PROCEEDING OF 15th AGRESCO CISC MEETING OF CROP IMPROVEMENT SUB-COMMITTEE, AAU, ANAND HELD AT ANAND ON 05-06TH MARCH, 2019

Inaugural Session

The inaugural session of 15th AGRESCO Crop Improvement Sub-Committee was chaired by Dr. N.C. Patel, Hon'ble Vice Chancellor, AAU, Anand. Dr. Ashok A. Patel, Vice Chancellor, SDAU, Dantiwada was chief guest, Dr. K. B. Kathiria, Director of Research and Dean P.G. Studies, Dr. Arun Patel, Director of Extension Education, Dr. M. V. Patel, Principal and Dean, BACA, Dr. V. P. Ramani, Associate Director of Research and two invited subject experts Dr. P. Manivel, Principal Scientist, DMAPR, Anand and Dr. Subhash N. Ex. Research Scientist, Dept. of Agril. Biotechnology, AAU, Anand were present. Dr. H. L. Dhaduk, Convener 15th AGRESCO Crop Improvement Sub-Committee welcomed all the dignitaries present in the inaugural programme.

Dr. K. B. Kathiria, Director of Research and Dean P.G. Studies, AAU, Anand in his introductory remarks welcomed all the members of Crop Improvement Sub-Committee and informed the house members that three hybrids (castor, popcorn and sweet corn) and five varieties (Garlic, Cotton, Potato, Brinjal and Forage Sorghum) are going to be released in this 15th AGRESCO, CISC meeting. He also highlighted the fruit breeding research work going on in Guava and Custard Apple and mentioned that in next few years the fruit crop varieties will also be released by CISC AGRESCO group. Most of plant breeders are involved in exotic and indigenous germplasm collection and maintenance and in recent past university had collected germplasm from Taiwan and California.

Dr. Ashok A. Patel, Hon'ble Vice Chancellor, SDAU, Dandiwada who graced the occasion and congratulated the AAU plant breeders for the release of many varieties/hybrids by AAU, Anand. He emphasized that new varieties released by university should perform well in university farms as well as farmers' field.

Dr. N.C. Patel, Hon'ble Vice Chancellor, AAU, Anand congratulated scientist who were involved in developing new varieties/hybrids and also appreciated the plant breeding group for the use of recent advanced technology like marker assisted selection/breeding for development of new varieties. He also suggested that young scientists who took training outside Gujarat for advanced breeding techniques should also train other scientists of university.

Dr. H. L. Dhaduk Convener 15th AGRESCO Crop Improvement Sub-Committee presented the action taken report of 14th AGRESCO Crop Improvement Sub-Committee and was approved.

The session was concluded with vote of thanks by Dr. Amarjeet Singh, Assistant Research Scientist, Medicinal and Aromatic Plants Research Station, AAU, Anand.

Technical Session – I

Presentation of release proposals/ recommendations in the Crop Improvement Sub-Committee

Chairman	:	Dr. K.B. Kathiria Director of Research & Dean PG Studies, AAU, Anand
Co-Chairman	:	Dr. P. Manivel Invitee Expert & Principal Scientist, DMAPR, Boriavi
Rapporteurs	:	Dr. J. N. Patel Research Scientist (PB) Bidi Tobacco Research Station AAU, Anand
		Dr. D. A. Patel Associate Professor Dept. of Genetics and Plant Breeding BACA, AAU, Anand

1. Castor:Gujarat Castor Hybrid 10 (GCH 10)

Dr. B. N. Patel, Associate Research Scientist, Agricultural Research Station, AAU, Sansoli presented release proposal of castor hybrid"Gujarat Castor Hybrid 10 (GCH 10).

The proposed hybrid has 10.20 % of yield advantage over GCH-7 in different trials under irrigation conditions in Gujarat. The proposed hybrid gave higher yield over check GCH 7 in different regions by 14.07% in Middle Gujarat, 7.58% in North Gujarat, 1.14% in Saurashtra and 5.01% in South Gujarat. In AICRP trials, it gave 4.41, 12.95 and 17.58% higher yield than hybrid checks GCH 7, DCH 519 and DCH 177, respectively. Incidence of wilt in sick plots and pot method at Anand and S. K. Nagar revealed that the proposed hybrid was found wilt resistant. The oil content of proposed hybrid is 50.03 % which is higher than check. The proposed hybrid is medium duration having profuse branching with medium plant stature and higher 100 seed weight

The proposed hybrid is therefore recommended for release after incorporating following suggestions for cultivation under irrigated conditions in Gujarat during *kharif* season.

