ કરવામાં આવે છે. જેમાં પ્રથમ પિયત વાવણી બાદ તુરત જ, બીજું પિયત વાવણી બાદ ૭-૧૦ દિવસે અને બાકીનાં ચાર પિયત ૧૩-૧૫ દિવસનાં ગાળે આપવા. વધુમાં ગુવાર પાકને ૨૦-૪૦-૦૦-૩૦ ના.ફો.પો.સ. કિગ્રા/હે. યુરિયા, સિંગલ સુપર ફોસ્ફેટ ખાતરનાં રૂપમાં અથવા ૨૦-૪૦-૦૦-૪૦ ના.ફો.પો. અને સલ્ફર કિગ્રા/હે. યુરિયા, ડી.એ.પી. અને જિપ્સમ (૩૦૦ કિગ્રા/હે.) નાં રૂપમાં આપવા.

(Action:- *Research Scientist, SWMRU,NAU, Navsari*)

12.2.3.2

Effect of irrigation and fertilizer levels on yield and quality of sugar beet grown on clay soils of South Gujarat

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone (AES III and IV) interested to grow sugarbeet (PAC 60008) crop are recommended to irrigate their crop with drip method [raised bed (40 cm X 20cm (three row) x 70cm), 110 cm top bed width and 40 cm furrow width] and fertilize with 120-60-60 kg N, P₂O₅, K₂O/ha. The full dose of P and 12 kg N/ha (10% RDN) and 6 kg K₂O/ha (10% RDK) should be applied as basal and remaining 90% *i.e.*, 108 kg N and 54 kg K₂O/ha should be applied in 10 equal splits at an interval of 8 to10 days starting from 15 DAS for getting higher yield and net return.

System details:

Lateral spacing	:	1.5 m		
Dripper spacing	:	1m		
Dripper discharge	:	8 lph		
Operating pressure	:	1.2 kg/cm ²		
Operating frequency	:	Alternate days		
Operating time	:		Navsari	Danti
		Nov. and Dec.	1hr : 30 minutes	1hr : 40 minutes
		Jan. and Feb.	1hr : 40 minutes	1hr : 50 minutes

દક્ષિણ ગુજરાત વધુ વરસાદવાળા વિસ્તાર (ખેત આબોહવાકીય પરિસ્થિતિ-૩ અને ૪) નાં સુગરબીટ (PAC 60008) ની ખેતી ગાદીકચારા પર (૪૦ સેમી × ૨૦ સેમી (૩ હાર) × ૭૦ સેમી, ગાદીની પહોળાઈ - ૧૧૦ સેમી અને ૪૦ સેમીનાં ચાસ) કરવા માંગતા ખેડૂતોને સુગરબીટ પાકમાં ટપક પિયત પદ્ધતિની સાથે ૧૨૦-૬૦-૬૦ કિ. ના.ફો.પો./હે. આપવાની ભલામણ કરવામાં આવે છે. જેમાં ફોસ્ફરસ યુક્ત ખાતરનો સંપૂર્ણ જથ્થો અને ૧૨ કિગ્રા/હે. (૧૦%) નાઈટ્રોજન અને ૬.૦ કિ.ગ્રા/હે. (૧૦%) પોટાશ પાયાના ખાતર તરીકે અને બાકીનો ૧૦૮ કિ.ગ્રા/હે. (૯૦%) નાઈટ્રોજન અને ૫૪ કિ.ગ્રા/હે. (૯૦%) પોટાશ ખાતર વાવણી બાદ ૧૫ દિવસ પછી દશ સરખા હપ્તામાં ૮ થી ૧૦ દિવસનાં ગાળે આપવાથી વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.

પિયત પદ્ધતિ:

- બે લેટરલ વચ્ચેનું અંતર - ૧.૫ મીટર
- બે ટપકણિયા વચ્ચેનું અંતર - ૧.૦ મીટર
- ટપકણિયાનો પ્રવાહ - ૮ લિટર / કલાક
- પદ્ધતિ ચલાવવા માટેનું દબાણ - ૧.૨ કિ.ગ્રા/સેમી^૨
- પદ્ધતિ ચલાવવા માટેનો સમયગાળો - એકાંતરા દિવસે

પદ્ધતિ ચલાવવાનો સમય	નવસારી	દાંતી
નવેમ્બર થી ડિસેમ્બર	૧ કલાક અને ૩૦ મિનીટ	૧ કલાક અને ૪૦ મિનીટ
જાન્યુઆરી થી ફેબ્રુઆરી	૧ કલાક અને ૪૦ મિનીટ	૧ કલાક અને ૫૦ મિનીટ

(Action:- Research Scientist, SWMRU,NAU, Navsari)

SWMRU, NAU, Navsari

12.2.3.3

Comparative performance of water soluble and routinely used fertilizer in banana (cv. Grand Naine) under drip irrigation

The banana (cv. Grand Naine) growing farmers of South Gujarat Heavy Rainfall Agro climatic Zone (AES III) are recommended to apply 80 per cent of recommended fertilizers in the form of urea (522 g/plant) + orthophosphoric acid (85 ml/plant) + MoP (267 g/plant) through drip system (0.6 PEF) for getting higher income. Although, use of WSF gave higher yield, it has not been found economically viable at present.

The operating frequency of drip system and fertigation schedule should be as follows:

Drip system detail:

Lateral distance: 2.4 m

Dripper distance: 0.6 m

Dripper discharge: 4 lph

Operating pressure: 1.2 kg/cm²

Operating frequency: Alternate day

Operating period : 1.5 to 2.0 hrs during winter and 2.5 to 2.75 hrs during summer

Fertilizer schedule:

Frequency of fertigation: twice a week

- ✓ P application should be started 21 days after planting in 32 equal splits and it should be completed within 4.5 months.
- ✓ N and K application should be started 35 days after planting in 44 equal splits and complete it within 6.5 months.

Recommended dose (300-90-200g NPK/Plant) (%)	Splits requirement of						
	Fertilizer			or	Water Soluble fertilizer		
	Urea (g/plant)	Orthophosphoric acid (ml/plant)	MoP (g/plant)		Urea (g/plant)	12;61;00 (g/plant)	13;00;45 (g/plant)
80% RDF	11.86	2.65	6.06		8.85	3.69	8.08

દક્ષિણ ગુજરાતના વધુ વરસાદવાળા વિસ્તાર (ખેત આબોવાહીક પરિસ્થિતિ-૩) ના કેળ (ગ્રાન્ડ નૈન)ની ખેતી કરતા ખેડૂતોને વધુ આવક મેળવવા માટે ભલામણ કરેલ ખાતરનાં ૮૦ ટકા જથ્થો, યુરિયા (પરર ગ્રામ/છોડ) + ઓર્થોફોસ્ફોરિક એસીડ (૮૫ મીલી/ છોડ) + મ્યુરેટ ઓફ પોટાશ (૨૬૭ ગ્રામ/છોડ) ટપક પદ્ધતિ દ્વારા આપવાની ભલામણ કરવામાં આવે છે. બજારમાં મળતા પ્રવાહી ખાતરો ના ઉપયોગથી વધુ ઉત્પાદન મળી શકે છે પરંતુ તે હાલમાં આર્થિક રીતે ફાયદાકારક નથી. ટપક પદ્ધતિ મારફત આપવાનો થતો પિયત અને ખાતરનો સમય-ગાળો નીચે જણાવ્યા મુજબ રહેશે.

ટપક પિયત પદ્ધતિની વિગત :-

બે લેટરલ વચ્ચેનું અંતર	: ૨.૪ મીટર
બે ટપકણિયા વચ્ચેનું અંતર	૦.૬૦ મીટર
ટપકણિયાનો પ્રવાહ	: ૪ લિટર/કલાક
પદ્ધતિ ચલાવવા માટેનું દબાણ	: ૧.૨ કિગ્રા/સેમી
પદ્ધતિ ચલાવવા માટેનો સમયગાળો	: એકાંતરે દિવસે

ખાતર આપવાનો સમય- અઠવાડિયામાં બે વાર

- ફોસ્ફરસ યુક્ત ખાતર-કેળની રોપણી બાદ ૨ દિવસ પછી કુલ ૩૨ સરખા હપ્તામાં ૪.૫ મહિના સુધીમાં આપવો.
- નાઈટ્રોજન અને પોટાશ યુક્ત ખાતરો રોપણીના ૩૫ દિવસ પછી કુલ ૪૪ સરખા હપ્તામાં ૬.૫ મહિના સુધીમાં આપવો.

હપ્તામાં આપવાના ખાતરો							
ભલામણ કરેલ ખાતર (૩૦૦-૯૦-૨૦૦ ગ્રા./છોડ)નો જથ્થો	સામાન્ય રીતે વપરાશમાં લેવામાં આવતા ખાતરો				પ્રવાહી ખાતરો		
	યુરિયા- (ગ્રા/છોડ)	ઓર્થોફોસ્ફોરિક એસીડ (મીલી/છોડ)	મ્યુરેટ ઓફ પોટાશ (ગ્રા/છોડ)	અથવા	યુરિયા- (ગ્રા/છોડ)	૧૨:૬૧:૦૦ (ગ્રા/છોડ)	૧૩:૦૦:૪૫ (ગ્રા/છોડ)
૮૦% ખાતર	૧૧.૮૬	૨.૬૫	૬.૦૬	l	૮.૮૫	૩.૬૯	૮.૦૮

(Action:- Research Scientist, SWMRU,NAU, Navsari)

SWMRU, NAU, Navsari

12.2.3.4

Study on effect of land configuration and integrated nutrient management on productivity of different varieties of sorghum (*rabi*) in coastal area of South Gujarat

Farmers of coastal areas of South Gujarat Heavy Rainfall Agro climatic Zone (AES-IV) interested to grow sorghum during *rabi* season are recommended to prefer variety GJ 38 to sow on raised bed (bed width- 60 cm and furrow width 30 cm) and apply 100% RDF (80:40:00 NPK kg/ha + 10 t FYM/ha) for getting higher yield and net return.

દક્ષિણ ગુજરાતના દરિયાકાંઠાના વધુ વરસાદવાળા વિસ્તાર (ખેત આબોવાહીક પરિસ્થિતિ-૪) ના રવી ઋતુમાં જુવારનો પાક લેવા ઈચ્છતા ખેડૂતોને જુવાર જીજે ૩૮ જાતની પસંદગી કરી ગાદી ક્યારા (ક્યારા પહોળાઈ ૬૦ સેમી, નીકની પહોળાઈ : ૩૦ સેમી) ઉપર વાવણી કરી ૧૦૦ ટકા ભલામણ કરેલ ખાતર (૮૦-૪૦-૦૦ કિ. ગ્રા. નાફોપો/હે + ૧૦ ટન છાણિયુ ખાતર આપવાની ભલામણ કરવામાં આવે છે.

(Action:- Research Scientist, SWMRU,NAU, Navsari)

SWMRU, NAU, Navsari

12.2.3.5

Effect of irrigation and date of sowing on seed yield and components of *Salicornia* (*S. brachiata* Roxb.)

The farmers of coastal area of South Gujarat Heavy Rainfall Agro climatic Zone (AES-IV) having waste land adjoining sea coast are recommended to sow salicornia by broad casting on raised bed (120 cm top bed width and 30 cm furrow width) during the 3rd week of June with 12 irrigation of sea water/saline ground water at an interval of 11 to 13 days after cessation of monsoon till February for getting higher seed yield and net return.

દક્ષિણ ગુજરાતનાં દરિયાકાંઠાનાં ભારે વરસાદવાળા વિસ્તાર (ખેત આબોહવાહીક પરિસ્થિતિ-૪) નાં ખેડૂતોને દરિયાકિનારાની બંજર જમીનમાં સેલીકોર્નીયાનું વધુ ઉત્પાદન તેમજ ચોખ્ખો નફો મેળવવા માટે ગાદી ક્યારા (૧૨૦ સે.મી. ક્યારા તથા ૩૦ સે.મી. નીક) ઉપર જુનનાં ત્રીજા અઠવાડિયામાં પુંખીને વાવેતર કરવા તેમજ પાકને ચોમાસા બાદ ૧૧ થી ૧૩ દિવસને ગાળે ફેબ્રુઆરી સુધી દરિયાનાં પાણીથી/બોરના ખારા પાણીથી કુલ ૧૨ પિયત આપવાની ભલામણ કરવામાં આવે છે.

(Action:- Research Scientist, SWMRU,NAU, Navsari)

SWMRU, NAU, Navsari

12.2.3.6

Effect of manuring in organically grown garlic in coastal area of South Gujarat

Farmers of coastal areas of South Gujarat Heavy Rainfall Agro climatic Zone (AES-IV) growing garlic (GG 1) organically during *rabi* season are recommended to apply biofertilizer (*Azotobacter* + PSB each at 1.25 l /ha) along with 50 kg N/ha through bio-compost (6.5 t/ha) as basal and 50 kg N/ha through castor cake (1.1 t/ha) at 40 DAS. Adoption of organic nutrient management systems also improves soil properties.

દક્ષિણ ગુજરાતનાં દરિયાકાંઠાનાં ભારે વરસાદવાળા વિસ્તાર (ખેત આબોહવાહીક પરિસ્થિતિ-૪) નાં રવિઋતુમાં લસણ (ગુજરાત લસણ ૧) ની સેન્દ્રિય ખેતી કરતા ખેડૂતોને જૈવિક ખાતર (એઝેટોબેક્ટર-૧.૨૫ લી./હે. + પી.એસ.બી.-૧.૨૫ લી./હે.)ની સાથે ભલામણ કરેલ નાઈટ્રોજન ખાતરનાં ૫૦ કિ.ગ્રા. /હે. પાયામાં બાયોકમ્પોસ્ટ (૬.૫ટન/હે) ધ્વારા તથા બાકી રહેલ ૫૦ કિ.ગ્રા./હે. નાઈટ્રોજન ખાતર દિવેલી ખોળ (૧.૧ ટન/હે) ધ્વારા વાવણીનાં ૪૦ દિવસ પછી આપવાની ભલામણ કરવામાં આવે છે. સેન્દ્રિય ખાતરનાં ઉપયોગથી જમીનની ગુણવત્તામાં સુધારો થાય છે.

(Action:- Research Scientist, SWMRU,NAU, Navsari)

Department of Soil Science, NAU, Navsari

12.2.3.7

Effect of land leveling by laser leveler on yield of wheat crop

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-III) growing wheat under irrigated condition are recommended to adopt precision land leveling technique with laser leveler device to prepare their land maintaining a slope of 0.15% to obtain higher yield of wheat along with additional water saving through application of six irrigations each

of 50 mm depth over those under traditionally leveled fields require six irrigations each of 60 mm depth. Further, once the sloppy land is developed it will be effective for three years.

દક્ષિણ ગુજરાતના વધુ વરસાદવાળા વિસ્તાર (ખેત આબોહવાકીય પરિસ્થિતિ-૩) માં પિયત ઘઉં કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે, પાક વાવતા પહેલા જમીનની તૈયારી કરવા માટે “લેસર લેવલર સાધન” દ્વારા પ્રિસીઝન લેન્ડ લેવલીંગ ટેકનીક દ્વારા જમીનમાં ૦.૧૫% નો ઢાળ રાખીને જમીન તૈયાર કરવાથી વધુ પાક ઉત્પાદન સાથે ૫૦ મીમી ઉડાઈના છ પિયત આપવાથી પાણીની બચત થાય છે અને આ રીતે તૈયાર કરેલ ઢાળ ત્રણ વર્ષ સુધી અસરકારક રહે છે. જ્યારે ચીલા ચાલુ પદ્ધતિથી જમીન લેવલ કરવાથી ૬૦ મીમી ઉડાઈના ૬ પિયત આપવાની જરૂર પડે છે.

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

Department of Soil Science, NAU, Navsari

12.2.3.8

Effect of method and levels of FYM and Bio-compost application on the yield of pigeon-pea cv. Vaishali and soil aggregates under rainfed condition in South Gujarat

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-II) growing pigeon-pea under rainfed condition are recommended to apply the recommended dose of fertilizer (20-40 kg NP/ha) along with FYM /bio compost @ 7.5 t/ha before monsoon through band placement for higher yield and net return.

દક્ષિણ ગુજરાત ખેત આબોહવાકીય પરિસ્થિતિ-૨ ના ખેડૂતો કે જેઓ વરસાદ આધારીત તુવેરનો પાક લેતા હોય તેઓને ભલામણ કરવામાં આવે છે કે, તુવેરનું વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે ભલામણ કરેલ (૨૦-૪૦ કિગ્રા ના.ફો./હે.) ખાતર સાથે હેક્ટર દીઠ ૭.૫ ટન/હે. છાણીયુ ખાતર કે બાયો કમ્પોસ્ટ ચોમાસુ બેસતા પહેલા હારમા આપવું.

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

Pulse & castor Research Satiation, Navsari

12.2.3.9

Spacing and nutrient management with and without AM fungi for greengram cv. Co-4 during rabi season

Farmers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-III), growing greengram (Co 4) during rabi season, are recommended to sow the crop at 45 cm x 10 cm spacing and apply 20-40 kg NP/ha as basal for getting higher yield and net return.

દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારની ખેત આબોહવાકીય પરિસ્થિતિ-૩ માં શિયાળુ મગ (સી.ઓ ૪) નું વાવેતર કરતાં ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા બે હાર વચ્ચે ૪૫ સે.મી. અને બે છોડ વચ્ચે ૧૦ સે.મી.નું અંતર રાખી વાવેતર કરવાની તેમજ પાકને વાવણી સમયે ૨૦-૪૦ કિ.ગ્રા. ના.ફો. પ્રતિ હેક્ટરે ખાતર આપવાની ભલામણ કરવામાં આવે છે.

(Action:- Research Scientist, Pulse & castor Research Satiation, Navsari)

Dept. of Agronomy, NMCA, Navsari

12.2.3.10

Effect of integrated nutrient management in rice-green gram cropping sequence under South Gujarat condition

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-III) are recommended to fertilize kharif rice with 100-30-00 kg NPK/ha + 10 t FYM and 20-40-00 kg NPK/ha to succeeding rabi green gram for getting higher system profitability of rice-green gram cropping sequence.

દક્ષિણ ગુજરાતના ભારે વરસાદ વાળી ખેત હવામાન પરિસ્થિતિ—૩માં ખેડૂતોને ખરીફ ડાંગરના પાકમાં ૧૦૦-૩૦-૦૦ કિગ્રા ના.ફો.પો./ હેક્ટર + ૧૦ ટન છાણીયું ખાતર અને ત્યાર પછીના શિયાળુ મગના પાકમાં ૨૦-૪૦-૦૦ કિગ્રા ના.ફો.પો./હેક્ટર આપવાથી વધુ ઉત્પાદન અને ડાંગર-મગ પાક પધ્ધતિમાં નફાકારકતા મેળવી શકાય છે.

(Action:- Professor & Head, Dept. of Agronomy, NMCA, Navsari)

Dept. of Agronomy, NMCA, Navsari

1.2.3.11 Effect of cutting management and nitrogen levels on seed production and nutritional value of Lucerne (*Medicago sativa* L.)

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone (AES-III) growing lucerne for seed purpose are recommended to take three cuts at 60,100 and 130 days after sowing and leave the crop for seed production and fertilized the crop with basal application of 30 kg nitrogen along with 50 kg P₂O₅ and 50 kg K₂O per hectare for getting higher yield and net return.

દક્ષિણ ગુજરાતના વધુ વરસાદ વાળી ખેત આબોહવાકીય પરિસ્થિતિ—૩માં બીજ ઉત્પાદન માટે રજકો ઉગાડતા ખેડૂતોને વધારે ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે રજકાની ત્રણ કાપણી (૬૦, ૧૦૦ અને ૧૩૦ દિવસ) બાદ બીજ ઉત્પાદન કરવાની તેમજ પ્રતિ હેક્ટર પાયામાં ૩૦ કિલોગ્રામ નાઈટ્રોજન, ૫૦ કિલોગ્રામ ફોસ્ફરસ અને ૫૦ કિલોગ્રામ પોટાશ આપવાની ભલામણ કરવામાં આવે છે

(Action:- Professor & Head, Dept. of Agronomy, NMCA, Navsari)

Dept. of Agronomy, NMCA, Navsari

12.2.3.12

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

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-III) are recommended to integrate 100% RDF (100-30-00 NPK kg/ha) as 50% RDF from inorganic fertilizers and 50% N from FYM (10 t/ha) or Green manure in rice and apply 100% RDF (120-60-00 NPK kg/ha) in wheat under rice-wheat crop sequence for securing similar paddy equivalent yield and maintain soil fertility status. Combined use of 75% RDF from inorganic fertilizers and 25% N from FYM (5 t/ha) or Green manure in rice saves 25% RDF in succeeding wheat.

દક્ષિણ ગુજરાતના વધુ વરસાદ વાળા વિસ્તાર (ખેત આબોહવાકીય પરિસ્થિતિ-૩) ના ડાંગર-ઘઉં પાક પધ્ધતિ અપનાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે વર્ષ દરમિયાન ડાંગર ના પાક માં ભલામણ મુજબ (૧૦૦-૩૦-૦૦ ના.ફો.પો. કિ.ગ્રા./હે) રાસાયણિક ખાતરનો ઉપયોગ કરવાના બદલે ભલામણના ૫૦ ટકા રાસાયણિક ખાતર અને ૫૦ ટકા નાઈટ્રોજન ૧૦ ટન છાણિયા ખાતરથી અથવા લીલા પડવાશ દ્વારા આપવો તેમજ ત્યાર પછીના ઘઉંના પાકમાં ૧૨૦-૬૦-૦૦ (ના.ફો.પો. કિ.ગ્રા./હે) રાસાયણિક ખાતર આપવામાં આવે તો ડાંગર-ઘઉં પાક પધ્ધતિમાં ભલામણના ૧૦૦ ટકા રાસાયણિક ખાતરના જેટલું ડાંગર સમકક્ષ ઉત્પાદન મળે છે અને જમીન ની ફળદ્રુપતા જળવાય રહે છે. આ ઉપરાંત ડાંગર ના પાક માં ભલામણના ૭૫ ટકા રાસાયણિક ખાતર અને ૨૫ ટકા નાઈટ્રોજન ૫ ટન છાણિયા ખાતરથી અથવા લીલા પડવાશ દ્વારા આપવામાં આવે તો ત્યાર પછી ના ઘઉંના પાક માં ભલામણના ૨૫ ટકા રાસાયણિક ખાતરની બચત થાય છે.

(Action:- Professor & Head, Dept. of Agronomy, NMCA, Navsari)

Dept. of Agronomy, NMCA, Navsari

12.2.3.13

Management of cropping systems for resource conservation and climate change

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone (AES-III) are recommended to adopt rice-sorghum-green gram crop sequence without mulch/residue incorporation with 25% higher dose of respective crops' RDF under conventional tillage for securing higher paddy equivalent yield and net return.

દક્ષિણ ગુજરાતના વધુ વરસાદ વાળા વિસ્તાર (ખેત આબોહવાકિય પરિસ્થિતિ-૩) ના ખેડૂતોને હેક્ટરે વધુ ડાંગર સમકક્ષ ઉત્પાદન અને ચોખ્ખો નફો મેળવવા માટે પરંપરાગત ખેડ કરી જે તે પાકની ખાતરની ભલામણ કરતા ૨૫ ટકા વધારે રાસાયણિક ખાતર અને પાક અવશેષને જમીન સાથે ભેળવ્યા સિવાય ડાંગર-જુવાર-મગ પાક પદ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે.

(Action:- Professor & Head, Dept. of Agronomy, NMCA, Navsari)

Dept. of Agronomy, NMCA, Navsari

12.2.3.14

Development of organic farming package for system based high value crops

The farmers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-III) interested to grow organically rice-summer groundnut cropping sequence are recommended to apply recommended dose of fertilizer on N equivalent basis to both the crops in equal proportion from FYM, vermicompost and castor cake, *i.e.*, FYM 6 t + vermicompost 4 t + castor cake 700 kg/ha in rice and FYM 1.5 t + vermicompost 1 t + castor cake 170 kg/ha in summer groundnut for getting similar paddy equivalent yield, higher net profit and improving organic carbon content of soil under organic nutrient management system.