Suggestions:

1. Incorporate data of 2018-19 and recast the proposal.
2. Biochemical parameter ricinoleic acid content need to be included in the proposal.

[Action: Associate Research Scientist, ARS, AAU, Sansoli]

2. Maize: Gujarat Anand Pop Corn Hybrid 21 (GAPCH 21)

Dr. M. B. Patel, Associate Research Scientist, Main Maize Research Station, AAU, Godhra presented release proposal of Pop Corn hybrid **"**Gujarat Anand Pop Corn Hybrid 21 (GAPCH 21)".

The proposed popcorn hybrid GAPCH 21 gave 56.25% higher grain yield than check Amber popcorn in *rabi* season. It also gave 15.19% higher grain yield over national checks VL Amber popcorn in AICRP trials in kharif season. This hybrid having high popping (92%) and popping volume (213 ml/cm^3). It is medium maturing, orange flint grains, high test weight (190 g) and high yielding single cross popcorn hybrid. The proposed hybrid was resistant against *Curvularia* Leaf spot and moderately resistant against Charcoal rot and *Turcicum* leaf blight under hot spot conditions. It was moderately resistant against stem borer.

The proposed hybrid is therefore recommended for release after incorporating following suggestions for *rabi* cultivation under irrigated condition of Gujarat.

Suggestions:

1. Important biochemical parameters related to poppingshould be estimated and included in the proposal.
2. Isolation distance for foundation and certified seed should be as per the minimum seed certification standard should be included in the proposal.
3. Isolation distance for commercial cultivation of proposed hybrid should be included in the proposal.
4. All the trials in Table 2 with high CV% and below state average yield should not be considered.
5. Remove CD and CV% in Mean (Zone 5) in Table 2.
6. Remove mean value in Table 6a of disease incidence.

[Action: Associate Research Scientist, MMRS, AAU, Godhra]

3. Brinjal:Gujarat Anand Brinjal 6 (GAB 6)

Dr. R. R. Acharya, Research Scientist, Main Vegetable Research Station, AAU, Anand presented release proposal of brinjal variety"Gujarat Anand Brinjal 6 (GAB 6)".

The proposed variety exhibited 44.70, 38.82, 17.72, 26.28, 40.74 and 40.20 per cent higher fruit yield at Anand over the checks GOB 1, GBL 1, GJB 2, GJLB 4, Doli 5 and Punjab Sadabahar, respectively. The genotype has dark pink fruit skin colour with strong glossiness, club shaped fruit with medium size and cluster fruiting pattern. The proposed variety had erect plant growth habit and dentate leaf margin. The proposed variety has less prevalence of little leaf disease reaction and lower or comparable number of Jassid and whitefly as well as fruit borer damage as compared to the checks GJB 2, GJLB 4, Doli 5 and Punjab Sadabahar. The proposed variety contains higher dry matter (14.32%), total phenol (87 mg/100g) and protein (0.82%) as compared to the checks GJB 2, GJLB 4, Doli 5 and Punjab Sadabahar.

The proposed variety is therefore recommended for release after incorporating following suggestions for *kharif-rabi* season under irrigated condition of Gujarat.

Suggestions:

1. Mention the year in which cross has been made.
2. Verify the data of total phenol content in Table 6 of release proposal.
3. The data of LSVT long 2017-18 (Jagudan) in Table 2 should not be considered in yield performance due to high CV %.

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

4. Potato:Kufri Sadabahar

Dr. R. R. Acharya, Research Scientist, Main Vegetable Research Station, AAU, Anand presented proposal for endorsement of potato variety "Kufri Sadabahar".

The proposed variety (333.66 q/ha) produced 15.45, 12.65 and 9.00 per cent higher total tuber yield over the checks Kufri Badshah, Kufri Lauvkar and Kufri Pukhraj, respectively, On the basis of total eight testing trials at Anand. The proposed variety has low infection of early blight, late blight, leaf curl and number of whitefly compared to all the checks *viz.*, Kufri Badshah, Kufri Lauvkar and Kufri Pukhraj.

The proposed variety is therefore recommended for endorsement for cultivation in *rabi* season in middle Gujarat after getting necessary approval from the ICAR- CPRI, Shimla.

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

5. Garlic: Gujarat Anand Garlic 7 (GAG 7)

Dr. N. Sasidharan, Research Scientist, HMRS, Dahod presented release proposal of garlic variety "Gujarat Anand Garlic 7 (GAG 7)"

The proposed genotype DG 08-11 gave bulb yield of 80.48 q/ha which was 16.00, 11.65, 15.13 and 14.00 % higher over the check varieties GG 4, GJG 5, GAG 6 and G 282, respectively in the Gujarat state. The proposed genotype has dark green leaves, strongly concave shape in cross section of leaf, medium density of leaves with erect foliage attitude, radial distribution of cloves, purple colour of dry external scales and purple scale colour of clove. It contains higher pyruvic acid (80.05 µmol/g), carotenoids (7.75 mg/100g), total soluble solids (21.82%), reducing sugar (2.23%) and total antioxidant activity (0.118) as compared to check varieties. The proposed genotype had low incidence of thrips as compared to check varieties.

The proposed variety is therefore recommended for release after incorporating following suggestions for *rabi* season under irrigated condition.

Suggestions:

1. Mention the unit of bulb: size (diameter) and verify the data.

[Action: Research Scientist, HMRS, AAU, Dahod]

6. Desi Cotton: Gujarat Anand Desi Cotton 3 (GADC 3)

Dr. T. T. Patel, Associate Research Scientist, Regional Cotton Research Station, AAU, Viramgam presented release proposal of desi cotton variety **"**Gujarat Anand Desi Cotton 3 (GADC 3)".

The proposed variety gave 34.02, 15.01 and 27.54% higher seed cotton yield and 34.87, 26.67 and 27.28% higher lint yield over check varieties G. Cot.21, ADC 1 and GADC 2, respectively in the rainfed condition of Gujarat state. The ginning out turn (%) of proposed genotype is 44.0% which is at par with check variety G. Cot. 21 (44.2%) and higher than ADC 1 and GADC 2. The fibre quality point of view, the genotype GVhv 767 was recorded fibre length (upper half mean) of 23.0 mm, fibre fineness of 4.9 µg/inch and bundle strength of 22.6 g/tex. The proposed genotype has smooth boll surface, unlike the pitted boll surface which is present in all the check varieties being tested.

The proposed variety is therefore recommended for cultivation in agro climatic zone V & VIII of Gujarat State under rainfed conditions.

[Action: Associate Research Scientist, RCRS, AAU, Viramgam]

7. Forage sorghum: Gujarat Anand Forage Sorghum 13 (GAFS 13)

Dr. D. P. Gohil, Research Scientist, MFRS, AAU, Anand presented release proposal of forage sorghumvariety "Gujarat Anand Forage Sorghum 13 (GAFS 13)".

The proposed genotype exhibited 22.17 and 42.46% higher green forage yield (375.8 q/ha); 13.72 and 63.90% dry matter yield (114.4 q/ha) than the check varieties GAFS 11 and GFS 5, respectively under irrigated condition of middle Gujarat. It also recorded 23.77 and 10.33% higher green forage yield (296.8 q/ha) as well as 6.88 and 22.87% dry matter yield (102.6 q/ha) over the check varieties GAFS 11 and GFS 5, respectively under rainfed condition of middle Gujarat.

The proposed variety is therefore recommended for release after incorporating following suggestions for entire forage sorghumgrowing areas of the middle Gujarat during *Kharif* season.

Suggestions:

1. Check the data of NDF, ADF and CF in consultation with Dr. Y. M. Shukla, Principal, College of Agriculture, AAU, Vaso and Dept. of Animal Nutrition and make necessary correction in Table 6.
2. Specify the stage of plant at which different biochemical parameters was estimated in the proposal.

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

8. Maize: Gujarat Anand Sweet Corn Hybrid 11 (GASCH 11)

Dr. M. B. Patel, Associate Research Scientist, Main Maize Research Station, AAU, Godhra presented release proposal of sweet corn hybrid **"**Gujarat Anand Sweet Corn Hybrid 11 (GASCH 11)"

The proposal was accepted with the following suggestions.

Suggestions:

1. Proximate composition of the proposed hybrid should be included in the release proposal.
2. Sugar depletion rate of proposed hybrid should be included in the release proposal.
3. DUS characters as well as yield contributing characters of proposed hybrid should be included in the release proposal.
4. Isolation distance for commercial cultivation of proposed hybrid should be included in the proposal.