દક્ષિણ ગુજરાતના વધુ વરસાદ વાળા વિસ્તાર (ખેત આબોહવાકિય પરિસ્થિતિ-૩) ના ડાંગર - ઉનાળુ- મગફળી પાક પદ્ધતિમાં સેન્દ્રીય ખેતી અપનાવવા માગતા ખેડૂતોને હેક્ટર દીઠ વધુ ડાંગર સમકક્ષ ઉત્પાદન, ચોખ્ખો નફો અને જમીનમાં સેન્દ્રીય કાર્બન વધારવા માટે ભલામણ કરવામાં આવે છે કે ડાંગરના પાકમાં ભલામણ મુજબના રાસાયણિક ખાતરના જથ્થા માટે અંદાજીત ૬ ટન છાણિયું ખાતર, ૪ ટન વર્મીકમ્પોસ્ટ અને ૭૦૦ કિ.ગ્રા. દીવેલીખોળ (નાઈટ્રોજન ની ભલામણ પ્રમાણે ઉપલબ્ધ પોષક તત્વો ને ધ્યાને રાખી) અને ઉનાળુ મગફળીના પાકમાં ૧.૫ ટન છાણિયું ખાતર, ૧ ટન વર્મીકમ્પોસ્ટ અને ૧૭૦ કિ.ગ્રા. દીવેલી ખોળ આપવાની ભલામણ કરવામાં આવે છે.

(Action:- Professor & Head, Dept. of Agronomy, NMCA, Navsari)

Main Sugarcane Research Station, Navsari

12.2.3.15

Priming of cane node for accelerating germination

Sugarcane growers of South Gujarat Heavy Rainfall Agro climatic Zone(AES-III) are recommended to plant sugarcane setts after priming with desi cow dung, cow urine and water in 1:2:5 ratio for 15 minutes to enhance and increase the germination and consequently for higher yield and net return.

દક્ષિણ ગુજરાતના ભારે વરસાદ ધરાવતા વિસ્તાર (ખેત આબોહવાકીય પરિસ્થિતિ-૩) ના શેરડી ઉગાડતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે શેરડીના ટુકડાને દેશી ગાયનુ છાણ, ગૌ મુત્ર અને પાણીને ૧:૨:૫ ના ગુણોત્તરમાં લઈ ૧૫ મિનિટ સુધી બોળી રાખ્યા બાદ રોપણી કરવાથી ઝડપી અને વધુ ઉગાવાને લીધે વધુ ઉત્પાદન અને ચોખ્ખો નફો મેળવી શકાય છે.

(Action:- Research Scientist, MSRS, Navsari)

B. Recommendation for Scientific community

NAVSARI AGRICULTURAL UNIVERSITY

Main Sugarcane Research Station, Navsari

12.2.3.1

Response of sugarcane to different plant nutrients in varied agro ecological situations

Application of inorganic fertilizers based on soil test values before planting of sugarcane has been found effective for getting higher cane yield and net return under south Gujarat heavy rainfall zone (AES III).

Based on field soil analysis data N, P₂O₅, K₂O and micronutrient fertilizes to be applied as below:

If the available soil N is 0-140, 141-280, 281-420, 421-560, 561-700 and >700 kg/ha then 375, 312.50, 250, 250, 187.50 and 125 kg/ha N fertilizer respectively to be applied.

If the available soil P₂O₅ is 0-10, 11-20, 21-30, 31-40, 41-55 and >55 kg/ha then 187.50, 156.25, 125, 125, 93.75 and 62.5 kg/ha P₂O₅ fertilizer respectively to be applied.

If the available soil K₂O is 0-100, 101-150, 151-200, 201-250, 251-300 and >300 kg/ha then 187.50, 131.25, 125, 125, 93.75 and 62.5 kg/ha K₂O fertilizer respectively to be applied.

In case of soil Available micro- nutrients:

Iron: for <5 ppm apply 50 kg/ha ferrous sulphate in every three years.

Manganize: for <5 ppm apply 10 kg/ha manganize sulphate in every three years.

Zinc: for <0.5 ppm apply 50 kg/ha zinc sulphate in every three years.

Copper: for <0.2 ppm apply 5 kg/ha copper sulphate in every three years.

(Action:- Research Scientist, MSRS, Navsari)

Dept. of Agril. Meteorology, MNCA, NAU, Navsari

12.2.3.2

Application of Mixed Statistical Distributions in Fitting Rainfall Data of South Gujarat

Annual rainfall distribution modeling for Navsari district Lognormal distribution and for Bharuch district Weibull distribution should be used for taking decision about future precipitations over a certain period of time.

(Action:-Professor and Head, Dept. of Agril. Meteorology, NMCA, NAU, Navsari)

12.2.3.3

Natural resources characterization in relation to banana growing areas of South Gujarat .

Banana production constraints

Based on the characterization of soil, water and climatic resources *vis-à-vis* optimum requirement of banana, the crop production constraints related to banana were identified. The resource wise crop production constraints are reported as below:

Production constraints related to banana cultivation

Taluka	Soil	Water	Climate
Nandod	- High BD (1.47g/cc), - Shallow depth (83cm) - High pH (8.46) - Fe (5.32 ppm) deficient	Marginal quality of groundwater (EC 0.95 dSm ⁻¹)	Low rainfall (91 mm per month)
Jagadia	- High BD (1.50g/cc), - high pH (8.0), - Fe (4.74 ppm) deficient	Marginal quality of groundwater (EC 0.96 dSm ⁻¹)	Low rainfall (72.8 mm per month)
Bharuch	- Hard consistency, - High BD (1.54g/cc), - High pH (7.95), - Low O.C (0.31%) - Fe (3.0 ppm) deficient	Poor quality of groundwater (EC 1.23 dSm ⁻¹)	Low rainfall (72.8 mm per month)
Kamrej	- Hard consistency - Texture clay - High BD (1.53g/cc) - Fe (5.48 ppm) deficient	Poor quality of groundwater (EC 1.16 dSm ⁻¹)	--
Bardoli	- Texture clay - High pH (8.04) - Fe (3.86 ppm) deficient	--	--
Palsana	- Fe (4.50 ppm) deficient	Poor quality of groundwater (EC 1.04 dSm ⁻¹)	--
Navsari	- Texture clay - High pH (8.89) - Low O.C (0.29%) - Fe (3.34 ppm) deficient - Zn (0.04 ppm) deficient	Poor quality of groundwater (EC 1.03dSm ⁻¹)	--
Jalalpore	- Hard consistency - High pH (8.47) - Low O.C (0.34%)	Poor quality of groundwater (EC 1.19 dSm ⁻¹)	--
Valsad	- Texture clay - High BD (1.43g/cc) - Fe (3.34 ppm) deficient	Poor quality of ground water (EC 1.04 dSm ⁻¹)	--

Constraints based remedial measures for improving banana productivity under south Gujarat condition

S N	Constraints' for banana	Deleterious effect on root growth	Remedial measures
1	High bulk density, low organic carbon, hard consistency	Restricted root growth due to difficulty in penetration of roots	<ul style="list-style-type: none"> - Deep ploughing once in three years - Addition of organic manures like FYM, biocompost, vermicompost <i>etc.</i> - Green manuring with dhaincha or sunn hemp - Insitu incorporation of crop residues - Provide drainage
2	High pH and ESP	Stunted growth of plant due to restricted soil air, moisture and nutrient movement , Apart from this, extremely high pH (>9), Nutrient availability decreased	<ul style="list-style-type: none"> - Soil analysis based gypsum application in conjunction with organic manures, green manuring <i>etc.</i> - Provide drainage facility - Preference to sodicity tolerant variety of banana
3	Low in organic carbon, Fe and in some samples Zn deficient	Poor plant growth and low yield due to inadequate supply of element in question	<ul style="list-style-type: none"> - Apply recommended doses of fertilizer as per soil test value - Soil test based application of Fe and Zn
4	Marginal or Poor quality of ground water	Stunted plant growth and poor yield of plant Mortality of plant in extreme cases Deterioration in soil health due to prolonged use of such water for irrigation purpose	<ul style="list-style-type: none"> - Adopt drip irrigation along with mulching for restricted upward movement of soluble salts - Follow fertilization schedule using urea and MOP as source of N and K - Use SSP as a source of P
5	Low rainfall (Unmanageable constraints)	-----	<ul style="list-style-type: none"> - Change date of planting in such a way that full growth stage of plant comes during monsoon season

(Action:- Research Scientist, SWMRU,NAU, Navsari)

2. NEW TECHNICAL PROGRAMMES

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr.No.	Title	Suggestions	Remarks
SWMRU, Navsari			
12.2.3.1	Study on drip system layout for different row spacing of vegetable Indian bean (Var. GNIB-21)	Approved (Action:- Res. Sci., SWMRU, Navsari)	Approved
12.2.3.2	Response of drip irrigated rabi sorghum to different levels of irrigation and fertigation	1. Correct plot size as L x W (Action:- Res. Sci., SWMRU, Navsari)	Approved
12.2.3.3	Effect of different levels of irrigation, nitrogen and foliar application of banana sap on drip irrigated sweetcorn and their residual effect on succeeding summer green gram under South Gujarat conditions	Approved (Action:- Res. Sci., SWMRU, Navsari)	Approved
12.2.3.4	Survey on impact of 'NAUROJI Novel Organic Liquid Fertilizer' indifferent crops of South Gujarat	Approved (Action:- Res. Sci., SWMRU, Navsari)	Approved
12.2.3.5	Soil test based recommendation for targeted yield of rice	1. Fix the targeted yield as 40, 50, 60 and 70 q/ha (Action:- Res. Sci., SWMRU, Navsari)	Approved
12.2.3.6	Influence of soil conditioner and integrated nutrient management on <i>kharif</i> rice and their residual effect on succeeding onion under partially reclaimed coastal salt affected soil	1. Change the title as "Effect of gypsum and integrated nutrient management on <i>kharif</i> rice and their residual effect on succeeding onion under partially reclaimed coastal salt affected soil " 2. Write "a. Gypsum " instead of "a. Soil conditioner" in main plot treatment 3. Write "G₀: No gypsum" instead of "S₀: No soil conditioner"	Approved

		<p>4. Write "G₁: Gypsum @ 50%GR" instead of "S₁: Gypsum @ 75%GR"</p> <p>5. Remove observation 6 i.e. Test weight</p> <p>(Action:- Res. Sci., SWMRU, Navsari)</p>	
12.2.3.7	Effect of land configuration and soil conditioner, integrated nutrient management on growth and yield of radish	<p>1. Change the title as "Effect of land configuration, gypsum and integrated nutrient management on growth and yield of radish"</p> <p>2. Write "G₂: Gypsum @ 50 % GR" instead of "G₂: Gypsum @ 75 % GR" in main plot treatment</p> <p>(Action:- Res. Sci., SWMRU, Navsari)</p>	Approved
Main Sugarcane Research Station, Navsari			
12.2.3.8	Scheduling irrigation with mulch under different sugarcane planting methods	<p>Approved</p> <p>(Action:- Res. Sci., MSRS, Navsari)</p>	Approved
12.2.3.9	Carbon sequestration assessment in sugarcane based cropping system	<p>1. Add observation soil WSA (Water soluble aggregates) analysis</p> <p>2.</p> <p>(Action:- Res. Sci., MSRS, Navsari)</p>	Approved
12.2.3.10	Agronomic performance of elite sugarcane genotypes	<p>Approved</p> <p>(Action:- Res. Sci., MSRS, Navsari)</p>	Approved
12.2.3.11	Bio efficacy of herbicides against weeds and its residual effect on sugarcane	<p>Approved</p> <p>(Action:- Res. Sci., MSRS, Navsari)</p>	Approved
Pulses and Castor Research Station, Navsari			

12.2.3.12	Soil test based fertilizer recommendation for targeted yields of pigeon pea	Approved (Action:- Res. Sci., Pulses and Castor Research Station, Navsari)	Approved
12.2.3.13	Soil test based fertilizer recommendation for targeted yields of Indian bean	Approved (Action:- Res. Sci., Pulses and Castor Research Station, Navsari)	Approved
12.2.3.14	Nutrient management in Indian bean cv. GNIB 21 and its ratoon crop sequence	1. Change the treatments as follow 1.Main plot (plant crop) M ₀ - Control M ₁ - 20- 40 kg N-P ₂ O ₅ /ha M ₂ - 5 t FYM/ha M ₃ - 3 t Biocompost/ha 2. Sub Plot (Ratoon crop) S ₀ - Control S ₁ - 10-10 kg N-P ₂ O ₅ /ha S ₂ - 10-30 kg N-P ₂ O ₅ /ha S ₃ - 20-30 kg N-P ₂ O ₅ /ha S ₄ - 20-40 kg N-P ₂ O ₅ /ha (Action:- Res. Sci., Pulses and Castor Research Station, Navsari)	Approved
12.2.3.15	Response of rabi castor to row spacings under different sowing window with or without intercrop of Indian bean var. GNIB-21	1. Add LER in observation (Action:- Res. Sci., Pulses and Castor Research Station, Navsari)	Approved
Hill Millet Research Station, Waghai			
12.2.3.16	Soil test based recommendation for targeted yield of Nagli (Finger millet)	1. Fix the targeted yield as 10, 15, 20 and 25 q/ha (Action:- Res. Sci., Hill Millet Research Station, Waghai)	Approved
Regional Rice Research Station, Vyara			

12.2.3.17	Soil test based fertilizer recommendation for targeted yields of Ground nut	<ol style="list-style-type: none"> 1. Fix the targeted yield as 15, 20, 25 and 30 q/ha 2. Remove observation of "days to 50% flowering" <p style="text-align: center;">(Action:- Res. Sci., Regional Rice Research Station, Vyara)</p>	Approved
Agriculture Research Station, Paria			
12.2.3.18	Intercropping in newly established mango Orchard	<ol style="list-style-type: none"> 1. Adopt drilling methods by row spacing in below crops : Paddy :20 cm Indian bean : 45 cm Green gram : 30 cm cow pea: 30 cm 2. Take sweet corn variety HSC 1 instead of Madhuri <p style="text-align: center;">(Action:- Res. Sci., Agriculture Research Station, Paria)</p>	Approved
12.2.3.19	Effect of different sowing methods and nutrient management on Indian bean var. NPS-1 (GNIB-21) sown after rice	<p style="text-align: center;">Approved</p> <p style="text-align: center;">(Action:- Agriculture Research Station, Paria)</p>	Approved
12.2.3.20	Scheduling irrigation along with response of mulches in Brinjal	<ol style="list-style-type: none"> 1. Change title as " Response of Brinjal to irrigation schedules and mulches under drip irrigation system" 2. Drip System detail is required <p style="text-align: center;">(Action:- Agriculture Research Station, Paria)</p>	Approved
12.2.3.21	Effect of tillage depth on flowering and fruiting behaviour of mango under rainfed agrosystem	<ol style="list-style-type: none"> 1. Change treatment T₃ as " Mould board plough every year " <p style="text-align: center;">(Action:- Agriculture Research Station, Paria)</p>	Approved

12.2.3.22	Weed control in tomato (<i>Lycopersicon esculentum</i> Mill.) through mulching and herbicides under drip irrigation conditions	Approved (Action:- Agriculture Research Station, Paria)	Approved
Main Cotton Research Station, Surat			
12.2.3.23	Soil test based recommendation for targeted yield of cotton	Approved (Action:- Res. Sci., MCRS, Surat)	Approved
Main Sorghum Research Station, Surat			
12.2.3.24	Soil test based fertilizer recommendation for targeted yields of sorghum	1. Fix the targeted yield as 20, 30, 40 and 50 q/ha (Action:- Res. Sci., MSRS, Surat)	Approved
12.2.3.25	Weed management in kharif sorghum	Approved (Action:- Res. Sci., MSRS, Surat)	Approved
Agriculture Research Station, Achhalia			
12.2.3.26	Studies on irrigation scheduling through drip, nitrogen management and mulch in turmeric	Approved (Action:- Assoc. Res. Sci., Agriculture Research Station, Achhalia)	Approved
Agriculture Research Station, Mangrol			
12.2.3.27	Response of <i>rabi</i> sorghum to anti transparent and mulching along with no. of irrigations according to critical stage approach under South Gujarat condition	1. Recast the title as " Response of <i>rabi</i> sorghum to anti transparent and irrigation scheduling under mulching " 2. Reform the treatments of antitranspirant as below A ₁ : Water spray A ₂ : Kaoline @ 6%	Approved

		A ₃ : PMA @ 300 ppm (Action:- Assistant Res. Sci., Agriculture Research Station, Mangrol)	
12.2.3.28	Integrated nutrient management in chickpea under South Gujarat condition	1. Mention the RDF of gram 2. Use 5 t/ha FYM instead of 8 t/ha in treatment M ₁ 3. Remove treatment R ₂ 4. Add treatment R ₀ : Control (Action:- Assistant Res. Sci., Agriculture Research Station, Mangrol)	Approved
12.2.3.29	Study of critical period of crop weed competition in pigeonpea under south Gujarat condition	Approved (Action:- Assistant Res. Sci., Agriculture Research Station, Mangrol)	Approved
Dept. of Agronomy, NMCA, Navsari			
12.2.3.30	Effect of ZnO nanoparticles on growth, yield and quality of rice	1. Remove 5 and 25 ppm levels in each set of treatments 2. Results of pot trial should be presented in next combined joint agresco-2017 (Action:- Professor and Head (Agron.), NMCA, Navsari)	Approved
12.2.3.31	Effect of levels and sources of sulphur application on growth, yield and quality of linseed under South Gujarat condition	1. Recast the treatments as given below A. Levels of nitrogen (kg/ha) N ₁ -50 N ₂ -75	Approved

		<p>N₃-100</p> <p>B. Levels of phosphorus (kg/ha)</p> <p>P₁-25</p> <p>P₂-50</p> <p>C. Levels of sulphur (kg/ha)</p> <p>S₁-10</p> <p>S₂-20</p> <p>S₃-40</p> <p>(Action:- Professor and Head (Agron.), NMCA,Navsari)</p>	
12.2.3.32	Integrated weed management in <i>rabi</i> maize	<ol style="list-style-type: none"> 1. Reform the treatment no. 4 as "Atrazine 1 kg/ha PE + hand weeding at 40 DAS 2. Reform the treatment no. 5 as "Atrazine 1 kg/ha PE + Interculturing at 40 DAS" <p>(Action:- Professor and Head (Agron.), NMCA,Navsari)</p>	Approved
12.2.3.33	Integrated weed management in fodder oat	<ol style="list-style-type: none"> 1. Recast treatment W5 as "Metsulfuron methyl 4 g/ha" instead of "Metsulfuron methyl 0.008 kg/ha" 2. Remove treatment W4 and W6 3. Add treatment Pendimethalin 1 kg/ha PE 4. In treatment W₃ dose of 2,4 D amine salt is to be changed as 0.5 kg/ha instead of 0.75 kg/ha <p>(Action:- Professor and Head (Agron.), NMCA,Navsari)</p>	Approved
12.2.3.34	Production potential of fodder maize (<i>Zea maize</i> L.) with different fodder intercrop	<ol style="list-style-type: none"> 1. Change title as " Production potential of fodder maize (<i>Zea</i> 	Approved

		<i>maize</i> L.) with different fodder intercrops "	
		(Action:- Professor and Head (Agron.), NMCA,Navsari)	
12.2.3.35	Integrated farming system model for marginal farmers of Navsari (Gujarat)	Approved (Action:- Professor and Head (Agron.), NMCA,Navsari)	Approved
Dept. of SSAC, NMCA,Navsari			
12.2.3.36	Preparation of P enriched Farm Yard Manure and its evaluation in <i>rabi</i> sorghum-green gram cropping sequence under South Gujarat condition	1. Delete the treatment no. T ₄ , T ₆ , T ₇ , T ₉ , T ₁₁ and T ₁₃ (Action:- Professor and Head (SSAC), NMCA,Navsari)	Approved
Dept. of Ag. Met., NMCA,Navsari			
12.2.3.37	Determination of rank correlation for various weather parameter over South Gujarat	Approved (Action:- Professor and Head (Ag. Met.), NMCA, Navsari)	Approved
Dept. of NRM, ACHF,Navsari			
12.2.3.38	Calibration and validation of DSSAT model for sugarcane crop in South Gujarat region.	Approved (Action:- Professor and Head (NRM), ACHF,Navsari)	Approved
12.2.3.39	Seasonal and Diurnal variation of surface ozone at NAU campus.	Approved (Action:- Professor and Head (NRM), ACHF,Navsari)	Approved
Dept. of SSAC, ACHF,Navsari			
12.2.3.40	Effect of different organic sources on yield and quality of sorghum varieties	1. In M ₁ and M ₂ treatments ,use "NADEP compost" word instead of "NADEP"	Approved

		(Action:- Professor and Head (SSAC), ACHF,Navsari)	
12.2.3.41	Effect of liquid manures on growth, yield and quality of green gram under organic farming	1. Delete treatment no. 5,6,7 2. Add disease/pest observation 3. Delete Second point in methodology 4. Remove word "fertilizer" from objective and use "natural organic liquid" (Action:- Professor and Head (SSAC), ACHF,Navsari)	Approved
Dept. of SSAC, COA,Waghai			
12.2.3.42	Response of little millet (Vari) to organics	Approved (Action:- Professor and Head (SSAC), COA,Waghai)	Approved
12.2.3.43	Assessment of quality of irrigation water of Dangs district	Approved (Action:- Professor and Head (SSAC), COA,Waghai)	Approved
Dept. of Agron., COA,Bharuch			
12.2.3.44	Response of cotton to green manuring and different fertility levels under rainfed condition.	Approved (Action:- Professor and Head (Agron.), COA,Bharuch)	Approved
12.2.3.45	Response of sugarcane to tillage and different intercropping system under South Gujarat condition.	1. Replace variety of fenugreek GF 1 with GF 2 (Action:- Professor and Head (Agron.), COA,Bharuch)	Approved
12.2.3.46	Nutrient management in Dill Seed under south Gujarat condition	1. Recast the treatments as follow A. Nitrogen levels (N kg/ha) N1-20, N2-40, N3-60	Approved

		B. Phosphorus levels (P ₂ O ₅ kg/ha) P- 0, P-20, P-30 2. Delete note after treatments (Action:- Professor and Head (Agron.), COA,Bharuch)	
12.2.3.47	Evaluation of castor based relay cropping sequences under rainfed condition of South Gujarat .	Approved (Action:- Professor and Head (Agron.), COA, Bharuch)	Approved
12.2.3.48	N & P management in kharif sorghum with and without bio organics under South Gujarat conditions	Approved (Action:- Professor and Head (Agron.), COA,Bharuch)	Approved
12.2.3.49	Agroclimatic Approach for Crop Planning	Approved (Action:- Professor and Head (Agron.), COA,Bharuch)	Approved
Department of SSAC, PIH, ACHF, Navsari			
12.2.3.50	Effect of tip pruning and foliar application of KNO ₃ on early flowering and yield of mango cv. Kesar	Present in horticulture sub committee (Action:- Assist. Professor (SSAC), PIH, ACHF, Navsari)	-

12.3 PLANT PROTECTION/ CROP PROTECTION

Chairman	:	Dr. A. N. Sabalpara, Director of Research, NAU, Navsari
Co-Chairman	:	Dr. A. M. Parakhia, Director of Extension, Education, JAU, Junagadh Dr. D. M. Korat, Associate Director of Research, AAU, Anand
Rapporteurs:	:	Dr. K G. Patel, Principal, College of Agriculture, NAU, Bharuch Dr. R. N. Pandey, Professor and Head, Dept. Pl. Pathology, BACA, AAU, Anand

Summary of recommendations and new technical programmes

Sr. No.	Name of university	Recommendations for farming community		Information for scientific community		New technical programmes	
		Presented	Approved	Presented	Approved	Presented	Approved
1	AAU	09	08	39	39	58	56
2	JAU	03	03	07	07	36	36
3	NAU	03	03	13	13	52	51
4	SDAU	03	03	04	03	11	11
Total		18	17	63	62	157	154

The details of recommendations and new technical programmes presented/ discussed and approved

RECOMMENDATIONS										
12.3.1 FARMING COMMUNITY										
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI										
Dr. Z. P. Patel, Convener, PPSC, NAU, Navsari										
AGRICULTURAL ENTOMOLOGY										
12.3.1.12 Waiting period of fenazaquin in/on chilli										
<p>To avoid fenazaquin residue in chilli, farmers are recommended to observe 12 days waiting period when fenazaquin 10 EC is applied twice 0.01 per cent (10 ml /10 l water) at 15 days interval starting from 50 per cent flowering stage.</p>										
Year	Crop	Pest/ Diseases	Pesticide with formulation	Doses			PHI Waiting Period (days)			
Quantity of formulation	Conc. (%)	Dilution in water	2016	Chilli	Mites	Fenazaquin 10 EC	1250 ml or 125 g a.i/ha	0.01%	50 0L	12.0
<p>ફેનાઝાક્વીનના અવશેષ મુક્ત મરચાં મેળવવા માટે ફેનાઝાક્વીન ૧૦ ઈ.સી. ૦.૦૧ ટકા (૧૦ મી.લિ./૧૦ લિ. પાણી) ફૂલ અવસ્થા બાદ ૧૫ દિવસના અંતરે બે છંટકાવ કરતા ખેડૂતોને છેલ્લા છંટકાવ અને ઉતાર વચ્ચેનો ગાળો ઓછામાં ઓછો બાર દિવસનો રાખવાની ભલામણ કરવામાં આવે છે.</p>										
વર્ષ	પાક	જીવાત	જંતુનાશકની બનાવટ	માત્રા			છેલ્લા છંટકાવ અને ઉતાર વચ્ચેનો ગાળો (દિવસ)			
				બનાવટનું પ્રમાણ	સાંદ્રતા (%)	પાણીમાં મિશ્રણ				

૨૦૧૬	લીલા મરચા	પાન કથીરી	ફેનાઝાક્વિન ૧૦.૦ ઈ.સી.	૧૨૫૦ મી.લિ. અથવા ૧૨૫ ગ્રા. સ.ત./હે.	૦.૦૧ %	૫૦૦ લિ.	૧૨
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(Action:- Asstt. Prof. (Pesticide Residue, FQTL, Navsari)

PLANT PATHOLOGY

12.3.1.13 Biological control of Pigeon pea wilt

Pigeon pea growers of South Gujarat are advised to apply *Trichoderma viride* 1 per cent WP @ 10 g/kg (1×10^8 cfu/g) as seed treatment and @ 2.5 kg /500 kg FYM /ha in furrow at the time of sowing for effective management of wilt and to get higher grain yield and net profit.

દક્ષિણ ગુજરાતના તુવેર ઉગાડતા ખેડૂતોને સુકારા રોગનું અસરકારક નિયંત્રણ માટે અને વધુ ઉત્પાદન તેમજ ચોખ્ખી આવક મેળવવા માટે તુવેરને ટ્રાઇકોડર્મા વીરીડી ૧% વે.પા. ૧૦ ગ્રામ/ કિ.ગ્રા ૧ ટકા વે.પા. (૧ × ૧૦^૮ સીએફયુ પ્રતિ ગ્રામ) ની બીજ માવજત અને ૨.૫ કિ.ગ્રા/૫૦૦ કિ.ગ્રા છાણીયા ખાતર / હેક્ટર ભેળવી વાવણી સમયે ચાસમાં આપવાની ભલામણ કરવામાં આવે છે.

(Action: Assoc Prof.(PI Path), College of Agri., NAU, Bharuch)

12.3.1.14 Chemical control of rice grain discoloration

The Paddy growers are advised to apply three sprays of propiconazole 25 EC 0.025 per cent @ 125 g a.i./ ha (10 ml/10 litre) or trifloxystrobin 25 per cent + tebuconazole 50 per cent (75 WG) 0.03 % @ 150 g a.i./ ha (4 g/10 litre) for effective control of grain discoloration and to harvest higher healthy grain and straw yield. The first spray should be given at boot leaf stage and the remaining two sprays thereafter at 10 days interval.

Year	Crop	Diseases	Pesticide with formulation	Doses			Waiting Period (days)
				Quantity of formulation	Conc. (%)	Dilution in water	
2016	Paddy	Grain/glume discoloration	Propiconazole 25EC	125 g a.i./ ha	0.025	500 1	30
			Trifloxystrobin 25 % + tebuconazole 50% (75WG)	150 g a.i./ ha	0.03	500 1	21

ગુજરાતમાં ડાંગર ઉગાડતા ખેડૂતોને ડાંગરનાં કાળા દાણા અથવા ભૂખરા / બદામી દાણાના રોગના અસરકારક નિયંત્રણ અને વધુ તંદુરસ્ત દાણા સાથે વધુ ઉત્પાદન માટે પ્રોપીકોનાઝોલ ૨૫ ઈસી, ૦.૦૨૫ ટકા (૧૦ મી.લી. પ્રતિ ૧૦ લિટર) અથવા ટ્રાયફ્લોક્સીસ્ટ્રોબીન ૨૫ ટકા + ટેબુકોનાઝોલ ૫૦ % (૭૫ વેટેબલ ગ્રેન્યુલ્સ ૦.૦૩

<p>ટકા (૪ ગ્રામ પ્રતિ ૧૦ લિટર) ના ત્રણ છંટકાવ કરવા. પહેલો છંટકાવ ધ્વજ પર્ણદંડ અવસ્થાએ (બુટ લીફ સ્ટેજ) અને ત્યારબાદ બાકીના બે છંટકાવ ૧૦ દિવસના સમય ગાળે કરવાની ભલામણ કરવામાં આવે છે.</p>							
વર્ષ	પાક	રોગ	કુગનાશક	માત્રા			પ્રતીક્ષા સમય (દિવસ)
				સ.ત./ હે	સાંદ્રતા (%)	પાણીમાં મિશ્રણ	
૨૦૧૬	ડાંગર	કાળા દાણા અથવા ભૂખરા / બદામી દાણાના રોગ	પ્રોપીકોનાઝોલ રપ ઈસી	૧૨૫ ગ્રામ	૦.૦૨૫	૫૦૦ લિ.	૩૦
			ટ્રાયફ્લોકસીસ્ટ્રોબીન રપ % + ટેબુકોનાઝોલ ૫૦ % (૭૫ વેટેબલ ગ્રેન્યુલ્સ)	૧૫૦ ગ્રામ	૦.૦૩	૫૦૦ લિ.	૨૧
<p>(Action: Asstt. Res. Sci. (PI Path), Main Rice Res. Centre, NAU, Navsari)</p>							

12.3.2	INFORMATION FOR SCIENTIFIC COMMUNITY
AVSARI AGRICULTURAL UNIVERSITY, NAVSARI	
Dr. Z. P. Patel, Convener, PPSC, NAU, Navsari	
AGRICULTURAL ENTOMOLOGY	
12.3.2.47	<p>Chemical control of chiku moth</p> <p>For effective management of chiku moth in sapota, apply three sprays of either flubendiamide 39.35 SC @ 0.0096% (2.4 ml/10 litre) or emamectin benzoate 5 SG @ 0.0022% (4.4 gm/10 litre) at one month interval during fruiting stage for higher yield and better return. The residues of these insecticides remain below determination level in sapota fruits.</p> <p style="text-align: center;">(Action:- Asstt. Prof. Agri Polytech. NAU, Bharuch)</p>
12.3.2.48	<p>Population dynamics of major insect pests of sapota</p> <p>Chiku moth, bud borer, leaf miner, mid rib folder and fruit fly remain active round the year under Agro climatic zone- II, AES- V indicating their peak in 1st fortnight of September, 2nd fortnight of September, 1st fortnight of December, 1st fortnight of November and 2nd fortnight of July, respectively.</p> <p style="text-align: center;">(Action: Asstt. Prof., Agri polytech, NAU, Bharuch)</p>
12.3.2.49	<p>Monitoring of fruit fly in mango orchard</p> <p>The fruit flies remain active round the year under Agro climatic zone - II, AES- V in mango orchard with peak population during the 2nd week of July (28th SMW).</p>

	(Action: Asstt. Prof., Agri polytech, NAU, Bharuch)
12.3.2.50	<p>Screening of promising genotypes for multiple resistance against stem borer, leaf folder and brown plant hopper of rice.</p> <p>Rice genotypes <i>viz.</i>, NVSR-6137, IRBB-2, IR 77498-47-2-6 2-3 and IR 11A334 are found to have multiple resistant reaction against stem borer, leaf folder and brown plant hopper under natural field conditions.</p> <p>(Action: Assoc.Res.Sci., Main Rice Research Centre, NAU, Navsari)</p>
12.3.2.51	<p>Effect of non-ionizing (UV) radiation on the development of egg parasitoid, <i>Trichogramma chilonis</i> Ishii (Hymenoptera: Trichogrammatidae)</p> <p>Exposure period of 45 minutes (at 42 cm height from the target site with 30 W UV lamp) is found suitable to irradiate the eggs of factitious host, <i>Corcyra cephalonica</i> (Stainton) by enhancing effectiveness of <i>Trichogramma</i> without any detrimental effect of UV radiation (non- ionizing) under laboratory condition.</p> <p style="text-align: center;">(Action: Prof. & Head, Dept. of Ento., NMCA., Navsari)</p>
12.3.2.52	<p>Monitoring of mite associated with vegetable crop nurseries</p> <p>Two spotted spider mite, <i>Tetranychus urticae</i> Koch (Tetranychidae: Acari) remain active during nursery stage of brinjal and tomato, while yellow mite, <i>Polyphagotarsonemus latus</i> (Banks) (Tarsonemidae: Acari) remain active in chilli nursery.</p> <p>Activities of mites remain higher in summer followed by <i>kharif</i> and <i>rabi</i> nurseries of brinjal, tomato and chilli.</p> <p style="text-align: center;">(Action: Prof. & Head, Dept. Of Ento., NMCA., Navsari)</p>
12.3.2.53	<p>Documentation of mite problems in major protected floricultural crops</p> <p>(1) Two spotted spider mite, <i>Tetranychus urticae</i> Koch (Tetranychidae: Acari) remain active round the year under greenhouse conditions on gerbera (cv Stenza) with peak population during April (15thSMW) and Mid September (38thSMW).</p> <p>(2) Two spotted spider mite, <i>Tetranychus urticae</i> Koch (Tetranychidae: Acari) remain active round the year under polyhouse conditions on rose (cv Top Secret) with peak population during April (15thSMW) and Mid-October (42ndSMW).</p> <p>(3) Tenupulpid mite, <i>Tenupalpus sp.</i> remain active round the year on dendrobium orchid cv Sonia-17 under polyhouse conditions with peak population during last week of September (41st SMW).</p> <p style="text-align: center;">(Action: Prof. & Head, Dept. of Ento., NMCA., Navsari)</p>
12.3.2.54	<p>Screening of mango germplasm against pests of mango</p> <p>Mango accessions, <i>viz.</i>, Bombai and Himsagar showed tolerant reaction against mango hopper whereas, Mahmud Vikarabad is found resistant against thrips.</p> <p style="text-align: center;">(Action: Asstt.Res.Sci. (Ento) AES, NAU, Paria)</p>
12.3.2.55	<p>Residue and dissipation pattern of fenazaquin in/on chilli under South Gujarat conditions</p>

Fenazaquin 10 EC applied twice @ 0.01% (10 ml /10 l water) at 15 days interval starting from 50% flowering stage in green chilli resulted in built up of residue in dried chilli powder by 5.22 to 5.79 times. Therefore, it is recommended to consider a processing factor of 5.64 (i.e. 6.0) for fenazaquin for dried chilli powder.

DAA	Control (Water spray)	Mean Residues ($\mu\text{g g}^{-1}$) applied at the rate of 125 g a.i./ha	Residues($\mu\text{g g}^{-1}$) in green chillies*	Processing Factor
0 (2 hrs)	-	13.19	2.53	5.22
5 day	-	8.27	1.40	5.92
10 day	-	2.94	0.53	5.61
30 day	-	0.35	0.06	5.79
			Mean	5.64
LOD ($\mu\text{g/g}$)	Fruit	0.01		
	Powder	0.02		
LOQ ($\mu\text{g/g}$)	Fruit	0.04		
	Powder	0.06		

$$\text{Processing factor} = \frac{\text{Residues in chilli powder}}{\text{Residues in green chilli}}$$

(Action: Asstt. Prof. (Pesticide Residue), FQTL, Navsari)

12.3.2.56 Status of pesticide residues in major seasonal fruits

Residue analysis of fruit samples collected from different market places of south Gujarat revealed that 31.67 % out of 120 samples are positive for pesticide presence wherein 9.17 % are found above MRL. Maximum positive samples are detected from Surat market. Carbendazim was the most frequently detected pesticide followed by chlorpyrifos and tebuconazole. Most positive samples are detected in apple and least in sapota. However, banana had most positive samples above MRL. Total 52 pesticides detected in different fruits out of which 29 (55%) pesticides violated label claim fixed by the CIBRC.

(Action: Asstt. Prof. (Pesticide Residue), FQTL, Navsari)

12.3.2.57

Screening of genotypes against insect pests of brinjal

Among various brinjal genotypes screened, lowest shoot and fruit borer damage (3.35%) and lowest jassid (3.19/ leaf) population are recorded in genotype NSRP-1 whereas lowest whitefly population (2.27 / leaf) was recorded in GBL-1.

(Action: Assoc. Prof. (Ento), ACHF, Navsari)

12.3.2.58	<p>Screening of promising genotypes for multiple resistance against bacterial blight, sheath rot and grain discolouration diseases of Rice.</p> <p>Rice genotypes viz., IR-BB2, IR-BB11, IR-BB50, IR-BB62, IR 11A334 and NVSR-6137 are found to have multiple resistant reaction against bacterial blight and sheath rot diseases under artificial inoculation and high disease pressure conditions in field and grain discoloration under natural field condition.</p> <p>(Action: Asstt. Res. Sci. (Pl Path), Main Rice Res. Centre, NAU, Navsari)</p>
12.3.2.59	<p>Screening of genotypes against little leaf of brinjal</p> <p>Among various brinjal genotypes screened, minimum little leaf infection (3.58%) was recorded in GJB-2.</p> <p>(Action: Assoc. Prof. (Pl Path), ACHF, NAU, Navsari)</p>

12.3 NEW TECHNICAL PROGRAMME –PLANT PROTECTION

12.3.3 NAVSARI AGRICULTURAL UNIVERSITY

ENTOMOLOGY

Sr. No.	Title/Centre	Suggestions	
Action: Dept. of Ento., NMCA, NAU, Navsari			
12.3.3.1	Management of the two spotted spider mite, <i>Tetranychus urticae</i> Koch on gerbera with the use of biopesticides and the predatory mite, <i>Amblyseius longispinosus</i> (Evens)	Approved	
12.3.3.2	Survey of soil oribatid mites fauna	Approved	
12.3.3.3	Seasonal incidence and pest activity of two spotted spider mite, <i>Tetranychus urticae</i> Koch. on adenium (<i>Adenium obesum</i> (Forssk.) Roem & Schutt)	1. Record the seasonal weather data. 2. Conduct this trial in polyhouse also.	
12.3.3.4	Effect of various leaf defoliation levels on castor yield for rearing of eri silkworm, <i>Samia cynthia ricini</i> Hutt	1. Mention Plucking of top leaves	
12.3.3.5	Survey for native Entomopathogenic Nematode (EPN)	Approved	
12.3.3.6	Survey of South American leaf miner, <i>Tuta absoluta</i> in Tomato.	Approved	
12.3.3.7	Standardize the height of pheromone traps in pigeon pea ecosystem for the mass trapping of <i>Helicoverpa armigera</i> (Hubner)	Approved	

12.3.3.8	Pollinator's fauna in Lucerne flora	Approved	
Action: Dept. of Ento., ACHF NAU, Navsari			
12.3.3.9	Effect of organic pesticides on shoot borer in organic mango	1. Replace the word 'organic pesticide' with 'biopesticide'.	
Action : FQTL, Navsari			
12.3.3.10	Dissipation and persistence of combi-product of chlorantraniliprole 9.26 % + lambda-cyhalothrin 4.63 % in/on pigeon pea	Approved	
12.3.3.11	Dissipation and persistence of Spiromesifin (22.9 % SC) in brinjal under south Gujarat conditions	Approved	
12.3.3.12	Effect of ozonized water washing on pesticide residues and shelf-life of green chilli and okra	Approved	
Action : MRRC, Navsari			
12.3.3.13	Bio-efficacy of biopesticides against insect-pests of rice crop	Approved	
Action: Main Cotton Research Station, NAU, Surat			
12.3.3.14	Study of expression of <i>Bt</i> proteins with different categories of parents	Approved	
12.3.3.15	Isolation and characterization of endophytic bacteria from wild cotton plants and exploring insecticidal activity against pink bollworm, <i>Pectinophora gossypiella</i>	Approved	
12.3.3.16	Bio-chemical traits in relation to insect tolerance of wild species and cross derivatives involving wild species of cotton	Approved	
Action : Min Sorghum Research Station, NAU Surat			
12.3.3.17	Evaluation of different modules for pest management in sorghum	1. Take fourth Module as absolute control.	
Action : KVK, NAU, Navsari			
12.3.3.18	Development of organic nutrient and bio pest management modules for chilli	1. Clarify <i>B. subtilis</i> in the experiment. 2. Keep absolute control also	

12.3.3.19	Survey of major insect pests, diseases and their Natural enemies in brinjal, okra and chilli in Tribal belt of Surat district	1. Correct index as PDI.	
Action : SWMU, NAU, Navsari			
12.3.3.20	Incidence of pests in high density mango plantation under drip irrigation	Approved	
12.3.3.21	Varietal preference of pests in ultrahigh density mango plantation under drip irrigation	Approved	
Action : AES, NAU, Paria			
12.3.3.22	Integrated Pest Management of hopper in mango	1. Modify title as “Integrated Management of mango hopper”. 2. In module, fix the quadrat with large plot technique.	
12.3.3.23	Documentation and monitoring population of pollinators on mango	1. Replace design ‘RBD’ with ‘CRD’. 2. Take single tree as one repetition.	
12.3.3.24	Management of mango hoppers and thrips using entomopathogens	1. Record observation at 7 and 12 days.	
12.3.3.25	Efficacy of biopesticides against Tea Mosquito Bug (TMB), <i>Helopeltis antonii</i> Signoret in cashew	1. Mention Design as CRD.	
Action : Hort. Polytech, NAU, Paria			
12.3.3.26	Assessment of yield losses due to major insect pest in cashew	1. Mention Design as CRD and ‘t’ test.	
Action : College of Agri, NAU, Waghai			
12.3.3.27	Evaluation of insecticides against insect pest of mango	1. Mention Design as CRD.	
Action : Hort. Polytech, NAU, Navsari			
12.3.3.28	Screening of mango varieties against shoot borer, <i>Chlumetia transversa</i>	Approved	
Action : Dept. of Ento., NMCA., Navsari			
12.3.3.29	Pest survey in cucurbits under protected cultivation	Approved.	

PL. PATHOLOGY

Action : Dept. of Pl. Path., NMCA.,NAU, Navsari			
Sr.No.	Title of experiment	Suggestions	
12.3.3.30	Effect of phosphate solubilizing microbes in wheat (<i>Triticum aestivum</i>) under saline conditions.	Approved.	
12.3.3.31	Isolation and characterization of plant growth promoting Actinomycetes from rhizospheric soil	Approved	
12.3.3.32	Status of diseases of cucurbits under protected and unprotected cultivation	Approved	
12.3.3.33	Investigation of phylloplane microflora of tomato and banana diseases	1. Remove word 'Disease' from title.	
12.3.3.34	Evaluation of different substrates for cultivation of Oyster mushroom	1. Biochemical analysis should be done	
12.3.3.35	Diagnostic kit for the identification of yellow mosaic virus infecting pulses	1. Title should be "Development of diagnostic kit for the identification of yellow mosaic virus infecting pulses"	
12.3.3.36	Relative susceptibility of medicinal plants to Garmar (<i>Coleus forskohlii</i> Briq.) Root knot Nematode (<i>Meloidogyne</i> sp.)	1. Recast title as "Susceptibility of medicinal plants against root knot Nematode (<i>Meloidogyne</i> sp.) of Garmar (<i>Coleus forskohlii</i> Briq.)". 2. In objective, mention the medicinal plants	
Action : Dept. of Pl. Path., ACHF., NAU, Navsari			
12.3.3.37	Management of leaf blight of gerbera under polyhouse condition	1. Check the formulation and concentration of fungicides in Module-I.	
Action : College of Agri., NAU, Bharuch			
12.3.3.38	Study of free living nitrogen fixing bacterial diversity with respect to seasonal variation	Approved	
Action : FQTL, NAU, Navsari			
12.3.3.39	Standardization of liquid chromatography based aflatoxin detection method and their status in raw and processed groundnut	NOT APPROVED 1. <u>Drop the experiment</u>	
Action : AES, NAU, Paria			

12.3.3.40	Determination of different decline disorders in Mango orchards	Approved	
12.3.3.41	Survey and incidence of diseases in cashew	Approved	
Action : FRS, Gandevi			
12.3.3.42	Integrated management of papaya diseases	1. Confirm dose of neem oil 2% and record toxicity, if any. 2. Keep Control as one module.	
Action : Pulse and Castor Res. Station, Navsari			
12.3.3.43	Screening of mungbean entries against <i>Mungbean Yellow Mosaic Virus</i> (LSET-I & SSET)	1. Delete 'Virus' word from title. 2. Include GM 5 as resistant variety instead of Meha.	
12.3.3.44	Screening of urdbean entries against <i>Mungbean Yellow Mosaic Virus</i> (SSET)	1. Delete 'Virus' word from title.	
12.3.3.45	Screening of cowpea entries against <i>Yellow Mosaic Virus</i> (SSET & PET)	1. Delete 'Virus' word from title	
12.3.3.46	Screening of pigeonpea entries against sterility mosaic disease (SSET)	Approved	
12.3.3.47	Screening of Indian bean entries against yellow mosaic and powdery mildew (SSET)	Approved	
Action: RRRS, NAU, Vyara			
12.3.3.48	Root knot nematode (<i>Meloidogyne graminicola</i>) disease in rice nurseries of South Gujarat	1. Recast title as "Survey of root knot nematode (<i>Meloidogyne graminicola</i>) in rice nurseries of South Gujarat"	
Action: Agri. Polytech, Waghai			
12.3.3.49	Screening of Little millet (<i>Panicum miliare</i> L.) varieties and germplasm against Blast	Approved	
Action: AES, NAU, Paria			
12.3.3.50	Standardisation of hot water treatment technique (HWTT) to manage post-harvest anthracnose as well as fruit flies of mango	1. Replace '@' with 'at'. 2. Keep the temperature 45 ± 2°C, 50 ± 2°C and 55 ± 2°C with five repetitions.	
Action: Dept. of Pl. Path., NMCA., Navsari			
12.3.3.51	Occurrence of diseases in high density mango plantation under drip irrigation	Approved	

12.3.3.52	Prevalence of diseases in ultra-high density mango plantation under drip irrigation	Approved	
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General suggestions :

1. As per the Insecticide Act 1968, recommendations of pesticides to the farmers is issued by the Central Insecticide Board and Registration Committee (CIBRC) and SAUs can not recommend insecticides/ fungicides/ plant growth regulators/ herbicides/ biopesticides to the farmers. However, there are following short-comings with CIBRC recommendations which are required to be resolved at state/ central level.

- a). Crops like Sapota, and Anola have not recommendations at all or important crops like cumin/ castor have only limited recommendations.
- b). In CIBRC recommendations, number of spray, stage of application and resistance management points are grossly ignored.
- c). Over the years, SAUs have evaluated number of pesticides on different crops for which CIBRC has no recommendations. Such recommendations can be submitted to the CIBRC for approval.

The above matter was thoroughly discussed during the XII Combined Joint AGRESCO and house proposed to take up the issue in the plenary session to represent the matter at approximate level.

2. Year wise data of insect pest, diseases and nematode etc. of the recommendations need to be presented for more clarity of the treatments
3. Common format of the recommendation is to be formed
4. Now the experiments on ecofriendly management of insect pests and diseases should be of more attention
5. As per the technical programme of AICRP are finalized in respective workshops and that too before our AGRESCO, there are no chance of any change in such technical programmes. Therefore, it was also discussed in the meeting that the recommendations emerged out from AICRP trial should not be passed in AGRESCO.