[Action: Associate Research Scientist, MMRS, AAU, Godhra]

Technical Session –II

Center-Wise Presentation of Report and Technical Programme (S)

Chairman	:	Dr. R. R. Acharya Research Scientist & Head, Main Vegetable Research Station, AAU, Anand
Co-Chairman	:	Dr. D. P. Gohil I/c Research Scientist & Head, Main Forage Research Station, AAU, Anand
Rapporteurs	:	Dr. M. B. Patel Associate Research Scientist, Main Maize Research Station, AAU, Godhra
		Dr. G. B. Patil Assistant Research Scientist, Centre for Advanced Research in Plants Tissue Culture, AAU, Anand

1. Main Rice Research Station, AAU, Nawagam

Dr. D. B. Prajapati, Associate Research Scientist, Main Rice Research Station, AAU, Nawagam presented report and technical programme of rice, which was accepted with following suggestions.

Suggestions

i. The trials on aerobic drilled paddy should be discontinued at Dahod station as the performance of the tested genotypes was poor for consecutive three years. PET and Selections trials should be conducted at ARS, Derol for rainfed conditions.

ii. Generation advancement to be carried out at MRRS, Nawagam and ARS, Thasra during summer season.

[Action: Res. Sci., MRRS, Nawagam]

2. Main Maize Research Station, AAU, Godhra

Dr. P. K. Parmar, Assistant Research Scientist, Main Maize Research Station, AAU, Godhra presented report and technical programme of Maize, which was accepted with following suggestion

Suggestions

i. Data has to be compiled for promising sweet corn hybrid and discussed with the Director of Research and if found suitable it has to be presented during AGRESCO.

[Action: Assoc. Res. Sci., MMRS, Godhra]

3. Bidi Tobacco Research Station, AAU, Anand

Shri D. R. Delvadiya, Assistant Research Scientist, Bidi Tobacco Research Station, AAU, Anand presented research report of tobacco which was accepted with the following suggestion

Suggestions

i. PET for root knot nematodes resistance at three locations has to be planned after screening of promising genotypes.

[Action: Res. Sci., BTRS, Anand]

ii. Trials on non-conventional uses of tobacco for oil purpose should be discontinued due to high cost of oil and non-preference to consumers as edible oil.

[Action: Res. Sci., BTRS, Anand]

4. Main Vegetable Research Station, AAU, Anand

Dr M. M. Pandya, Assistant Research Scientist, Main Vegetable Research Station, AAU, Anand presented research report on Brinjal, Okra and Cucurbits. PET for summer okra, Summer cucumber, Sweet potato and Papaya was also presented by him. Dr. N. A. Patel, Assistant Research Scientist, Main Vegetable Research Station, AAU, Anand has presented research report on Tomato, Chili, Onion and Potato and same was accepted.

Research report on Indian bean, Fenugreek, Cluster bean and Cowpea was presented by Dr. V. I. Joshi, Assistant Research Scientist, Main Vegetable Research Station, AAU, Anand and was accepted.

[Action: Res. Sci., MVRS, Anand]

5. Medicinal and Aromatic Research Station, AAU, Anand

Dr. H. L. Dhaduk, Associate Research Scientist, Medicinal and Aromatic Research Station, AAU, Anand presented research report of Medicinal and aromatic plants and new technical programme on Turmeric was accepted.

[Action: Assoc. Res. Sci., M&APRS, Anand)]

6. Main Forage Research Station, AAU, Annad

Dr. D. P. Gohil, Research Scientist, Main Forage Research Station, AAU, Anand presented research report and technical programme of forage crops, and same was accepted.

[Action: Res. Sci., MFRS, Anand]

8. Pulse Research Station, AAU, Vadodara

Dr. K.V. Patel, Assistant Research Scientist, Pulse Research Station, AAU, Vadodara presented research report and technical programme of pulse crops, and same was accepted with following suggestions.

Suggestions

i. PET (Extra early) of pigeon pea has to be conducted at two locations (Derol and Dahod) with two date of sowing *i.e.* onset of monsoon and after 30 days of onset of monsoon

ii. T-9 line has to be procured from TRTC, Devgadh Baria source for crossing programs in Urdbean.