12.4 HORTICULTURE AND AGRO-FORESTRY

Technical Session-I: Recommendations for Farmers and Scientific Community

Chairman	Dr. A. V. Barad, Principal and Dean, College of Agriculture, JAU, Junagadh
Co-Chairman	<ol style="list-style-type: none"> 1. Dr. B. N. Patel, Principal and Dean, ASPEE College of Horticulture and Forestry, NAU, Navsari 2. Dr. R. R. Sankhela, Research Scientist (Agroforestry), SDAU, Dantiwada
Rapporteurs	<ol style="list-style-type: none"> 1. Dr. R. S. Chovatia, Professor and Head, Dept. of Fruit Science, College of Agriculture, JAU, Junagadh 2. Dr. T. R. Ahlawat, Associate Professor, Dept. of Fruit Science, ACHF, NAU, Navsari

Technical Session-II: New Technical Programs

Chairman	Dr. A. V. Barad, Principal and Dean, College of Agriculture, JAU, Junagadh
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Co-Chairman	<ol style="list-style-type: none"> 1. Dr. B. N. Patel, Principal and Dean, ASPEE College of Horticulture and Forestry, NAU, Navsari 2. Dr. R. R. Sankhela, Research Scientist (Agroforestry), SDAU, Sardarkrushinagar
Rapporteurs	<ol style="list-style-type: none"> 1. Dr. S. L. Chawla, Associate Professor, Dept. of Floriculture and Landscape Architecture, ACHF, NAU, Navsari 2. Dr. Minal Tandel, Assistant Professor, Dept. of Agroforestry, ACHF, NAU, Navsari

University	RECOMMENDATION					
	Proposed		Accepted		Not approved	
	For Farmers community	For Scientific community	For Farmers community	For Scientific community	For Farmers community	For Scientific community
AAU	-	-	-	-	-	-
JAU	2	-	2	-	-	-
NAU	25	2	18	2	4 +3*	-
SDAU	8	1	7	1	1	-
TOTAL	35	03	28	03	5 +3*	-

Note: One recommendation made by NAU is for bifurcated as both farming as well as scientific community. 3* Extended for one more year suggested by Agril. Engg. Sub committee.

NEW TECHNICAL PROGRAMMES

University	Proposed	Accepted	Not accepted	Remarks
AAU	06	06	-	-
JAU	04	04	-	-
NAU	78	48	08	22 *
SDAU	08	07	01	-
TOTAL	96	65	09	22*

* Transfer to respective subcommittee

NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI

Sr. No.	Centre/Station/Department
	Centre: Department of Fruit Science, ACHF, NAU, Navsari
12.4.3.1	Effect of heading back and training on growth, flowering, yield and quality in old orchard of mango cv. Rajapuri

	<p>Recommendation for farmers:-</p> <p>The farmers of South Gujarat Heavy Rainfall Agro-climatic Zone are advised to head back their above 30 years old mango trees cv. Rajapuri at 4 to 5 m height from ground level and maintain 6 newly emerged tertiary limbs to get higher yield with quality production.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. Rejuvenation should be done after completion of monsoon in month of October. 2. For rejuvenation slant cut should be made and cut portion should be treated with copper fungicide paste (100 g lit⁻¹) and frequently visit to rejuvenated orchard for controlling stem borer. <p>ખેડૂતો ઉપયોગી ભલામણ:-</p> <p>દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તારમાં ૩૦ વર્ષ કરતા જુના રાજાપુરી આંબાના ઝાડ ધરાવતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે સારી ગુણવત્તાવાળા ફળોનું વધુ ઉત્પાદન મેળવવા માટે જુના આંબાના ઝાડને જમીનથી ૪ થી ૫ મીટર ઉંચાઈથી કાપી નવી નીકળતી ડાળીઓમાંથી ૬ ડાળીઓની કેળવણી કરવી.</p> <p>નોંધ:-</p> <ol style="list-style-type: none"> ૧. નવીનીકરણ ચોમાસુ પૂર્ણ થયા પછી ઓક્ટોબર માસમાં કરવું ૨. નવીનીકરણ માટે ત્રાંસો કાપ મુકી કપાયેલા ભાગ ઉપર તાંબાચુકત કુગનાશક દવાની પેસ્ટ લગાવવી ૧૦૦ ગ્રામ / લી.) અને આબાંવાડીમાં આંબાના મેઢનાં નિયંત્રણ માટે નિયમિત મુલાકાત લેતા રહેવું. <p style="text-align: right;">(Action:-Assoc. Res. Sci. RHRS, NAU, Navsari)</p>
12.4.3.2	Standardization of organic nutrient schedule in banana cv. Grand Naine
	<p>Recommendation for farmers:</p> <p>The farmers of South Gujarat Heavy Rainfall Agro-climatic Zone-I (AES-III) growing banana cv. Grand Naine under organic farming are recommended to apply 10 kg FYM and 1.25 kg Neem cake at planting, Bio fertilizers 50 ml each <i>Azospirillum</i> and PSB, 50 g <i>Trichoderma harzianum</i> and 25 g AM at one month after planting, 5 kg Vermicompost after three months of planting and 1.75 kg Wood ash after five months of planting per plant. This gives higher yield with higher return.</p> <p>ખેડૂતો પયોગી ભલામણ :-</p> <p>દક્ષિણ ગુજરાતના ભારે વરસાદવાળા વિસ્તાર ઝોન-૧ અને ખેત આબોહવાકીય પરિસ્થિતિ-૩ માં કેળની ગ્રાન્ડ નૈન જાતની સેન્દ્રિય ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે રોપણી વખતે છોડ દીઠ ૧૦ કિ. ગ્રા. છાણિયું ખાતર અને ૧.૨૫ કિ. ગ્રા. લિંબોળી ખોળ આપવો. એક માસ બાદ જૈવિક ખાતર છોડ દીઠ ૫૦ મીલી દરેક એઝોસ્પીરીલમ અને પીએસબી, ૫૦ ગ્રામ ટ્રાયકોડર્મા હાર્ઝીનીયમ અને ૨૫ ગ્રામ આપવું. ત્યારબાદ ત્રીજા માસે છોડ દીઠ ૫ કિ. ગ્રા. વર્મીકમ્પોસ્ટ અને પાંચમા માસે છોડ દીઠ ૧.૭૫ કિ. ગ્રા. લાકડાની રાખ આપવી. આ માવજતથી વધુ ઉત્પાદન સહિત વધુ નફો મળે છે.</p> <p style="text-align: right;">(Action:- Associate Res. Sci., FRS, Gandevi)</p>
12.4.3.3	Macro propagation technique for Banana
	<p>Recommendation for farmers:</p> <p>Banana growing farmers and nurserymen are advised to produce lower cost quality planting material through macro propagation technique. This technique saves cost of planting material. A sucker treated with each AM and <i>Trichoderma viride</i> @ 30 g/sucker produces maximum 20 plants per sucker within 5-6 months.</p> <p>Methodology</p> <ul style="list-style-type: none"> ➤ Selection of good quality suckers weighing 500-1000g. ➤ Suckers are detopped just above the juncture of the aerial shoot (Decortications).

	<ul style="list-style-type: none"> ➤ Removal of apical meristem to a 4 cm depth and 2 cm width (Decapitation). ➤ 6-8 cross wise cuts given to sucker. ➤ Sucker placed in net house at 1 X 1 feet distance and covered with sawdust. ➤ Application of 30g each AM and <i>Trichoderma viride</i> around each sucker. ➤ Removal of juvenile meristem of primary and secondary buds to produce tertiary buds. ➤ Plants produced from tertiary buds having 4-5 leaves separated and planted in plastic bag in media containing Red soil : Sand : FYM in ratio of 1 : 1 : 1. ➤ Plants kept in net house for hardening. ➤ Regular watering by water can during entire procedure. <p>ખેડૂતો પયોગી ભલામણ : કેળની ખેતી કરતા ખેડુતો અને નર્સરીઘારોકોને કેળની રોપણી માટે ઓછા ખર્ચે ગુણવત્તા સભર રોપા તૈયાર કરવા માટે મેક્રોપ્રોપોગેશન પદ્ધતિ અપનાવવાની ભલામણ કરવામાં આવે છે. આ પદ્ધતિથી રોપણી સામગ્રી પાછળ થતો ખર્ચ ઘટાડી શકાય છે. આ પદ્ધતિમાં પ્રતિ ગાંઠ વામ અને ટ્રાયકોડર્મા વિરીડી બંને ૩૦ ગ્રામ મુજબ આપવાથી પાંચથી છ માસમાં એક ગાંઠમાંથી વઘુમાં વઘુ ૨૦(વીસ) જેટલા રોપવા લાયક છોડ મળી શકે છે.</p> <p>રોપ તૈયાર કરવાની પદ્ધતિ</p> <ul style="list-style-type: none"> ➤ સારી ગુણવત્તાવાળી ૫૦૦ થી ૧૦૦૦ ગ્રામ વજનની ગાંઠો પસંદ કરવી. ➤ ગાંઠનો ઉપરનો ભાગ થડની શરૂઆત થાય ત્યાંથી કાપી નાંખવો. ➤ ગાંઠની વચ્ચેથી ૪ સે. મી. ઉડાઈ અને ૨ સે. મી. પહોળાઈ જેટલો ભાગ ખોતરીને મુખ્ય આંખ દુર કરવી. ➤ ગાંઠના ઉપરના ભાગે છ કે આઠ ભાગ થાય તે પ્રમાણે આડા કાપા મુકવા. ➤ આ રીતે તૈયાર થયેલ ગાંઠોને નેટ હાઉસમાં ૧×૧ ફુટના અંતરે ગોઠવી લાકડાના વ્હેરથી ઢાંકી દેવી. ➤ ગાંઠ દીઠ વામ અને ટ્રાયકોડર્મા વિરીડી બંને ૩૦ ગ્રામ મુજબ ગાંઠની ફરતે આપવું. ➤ ગાંઠમાંથી નીકળતી પ્રાથમિક અને દ્વિતીય કળીઓને ખોતરીને દુર કરવી. ➤ ત્યારબાદ નીકળતી તૃતીય કળીઓનો વિકાસ થવા દેવો અને જ્યારે ચાર થી પાંચ પાન ધારણ કરે ત્યારે છોડને છૂટા પાડી માટી, રેતી અને છાણિયા ખાતરના સમ પ્રમાણમાં તૈયાર કરેલ ઉછેર માધ્યમને પ્લાસ્ટીક બેગમાં ભરી તેમાં રોપવા. ➤ તૈયાર થયેલ રોપાને સખ્તાઈ માટે નેટહાઉસમાં રાખવા. ➤ સમગ્ર પદ્ધતિ દરમ્યાન જરૂરિયાત મુજબ ઝારાથી નિયમિત પિયત આપવું. <p style="text-align: right;">(Action:- Associate Res. Sci. FRS, Gandevi)</p>
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Centre: Department of Vegetable Crops, ACHF, NAU, Navsari

12.4.3.4 Standardization of fertigation and methods of training in cucumber under naturally ventilated polyhouse

Recommendation for farmers:
Farmers cultivating parthenocarpic cucumber in naturally ventilated polyhouse (1000 m² area) are advised to train plants to single stem system and fertigate the crop with 9.0:7.5:7.5 kg NPK (As per the Table given below) along with application of 0.5 kg *Trichoderma viride*, 0.5 litre *Pseudomonas fluorescens*, 2.0 t FYM or 0.4 t vermicompost and 5.0 kg micro-nutrients (Grade-5) at the time of sowing for higher net returns.

Crop Duration	Distribution pattern fertilizers			Remarks
	N (kg)	P (kg)	K (kg)	
First Growth Period (Up to 30 days)	4.50 kg	3.21 kg	1.07 kg	<ul style="list-style-type: none"> • Fertigation should be started at the appearance of 2nd true leaf stage. • Fertigation should be carried out twice a week.
Second Growth Period (30-60 days)	2.25 kg	2.15 kg	3.22 kg	
Third Growth Period (60-90 days)	2.25 kg	2.14 kg	3.21 kg	

Note:

1. Training of cucumber plants to single stem system can be achieved by removing all the laterals arising from the axils of leaves, commonly known as suckers at the attainment of 10-12 cm length and only main stem should be allowed to grow vertically along the supporting string.

ખેડૂતોપયોગી ભલામણ :

નેચરલી વેન્ટીલેટેડ પોલી હાઉસમાં પાર્થનોકાર્પિક કાકડીની રક્ષિત ખેતી સાથે સંકળાયેલ ખેડૂતોને ૧૦૦૦ ચો.મી.ના વિસ્તારમાં વધુ આવક મેળવવા માટે કાકડીના વેલાને એક થડ ઉપર કેળવણી કરવાની અને પાકને ફર્ટિગેશન અંતર્ગત ૯.૦:૭.૫:૭.૫ કિ.ગ્રા.નાફોપો (નીચેના કોઠામાં દર્શાવ્યા પ્રમાણે) ની સાથે ૦.૫ કિ.ગ્રા. ટ્રાયકોડર્મા વીરીડી, ૦.૫ લિટર સ્યુડોમોનાસ ફ્લુરોએન્સ, ૨.૦ ટન સંપૂર્ણ સડેલું છાણિયું ખાતર અથવા ૦.૪ ટન વર્મીકમ્પોસ્ટ અને ૫. ૦ કિ.ગ્રા. ગ્રેડ-૫ સૂક્ષ્મ તત્વ પ્રમાણે બીજની વાવણી સમયે આપવાની ભલામણ કરવામાં આવે છે.

સમયગાળો	રાસાયણિક ખાતરનું વિભાજન			ટિપ્પણી
	નાઈટ્રોજન (કિ.ગ્રા.)	ફોસ્ફરસ (કિ.ગ્રા.)	પોટેશીયમ (કિ.ગ્રા.)	
પ્રથમ વિકાસ તબક્કો (પ્રથમ ૩૦ દિવસ)	૪.૫૦	૩.૨૧	૧.૦૭	<ul style="list-style-type: none"> ફર્ટિગેશનની શરૂઆત બીજા મુખ્ય પાનની અવસ્થાએ કરવી. અઠવાડિયામાં બે વાર ફર્ટિગેશન આપવું.
દ્વિતીય વિકાસ તબક્કો (૩૦ થી ૬૦ દિવસ)	૨.૨૫	૨.૧૫	૩.૨૨	
તૃતીય વિકાસ તબક્કો (૬૦ થી ૯૦ દિવસ)	૨.૨૫	૨.૧૪	૩.૨૧	

નોંધ:- છોડને એક થડ ઉપર કેળવણી માટે પર્ણકક્ષ માંથી નીકળતા પીલા જ્યારે ૧૦ થી ૧૨ સે.મી. લંબાઈના થાય ત્યારે તેને દૂર કરી ફક્ત મુખ્ય થડને જ ઉપરની દિશામાં વધવા દઈ દોરીથી ટેકો આપવો.

(Action:- Research Sci. (Veg.) ACHF, NAU, Navsari)

12.4.3.5

Site specific nutrient management study of Elephant foot Yam

Recommendation for farmers:

The peasantry of south Gujarat Heavy Rainfall Agro-climatic Zone-I (AES III), growing elephant foot yam cv. Gajendra in the soil having deficient N and sufficient P and K are advised to apply 100 : 45 : 75 NPK kg/ha in two splits. Apply first dose of 50 : 45 : 37.5 NPK kg/ha at 45 days after planting and second dose of 50 : 00 : 37.5 NPK kg/ha one month after application of first dose for obtaining higher income. At the time of planting application of 25 tonne FYM per hectare is advisable.

ખેડૂતોપયોગી ભલામણ :-

દક્ષિણ ગુજરાત ભારે વરસાદીય ખેત આબોહવાકિય વિસ્તાર ઝોન-૧ (એઈએસ-૩) માં નાઈટ્રોજનની ઉણપ અને ફોસ્ફરસ અને પોટાશ પૂરતા પ્રમાણમાં ધરાવતી જમીનમાં સુરણની ગજેન્દ્ર જાત વાવતાં ખેડૂતોને ભલામણ કરવામાં આવે છે કે સુરણના પાકમાં ૧૦૦ : ૪૫ : ૭૫ ના.ફો.પો. કિલો / હે. ના પ્રમાણમાં બે હપ્તામાં આપવું. પ્રથમ હપ્તામાં ૫૦ : ૪૫ : ૩૭.૫ ના.ફો.પો. કિલો / હે. વાવણીના ૪૫ દિવસે તથા બાકીનો ૫૦ : ૦૦ : ૩૭.૫ ના.ફો.પો. કિલો / હે. પ્રથમ હપ્તાના એક મહના પછી આપવાથી મહત્તમ આર્થિક ફાયદો મેળવી શકાય છે. વાવતી વખતે ૨૫ ટન છાણિયું ખાતર આપવું સલાહ ભર્યું છે.

(Action:- Research Sci. (Veg.) ACHF, NAU, Navsari)

Centre: Department of Natural Resource Management, ACHF, NAU, Navsari

12.4.3.6

Feasibility of Papaya banana sugarcane relay cropping under organic farming

Recommendation for farmers (papaya-banana-sugarcane relay cropping):

The farmers of south Gujarat Heavy Rainfall Agro - climatic Zone- I (AES III) growing papaya (variety Red Lady 786)-banana (variety Grand Naine)-sugarcane (variety CoN 07072) under relay system are advised to apply 25 per cent N through biocompost, 40

per cent N through vermicompost and 15 per cent N₂ through castor cake to supply recommended nitrogen on N equivalent basis and also advice to apply banana pseudostem sap @ 2 l/plant to papaya-banana and 4000 l/ha for sugarcane or 50 per cent N through biocompost and 40 per cent N₂ through vermicompost to supply recommended nitrogen on N equivalent basis and also advice to apply banana pseudostem sap @ 1 l/plant for papaya-banana and 4000 l/ha for achieving higher yield as well as net income.

Detail management for papaya

- i. Planting: Prepared the pits at 1.5 m x 2.4 m distance. Sow plant by applying 1.7 kg biocompost, 3.1 kg vermicompost and 0.341 kg castor cake per plant along with PSB and Azatobactor @ 5kg/ha.
- ii. 3 & 6 MAP: Apply 0.8 kg biocompost, 1.6 kg vermicompost and 0.17 kg castor cake per plant.
- iii. After one months of planting, apply banana pseudostem sap @ 200ml/plant in 5 equal splits at one month interval.
- iv. In summer green manuring should be followed in wider space.
- v. Drench 500 ml 0.5% each of Trichoderma and Pseudomonas at the time of planting.
- vi. Spray 0.5 % neem based solution.

Detail management for banana

- i. Planting: Prepared the pits at 1.2 m x 1.5 m x 3.3 m distance (paired row). Sow plant by applying 2.5 kg biocompost, 4.6 kg vermicompost and 0.5 kg castor cake per plant alongwith PSB and Azatobactor @ 5kg/ha.
- ii. 3 & 6 MAP: Apply 1.25 kg biocompost, 2.3 kg vermicompost and 0.25 kg castor cake per plant.
- iii. After one months of planting, apply banana pseudostem sap @ 200ml/plant in 5 equal splits at one month interval.
- iv. In summer green manuring should be followed in wider space.
- v. Drench 500 ml 0.5% each of Trichoderma and Pseudomonas at the time of planting.

Detail management for sugarcane

- i. At planting, treat two eye budded setts with biofertilizer i.e. Acetobacter and PSB and biopesticide i.e. Trichoderma and Pseudomonas @ 100ml each/ 50 litre of water for 20 minutes.
- ii. Planting: Apply 4.15t biocompost and 3.85t vermicompost per hectare as basal.
- iii. 3 & 6 MAP: Apply 2.1t biocompost and 1.9t vermicompost per hector.
- iv. After one months of planting, apply banana pseudostem sap @ 800 l/ha in 5 equal splits at one month interval.
- v. In summer green manuring should be followed in wider space.
- vi. Drench 0.5% each of Acetobactor, Trichoderma and Pseudomonas at the time of earthing up.

ખેડૂત ઉપયોગી ભલામણ

ભલામણ : (પપૈયા-કેળા -શેરડી રીલે પધ્ધતિ માટે)

પપૈયા (જાત રેડ લેડી ૭૮૬)-કેળા (જાત ગ્રાન્ડ નેન)- શેરડી (જાત સીઓએન ૦૭૦૭૨) રીલે પધ્ધતિ માટે દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા ખેત આબોહવાકિય વિસ્તાર-૧ (પરિસ્થિતિ-૩) માં સેન્દ્રિય ખેતીથી પપૈયા (જાત રેડ લેડી ૭૮૬)-કેળા (જાત ગ્રાન્ડ નેન)- શેરડી (જાત સીઓએન ૦૭૦૭૨) રીલે પધ્ધતિથી ઉગાડતા ખેડૂતોને વધુ ઉત્પાદન અને આવક મેળવવા ભલામણ કરેલ નાઈટ્રોજન પૂરો પાડવા ૨૫ ટકા નાઈટ્રોજન બાયોકોમ્પોસ્ટ દ્વારા, ૪૦ ટકા નાઈટ્રોજન અભસિયાનાં ખાતર દ્વારા અને ૧૫ ટકા નાઈટ્રોજન દિવેલી ખોળ દ્વારા નાઈટ્રોજન તત્વનાં આધારે આપવો તેમજ પપૈયા અને કેળાને કેળના થડનો રસ ૨ લી./છોડ અને શેરડીને ૪૦૦૦ લી./હે આપવો અથવા ૫૦ ટકા નાઈટ્રોજન બાયોકોમ્પોસ્ટ દ્વારા અને ૪૦ ટકા નાઈટ્રોજન

	<p>અળસિયાનાં ખાતરમાંથી નાઈટ્રોજન તત્વનાં આધારે આપવો તેમજ પૈયા અને કેળને કેળના થડનો રસ ૨ લી./છોડ અને શેરડીને ૪૦૦૦ લી./હે આપવો</p> <p>પૈયા માટે વિગતે માવજતો:</p> <ul style="list-style-type: none"> • રોપણી સમયે: ૧.૫ મી × ૨.૪ મી ના અંતરે ખાડા કરવા. છોડ દીઠ ૧.૭ કીગ્રા બાયોકંમ્પોષ્ટ, ૩.૧ કીગ્રા અળસિયાનું ખાતર અને ૦.૩૪૧ કિગ્રા દિવેલી ખોળની સાથે પીએસબી અને એઝાટોબેક્ટર ૫ કિગ્રા/હે પ્રમાણે નાંખી રોપણી કરવી. • રોપણી બાદ ત્રણ અને છ મહિને: છોડ દીઠ ૦.૮ કીગ્રા બાયોકંપોષ્ટ, ૧.૬ કીગ્રા અળસિયાનું ખાતર અને ૦.૧૭ કિગ્રા દિવેલીનો ખોળ આપવો. • રોપણીનાં એક મહિના બાદ કેળના થડનો રસ ૨૦૦ મીલી./છોડ લેખે પાંચ સરખા હપ્તામાં ૧ મહિનાનાં આંતરે આપવો. • ઉનાળામાં પહોળા પદ્મમાં લીલો પડવાશ કરવો. • રોપણી સમયે ૫૦૦ મિલી ૦.૫% ટ્રાયકોડર્મા અને સ્યુડોમોનાસનું દ્રાવણ રેડવું. • ૦.૫% લીમડા યુક્ત દરવાનો છંટકાવ કરવો. <p>કેળ માટે વિગતે માવજતો:</p> <ul style="list-style-type: none"> • રોપણી સમયે: ૧.૨ મી × ૧.૫ મી × ૩.૩ મીના અંતરે ખાડા કરવાં. છોડ દીઠ ૨.૫ કીગ્રા બાયોકંમ્પોષ્ટ, ૪.૬ કીગ્રા અળસિયાનું ખાતર અને ૦.૫ કિગ્રા દિવેલી ખોળ નાંખી રોપણી કરવી. • રોપણી બાદ ત્રણ અને છ મહિને: છોડ દીઠ ૧.૨૫ કીગ્રા બાયોકંપોષ્ટ, ૨.૩ કીગ્રા અળસિયાનું ખાતર અને ૦.૨૫ કિગ્રા દિવેલી ખોળ સાથે પીએસબી અને એઝાટોબેક્ટર @ ૫ કિગ્રા/હે નાંખી રોપણી કરવી. • રોપણીનાં એક મહિના બાદ કેળના થડનો રસ ૨૦૦ મીલી./છોડ લેખે પાંચ સરખા હપ્તામાં ૧ મહિનાનાં આંતરે આપવો. • ઉનાળામાં પહોળા પદ્મમાં લીલો પડવાશ કરવો. • રોપણી સમયે ૫૦૦ મિલી ૦.૫% ટ્રાયકોડર્મા અને સ્યુડોમોનાસનું દ્રાવણ રેડવું. <p>શેરડી માટે વિગતે માવજતો:</p> <ul style="list-style-type: none"> • રોપણી સમયે બે આંખનાં ટુકડાને એસિટોબેક્ટર અને પીએસબી જેવા બાયો ફર્ટિલાઈઝર તેમજ ટ્રાયકોડર્મા અને સ્યુડોમોનાસ જેવી બાયોપેસ્ટીસાઇડ દરેકનાં ૧૦૦ મિલી/૫૦ લીટર પાણીમાં બનાવેલ દ્રાવણમાં ૨૦ મિનિટ સુધી બોળવા. • રોપણી સમયે: પાયામાં ૪.૧૫ ટન બાયોકંપોષ્ટ અને ૩.૮૫ ટન અળસિયાનું ખાતર પ્રતિ હેક્ટર આપવું. • રોપણી બાદ ત્રણ અને છ મહિને: ૪.૧૫ ટન બાયોકંપોષ્ટ અને ૩.૮૫ ટન અળસિયાનું ખાતર પ્રતિ હેક્ટર આપવું. • રોપણીનાં એક મહિના બાદ કેળના થડનો રસ ૮૦૦ લી./હે લેખે પાંચ સરખા હપ્તામાં ૧ મહિનાનાં આંતરે આપવો. • ઉનાળામાં પહોળા પદ્મમાં લીલો પડવાશ કરવો. • ૦.૫% એસિટોબેક્ટર, ટ્રાયકોડર્મા અને સ્યુડોમોનાસનું દ્રાવણ પાળા ચઢાવતી વખતે રેડવું. <p style="text-align: center;">(Action:-Assoc. Professor (NRM), ACHF, NAU, Navsari) (Give the soil condition after experiment)</p>
12.4.3.7	Evaluation of <i>in situ</i> farm residue management on quality and productivity of banana cultivated under organic farming