[Action: Res. Sci., PRS, Vadodara]

Technical Session – III

Center-Wise Presentation of Report and Technical Programme (S)

Chairman	**:**	Dr. Sashidharan N., Research Scientist & Head, Hill Millets Research Station, AAU, Dahod
Co- Chairman	**:**	Dr. M. B. Parmar, I/c. Research Scientist, Main Rice Research Station, AAU, Nawagam
Rapporteurs	**:**	Dr. T. T. Patel, Assoc. Research Scientist& Head, Regional Cotton Research Station, AAU, Viramgam.
		Dr. K. V. Patel, Assistant Research Scientist, Pulse Research Station, AAU, Vadodara

1. Regional Research Station, AAU, Anand

Dr. M. P. Patel, Assistant Research Scientist, Regional Research Station, AAU, Anand presented research report and technical programme of cotton and castor and it was accepted with following suggestion:

i. In cotton, H x B crosses need to be continued.

Mrs. Geeta Chaudhary, Assistant Research Scientist, Regional Research Station, AAU, Anand presented research report and technical programme of groundnut, mustard and wheat and it was accepted with following suggestions

i. Bold seeded groundnut genotypes identified should be included in the state trials.

[Action: Res. Sci., RRS, AAU, Anand]

2. Agriculture Research Station, AAU, Arnej

Dr. H. B. Patel, I/c. Research Scientist, Agricultural Research Station, AAU, Arnej presented research report and technical programme of chickpea, and it was accepted with the following suggestion:

i. Durum wheat trials result will be compiled and presented by Dhandhuka centre from next AGRESCO.

[Action: I/c Assoc. Res. Sci., ARS, AAU, Arnej]

[Action: Asstt. Res. Sci., ARS, AAU, Dhandhuka]

3. Regional Cotton Research Station, AAU, Viramgam

Dr. D. R. Patidar, Assistant Research Scientist (Pl. Br.), Regional Cotton Research Station, AAU, Viramgam presented research report and technical programme of cotton and sorghum and it was accepted with the following suggestion:

i. The trial "Characterization of Desi cotton (*Gossypium herbaceum*) germplasm" (expt. Code no. CI/RCRS,Viramgam/2016/2) is concluded.

[Action: Assoc. Res. Sci., RCRS, AAU, Viramgam]

4. Castor and Seed Spices Research Station, AAU, Sanand

Dr. D. R. Patidar, Assistant Research Scientist (Pl. Br.), Regional Cotton Research Station, AAU, Viramgam presented research report and technical programme of CSSRS, AAU, Sanand and the same was accepted.

[Action: Assoc. Res. Sci., CSSRS, AAU, Sanand]

5. Agriculture Research Station, AAU, Dhandhuka

Mr. K. J. Suthar, Assistant Research Scientist (Pl. Br.), Agricultural Research Station, AAU, Dhandhuka presented research report and technical programme of ARS, AAU, Dhandhuka and was accepted.

[Action: Asstt. Res. Sci., ARS, AAU, Dhandhuka]

6. Paddy Research Station, AAU, Dabhoi

Shri R. L. Chotaliya, Assistant Research Scientist (Agro.), Paddy Research Station, AAU, Dabhoi presented research report and technical programme of PRS, AAU, Dabhoi and the same was accepted.

[Action: Asstt. Res. Sci., PRS, AAU, Dabhoi]

7. Agriculture Research Station, AAU, Derol

Mr. H. R. Adsul, Research Associate (Pl. Br.), Agricultural Research Station, AAU, Derol presented research report and technical programme of ARS, AAU, Derol and the same was accepted.

[**Action: Assoc. Res. Sci., ARS, AAU, Derol]**

8. Hill Millets Research Station, AAU, Dahod

Mr. A. G. Pampaniya, Assistant Research Scientist (Pl. Br.), Agricultural Research Station, AAU, Dahod presented research report and technical programme of ARS, AAU, Dahod and the same was accepted.

Dr. Sashidharan N., Research Scientist, Hill Millet Research Station, AAU, Dahod presented one new technical programme in linseed "Evaluation of Linseed (*Linum usitatissimum* L.) genotypes for yield and quality parameters" and it was accepted with following suggestion:

i. Add character fiber yield, pest and diseases observations.

[**Action: Res. Sci., HMRS, AAU, Dahod]**

9. Tribal Research Training Centre, AAU, DevgadhBaria

Dr. Aniket Makani, Research Associate (Pl. Br.), TRTC, AAU, Devgadh Baria presented research report and technical programme of TRTC, AAU, Devgadh Baria and the same was accepted.