	<p>Recommendation for farmers:</p> <p>The farmers of South Gujarat Heavy Rainfall Agro-climatic Zone- I (AES III) growing banana, variety Grand Naine, organically are advised to apply 10 tonnes farm residue along with 400 litres, 2% banana pseudostem sap per hectare for achieving higher net income.</p> <p>Detail management</p> <ul style="list-style-type: none"> • Prepared the pits at 1.5 m x 1.2 m x 2.4 m distance and apply the 2.0 kg NADEP compost in each pit along with <i>Azotobactor</i> and PSB each @ 5.0 kg/ha. • Add the farm residue @10t/ ha. in equal two splits at the time of two and four months after planting. • Apply 400l/ha 2% banana pseudostem sap on residue and covered the residue by thin layer of soil. • Drench 500 ml (0.5%) per plant each of <i>Trichoderma</i> and <i>Pseudomonas</i> at the time of planting <p>ખેડૂત ઉપયોગી ભલામણ :</p> <p>દક્ષિણ ગુજરાત ભારે વરસાદવાળા ખેત આબોહવાકિય વિસ્તાર-૧ (પરિસ્થિતિ-૩)ના સેન્દ્રિય ખેતિથી કેળની જાત ગ્રાન્ડ નેન ઉગાડતા ખેડૂતોને વધુ આવક મેળવવા પ્રતિ હેક્ટર ૧૦ ટન ખેત અવશેષ સાથે ૪૦૦ લીટર, ૨ ટકા કેળના થડનો રસ આપવાની સલાહ આપવામાં આવે છે.</p> <p>વિગતે માવજતો:-</p> <ul style="list-style-type: none"> • રોપણી સમયે: ૧.૫ મી x ૧.૨ મી x ૨.૪ મીના અંતરે ખાડા કરવા અને દરેક ખાડામાં ૨ કિગ્રા નાડેપ કમ્પોસ્ટ અને એઝોટોબેક્ટર અને પીએસબી ૫ કિગ્રા/હે આપવું. • ૧૦ ટન/હે ખેતરનો કચરો બે સરખા ભાગમાં રોપણીનાં ૨ અને ૪ મહિના પછી ઉમેરવો. • ખેતરના કચરા ઉપર ૨ ટકા કેળનાં થડનો રસ ૪૦૦ લી/હે પ્રમાણે ઉમેરવો અને અવશેષને માટીનાં આછા થરથી ઢાંકવો. • રોપણી સમયે પ્રતિ છોડ ૫૦૦ મિલી (૦.૫%) ટ્રાયકોડર્મા અને સ્યુડોમોનાસનું દ્રાવણ રેડવું. <p style="text-align: right;">(Action:- Assoc. Professor (NRM), ACHF, NAU, Navsari)</p> <p style="text-align: center;">(Give the soil condition after experiment)</p>
Centre: Department of Floriculture and Landscape Architecture, ACHF, NAU, Navsari	
12.4.3.8	Effect of Land configuration and integrated nutrient management on growth, quality and yield of tuberose (<i>Polinathes tuberosa</i> var. Prajwal)
	<p>Recommendation for farmers:</p> <p>The farmers of South Gujarat Heavy Rainfall Agro-climatic Zone - I AES-III cultivating tuberose var. Prajwal are advised to grow bulbs on raised bed of 90 cm width and 15 cm height in 3 rows along with 15 ton FYM/ha per year + RDF 300-200-100 kg N, P₂O₅, K₂O / ha. (application of nitrogen in four equal splits 3 months interval per year) for qualitative as well as quantitative spike production up to three years after planting.</p> <p>ખેડૂત ઉપયોગી ભલામણ</p> <p>દક્ષિણ ગુજરાતના ભારે વરસાદીય ઝોન-૧ ખેત આબોહવાકીય પરિસ્થિતિ-૩ માં ગુલછડીની પ્રજજવલ જાતની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે ગાંઠની ૯૦ સે.મી પહોળા અને ૧૫ સે.મી ઉંચાઈ વાળા ગાદીકચારા માં ત્રણ હારમાં રોપણી કરી ૧૫ ટન છાણિયું ખાતર અને ભલામણ કરેલ રસાયણિક ખાતર ૩૦૦ : ૨૦૦ : ૧૦૦ કિ ગ્રા ના.ફો.પો. પ્રતિ હે. પ્રતિ વર્ષ (નાઈટ્રોજન ને પ્રતિ વર્ષ ચાર સરખા ભાગમાં ત્રણ મહિનાનાં અંતરે) આપવાથી રોપણી કર્યા બાદ ૩ (ત્રણ) વર્ષ સુધી સારી ગુણવત્તાવાળા વધુ ફુલોનું ઉત્પાદન આપે છે.</p> <p style="text-align: right;">(Action:-Assoc. Res. Sci. (Flori.), ACHF, NAU, Navsari)</p>

12.4.3.9	Effect of bio-fertilizers and chemical fertilizers on growth and yield of gladiolus cv. Psittacinus Hybrid.
	<p>Recommendation for farmers:</p> <p>The farmers of the South Gujarat Heavy Rainfall Agro-climatic Zone I, AES-III, growing gladiolus cv. Psittacinus Hybrid are advised to dip gladiolus corms in microbial consortium solution (10 ml /l water) for one hour and dry under shade then use for planting. Apply 75% of RDF (150-150-150 kg NPK / ha.), P and K as basal and N in two equal splits, 15 days and 45 days after planting which reduced 25% fertilizers cost and gives higher realization.</p> <p>ખેડૂતો ઉપયોગી ભલામણ:</p> <p>દક્ષિણ ગુજરાતનાં ભારે વરસાદવાળા વિસ્તાર ૧ એઈએસ- ૩ માં ઝેડીઓલસની સીટેસીનસ હાઈબ્રીડ જાત ઉગાડનાર ખેડૂતોને ભલામણ કરવામાં આવે છે કે વાવણી પહેલા ઝેડીઓલસ કંદને ૧૦ મીલી જૈવિક ખાતર/લીટર પાણીમાં ૧ કલાક બોળી, છાયડામાં સુકવી રોપણી કરવી. રોપણી બાદ ભલામણ કરેલા ૭૫% જથ્થા(૧૫૦-૧૫૦-૧૫૦ ના. ફો. પો. કીલો / હે.) પૈકી ફોસ્ફરસ અને પોટાશનો પુરો જથ્થો પાચામા આપવો અને નાઇટ્રોજન રોપણી બાદ ૧૫ દીવસે અને ૪૫ દીવસે બે સરખા હપ્તામાં આપવાથી ૨૫ % રાસાયણિક ખાતરના ખર્ચમાં ઘટાડો કરી વધુ આવક મેળવી શકાય છે.</p> <p>(Action:- Principal, Horti. Polytechnic., Navsari)</p>
Centre: Dept. of Post Harvest Technology, ACHF, NAU, Navsari	
12.4.3.10	Development of technology for utilization of banana peel for preparation of sev
	<p>Recommendation:</p> <p>Home-makers, processors and entrepreneurs are recommended to utilize ripe banana peel for preparation of <i>sev</i>. Ripe banana peel must be pre-treated immediately to prevent enzymatic browning by dipping in 2% salt (NaCl) solution along with 100 ppm ascorbic acid for 30 min.. After pre-treatment, banana peel must be blanched, grind to make paste and mixed(30% ripe banana peel paste) with gram flour (70%) for preparation of fibre rich <i>sev</i>. The recipe for the preparation of ripe banana peel based <i>sev</i> comprised of 30 g ripe banana peel paste, 70 g gram flour, 2.5 g common salt, 1.5 g chilli powder, 0.75 g white pepper powder, 1.0 g turmeric powder, 2.5 g coriander powder and 5 ml edible oil.</p> <p>ભલામણ:</p> <p>આથી ગૃહિણીઓ, પ્રોસેસરો અને ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે પાકા કેળાની છાલનો સેવ બનાવવા માટે ઉપયોગ કરી શકાય છે. પાકા કેળાની છાલનું એન્ઝાઇમેટીક બ્રાઉનીંગ અટકાવવા માટે તરત જ ૨% મીઠું અને ૧૦૦પીપીએમ એસ્કોર્બીક એસીડ ના દ્રાવણમાં ૩૦ મિનિટ સુધી પૂર્વ માવજત આપવી જ જોઈએ. પૂર્વ સારવાર બાદ બ્લાન્ચિંગ કરી, પેસ્ટ બનાવીને (૩૦% પાકા કેળાની છાલની પેસ્ટ) અને બેસન (૭૦%) મિશ્ર કરી રેસાયુક્ત સેવ બનાવી શકાય છે. પાકા કેળાની છાલ આધારિત સેવ બનાવવા માટેની રેસીપી નીચે મુજબ છે:</p> <p>૩૦ ગ્રામ પાકા કેળાની છાલની પેસ્ટ, ૭૦ ગ્રામ બેસન, ૨.૫ગ્રામ મીઠું, ૧.૫ગ્રામ મરચુ પાવડર, ૦.૭૫ગ્રામ સફેદ મરી પાવડર, ૧.૦ ગ્રામ હળદર પાવડર, ૨.૫ગ્રામ ઘાણા પાવડર અને પમિલીબાઘ તેલ.</p>

	<table border="0" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>Process</u></p> <p>Selection of banana</p> <p>↓</p> <p>Peeling</p> <p>↓</p> <p>Pre-treatment of peel</p> <p>↓</p> <p>Blanching (3 min at 85-90° C)</p> <p>↓</p> <p>Preparation of peel paste</p> <p>↓</p> <p>Preparation of dough by mixing gram flour, spices and edible oil</p> <p>↓</p> <p>Deep frying of the cold extruded sev</p> <p>↓</p> <p>Draining of the oil</p> <p>↓</p> <p>Packaging</p> <p>↓</p> <p>Storage</p> </td> <td style="width: 50%; vertical-align: top;"> <p><u>પદ્ધતિ</u></p> <p>કેળાની પસંદગી</p> <p>↓</p> <p>છાલ ઉતારવી</p> <p>↓</p> <p>છાલને પૂર્વ માવજત આપવી</p> <p>↓</p> <p>બ્લાન્ચિંગ (૮૫-૯૦°સે ૩ મિનીટ માટે)</p> <p>↓</p> <p>છાલની પેસ્ટ બનાવવી</p> <p>↓</p> <p>છાલની પેસ્ટમાં બેસન, મસાલા અને તેલ ઉમેરી કણક તૈયાર કરવો</p> <p>↓</p> <p>સેવ પાડીને તેલમાં તળવી</p> <p>↓</p> <p>તેલ દુર કરવું</p> <p>↓</p> <p>પેક કરવું</p> <p>↓</p> <p>સંગ્રહ</p> </td> </tr> </table> <p style="text-align: right;">(Action:-Assoc. Professor (PHT) ACHF, NAU, Navsari)</p>	<p><u>Process</u></p> <p>Selection of banana</p> <p>↓</p> <p>Peeling</p> <p>↓</p> <p>Pre-treatment of peel</p> <p>↓</p> <p>Blanching (3 min at 85-90° C)</p> <p>↓</p> <p>Preparation of peel paste</p> <p>↓</p> <p>Preparation of dough by mixing gram flour, spices and edible oil</p> <p>↓</p> <p>Deep frying of the cold extruded sev</p> <p>↓</p> <p>Draining of the oil</p> <p>↓</p> <p>Packaging</p> <p>↓</p> <p>Storage</p>	<p><u>પદ્ધતિ</u></p> <p>કેળાની પસંદગી</p> <p>↓</p> <p>છાલ ઉતારવી</p> <p>↓</p> <p>છાલને પૂર્વ માવજત આપવી</p> <p>↓</p> <p>બ્લાન્ચિંગ (૮૫-૯૦°સે ૩ મિનીટ માટે)</p> <p>↓</p> <p>છાલની પેસ્ટ બનાવવી</p> <p>↓</p> <p>છાલની પેસ્ટમાં બેસન, મસાલા અને તેલ ઉમેરી કણક તૈયાર કરવો</p> <p>↓</p> <p>સેવ પાડીને તેલમાં તળવી</p> <p>↓</p> <p>તેલ દુર કરવું</p> <p>↓</p> <p>પેક કરવું</p> <p>↓</p> <p>સંગ્રહ</p>
<p><u>Process</u></p> <p>Selection of banana</p> <p>↓</p> <p>Peeling</p> <p>↓</p> <p>Pre-treatment of peel</p> <p>↓</p> <p>Blanching (3 min at 85-90° C)</p> <p>↓</p> <p>Preparation of peel paste</p> <p>↓</p> <p>Preparation of dough by mixing gram flour, spices and edible oil</p> <p>↓</p> <p>Deep frying of the cold extruded sev</p> <p>↓</p> <p>Draining of the oil</p> <p>↓</p> <p>Packaging</p> <p>↓</p> <p>Storage</p>	<p><u>પદ્ધતિ</u></p> <p>કેળાની પસંદગી</p> <p>↓</p> <p>છાલ ઉતારવી</p> <p>↓</p> <p>છાલને પૂર્વ માવજત આપવી</p> <p>↓</p> <p>બ્લાન્ચિંગ (૮૫-૯૦°સે ૩ મિનીટ માટે)</p> <p>↓</p> <p>છાલની પેસ્ટ બનાવવી</p> <p>↓</p> <p>છાલની પેસ્ટમાં બેસન, મસાલા અને તેલ ઉમેરી કણક તૈયાર કરવો</p> <p>↓</p> <p>સેવ પાડીને તેલમાં તળવી</p> <p>↓</p> <p>તેલ દુર કરવું</p> <p>↓</p> <p>પેક કરવું</p> <p>↓</p> <p>સંગ્રહ</p>		

| 12.4.3.11 | Standardization of method for extraction of Noni (*Morinda citrifolia*) fruit juice |
| | **Recommendation** Processors and entrepreneurs are recommended to extract noni juice by treating crushed fruits with 0.1 % pectinase for 3 hours to get higher juice recovery. The juice after extraction must be filtered, pasteurized (96°C), packed in glass bottles followed by processing (96±1°C) for 30 min. The packed juice has storage stability for 12 months at ambient temperature. **ભલામણ:** પ્રોસેસર્સ અને ઉદ્યોગ સાહસિકોને નોનીના રસની વધારે પ્રાપ્તિ માટે કશ કરેલા નોનીના ફળોને ૩ કલાક માટે ૦.૧ % પેક્ટીનેઝ એન્ઝાઈમની સારવાર આપવાની ભલામણ કરવામાં આવે છે. રસ કાઢ્યા બાદ ગાળીને, જીવાણુમુક્ત (૯૬° સે) કરીને, કાચની બોટલમાં પેક કર્યા બાદ ૩૦ મિનીટ માટે પ્રોસેસિંગ (૯૬+ ૧° સે) કરવું જોઈએ. આ રીતે પેક કરેલ રસની સંગ્રહ ક્ષમતા સામાન્ય તાપમાને ૧૨ માસની છે. | | | |---|--| | <p><u>Process</u></p> <p>Selection of mature fruits, washing and ripening</p> <p>↓</p> <p>Crush the well ripen fruits</p> <p>↓</p> | <p><u>પદ્ધતિ</u></p> <p>પરિપક્વ ફળોની પસંદગી, ધોવા અને પકવવા</p> <p>↓</p> <p>પાકેલા ફળોને છુંદવા</p> <p>↓</p> | |---|--| |

	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Enzyme treatment</p> <p>↓</p> <p>Extraction of juice by pressing</p> <p>↓</p> <p>Clarification</p> <p>↓</p> <p>Pasteurization (96°C)</p> <p>↓</p> <p>Bottling</p> <p>↓</p> <p>Processing (96±1°C for 30 min)</p> <p>↓</p> <p>Storage</p> </div> <div style="text-align: center;"> <p>એન્ઝાઈમની સારવાર આપવી</p> <p>↓</p> <p>દબાવીને રસ કાઢવો</p> <p>↓</p> <p>રસને ક્લીયર કરવો</p> <p>↓</p> <p>જીવાણુમુક્ત કરવો</p> <p>↓</p> <p>બોટલમાં ભરવો</p> <p>↓</p> <p>પ્રોસેસિંગ કરવું(૯૬+ ૧° સે ૩૦ મિનીટ માટે)</p> <p>↓</p> <p>સંગ્રહ</p> </div> </div> <p style="text-align: center;">(Action:-Asso. Professor (PHT) ACHF, NAU, Navsari)</p>
12.4.3.12	Standardization of formulations for preparation of noni mango nectar from Noni juice
	<p>Recommendation:</p> <p>Processors and entrepreneurs are recommended to utilize noni juice for preparation of blended noni mango nectar to increase the acceptability of noni juice. For preparation of blended noni mango nectar, blend 5% noni juice with 15% mango pulp by maintaining 16⁰ Brix TSS and 0.3% acidity. The nectar after blending, filtered, pasteurized (96°C), packed in glass bottles followed by processing (96±1°C) for 30 min. The packed nectar has storage stability for 6 months at ambient temperature.</p> <p>ભલામણ:</p> <p>પ્રોસેસર્સ અને ઉદ્યોગ સાહસિકોને નોની રસની સ્વીકાર્યતા વધારવા માટે નોનીના રસનો ઉપયોગ કરી નોની કેરી મિશ્ર નેક્ટર બનાવવા માટે ભલામણ કરવામાં આવે છે. નોની કેરી મિશ્ર નેક્ટર બનાવવા માટે ૫% નોની સાથે ૧૫% કેરીના રસને મિશ્ર કરી ૧૬⁰બ્રિક્ષ ટીએસએસ અને ૦.૩% અમ્લતા જાળવવી. રસ મિશ્ર કરી, ગાળીને, જીવાણુમુક્ત (૯૬°સે) કરીને નેક્ટર બનાવી, કાચની બોટલમાં પેક કર્યા બાદ ૩૦ મિનીટ માટે પ્રોસેસિંગ (૯૬+ ૧° સે) કરવું. આ રીતે પેક કરેલ નેક્ટરની સંગ્રહ ક્ષમતા સામાન્ય તાપમાને ૬ માસની છે.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Process</p> <p>Selection of mature fruits, washing and ripening</p> <p>↓</p> <p>Pulping and juice extraction of fruits</p> <p>↓</p> <p>Mixing of pulp and juice</p> <p>↓</p> <p>Addition of sugar and citric acid</p> <p>↓</p> <p>Pasteurization (96°C)</p> <p>↓</p> <p>Bottling</p> <p>↓</p> <p>Processing (96±1°C for 30 min)</p> <p>↓</p> <p>Storage</p> </div> <div style="text-align: center;"> <p>પદ્ધતિ</p> <p>પરિપક્વ ફળોની પસંદગી, ધોવા અને પકવવા</p> <p>↓</p> <p>ફળોમાંથી રસ કાઢવો</p> <p>↓</p> <p>ફળોના રસને મિશ્ર કરવો</p> <p>↓</p> <p>ખાંડ અને લીંબુના ફૂલ ઉમેરવા</p> <p>↓</p> <p>જીવાણુમુક્ત કરવો</p> <p>↓</p> <p>બોટલમાં ભરવો</p> <p>↓</p> <p>પ્રોસેસિંગ કરવું(૯૬+ ૧° સે ૩૦ મિનીટ માટે)</p> <p>↓</p> <p>સંગ્રહ</p> </div> </div> <p style="text-align: center;">(Action:-Assoc. Professor (PHT) ACHF, NAU, Navsari)</p>

12.4.3.13	Evaluation and modification of banana comb cutter
	<p>Recommendation: The farmers growing banana are recommended to use banana comb cutter developed by ICAR – CIPHET with the NAU developed safety cover (340 mm x 220 mm) to separate comb from banana bunch.</p> <p>ભલામણ: કેળની ખેતી કરતા ખેડૂતોને ભલામણ કરવામાં આવે છે કે કેળાની લુમમાંથી કેળાનું ઝુમખું અલગ કરવા આઈસીએઆર-સીફેટ દ્વારા વિકસાવેલ ઓજાર અને ન.કૃ.યુ. દ્વારા વિકસાવેલ રક્ષણાવરણ (૩૪૦ એમ.એમ. ૨૨૦ એમ.એમ.) સાથે ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.</p> <p>Suggestions: 1. This would be presented in the Agricultural Engineering Subcommittee group meeting.</p> <p style="text-align: right;">(Action:-Assoc. Professor (PHT) ACHF, NAU, Navsari)</p>
Centre: Department of Agroforestry, ACHF, NAU, Navsari	
12.4.3.14	Investigation on tree ring analysis (Dendrochronology) to monitor radial growth responses of teak to climate in South Gujarat
	<p>Recommendation for Scientific Community: It is informed to the scientific community and state forest department that the mean ring-width-index chronologies of teak developed for Navsari from AD 1991-2015, Valsad from AD 1867-2012 and Dang from 1912-2012 of South Gujarat are useful in reconstruction of past climate mainly the rainfall patterns during drought years. Furthermore, it also indicates the major El Niño and drought years of India. These ring-width-index chronologies developed for the particular time periods at the three sites are also helpful in determining the unknown year in which the teak tree was felled.</p> <p>Recommendation for Farmers: To enhance the radial growth in teak (<i>Tectona grandis</i> L.), the farmers of South Gujarat Heavy Rainfall Agro-climatic Zone-1 (AES-I & III) growing teak in their plantations may give light irrigation during March and normal irrigation during peak growth period from June to July, especially, when there is a moisture stress due to deficient rainfall.</p> <p>ખેડૂતો માટે ભલામણ: દક્ષિણ ગુજરાત ભારે વરસાદીય ઝોન – ૧, ખેત આબોહવાકીય પરિસ્થિતિ-૧ અને ૩ માં સાગ (ટેક્ટોના ગ્રાન્ડીસ એલ.) ની ખેતી કરનારા ખેડૂતોને ભલામણ કરવામાં આવે છે કે સાગનો સારો ધેરાવો અને સારો વિકાસ મેળવવો હોય તો માર્ચ માસ દરમ્યાન હલકું પિયત આપી શકાય. જ્યારે જુન-જુલાઈ માસમાં તેનો વિકાસ સારો થવાનો હોઈ, જો અપુરતો વરસાદ થાય તો, સામાન્ય પિયત આપવાથી ભેજ ના અભાવથી થતા તણાવની અસર ઘટાડી શકાય.</p> <p style="text-align: right;">(Action:- Principal, College of Forestry, NAU, Navsari)</p>
12.4.3.15	Performance of turmeric (<i>Curcuma longa</i>) grown as an intercrop under different tree species in South Gujarat conditions
	<p>Recommendation for farmers: The farmers of South Gujarat heavy rainfall zone – I (AES- III) growing <i>Mitragyna parvifolia</i> (Kalam), <i>Adina cordifolia</i> (Haldu) and <i>Gmelina arborea</i> (Sevan) at 10 X 2.5 m spacing are advised to grow Turmeric Variety – Sugandham planted at 30 x 15 cm spacing</p>

	<p>having 19 rows as an intercrop in plantation of <i>Gmelina arborea</i> (Sevan) for additional income.</p> <p>ખેડૂતો માટે ભલામણ: દક્ષિણ ગુજરાતના ભારે વરસાદીય ઝોન – ૧, ખેત આબોહવાકીય પરિસ્થિતી – ૩ માં કલમ, હલ્દુ તેમજ સેવન જેવા વૃક્ષોને ૧૦ × ૨.૫ મીટરે ઉછેરતા ખેડુતોને ભલામણ કરવામાં આવે છે કે હળદરની જાત સુગંધમને ૩૦ × ૧૫ સેમી. ના અંતરે ૧૯ જેટલી હાર રોપીને સેવનના વૃક્ષની સાથે આંતર પાક તરીકે લેવાથી વધારાની આવક મેળવી શકાય છે.</p> <p>(Action:- Principal, College of Forestry, NAU, Navsari)</p>
12.4.3.16	<p>Standardization of the recipe for the preparation of candy from the fruits of Palmyra palm</p>
	<p>Recommendation for farmers: Home Makers, processors and entrepreneurs are recommended that, candy from the fruits of Palmyra palm can be prepared by steeping the slices (5cm x 5mm) in sugar syrup having 65% TSS for 8 hours followed by drying of slices for 7 hours at 65°C and packed in PE pouches can be stored successfully up to six month at ambient storage.</p> <p>ભલામણ: આથી ગૃહિણીઓ, પ્રોસેસરો અને ઉદ્યોગ સાહસિકોને ભલામણ કરવામાં આવે છે કે, કે તાડફળી (ગલેલી)માંથી કેન્ડી ૬૫% ટીએસએસ વાળી ખાંડની ચાસણીમાં ગલેલીના ટુકડાઓ (૫ સેમી.X5 મિમિ) ૮ કલાક માટે બોળીને ૭ કલાક માટે ૬૫°સે પર સૂકવણી કરી તૈયાર કરી શકાય છે અને પીઈ પાઉચમાં પેક કરી છ મહિના સુધી સફળતાપૂર્વક સંગ્રહ કરી શકાય છે .</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p><u>Process</u></p> <p>Selection of Fruits</p> <p>↓</p> <p>Peeling</p> <p>↓</p> <p>Slicing (5cm x 5mm)</p> <p>↓</p> <p>Preparation of sugar syrup (75° Brix)</p> <p>↓</p> <p>Steeping of slices (24 hrs)</p> <p>↓</p> <p>Draining of syrup</p> <p>↓</p> <p>Drying (65° C for 7hrs)</p> <p>↓</p> <p>Packing</p> <p>↓</p> <p>Storage</p> </div> <div style="text-align: center;"> <p><u>પદ્ધતિ</u></p> <p>ફળોની પસંદગી</p> <p>↓</p> <p>છાલ ઉતારવી</p> <p>↓</p> <p>સ્વાઈસ બનાવવી (૫ સેમિx ૫ મિમિ)</p> <p>↓</p> <p>ખાંડની ચાસણી બનાવવી (૬૫°બ્રિક્ષ)</p> <p>↓</p> <p>સ્વાઈસને ચાસણીમાં ડૂબાડવી (૮કલાક)</p> <p>↓</p> <p>ચાસણી દુર કરવી</p> <p>↓</p> <p>સૂકવણી (૬૫° સે ૭ કલાક માટે)</p> <p>↓</p> <p>પેકિંગ</p> <p>↓</p> <p>સંગ્રહ</p> </div> </div> <p>(Action:- Principal, College of Forestry, Navsari)</p>

12.4.3.17	Standardization of the recipe for the preparation of jam from the fruits of Palmyra palm
	<p>Recommendation for farmers:- Home Makers, processors and entrepreneurs are recommended that jam from the tender fruits of palmyra palm can be prepared by using pulp:sugar ratio (1:1.2) and addition of pectin 16g/kg of pulp and it also can be stored for six months at ambient temperature in glass bottle.</p> <p>ભલામણ:- આથી ગૃહિણીઓ, પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે, તાડફળી (ગલેલી)માંથી માવો:ખાંડનું પ્રમાણ (૧:૧.૨) અને ૧૬ ગ્રામ પેક્ટીન પ્રતિ કિલો માવા ટિઠ ઉમેરીને મિશ્રણને ૬૫°બ્રિક્ષ ટીએસએસ સુધી ઉકાળીને જામ બનાવી શકાય છે તેમજ તેને કાચની બરણીમાં પેક કરીને સામાન્ય તાપમાને છ (૬) માસ સુધી સંગ્રહી શકાય છે.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Process</p> <p>Selection of Fruits</p> <p>↓</p> <p>Peeling</p> <p>↓</p> <p>Slicing (5cm x 5mm)</p> <p>↓</p> <p>Preparation of sugar syrup (75° Brix)</p> <p>↓</p> <p>Steeping of slices (24 hrs)</p> <p>↓</p> <p>Draining of syrup</p> <p>↓</p> <p>Drying (65° C for 7hrs)</p> <p>↓</p> <p>Packing</p> <p>↓</p> <p>Storage</p> </div> <div style="text-align: center;"> <p>પદ્ધતિ</p> <p>ડુંગળીની પસંદગી</p> <p>↓</p> <p>છાલ ઉતારવી</p> <p>↓</p> <p>સ્લાઈસ બનાવવી (૫ સેમિx ૫ મિમિ)</p> <p>↓</p> <p>ખાંડની ચાસણી બનાવવી (૬૫°બ્રિક્ષ)</p> <p>↓</p> <p>સ્લાઈસને ચાસણીમાં ડૂબાડવી (૮કલાક)</p> <p>↓</p> <p>ચાસણી દુર કરવી</p> <p>↓</p> <p>સુકવણી (૬૫° સે ૭ કલાક માટે)</p> <p>↓</p> <p>પેકિંગ</p> <p>↓</p> <p>સંગ્રહ</p> </div> </div> <p style="text-align: right;">(Action:- Principal, College of Forestry, NAU, Navsari)</p>
12.4.3.18	Standardization of the recipe for the preparation of jelly from the Neera of Palmyra palm
	<p>Recommendation:- Home Makers, processors and entrepreneurs are recommended that jelly from the <i>Neera</i> can be prepared by using pectin 13 g/kg of <i>Neera</i> and can be safely stored for six months. Recipe should be <i>Neera</i>:sugar (1:1.1), 0.5% acidity (50 g citric acid per kg of jelly) and pectin. Boil the mixture till 68°Brix followed by hot filling in to glass bottle.</p> <p>ભલામણ:- આથી ગૃહિણીઓ, પ્રોસેસરો અને ઉદ્યોગસાહસિકોને ભલામણ કરવામાં આવે છે કે, પેક્ટીન ૧૩ ગ્રામ પ્રતિ કિલો વાપરીને નીરામાંથી જેલી બનાવી શકાય છે તેમજ ૬ (છ) માસ સુધી સુરક્ષિત રીતે સંગ્રહી શકાય છે. રેસિપિ –</p>

	<p>નિરા:ખાંડ (૧:૧.૧) પ્રમાણે, ૦.૫ એસિડીટી, ૮૫૦ ગ્રામ લીંબુના ફૂલ ૧ કિલો જેલી દીઠ અને પેક્ટીનના મિશ્રણને ૬૮°બ્રિક્ષ સુધી ઉકાળીને ગરમ ગરમ કાચની બરણીમાં ભરવી.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Process <i>Neera</i></p> <p>↓</p> <p>Heating for a while</p> <p>↓</p> <p>Addition of sugar and boil till sugar dissolve</p> <p>↓</p> <p>Addition of citric acid</p> <p>↓</p> <p>Addition of Pectin</p> <p>↓</p> <p>End point (68° Brix)</p> <p>↓</p> <p>Filling in to bottle</p> <p>↓</p> <p>Storage</p> </div> <div style="text-align: center;"> <p>પદ્ધતિ નીરા</p> <p>↓</p> <p>થોડી વાર માટે ગરમ કરવું</p> <p>↓</p> <p>ખાંડ ઉમેરવી અને ખાંડ ઓગળી જાય ત્યાં સુધી ઉકાળવું</p> <p>↓</p> <p>લીંબુના ફૂલ ઉમેરવા</p> <p>↓</p> <p>પેક્ટીન ઉમેરવું</p> <p>↓</p> <p>છેલ્લો પોઈન્ટ (૬૮°બ્રિક્ષ)</p> <p>↓</p> <p>બોટલમાં ભરવું</p> <p>↓</p> <p>સંગ્રહ</p> </div> </div> <p style="text-align: center;">(Action:- Principal, College of Forestry, NAU, Navsari)</p>
14.4.3.19	Effect of different tree species leaf leachate on germination and seedling growth of some vegetable crops
	<p>Recommendation for scientific community:</p> <p>The leaf leachates of various tree species reduced germination and growth parameters of different vegetable crops in laboratory as well as in nursery condition. The percentage of inhibition was maximum in Eucalyptus as compared to other tree species leaf leachates in laboratory as well as in nursery condition. Moreover the percentage of inhibition was minimum in Teak. The different vegetable crops have different mode of inhibition during the study. In both the growing conditions Brinjal (<i>Solanum melongena</i>), Okra (<i>Abelmoschus esculentus</i>) and Tomato (<i>Lycopersicon esculentum</i>) performed better for all parameters under study for the respective years of investigation while, V₅: Chilli (<i>Capsicum anum</i>) performed poor for all the parameters under study. In case of leachates concentration, all the parameters under study were decreased as the concentration of leaf leachates increased in both the growing conditions. This response showed concentration dependent phenomenon as highest inhibitory effects were observed with 20 % leaf leachate concentration of all the tree species.</p> <p style="text-align: right;">(Action:- Principal, College of Forestry, NAU, Navsari)</p>

New Technical Programmes

NAU

Sr. No.	Title/Centre	Suggestions	Remarks
	Centre:- ASPEE College of Horticulture and Forestry, Navsari Fruit Science :		
1.	Pheno-physiological studies on regular and biennial bearing of mango	Accepted with following suggestion/s 1. Add Alphanso in biennial bearer	

		2. Remove No. of panicles / tree and flowering intensity from observations. (Action:-Professor & Head (Fruit Science), ACHF, NAU, Navsari)	
2.	Effect of growth regulators on flowering and yield of sapota cv. Kalipatti	Accepted with following suggestion/s 1. Add GA ₃ @ 100 mg/l as per previous recommendation (Control) 2. Remove S ₄ and S ₈ treatments from treatments (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
3.	Response of media, fertilizer and chemicals application on growth of mango rootstock	Accepted with following suggestion/s 1. Remove C : N Ratio (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
4.	Effect of foliar application of fertilizers on yield and quality of sapota cv. Kalipatti.	Accepted with following suggestion/s 1. Add high density rejuvenate word in title 2. Take treatment T ₄ , T ₅ and T ₆ and its combinations. (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
5.	Feasibility of planting and pruning intensity of meadow orchard in guava cv. Lalit	Accepted with following suggestion/s 1. Add incidence of pest and diseases in observations. (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
6.	Impact of pre-soaking treatments on germination and growth of mango (<i>Mangifera indica</i> L.) stones	Accepted with following suggestion/s 1. Take S ₈ treatment as a common treatment 2. Design CRD 3. take stone of Kesar cultivar (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
7.	Evaluation of different biofertilizers with graded chemical fertilizers for nutrient management in papaya var. Red Lady Taiwan.	Approved as Such (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
8.	Intercropping studies under coconut orchard	Accepted with following suggestion/s 1. Remove Ber from treatments 2. Add Phalsa in treatments at a spacing of (1.25 x 1.25 m) (Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
9.	Effect of foliar application of plant growth regulators and novel organic liquid on growth,	Not Approved	

	yield & quality of garlic (<i>Allium sativum</i> L.) var. GG-3	(Action:-Professor & Head(Fruit Science), ACHF, NAU, Navsari)	
10.	Effect of tip pruning and foliar application of KNO ₃ on early flowering and yield of mango cv. Kesar	Accepted with following suggestion/s 1. Total treatment numbers (12+1 =13) (Action:-Principal Horticulture Polytechnic, ACHF, NAU, Navsari)	
11.	Standardization of stage wise requirement of nutrients in sapota cv. Kalipatti	Approved as such (Action:- Associate Research Scientist, FRS, NAU, Gandevi)	
12.	Evaluation of different rootstocks of mango for problematic soils	Accepted with following suggestion/s 1. Increase number of stones (3) per pit as <i>in situ</i> . (Action:- Research Scientist, AES, NAU, Paria)	
13.	Varietal evaluation of different pineapple varieties under South Gujarat conditions	Accepted with following suggestion/s 1. Remove 4 th objective 2. Add Incidence of pest and diseases in observations (Action:- Research Scientist, AES, NAU, Paria)	
14.	Effect of different organic sources on yield and quality of banana under certified organic farm.	Accepted with following suggestion/s 1. Two successive green manuring (Action:-Associate professor (Agril. Chemistry), Organic farming Unit, ACHF, NAU, Navsari)	
15.	Effect of organics and mineral sources on yield and quality of sapota [<i>Manilkara achras</i> (Mill.) Fosberg] cv. Kalipatti.	Accepted with following suggestion/s 1. Recast the title “Effect of organic and rock phosphate on yield and quality of sapota [<i>Manilkara achras</i> (Mill.) Fosberg] cv. Kalipatti.” 2. In factor A - FYM @ 150 kg/tree instead of 200 kg/tree (Action:- Associate Professor (Horticulture), College of Agriculture, NAU, Bharuch)	
16.	Assessment of Genetic diversity in sweet potato [<i>Ipomoea batatas</i> (L.) Lam.]	House suggested to present in Crop Improvement Sub-committee (Action:-Professor and Head (Vegetable Science) ACHF, NAU, Navsari)	
17.	Genotypic × environment interaction and stability analysis for yield and quality components in Greater Yam (<i>Dioscorea alata</i> L.)		
18.	Okra (YVMV) IET		
19.	Tomato (Determinante) AVT-I		
20.	Tomato (Determinante) AVT-II		
21.	Tomato (Indeterminante) IET		

22.	Chilli AVT – II		
23.	Pumpkin AVT-I		
24.	Bitter Gourd Hybrid- IET		
25.	Bitter Gourd Hybrid- AVT-I		
26.	<p>Feasibility of tomato cultivation through grafting during rainy season</p> <p>Part 1: Evaluation of grafting techniques in tomato under NVPH</p> <p>Part 2: Comparative performance of grafts and non-grafts of tomato for growth, yield and related traits during rainy season</p>	<p>Accepted with following suggestion/s</p> <p>1. Remove weight of grafted transplant from observations (Part 1)</p> <p>(Action:-Professor and Head (Vegetable Science), ACHF, NAU, Navsari)</p>	
27.	Response of musk melon (<i>Cucumis melo</i> L.) to different levels of N and K fertigation for yield and other horticultural traits under NVPH	<p>Accepted with following suggestion/s</p> <p>1. Year of commencement is 2016-17</p> <p>2. Take popular variety among the farmers</p> <p>(Action:-Professor and Head (Vegetable Science), ACHF, NAU, Navsari)</p>	
28.	Preliminary Evaluation Trial (PET) on Tomato	<p>House suggested to present in Crop Improvement Sub-committee</p> <p>(Action:-Professor and Head (Vegetable Science) ACHF, NAU, Navsari)</p>	
29.	Preliminary Hybrid Trial (PHT) on Tomato-I		
30.	Preliminary Hybrid Trial (PHT) on Tomato-II		
31.	Multi-location Trial (MLT) on Tomato		
32.	Preliminary Evaluation Trial (PET) on Brinjal		
33.	Preliminary Hybrid Trial (PHT) on Brinjal		
34.	Preliminary Hybrid Trial (PHT) on Okra		
35.	Collection and evaluation of cucumber (<i>Cucumis sativus</i> L.) genotypes suitable for cultivation in Southern Gujarat region		

36.	Collection and Maintenance of Elephant Foot Yam (<i>Amorphophallus paeoniifolius</i>) germplasms for Evaluation as well as Selection of Superior Genotypes suitable for cultivation in Southern Gujarat region		
37.	Assessment of bush type Frenchbean (<i>Phaseolus vulgaris</i>) varieties suitable for the Dangs district.		
38.	Organic farming in Capsicum (<i>Capsicum annum</i> L.) under protected condition.	Accepted with following suggestion/s 1. Correct the commencement year 2016-17 (Action:- Associate Professor (Ag. Chem.), Organic Farm, NAU, Navsari)	
39.	Organic Farming in Pointed Gourd (<i>Trichosanthes dioica</i> Roxb.).	Accepted with following suggestion/s 1. Add observation of wilt incidence 2. Days to first picking instead of days to 50 % flowering (Action:- Associate Professor (Ag. Chem.), Organic Farm, NAU, Navsari)	
40.	Standardization of soil less media for brinjal plug tray nursery	Accepted with following suggestion/s 1. Add Survival % in observations (Action:- Principal Horticulture Polytechnic, AES, Paria)	
41.	Induction of variability in spider lily (<i>Hymenocallis littoralis</i>) through chemical mutagens	Accepted with following suggestion/s 1. Mention cytological study in detail (Action:- Associate Professor (Floriculture), ACHF, NAU, Navsari)	
42.	Induction of variability in spider lily (<i>Hymenocallis littoralis</i>) through colchicine treatment	Accepted with following suggestion/s 1. Mention cytological study in detail (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
43.	Integrated nutrient management in rose (<i>Rosa chinensis</i> L.)	Approved as such (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
44.	Collection and evaluation of local turfgrass germplasm of Gujarat	Accepted with following suggestion/s 1. Include seasonal effect in observation 2. Take Quality attributes of turfgrass in relation to season (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	

45.	Testing of new genotypes of China aster.	Approved as such (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
46.	Standardization of packing techniques for flower strings of marigold.	Accepted with following suggestion/s 1. Correct Commencement of year 2016-17 (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
47.	Standardization of postharvest treatment using boric acid and sodium benzoate for improving postharvest life of loose flowers of tuberose.	Approved as such (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
48.	Studies on use of food dyes for tinting in tuberose stems.	Accepted with following suggestion/s 1. Remove Control No-Dipping from factor -2 2. Correct Commencement of year 2016-17 (Action:- Associate Professor (Floriculture), ACHF, NAU, Navsari)	
49.	Standardization of soilless based growing media for different varieties of potted <i>Euphorbia milli</i>	Approved as such (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
50.	Influence of different seasons on plant growth, flower production and flower quality in rose variety "Top Secret" in soilless culture under protected condition.	Accepted with following suggestion/s 1. Mention "First week of every month" in case of treatments (Action:- Associate Professor (Flori.), ACHF, NAU, Navsari)	
51.	Standardization of Grafting Technique in Adenium	Accepted with following suggestion/s 1. Add Incremental height of scion in observations (Action:- Associate Professor (Flo.), ACHF, NAU, Navsari)	
52.	Response of PGRs and cutting methods on vegetative growth of different varieties of bougainvillea (<i>Bougainvillea</i> spp.).	Not Approved (Action:- Professor (Horticulture), NMCA, NAU, Navsari)	
53.	Response of different varieties and growing media on growth and yield of gladiolus (<i>Gladiolus grandiflorus</i> L.) in pot culture.	Not Approved (Action:- Associate Professor (Horticulture), College of Agriculture, Bharuch)	
54.	Management of leaf blight of gerbera under poly house condition	Approved as such and present in Plant Protection Sub Committee (Action:- Associate Professor (Plant Pathology), ACHF, NAU, Navsari)	

55.	Effect of chemicals on vase life of Gerbera cut flower Var. Tera Juba.	Accepted with following suggestion/s 1. Number of bend flowers instead of stem curvature in observations 2. Flower appearance as per RHS colour chart (Action:- Principal, Horticulture Polytechnic, AES, Paria)	
56.	Standardization of technology for preparation of Aloe vera based vermicelli	Accepted with following suggestion/s 1. Increase size of sample 250 g instead of 100 g (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
57.	Standardization of technology for minimal processing of fresh cut cauliflower (<i>Brassica oleracea</i> var. botrytis L.). Experiment – 1: To study the effect of blanching and Calcium chloride (CaCl ₂) on texture of minimally processed cauliflower Experiment – 2 : To study the effect of citric acid and KMS on quality of minimally processed cauliflower.	Approved as Such (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
58.	Standardization of technology for minimal processing of fresh cut potatoes (<i>Solanum tuberosum</i> L.)	Approved as Such (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
59.	Standardization of technology for preparation of candy from ripe papaya (<i>Carica papaya</i> Linn.) fruits.	Approved as Such (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
60.	Standardization of technology for preparation of Tomato (<i>Solanum lycopersicum</i> L.) powder for home scale adoption	Not approved (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
61.	Development of technology for preservation of tender coconut water	Not approved (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
62.	Development of technology for health based digestive tablets from noni pomace powder.	Accepted with following suggestion/s 1. Remove health based word from the title (Action:- Associate Professor & Head, PHT, NAU, Navsari)	

63.	Characterization of the Sapota seed oil for extraction and value addition	Not Approved (Suggested to take filler trial) (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
64.	Home scale ripening of Banana cv. Grand Naine	Approved as Such (Action:- Research Scientist, SWMRU, NAU, Navsari)	
65.	Effect of pre-cooling on quality and shelf-life of Banana Cv. Grand Naine	Not approved (Action:- Associate Professor & Head, PHT, NAU, Navsari)	
66.	Isolation, Characterization and filed efficacy of PGPRs from different banana cultivars	Approved in Basic Science Committee (Action:-Associate Professor, Department of Plant Molecular Biology and Biotechnology, ACHF, NAU, Navsari)	
67.	Determination of Nutritional Composition of Minor Fruits	Accepted with following suggestion/s 1. Remove Chironji from crop and variety (Action:- I/C Professor & Head (FQTL), NAU, Navsari)	
68.	Determination of critical limit of water salinity for <i>Ailanthus excelsa</i> Roxb. Seedlings	Accepted with following suggestion/s 1. Add local name of <i>Ailanthus excelsa</i> also in title 2. Add ESP in observation (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
69.	Development of volumetric equation for Teak (<i>Tectona grandis</i> L.) in South Gujarat	Accepted with following suggestion/s 1. Write derivation instead of development in title. (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
70.	Seed source variation for seed traits, germination and seedling vigour in <i>Cinnamomum verum</i> J. Presl	Accepted with following suggestion/s 1. Also collect possible accessions from FRS, Gandevi (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
71.	Metagenomic analysis of flooded rice ecosystem under climate change resilience	Not approved* 1. Present in Basic Science sub committee (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
72.	Evaluation of various <i>Poplar</i> clones for early Growth and	Approved as such	

	Establishment under South Gujarat condition	(Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
73.	Evaluation of different <i>Salix</i> clones for early Growth and Establishment under South Gujarat condition	Approved as such (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
74.	Emission of N ₂ O and CH ₄ from forests soils.	Accepted with following suggestion/s 1. Add CO ₂ in observation (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
75.	Effect of different seed treatment and media on growth of Indian Cheese Maker - <i>Withania coagulans</i> (Stocks) Dunal	Approved as such (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
76.	Documentation of basic density and calorific value of different tree species of South Gujarat.	Approved as such (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
77.	Growth assessment of various kinds of fishes in fresh water.	Not Approved* Present this programme in Animal Science and Fisheries sub committee (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	
78.	Establishment of plantations of minor fruit species for PG research	Not Approved (Action:-Principal, College of Forestry, ACHF, NAU, Navsari)	

**12.5 AGRICULTURAL ENGINEERING, AIT, DAIRY AND FOOD TECHNOLOGY
DAIRY SCIENCE AND FPT & BE/AGRIL. ENGINEERING**

Chairman	Dr. N C Patel, Hon. VC, AAU
Rapporteurs	Dr. P K Shrivastava, NAU Dr. R V Prasad, AAU

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

Departments/ Discipline	No. of Recommendations				No. of New Technical Programmes	
	Farmer / Industry		For Scientific Community			
Universities	Proposed	Approved	Proposed	Approved	Proposed	Approved
AAU	24	24	14	14	41	39
JAU	5	4	3*	4*	8	8

NAU	9	4	1	1	27	23
SDAU	0	0	0	0	10	10
Kamdhenu	0	0	0	0	1	1
Grand Total	38	32	18*	19*	87	81

*One recommendation proposed for farmer community is approved for scientific community