[**Action:Res. Sci., TRTC, AAU, DevgadhBaria]**

10. Agriculture Research Station, AAU, Thasra

Dr. R. P. Kacha, Associate Research Scientist (Agron.), Agricultural Research Station, AAU, Thasra presented research report and technical programme of ARS, AAU, Thasra and the same was accepted.

[**Action: Assoc. Res. Sci., ARS, AAU, Thasra]**

11. Agriculture Research Station, AAU, Sansoli

Dr. B. N. Patel, Associate Research Scientist (Pl. Br.), Agricultural Research Station, AAU, Sansoli presented research report and technical programme of ARS, AAU, Sansoli and the same was accepted.

[**Action: Assoc. Res. Sci., ARS, AAU, Sansoli]**

12. Agriculture Research Station, AAU, Jabugam

Dr. H. C. Parmar, Associate Research Scientist, Agricultural Research Station, AAU, Jabugam presented research report and technical programme of ARS, AAU, Jabugam and the same was accepted.

[**Action: Assoc. Res. Sci., ARS, AAU, Jabugam]**

13. Dept. of Horticulture, BACA, AAU, Anand

Dr. M. J. Patel, Associate Professor, Dept. of Horticulture, BACA, AAU, Anand presented fruit crop breeding research report and technical programme of Dept. of Horticulture, BACA, AAU, Anand and the same was accepted.

[**Action: Professor, Dept. of Horticulture, BACA, AAU, Anand]**

14. College of Horticulture, AAU, Anand

Mr. U. C. Chaudhary, Assistant Professor, College of Horticulture, AAU, Anand presented chrysanthemum experiment of College of Horticulture, AAU, Anand and was accepted with following suggestion:

i. As per suggestions of 14th Joint-Combined AGRESCO, chrysanthemum experiment was divided into two separate experiments as loose and cut flower, however since these varieties were not suitable as cut flowers, the trial should be conducted for loose flowers only.

Dr. B. N. Satodiya, Associate Professor, College of Horticulture, AAU, Anand presented results of mutation breeding experiment on lily & rose and the same was accepted.

[**Action: Asstt. Professor, College of Horticulture, AAU, Anand]**

Technical Session-IV

Center-Wise Presentation of Research Report and Technical Programme (S)

Chairman	:	Dr. N. Subhash, Invited Expert Ex. Research Scientist & Head Centre for Advanced Research in Plants Tissue Culture, AAU, Anand
Co- Chairman	:	Dr. Y.M. Shukla, Principal College of Agriculture, AAU, Vaso
Rapporteurs	:	Dr. Akarsh Parihar Research Scientist& Unit Officer, Dept. of Agricultural University, AAU, Anand.
		Dr. J. J. Dhruv Professor and Head, Dept. of Biochemistry, AAU, Anand

1. Department of Genetics & Plant Breeding, BACA, AAU, Anand

Shri. R. M. Chavadhari presented the report on "Interspecific hybridization for transferring aphid resistance to cultivated Mustard (*B. juncea*)" and was accepted with following suggestion:

i. Screening for mustard against aphid resistance has to be done by keeping three different sowing dates *i.e.* 15th Oct, 1st Nov and 15 November.

Ms. Hitiksha Parmar presented the report on on-going technical programme "Evaluation of sesame genotypes in summer season along with molecular characterization" and the same was accepted.

Dr. Sneha Makwana, Associate Professor presented the experiment "MAS for charcoal rot resistance in sesame (*Sesamum indicum* L.) and the same was accepted and concluded.

Dr. Arna Das, Asst. Professor, presented experiment "Evaluation for superior quantitative traits in marigold (*Tagetes* spp.) and peacock flower (*Caesalpinia pulcherrrima*) hybrids and the same was accepted.

It was suggested to form a new technical programme and should be presented during Joint AGRESCO.

[**Action: Professor& Head, Department of Genetics & Plant Breeding, BACA AAU, Anand]**

2. Department of Seed Science and Technology, BACA, AAU, Anand

Dr. Kalyanrao Patil presented the on-going report of the department and was accepted with following suggestion

i. The experiment entitled "Characterization of zinc and iron oxide nano particles and its effect on artificially aged soybean seed" has to be repeated.

[Action: Asstt. Professor& Head, Dept. of Seed Science and Tech., BACA AAU, Anand]

3. Department of Plant Physiology, BACA, AAU, Anand

Dr. Sunil Macwan presented the report of the department and house suggested to repeat the experiment.