12.5.1 RECOMMADATIONS

A - FARMING / INDUSTRY COMMUNITY

<p>NAVSARI AGRICULTURAL UNIVEERSITY</p> <p>12.5.3.1</p> <p>Preparation of Ready to Serve (RTS) beverage from banana pseudostem sap.</p> <p>Farmers and processors are recommended to utilize blend of banana psuedostem sap and aonla fruit juice having 3.5% and 8% TSS respectively with the ratio of 90:10 for the prepration of ready to serve drink. The drink packed in glass bottle after pasteurization at 87⁰ C for 15 min followed by sterilization in bottles at 96 ± 1⁰ C for 25 min has storage stability for six month at ambient condition.</p> <p>ખેડુતો અને પ્રોસેસરોને કેળાના થડના રસ અને આમળાના રસ કે જેના ટી. એસ. એસ. અનુક્રમે ૩.૪ % અને ૮ % હોય તેને ૯૦:૧૦ પ્રમાણમાં મીશ્રણ બનાવી પીરસવા માટે તૈયાર પીણું બનાવવાની ભલામણ કરવામાં આવે છે. આ પીણાને ૮૭⁰ સે. તાપમાને ૧૫ મીનીટ પાસ્ચરાઈઝ કરી ગ્લાસની બોટલમાં ભરી ૯૬ ± ૧⁰ સે તાપમાને ૨૫ મીનીટ સ્ટરીલાઈઝ કરવાથી સામાન્ય તાપમાને ૬ મહિના સુધી સંગ્રહ કરી શકાય છે.</p> <p>(Action: I/c, CE on PHT, Navsari)</p>
<p>12.5.3.2</p> <p>Study of effect of drainage on banana production in South Gujarat</p> <p>Farmers of South Gujarat Heavy Rainfall Zone (AES-III), growing banana are advised to follow 45cm deep open drainage system (bottom width 15cm and top width 105cm) spaced 12 m apart with 1:1 side slope and a bed slope of 0.05%, to achieve higher yield and maximum net return.</p> <p>દક્ષિણ ગુજરાતના વધુ વરસાદ વાળા ખેત આબોહવાકીય વિસ્તાર-૩ મા કેળની ખેતી કરતા ખેડૂતોને વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા ૧૨ મીટર અંતરે ૪૫ સેમી ઉડી તથા બાજુએ ૧:૧ નો તથા ૦.૦૫ % સમાંતર ઢાળવાળી ખુલ્લી નીતાર નીક (પાયાની પહોળાઈ ૧૫ સે.મી. અને ઉપરની પહોળાઈ ૧૦૫ સે.મી.) બનાવવા ભલામણ કરવામાં આવે છે.</p> <p>(Action: I/c Prof. and Head, Dept. of Agril. Enggg., NMCA, Navsari)</p>
<p>12.5.3.3</p> <p>Effect of laser leveling on crop water requirement and growth of castor crop</p> <p>Farmers of South Gujarat Heavy Rainfall Zone (AES-III), growing irrigated castor (GCH-7) during rabi season are advised to adopt laser land leveling technique to provide 0.45 per cent longitudinal slope to castor field for getting higher castor yield, net return and water saving.</p> <p>દક્ષિણ ગુજરાતના ભારે વરસાદ વાળા વિભાગ (કૃષિ આબોહવાકીય પરિસ્થિતિ -૩) માં રવિ ઋતું દરમ્યાન પિયત દિવેલા (જી.સી.એચ.-૭) ઉગાડતા ખેડૂતોને દિવેલાનું વધુ ઉત્પાદન અને આર્થિક વળતર મેળવવા તેમજ પાણીની બચત માટે લેસર લેવલરનો ઉપયોગ કરી ૦.૪૫ ટકા સમાંતર ઢાળ આપી દિવેલાનો પાક લેવા ભલામણ કરવામાં આવે છે.</p> <p>(Action: I/c Prof. and Head, Dept. of Agril. Enggg., NMCA, Navsari)</p>
<p>12.5.3.4</p> <p>Development and evaluation of low cost of solar still</p> <p>A low cost roof top cement brick type solar still covered with 4mm thick toughened glass developed by NAU is recommended to get 2 l/m² - day distilled water for Dediapada area.</p>

નવસારી કૃષિ યુનિવર્સિટી દ્વારા વિકસાવવામાં આવેલ સિમેન્ટ- ઈટ બાંધકામ અને ૪ એમ. એમ. ટફન કાચ કવર પ્રકારના ઓછી કિંમતના સોલર સ્ટીલ ૨ લી/ મી^૨ પ્રતિ દિવસ શુદ્ધ પાણી (દેડીયાપાડા ક્ષેત્ર માટે) મેળવવા ઉપયોગ કરવાની ભલામણ કરવામાં આવે છે.

(Action: Dean, CAET, Dediapada)

12.5.3.5

Development of technology for dehydration of onions rings for adoption at commercial scale

The house deferred the recommendation with following suggestions;

- Data without pre treatment are to be given
- Industry norms should be followed in process methodology be given
- Microbial analysis be included
- Usage of silica gel to be reviewed

(Action: Assoc. Pro. & Head, Dept. PHT, ACHF, Navsari)

12.5.3.6

Development of technology for dehydration of okra slices for adoption at commercial scale

The house deferred the recommendation with following suggestions;

- Data without pre treatment are to be given
- Industry norms should be followed in process methodology be given
- Microbial analysis be included
- Usage of silica gel to be reviewed

(Action: Assoc. Pro. & Head, Dept. PHT, ACHF, Navsari)

12.5.3.7

Development of technology for dehydration of cauliflower for adoption at commercial scale

The house deferred the recommendation with following suggestions;

- Data without pre treatment are to be given
- Industry norms should be followed in process methodology be given
- Microbial analysis be included
- Usage of silica gel to be reviewed

(Action: Assoc. Pro. & Head, Dept. PHT, ACHF, Navsari)

12.5.3.8

Standardization of Method for Preparing of Candy from Bitter Gourd

The house deferred the recommendation due to following reason:

Practical utility of the product is not meeting the desired objectives (product found very bitter in spite of adding sugar)

(Action: Assoc. Pro. & Head, Dept. PHT, ACHF, Navsari)

12.5.3.9

Effect of different types of processing on the nutritional quality of green gram, french bean and chick pea

House deferred the recommendation

B. SCIENTIFIC COMMUNITY

NAVSARI AGRICULTURAL UNIVERSITY

12.5.3.1

Study relating to “Formulating long-term mechanization strategy for Dediapada taluka”

The mechanization tool level (MTL), which indicates percentage of mechanization used for particular farming operation in Dediapada taluka was found to be tillage 40%, sowing 11%, transplanting 0%, interculture 18%, spraying 35%, weeding 22%, harvesting 14% and threshing 33%. Therefore design, development and popularization of small hand tools and implements suitable for sowing, transplanting and harvesting operations need to be done on priority basis in order to enhance mechanization index in selected operations and also to increase the income of farmers of Dediapada taluka.

(Action: Dean, CAET, Dediapada)

NEW TECHNICAL PROGRAMMES

NAVSARI AGRICULTURAL UNIVERSITY

Experiment No.	Experiment Title	Suggestions	Action
12.5.3.1	Standardization of technology for preparation of Tomato (<i>Solanum lycopersicum</i> L.) Powder for home scale adoption	<p>Approved with following suggestions</p> <p>Recast the title as “Development of technology for ready to use freeze dried tomato (<i>Solanum lycopersicum</i> L.) slice” with the objectives;</p> <ol style="list-style-type: none"> 1.To standardize process parameters for freeze dried tomato slice. 2. To evaluate the quality characteristics of freeze dried tomato slice during storage. 3.To evaluate rehydration characteristics of freeze dried tomato slices <p>And treatment as</p>	Center of Excellence of PHT, Navsari

		<p>Factor1:Slice thickness</p> <p>1. 5 mm</p> <p>2. 10 mm</p> <p>3.15 mm</p> <p>Factor 2: Blanching at 80⁰C for 2min</p> <p>2. Without hot water</p> <p>Factor 3:Freezing to -30⁰C with three rates (6h, 8h , 12 h)</p> <p>Factor4:Vacuum freeze drying stage I: 35⁰C Stage II: 50 ⁰C</p>	
12.5.3.2	Technology for utilization of Orange Peel and Seed	Approved with following suggestions Characterization of processing waste Standardize drying Essential oil from seed, peel	Center of Excellence of PHT, Navsari
12.5.3.3	Evaluation of Land Leveling and Sowing Methods on Yield and Water use efficiency of Sorghum (Sorghum bicolor L.) Crop in Vertisol of South Gujarat	Approved with following suggestions Replace first treatment with ridge and furrow system. Furrow irrigation system is to be designed Modify the title as Influence of land configuration on productivity of sorghum	Dept. of Agril. Engg., NMCA, Navsari
12.5.3.4	Effect of different colour shade nets on biomass and quality of leafy vegetables (Fenugreek, coriander and garlic)	Approved	Research Scientist, Soil and Water Management Research Unit, N.A.U., Navsari
12.5.3.5	Modification of NAU designed hold – on type power operated Paddy thresher	Approved with suggestion to work out the economics	Research Scientist, Soil and Water Management

			Research Unit, N.A.U., Navsari
12.5.3.6	Evaluation of irrigation scheduling in rice crop by using field water tube (alternative wetting and drying method)	Approved with following suggestions Modify objectives as suggested To simulate soil moisture in root zone To work out the economics of paddy production	Research Scientist, Soil and Water Management Research Unit, N.A.U., Navsari
12.5.3.7	Performance evaluation of Scheffler Solar Concentrating Cooker for direct and indirect community cooking application	Not approved	Action: Dean, CAET, Dediapada
12.5.3.8	Design, development and performance evaluation of mixed mode cabinet solar dryer	Approved	Dean, CAET, Dediapada
12.5.3.9	Trends of Rainfall and temperature variation in Narmada District of Gujarat	Approved with suggestions Data independence / correlation needs to be established before using MK test. Probability distribution selected need to be tested using Andarson-Darling test. The evaporation probability analysis to be carried out.	Dean, CAET, Dediapada

		ER procedure to be highlighted Irrigation requirements to be estimated with local Kc correction procedures.	
12.5.3.10	Development of studies of Sapota (Chikoo) Powder based value added product (pasta) using semolina (Suji) and maida	Approved Change it to control instead of “0” in treatment Remove two different in statistical design	Dean, CAET, Dediapada
12.5.3.11	comparative Studies on the different drying methods on ber (<i>Ziziphus mauritiana</i>)	Approved Change in treatment instead of 40 ⁰ c take 70 ⁰ c	Dean, CAET, Dediapada
12.5.3.12	Effect of laser levelling on water use efficiency and growth of gram crop	Approved Design border irrigation Compare the slope with recommended areas Plot leveling index Vs yield	Dean, CAET, Dediapada
12.5.3.13	Design and development of raised bed former-cum-seeder for clay loam soil condition for Narmada	Approved	Dean, CAET, Dediapada
12.5.3.14	Design and development of suitable furrow opener for heavy clay soil condition for South Gujarat	Approved Modify objectives as suggested	Dean, CAET, Dediapada
12.5.3.15	A Study on technical feasibility and development of online Financial Approval system for NAU	Approved	Department of Information & Communication Technology, AABMI, Navsari

12.5.3.16	Development program for online tour approval for NAU	Approved Modify 1 st objective as suggested To evaluate technical feasibility of online software as per statue 121	Dept. of ICT, AABMI, NAU, Navsari
12.5.3.17	Developing mobile App for the APMC operations.	Approved modify as suggested Modify 1 st objective as suggested To study the APMC Management operations and Farmers requirement. Modify 3 rd objective as suggested To develop the Mobile App for the APMC operation Drop 2 nd objective	Dept. of ICT, AABMI, NAU, Navsari
12.5.3.18	Developing web portal for the farmers of South Gujarat Region	Approved with modified 1 st objective To study the requirement of web portal to disseminate the agricultural Information to South Gujarat farmers	Dept. of ICT, AABMI, NAU, Navsari
12.5.3.19	Standardization of technology for preparation of Aloe vera based vermicelli	Approved Also presented in Horticulture sub committee	I/c, CE on PHT, Navsari
12.5.3.20	Standardization of technology for minimal processing of fresh cut cauliflower (<i>Brassica oleracea</i> var. botrytis L.).	Approved	I/c, CE on PHT, Navsari

12.5.3.21	Standardization of technology for minimal processing of fresh cut potatoes (<i>Solanum tuberosum</i> L.).	Approved	I/c, CE on PHT, Navsari
12.5.3.22	Standardization of technology for preparation of candy from ripe papaya (<i>Carica papaya</i> L.) fruits.	Approved	I/c, CE on PHT, Navsari
12.5.3.23	Development of technology for preservation of tender coconut water	Not Approved	I/c, CE on PHT, Navsari
12.5.3.24	Development of technology for health based digestive tablets from noni pomace powder.	Approved with change of title "Development of technology for value added tablets from noni pomace powder".	I/c, CE on PHT, Navsari
12.5.3.25	Characterization of the Sapota seed oil for extraction and value addition	Not Approved	I/c, CE on PHT, Navsari
12.5.3.26	Home scale ripening of Banana Cv. Grand Naine	Approved	I/c, CE on PHT, Navsari
12.5.3.27	Effect of pre-cooling on quality and shelf-life of Banana Cv. Grand Naine	Not Approved as the technology has already been developed by AAU & recommended by Combined Joint Agresco	I/c, CE on PHT, Navsari

12.6 BASIC SCIENCE & HUMANITIES / BASIC SCIENCE / PLANT PHYSIOLOGY, BIO-CHEMISTRY AND BIOTECHNOLOGY

Chairman	:	Dr. C. J. Dangaria, Hon'ble V.C., NAU
Co-Chairmen	:	Dr. S. Acharya, ADR, SDAU Dr. B.A. Golakiya, Head, Department of Biotechnology, JAU
Rapporteurs	:	Dr. A.D. Patel, Research Scientist, RRS, AAU Dr. Diwakar Singh, Asst. Prof., NAU

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

Universities	Recommendations				New Technical Programmes	
	Farming Community		Scientific Community		Proposed	Approved
	Proposed	Approved	Proposed	Approved		
AAU	2	2	-	-	9	8
JAU	3	3	7	7	12	12
NAU	-	-	-	-	12	12
SDAU	2*	2*	1	1	3	3
Total	7	7	8	8	36	35

* Recommended for domestic and industrial use

Total number of recommendations:15

12.6.1 Recommendations

A. FARMING COMMUNITY

Navsari Agricultural University
NIL

B. SCIENTIFIC COMMUNITY

Navsari Agricultural University
NIL

12.6.2 New Technical Programmes

Navsari Agricultural University

Sr. No.	Title / Centre	Suggestions	Remarks
12.6.2.3.1	Centre: Main Cotton Research Station, NAU, Surat		
	Title Screening of cotton genotypes for salinity tolerance	Approved with following suggestion/s 1. Analysis of normal and saline soil for EC, pH and NPK status should be done before experiment. Analyse Na/K ratio 2. Trial should be taken in large size pot. 3. Watering should be uniform. 4. If possible do the transcriptome at stress level. 5. Salinity of soil should be more than 4 dSM ⁻¹ . (Action: Main Cotton Research Station, NAU, Surat)	Approved with suggestions

12.6.2.3.2	Centre: Main Cotton Research Station, NAU, Surat		
	Title Biochemical traits in relation to insect tolerance of wild species and cross derivatives involving wild species of cotton	Approved with following suggestion/s 1. Add tricom image in morphological parameter. 2. Analyze total sugar and reducing sugar. Remove non-reducing sugar. (Action: Main Cotton Research Station, NAU, Surat)	Approved with suggestions
12.6.2.3.3	Centre: Main Cotton Research Station, NAU, Surat		
	Title Study of Bt proteins expression in cotton hybrids with different categories of parents	Approved with following suggestion/s 1. Cry proteins quantification should be incorporated. (Action: Main Cotton Research Station, NAU, Surat)	Approved with suggestions
12.6.2.3.4	Centre: Main Cotton Research Station, NAU, Surat		
	Title Isolation and characterization of endophytic bacteria from wild cotton plants and exploring insecticidal activity against pink bollworm, <i>Pectinophora gossypiella</i>	Approved with following suggestion/s 1. Take also wild relative genus and species from Surendranagar, Dhanduka, Viramgam regions for isolation and characterization of endophytic bacteria. (Action: Main Cotton Research Station, NAU, Surat)	Approved with suggestions
12.6.2.3.5	Centre: ASPEE SHAKILAM Agricultural Biotechnology Institute, NAU, Surat		
	Title Influence of various nanoparticles on contamination in micropropagation of banana	Approved (Action: Principal & Dean, ASPEE SHAKILAM Agricultural Biotechnology Institute, NAU, Surat)	Approved
12.6.2.3.6	Centre: ASPEE SHAKILAM Agricultural Biotechnology Institute, NAU, Surat		
	Title	Approved	Approved

	Optimization of <i>de novo</i> regeneration protocol and selection of glyphosate tolerant line for <i>Cynodon dactylon</i> variety Selection 1	(Action: Principal & Dean, ASPEE SHAKILAM Agricultural Biotechnology Institute, NAU, Surat)	
12.6.2.3.7	Centre: ASPEE SHAKILAM Agricultural Biotechnology Institute, NAU, Surat		
	Title Optimization of amylase production by soil isolate under solid state fermentation (SSF)	Approved with following suggestion/s 1. Sample should be collected from dump site. (Action: Principal & Dean, ASPEE SHAKILAM Agricultural Biotechnology Institute, NAU, Surat)	Approved with suggestions
12.6.2.3.8	Centre: Head, Department of Plant Molecular Biology and Biotechnology, ACHF, NAU, Navsari		
	Title Characterization and field efficacy of PGPRs from different banana cultivars	Approved (Action: Head, Department of Plant Molecular Biology and Biotechnology, ACHF, NAU, Navsari)	Approved
12.6.2.3.9	Centre: Prof. and Head, Department of Plant Pathology, NMCA, NAU, Navsari		
	Title Effect of phosphate solubilizing microbes in wheat (<i>Triticum aestivum</i>) under saline conditions	Approved (Action: Prof. and Head, Department of Plant Pathology, NMCA, NAU, Navsari)	Approved
12.6.2.3.10	Centre: Prof. and Head, Department of Plant Pathology, NMCA, NAU, Navsari		
	Title Isolation and characterization of plant growth promoting Actinomycetes from rhizospheric soil	Approved with following suggestion/s 1. Add Indian bean rhizospheric soil for isolation of actinomycetes. (Action: Prof. and Head, Department of Plant Pathology, NMCA, NAU, Navsari)	Approved with suggestions

12.6.2.3.11	Centre: Food Quality Testing Laboratory, NMCA, NAU, Navsari		
	Title Surveillance of aflatoxin in pasteurized and raw milk	Approved ---- (Action: Res. Sci., Food Quality Testing Laboratory, NMCA, NAU, Navsari)	Approved
12.6.2.3.12	Centre: Food Quality Testing Laboratory, NMCA, NAU, Navsari		
	Title Characterization of bacteriocin produced by isolated lactic acid bacteria.	Approved with following suggestions: 1. Add the detail of microbes (Action: Res. Sci., Food Quality Testing Laboratory, NMCA, NAU, Navsari)	Approved with suggestions

12.6.3 General Suggestions

1. If there is difference in the ppt and report then the presenting scientist should inform at the time of presentation and should say that they will correct the difference.
2. Multidisciplinary program should be formulated with concerned discipline.
3. Scientific recommendation should go through publication.
4. Action taken reports of recommendations as well as new technical programmes should be submitted by the indicated Scientist / Unit Head through the Convener of the sub-Committee to the Director of Research of respective University.

2.7 SOCIAL SCIENCE

Chairman : Dr. P.P. Patel, DEE, AAU (Dt. 11th April 2016)
Prof. (Dr.) Ashok Patel, Hon'ble VC, SDAU (Dt. 12th April 2016)

Co-Chairman : Dr. K.A. Thakkar, DEE, SDAU
: Dr.G.R. Patel, DEE, NAU

Rapporteurs : Dr. R. D. Pandya, NAU
: Dr. P.R. Kanani, JAU

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

Name of University	Recommendations				New Technical Programmes	
	Farming Community		Scientific Community		Proposed	Approved
	Proposed	Approved	Proposed	Approved		
AAU	-	-	6	6	41	41
JAU	-	-	1+1*	1+1*	13	13
NAU	-	-	5	0	31	31
SDAU	-	-	-	-	19	19
Total	-	-	13	8	104	104

Out of thirteen recommendations, eight recommendations were approved which are given below.

12.7.1 Recommendations for

A. Farming Community:

Navsari Agricultural University, Navsari

: NIL

B. Scientific Community:

Navsari Agricultural University, Navsari

Recommendations

Sr.	Centre/Station/Department: PC, KVK, Surat
1	Title: Sustenance cropping system in tribal area of Surat district
	Recommendation was not accepted due to inappropriate methodology. (Action:- Programme Coordinator, KVK, Surat)
2	Title : Sustenance cropping system in tribal area of Surat district
	Recommendation was not accepted due to inappropriate methodology. (Action:- Programme Coordinator, KVK, Surat)
3	Title: Sustenance cropping system in tribal area of Surat district
	Recommendation was not accepted due to inappropriate methodology. (Action:- Programme Coordinator, KVK, Surat)
4	Title: Sustenance cropping system in tribal area of Surat district
	Recommendation was not accepted due to inappropriate methodology. (Action:- Programme Coordinator, KVK, Surat)

5	Title: Sustenance cropping system in tribal area of Surat district
	Recommendation was not accepted due to inappropriate methodology. (Action:- Programme Coordinator, KVK, Surat)

12.7.2 New Technical Programmes

Sr.	Title/Centre	Suggestions	Remarks
Centre:- KVK, Vyara			
12.7.2.74	Constraints in adoption of <i>kharif</i> groundnut production technology in Tapi district	Accepted with following suggestion/s 1. Farmers categories should be made/ considered in methodology 2. Respondent size should be 300 3. Objective on association should be incorporated (Action:- PC, KVK, Vyara)	
Centre:- KVK, Waghai			
12.7.2.75	Training needs of farmers in vegetables cultivation in tribal areas” and “Impact of KVK activities in adopted villages of KVK-Dangs	Accepted with following suggestion/s 1. Words in tribal areas should be deleted 2. Fourth & fifth objective should be deleted 3. Selected vegetables should included in 2 nd objective and core methodology should be developed with the assistance of DEE, NAU (Action:- PC, KVK, Waghai)	
12.7.2.76	Impact of KVK activities in adopted villages of Dang district.	Accepted with following suggestion/s 1. Only FLD, OFT and training aspects are to be included in study 2. Methodology should be rectified with the assistance of DEE, NAU (Action:- PC, KVK, Waghai)	
Centre:- KVK, Navsari			
12.7.2.77	Impact of FLD on fish culturist in Navsari district.	Accepted with following suggestion/s 1. Effect of FLD on adoption of fish farming in Navsari district 2. Methodology should be made accordingly (Action:- PC, KVK, Navsari)	

	Centre:- KVK, Dediapada	
12.7.2.78	Maternal Nutritional Knowledge and its Association with Nutritional Status of School Going Children.	Accepted with suggestion/s 1. Objective 1: Socio economic profile of parents should be studied 2. Objective fourth should be deleted 3. Proportionate sampling method should be adopted in methodology with 120 respondents and half of them should be boys and remove the age criteria of boys & girls (Action:- PC, KVK, Dediapada)
	Centre:- TWTC, Dediapada	
12.7.2.79	Impact of low drip kitchen garden demonstration organized by Tribal Women Training Centre, Dediapada.	Accepted with following suggestion/s All the farmers under demonstration should be covered (Action: PC,KVK, Dediapada)
	Centre:- Deptt. of Ext. Edu., NMCA	
12.7.2.80	Knowledge of farmers about training programme organized by Mega Seed Project of NAU, Navsari on seed production technology of Paddy in Navsari district	Accepted by the house (Action:- Prof. & Head, Deptt. of Ext. Edu., NMCA)
	Centre: Dept. of Vet. & AH Ext. VCVSAH, NAU, Navsari	
12.7.2.81	Perception and attitude of young farm women towards animal husbandry as occupation.	Accepted by the house (Action:- Assoc. Prof., Dept. of Vet. & AH Ext. VCVSAH, NAU, Navsari)
	Centre:- ATIC & Educatorium, DEE, NAU	
12.7.2.82	Constraints faced by farmers regarding protected cultivation in South Gujarat	Accepted with following suggestion/s Crop based constraints should be taken in the study (Action:- DEE, NAU)
	Centre:- College of Agriculture, Bharuch	
12.7.2.83	Knowledge and adoption of cotton growers about	Accepted by the house (Action:- Asstt. Prof. (Ext.) CoA, Bharuch)

	recommended production technologies in Bharuch district		
Centre:- College of Agriculture, Waghai			
12.7.2.84	Aspiration level of farmers lived in tribe situation of Dangs	Accepted with following Aspiration levels of tribal farmers about all-round development of Dangs (Action:- Assoc. Prof. (Ext.) CoA, Waghai)	
Centre:- Poly-technique Vyara			
12.7.2.85	Constraints faced by tribal farmers in adoption of export oriented okra production technology in Tapi district of South Gujarat	Accepted with following suggestion/s Adoption of export oriented cultivation technology should be added in objective (Action:- Principal, Poly-technique, Vyara)	
12.7.2.86	A Study on adoption of recommended production technology of brinjal by brinjal growers in Tapi district of Gujarat State	Accepted with following suggestion/s Eliminate words 'of brinjal' from title (Action:- Principal, Poly-technique, Vyara)	
Centre:- DEE, NAU, Navsari			
12.7.2.87	Group Dynamics of FIGs / CIGs working under ATMA in South Gujarat	Accepted by the house (Action: DEE,NAU, Navsari)	
Centre:- Department of Agricultural Economics, NMCA, NAU, Navsari			
12.7.2.88	Economic viability of layer poultry farms in Navsari district of Gujarat	Accepted with following suggestion/s Instead of mentioned methodology (cost A, B, C), use appropriate cost concepts like fixed and variable costs (Action:- Professor and Head, Agril. Economics, NMCA, NAU, Navsari)	
Centre:- Department of Agricultural Economics, ACHF, NAU, Navsari			

12.7.2.89	Economic analysis of palmyra palm(<i>Borassus flabellifer</i> L.) in South Gujarat	Accepted with following suggestion/s Economic viability should be worked out by using the appropriate methodology as expected in long term crop (Action:- Associate Professor, Agril. Economics, ACHF, NAU, Navsari)	
12.7.2.90	Economic analysis of sugarcane cultivation under straw burning practices	Accepted by the house (Action: Asso. Professor, Agril. Economics, ACHF, NAU, Navsari)	
Centre:- Department of Agril. Economics, College of Agriculture, Bharuch			
12.7.2.91	Economics of production and marketing of papaya (<i>Carica papaya</i> L.) in Bharuch district of South Gujarat	Accepted with following suggestion/s Variables should be quantified in study (Action:- Assoc. Professor and Head, (Agril Eco.),CoA, NAU, Bharuch)	
Centre:- Planning cell, Director of Research and Dean, PG Studies			
12.7.2.92	Study of outlay of different sources of funds before and after formation of Navsari Agricultural University	Accepted with suggestion/s Appropriate method for measuring the value of rupee should be adopted (Action:- PO and Assoc. Professor (Agril. Eco.) , DR, NAU, Navsari)	
Centre:- Department of Agril. Economics, College of Agriculture, Waghai			
12.7.2.93	An assessment of indebtedness of agricultural households in different regions of Gujarat	Accepted by the house (Action:- Asst. Professor, Agril.Econ.),CoA,Waghai)	
12.7.2.94	Assessment of vulnerability to expected poverty among scheduled tribe farmers in South Gujarat	Accepted with following suggestion/s Expected word should be deleted from the title (Action:- Assit.Professor, Agril.Econ., CoA,Waghai)	
Centre: Department of Agril. Economics, Polytechnic in Agriculture, Vyara			

12.7.2.95	A study on processing and marketing of vegetables in Tapi district of South Gujarat	Accepted by the house (Action:- Asst. Professor, Agril.Econ., Polytechnic, Vyara)	
Centre:- ASPEE Agribusiness Management Institute, NAU, Navsari			
12.7.2.96	A study of consumer behavior and factors affecting edible oil usage in Navsari	Accepted with following suggestion/s The factors affecting the consumption should be mentioned in methodology in its effect should be measured by regression analysis (Action: Dean AABMI NAU)	
12.7.2.97	Identification of marketing channels and constraints in fish marketing	Accepted with following suggestion/s Title should be changed as study of marketing channels and constraints in fish marketing (Action: Dean AABMI NAU)	
12.7.2.98	Study of Entrepreneurial intentions among the PG students of NAU, Navsari	Accepted with following suggestion/s 1. Method to measure the entrepreneurial intension should be mentioned in methodology 2. first objective should be changed accordingly (Action: Dean,AABMI,NAU)	
12.7.2.99	Career Management concerns of UG & PG Students of NAU Campus Navsari	Accepted with following suggestion/s Wording in specific objectives should be change in accordance to the title (Action: Dean,AABMI,NAU)	
12.7.2.100	Assessment of private plant nursery enterprise in Navsari and Surat districts	Accepted by house (Action: Dean,AABMI,NAU)	
Centre:- Dept. of Agril. Statistics, NMCA, NAU, Navsari			
12.7.2.101	Title: Comparison of different intrinsically nonlinear models for the prediction of milk yield of Surati Buffalo	Accepted with following suggestion/s Objective should be reconstruct in accordance to the title (Action:- Professor & Head, Ag. Stat., NMCA, Navsari)	

	Centre:- Dept. of Agril. Statistics, ACHF, NAU, Navsari		
12.7.2.102	Uniformity trial in brinjal (seed purpose)	Accepted with suggestion/s Title of the study should be as Estimation of optimum plot size and shape in brinjal crop (Action: Asso. Professor (Ag. Stat.), ACHF, Navsari)	
	Centre:- Dept. of Agril. Statistics, CoA, NAU, Bharuch		
12.7.2.103	Uniformity trial in cotton	Accepted with suggestion/s Title of the study should be as Estimation of optimum plot size and shape in cotton crop (Action:- Asso. Professor (Ag. Stat.), CoA, Bharuch)	
	Centre:- Dept. of Agril. Statistics, CoA, NAU, Waghai		
12.7.2.104	Forecasting of rice (<i>Oriza sativa</i>) yield using ordinal logistic regression	Accepted by the house (Action: Asst. Professor (Ag. Stat.), CoA, Waghai)	

12.8. ANIMAL HEALTH /ANIMAL PRODUCTION / ANIMAL PRODUCTION AND FISHERIES / ANIMAL SCIENCE AND FISHERIES SCIENCE/ ANIMAL HEALTH AND FISHERIES

Technical Session I and II

Chairman : Dr. D. B. Patil, Director of Research, KU, Gandhinagar

Co-Chairman: Dr. A. Y. Desai, Director of Research, JAU

Dr. D. V. Joshi, Dean and Principal, Veterinary College, SDAU

Rapporteurs: Dr. R. G. Shah, Associate Director of Research, KU, Gandhinagar

Dr. B. P. Brahmkshtri, Professor and Head, ILFC, Veterinary College, NAU

SUMMARY

Sr. No.	Univer sity	Committe e	Recommendation				New Technical Program	
			Scientists		Farmers		Presente d	Approve d
			Presente d	Approve d	Presente d	Approve d		
1	NAU	Animal Production	3	3	5	5	9	8
		Animal Health	1	1	2	1	7	7
2	AAU	Animal Production	6	5	3	3	24	22
		Animal Health	3	3	1	1	20	20
3	SDAU	Animal Production	3	3	2	2	4	4
		Animal Health	4	4	--	--	8	8
4	JAU	Animal Production	4	2	2	2	9	9
		Animal Health	9	9	--	--	12	12
5	KU	FISHERIE S	--	--	--	--	1	1

5	Total	Animal Production	16	13	12	12	47	44
		Animal Health	17	17	3	2	47	46
6	Grand Total		33	30	15	14	94	91

NAVSARI AGRICULTURAL UNIVERSITY

RECOMMENDATION FOR FARMERS

ANIMAL PRODUCTION

Sr. No.	Centre/Station/Department	Status
1	Livestock Research Station	
	Title of Recommendation: Effect of bypass fat supplementation on production performance and economics on lactating buffalo	
	<p>Recommendation paragraph: The farmers of South Gujarat are recommended to supplement bypass fat @ 100 g/d for nearly 15 days pre-partum and 90 days post-partum to lactating Surti buffaloes to increase milk fat percentage and net profit.</p> <p>દક્ષિણ ગુજરાતના પશુપાલકોને ભલામણ કરવામાં આવે છે કે સૂરતી ભેંસને વિચાણના આશરે ૧૫ દિવસ પહેલાથી અને વિચાણ બાદના ૯૦ દિવસ સુધી પૂરક આહાર તરીકે બાયપાસ ફેટ ૧૦૦ ગ્રામ/દિવસ આપવાથી દૂધમાં ફેટની ટકાવારી અને નફાનું પ્રમાણ વધે છે.</p> <p style="text-align: center;">(Action:- Research Scientist, Livestock Research Station)</p>	Approved with modification
2	Fisheries Science, SWMRU	
	Title of Recommendation: Optimization of stocking density of <i>Labeo rohita</i> (Rohu) for the production of stunted yearlings in cage culture condition	

	<p>Recommendation paragraph: The fish farmers of Gujarat engaged with freshwater fish farming are recommended to rear 166 fingerlings/m³ in cage farming system to obtain profitable stunted yearlings.</p> <p>ગુજરાત રાજ્યના મીઠાપાણીમાં મત્સ્યપાલન કરતા ખેડૂતોને પિંજરા ઉછેર પદ્ધતિમાં નફાકારક સ્ટેટેડ યરલીંગ ઉત્પાદન કરવા ૧૬૬ ફિંગરલીંગ્સ પ્રતિ ઘન મીટરના દરે ઉછેર કરવાની ભલામણ કરવામાં આવે છે.</p> <p>(Action:- Research Scientist, Soil and Water Management Research Unit)</p>	Approved with modification
3.	Livestock Production and Management	
	<p>Title of Recommendation: Effects of rubber mat bedding on the lying behavior, cleanliness and hock injuries of crossbred cows.</p>	
	<p>Recommendation paragraph: The progressive farmers are recommended to use the rubber mat (6 feet x 4 feet x 17 mm) on concrete floor to improve the comfort level and minimize the limb affections of crossbred cows.</p> <p>પ્રગતિશીલ પશુપાલકોને ભલામણ કરવામાં આવે છે કે, પાકા ભોંયતળિયા ધરાવતા પશુઓના રહેઠાણમાં ભોંયતળિયા પર રબર મેટ (૬ ફૂટ x ૪ ફૂટ x ૧૭ મી.મી.) નો ઉપયોગ કરવાથી સંકર ગાયોને આરામ મળવા સાથે પગની ઈજાઓ ઘટાડી શકાય છે.</p> <p>(Action:- Professor and Head, Dept. of Livestock Production Management)</p>	Approved with modification
4	Animal Nutrition	
	<p>Title of Recommendation: Economics of growth performance due to dietary inclusion of tanniferous leaves (<i>Ficus benghalensis</i>) in kids infested with gastrointestinal helminths.</p>	
	<p>Recommendation paragraph: The farmers of South Gujarat are recommended to include daily the fresh leaves of Banyan tree (120g/d) in the diet of Surti kids to control gastrointestinal worm load for better growth rate and income.</p> <p>દક્ષિણ ગુજરાતના બકરાપાલકોને ભલામણ કરવામાં આવે છે કે સુરતી લવારાઓને દરરોજ વડના તાજા પાન (૧૨૦ ગ્રામ/દિવસ) ખવડાવવાથી પાચનતંત્રમાં કૃમિનું ભારણ નિયંત્રિત થાય છે અને વૃદ્ધિ દર તેમજ આવકમાં વધારો થાય છે.</p> <p>(Action:- Professor and Head, Dept. of Animal Nutrition)</p>	Approved with modification

5	Animal Science, NMCA	
	Title of Recommendation: Effect of supplementation of yeast on average daily growth, feed conversion ratio and cost economics in Surti goat kids.	
	Recommendation paragraph: The Surti goat keepers are recommended to supplement daily 6-7 g of yeast (<i>Saccharomyces cerevisiae</i>) along with concentrate to 4-6 month kids for better growth rate at lower feed cost. સુરતી બકરા રાખતા બકરાપાલકોને ભલામણ કરવામાં આવે છે કે ૪ થી ૬ મહિનાની ઉંમરના લવારાઓને દરરોજ પૂરક આહાર તરીકે ૬ થી ૭ ગ્રામ યીસ્ટ/દિવસ દાણ સાથે આપવાથી તેના વૃદ્ધિ દરમાં વધારો થાય છે અને આહારનો ખર્ચ ઘટે છે. (Action:- Professor and Head, Dept. of Animal Science, NMCA)	Approved with modification

ANIMAL HEALTH

1	Veterinary Medicine Department	
	Recommendation paragraph: Liver and kidney function tests should be carried out regularly twice in a year under the supervision of Veterinarian to know the possibilities of ascites in dogs. કુતરાઓમાં જલોદર થવાની સંભાવના ના આકલન માટે વર્ષમાં બે વખત નિયમિતપણે યકૃત અને મુત્રપિંડ ને લગતા પરીમાણોનું પરીક્ષણ નિષ્ણાંત પશુ ચિકિત્સક પાસે કરાવવું જોઈએ. (Action:- Professor and Head, Veterinary Medicine)	Deferred
2	Veterinary Surgery and Radiology Department	
	Title of Recommendation: Medical and surgical management of corneal affections in canines.	
	Recommendation paragraph: Brachycephalic breeds of dogs (Pug & Boxer) should be subjected to routine ophthalmic check up by veterinarians at every four months. બ્રેકિસીફેલીક (પગ અને બોક્સર) પ્રજાતિના કુતરાઓની આંખો નિયમિતપણે દર ચાર મહિને તપાસ કરાવવી જોઈએ. (Action: Professor and Head, Veterinary Surgery and Radiology)	Approved with modification

**RECOMMENDATION FOR SCIENTIST
ANIMAL PRODUCTION**

Sr. No.	Centre/Station/Department	
1	Livestock Research Station	
	<p>Title of Recommendation: Effect of bypass fat supplementation on production performance and economics on lactating buffalo</p>	
	<p>Recommendation paragraph: Dietary supplementation of bypass fat (calcium salt of palm fatty acid) @ 0.75 % of dry matter intake from 15 days pre-partum to 90 days post-partum to lactating Surti buffaloes (2-4 lactations) improves milk fat percentage (13%), feed efficiency in terms of FCM (29.24%) and serum triglyceride and cholesterol levels without affecting body condition score.</p> <p style="text-align: center;">(Action:- Research Scientist, Livestock Research Station)</p>	<p>Approved with modification</p>
2.	<p>Title of Recommendation: Study of suckling behavior and mothering ability vis-à-vis production performance of Surti goat</p>	
	<p>Recommendation paragraph: For early selection of breeding male Surti kids at 60 days of age more than 2.5 suckling and 1.0 maternal care scores are recommended.</p> <p>Suggestions: 1. Approved with modification</p> <p style="text-align: center;">(Action:- Professor and Head, Dept. of LPM)</p>	<p>Approved with modification</p>
3	Animal Nutrition	
	<p>Title of Recommendation: Economics of growth performance due to dietary inclusion of tanniferous leaves (<i>Ficus benghalensis</i>) in kids infested with gastrointestinal helminthes.</p>	
	<p>Recommendation paragraph: Dietary inclusion of fresh leaves of <i>Ficus benghalensis</i> (Banyan tree) to supply 1.5% condensed tannin to the diet of non dewormed Surti kids (5-6 month) helps to alleviate the gastrointestinal helminthes load and improves growth rate.</p> <p>Suggestions: 1. Approved with Modification</p> <p style="text-align: center;">(Action:- Professor and Head, Dept. of Animal Nutrition)</p>	<p>Approved with modification</p>

ANIMAL HEALTH

Sr. No.	Centre/Station/Department:	
1	Title of Recommendation : Diagnosis and management of Ascites in Canines	
	<p>Recommendation paragraph: The combination of loop diuretics and silymarin @ 30mg/kg/day along with vitamin B complex orally for 15 days can be used to manage ascites of hepatic origin in dogs.</p> <p style="text-align: center;">(Action:- Professor and Head, Veterinary Medicine)</p>	Approved

New Technical Programmes

NAVSARI AGRICULTURAL UNIVERSITY

ANIMAL PRODUCTION AND FISHERIES SCIENCE

Sr. No.	Title/Centre	Suggestions	Remarks
1	Effect of dietary protein levels on growth performance of Surti buffalo calves.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. 2. <p style="text-align: center;">(Action:- RS, Livestock Research Station)</p>	Deferred
2	Effect of different floor types on the growth performance and behavioral traits of surti buffalo calves during winter.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. 2. <p style="text-align: center;">(Action:- RS, Livestock Research Station)</p>	Approved
3	Study of marine Finfish and Shell fish landings and their taxonomical identification at Dholai fish landing centre.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. Add DNA bar-coding of fish 2. Remove the statement on photography of different fish species <p style="text-align: center;">(Action:- Principal Investigator, COF, NAU , Navsari)</p>	Approved with modification

4	Study of Indian white shrimp (<i>Fenneropenaeus indicus</i>) growth under varying salinities, of SWMRU.	Accepted with following suggestion/s 1. 2. (Action:- PI & RS, SWMRU, NAU)	Approved
5	Strategies to mitigate the impact of climate change.	Accepted with following suggestion/s 1. Modify the title as follows: Strategies to mitigate the impact of climate change: Effect of 75 % agro-green net on production, reproduction and stress parameters in Surti buffaloes. 2. Add micro RNA of blood circulation 3. (Action:- PI & Head, Vety Phy., COVS, NAU)	Approved with modification
6	Effect of feeding processed maize on fattening of male Surti kids.	Accepted with following suggestion/s 1. The days of fattening should be restricted to 1-2 months. 2. 3. (Action:- PI & Head, ANN, COVS, NAU)	Approved with modification
7	Effect of bedding materials on broiler performance.	Accepted with following suggestion/s 1. 2. 3. (Action:- PI & Head, ILFC, COVS, NAU)	Approved
8	Study on managerial practices adopted by the commercial layer farmers in Navsari district	Accepted with following suggestion/s 1. 2. 3. (Action:- PI & I/c Dean, Polytechnic In Animal Husbandary , COVS, NAU)	Approved

9	Study on managerial practices adopted by the commercial broiler farmers in Navsari district	Accepted with following suggestion/s 1. 2. 3. (Action:- PI & I/c Dean, Polytechnic In Animal Husbandary , COVS, NAU)	Approved
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ANIMALHEALTH

Sr.No.	Title/Centre	Suggestions	Remarks
1	Evaluation of <i>in vitro</i> pharmacological activities of <i>Morus alba</i> .	Accepted with following suggestion/s 1. Write local name of plant under title 2. Cytokines studies may be included for anti -inflammatory effects. (Action:- Professor, Pharmacology, COVS, NAU)	Approved with modification
2	Sero-diagnosis of caprine paratuberculosis in selected organized farms and panjrapoles of South Gujarat.	Accepted with following suggestion/s 1. 2. 3. (Action:- Professor, Pathology, COVS, NAU)	Approved
3	Development of plastination technique for long term preservation of macro parasites.	Accepted with following suggestion/s 1. 2. 3. (Action:-Asso. Professor, Parasitology, COVS, NAU)	Approved

4	Evaluation of various therapeutic techniques for posterior paresis in dogs.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. 2. 3. <p>(Action:- Professor, Surgery & Radiology, COVS, NAU)</p>	Approved
5	Management of corneal ulcers in dogs.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. Indolent word to be replaced with "non- healing" ulcers under treatment 2. 3. <p>(Action:- Professor, Surgery & Radiology, COVS, NAU)</p>	Approved
6	Management of traumatic reticulo-pericarditis (TRP) in bovines.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. Pericardio-centensis under USG Guidance to be carried out. 2. <p>Action:- Professor, Surgery & Radiology, COVS, NAU)</p>	Approved with modification
7	Studies on goniometry of limbs in Labrador Retriever, German Shepherd, Spitz and Pug breeds of dogs.	<p>Accepted with following suggestion/s</p> <ol style="list-style-type: none"> 1. To include Anatomist as CO-PI 2. Adult dogs of 2-4 years be used. 3. <p>(Action:- Professor, TVCC, COVS, NAU)</p>	Approved with modification

PLENARY SESSION:

Plenary session of 12th Combined Joint AGRESCO meeting of SAUs was Chaired by Dr. C. J. Dangaria, Hon'ble Vice Chancellor of NAU, Navsari and Co-Chaired by Dr. A. R. Pathak, Hon'ble Vice Chancellor, JAU, Junagadh; Dr. N. C. Patel, Hon'ble Vice Chancellor of AAU, Anand, Dr. Ashok Patel, Hon'ble Vice Chancellor of SDAU, Sardarkrushinagar were guest of honor. Besides, Dr. A. N. Sabalpara, Director of Research, NAU, Navsari and Dr. G. R. Patel, Director of Extension Education, NAU, Navsari, Director of Research of SAUs, Director of Extension Education of SAUs, Principals and Deans of SAUs and Associate Director of Research of SAUs remained present. After the formal welcome by Dr. A. N. Sabalpara, Director of Research, NAU, Navsari, the session began with the presentation of proceedings of all the sub-committees by the respective conveners, where in recommendations and new technical programmes of different sub-committees were approved by house. Dr. D. M. Korat, ADR, AAU, Anand; Dr. Sankhela, SDAU, S. K. Nagar; Dr. I. U. Dhruj, ADR, JAU, Junagadh and Dr. K. A. Patel, ADR, NAU, Navsari, Dr. H. M. Viradia, Associate Professor, NAU, Navsari and Dr. P. B. Patel, Associate Professor, NAU, Navsari were the rapporteurs for this session.

During discussion on crop improvement Sub-committee presentation, Dr. A. R. Pathak, Hon'ble Vice Chancellor, JAU, Junagadh suggested that local check should be included in trials. As per the norms of SAUs, nomenclature of variety should be given.

During discussion on Crop production and NRM Sub-committee presentation, Dr. Ashok Patel, Hon'ble Vice Chancellor of SDAU, Sardarkrushinagar suggested to include methodology of PROM with full name.

During discussion on Crop protection Sub-committee presentation, Dr. Ashok Patel, Hon'ble Vice Chancellor of SDAU, Sardarkrushinagar suggested solar system may be effective for wire fencing. He also suggested for reducing the height of chain link to reduce the cost of fencing.

During discussion on Horticulture and Forestry Sub-committee presentation, Dr. N. C. Patel, Hon'ble Vice Chancellor of AAU, Anand suggested to give details of soil properties in recommendations on organically grown crops. For multidisciplinary experiments, the recommendations need to be passed in various research sub committees.

During discussion on Agricultural Engineering, AIT, Dairy and Food technology Sub-committee presentation, Dr. N. C. Patel, Hon'ble Vice Chancellor of AAU, Anand suggested that comb cutter recommendation should be mentioned in Horticulture sub-committee with a language as per engineering discipline.

Dr. A. R. Pathak, Hon'ble Vice Chancellor, JAU, Junagadh suggested to take demonstration of new technology on large scale by KVKs, Research stations and line departments. He also suggested, for healthy discussion of recommendation and new technical programmes, the AGRESCO report should be circulated to all the Director of Research of all SAUs by E-mail and Director of Research should forwarded the report to concerned members of respective Agresco Sub-committees well in advance, so as to save the precious time during Combined Joint Agresco meeting.

Dr. Ashok Patel, Hon'ble Vice Chancellor of SDAU, Sardarkrushinagar suggested that many recommendations are not adopted by the farmers; hence more focus should be given on farm trials and extension programmes of SAUs. Last five years recommendations should be demonstrated on research stations and KVKs. He further suggested to prepare colourful leaflets of important new technologies for wide publications among the farmers.

CONCLUDING REMARKS:

Dr. C. J. Dangaria, Hon'ble Vice Chancellor, NAU, Navsari and Chairman of the session, congratulated the scientists for bringing out large number of useful recommendations and also for planning new technical programmes. He emphasized that the research work should be target oriented and each University should target one major crop each by focusing all the related aspects for that crop. He was also of the opinion that while presenting new technical programmes, review of literature should also be included by the concerned scientist.

Dr.S. R. Chaudhary, Associate Director of Research, NAU, Navsari proposed the vote of thanks at the end of plenary session.