[Action: Asstt. Professor & Head, Dept. of Plant physiology, BACA AAU, Anand]

4. Medicinal and Aromatic Plants Research Station, AAU, Anand

Dr. Amarjeet Singh, Asst. Research Scientist, presented the report of Plant physiology and photochemistry of Medicinal and Aromatic Plants Research Station and accepted.

[Action: Assoc. Res. Sci. & Head, M&APRS, AAU, Anand]

5. Department of Agricultural Biotechnology, AAU, Anand

Dr. Akarsh Parihar presented the report of department of Agricultural Biotechnology pertaining to distant hybridization scheme and the new technical programme "Screening of diverse germplasm of okra against root knot nematode and accepted with the following suggestions.

i. Few promising interspecific hybrid lines should be selected and kept under PET trial with GCU-1 as check.
ii. Few interspecific lines developed in cotton having fibre length more than 28 mm should be under PET trial at two locations Dhanduka and Viramgam.
iii. The cowpea material developed has to be put under PET along with MVRS material.
iv. Few improved lines of tomato procured from AVRDC, Taiwan should be tested under PET trial at MVRS.
v. Hybrid made in tomato should be evaluated under PHT trial at MVRS.
vi. Promising interspecific hybrid lines of mustard should be included in SSVT trial at SDAU, S. K. Nagar.
vii. The evaluation of okra germplasm for root knot nematode should only be done under the microplot condition.

Mr. Amar Sakure presented the report of DNA fingerprinting in crops and in vitro culture of immature embryos and accepted.

Dr. Sushil Kumar presented the report of ongoing technical programmes of the department. He also presented two new technical programmes and same was accepted.

[Action: Res. Sci. & Unit Officer, Dept. of Agricultural Biotechnology, AAU, Anand]

6. Centre for Advanced Research in Plant Tissue Culture, AAU, Anand

Dr. G.B. Patil, Asst. Research Scientist, presented a recommendation and accepted with the following suggestions.

i. Include the name of variety of seedless lemon.
ii. Recommendation should be for scientific community in place of industry.
iii. The text to be recast.

He also presented the report of the ongoing technical programmes and accepted with the following suggestions.

i. New technical programme regarding the "Optimization of tissue culture protocol in Oil palm" has to be made and presented in Joint AGRESCO.

[Action: Asstt. Res. Sci. and Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]

7. Department of Biochemistry, BACA, AAU, Anand

Dr. Nilesh Patel, Associate Professor presented the report of the department and accepted.

He also presented a new technical programme on "Comparative study on the effect of silicic acid and insecticide nutraceutical quality of okra" and approved with the following suggestions.

i. Experiment must be reformed with different concentrations of Silicic acid and title should be modified accordingly.
ii. The foliar spray of Silicic acid must be done at flowering stage and followed by 15 days after flowering.
iii. Collaboration has to be made with MVRS, AAU, Anand.

[Action: Professor and Head, Department of Biochemistry, BACA, AAU, Anand]

Plenary Session

Presentation of proceeding of each session and any other points with the permission of the Chairman

Chairman	:	Dr. N. C. Patel Hon'ble Vice Chancellor, Anand Agricultural University, Anand
Co-Chairman	:	Dr. K. B. Kathiria Director of Research & Dean P. G. Studies,, Anand Agricultural University,
Rapporteurs	:	Dr. G. B. Patil, Asst. Research Scientist Centre for Advanced Research in Plant Tissue Culture, AAU, Anand
		Dr. Sushil Kumar, Asst. Research Scientist, Dept. of Agricultural Biotechnology, AAU, Anand

During the plenary session, Dr. P. Manivel, Principal Scientist, ICAR, Directorate of Medicinal and Aromatic Plants Research (DMAPR), Boriavi, Anand, Gujarat appreciated the efforts of scientist for preparing the release proposal of eight varieties/hybrids. He appreciated the work being carried out under distant hybridization program and in pulse crops. He also suggested that such confined research is need of current agriculture era. He also suggested that a master planning should be framed to register the germplasm with NBPGR, seed production of new varieties and maximum area coverage by released varieties.

Dr. Subhash N., Ex-Professor, AAU, Anand commented that a significant change has been noticed in quality of presentation. He also appreciated the quantum of work especially on quality parameters carried out by various research stations of AAU, Anand.

Dr K.B. Kathiria, Director of Research, AAU, Anand commented that a detailed discussion was made on all technical programs especially on long term programs. He appreciated the work of fruit breeding being carried out on white and pink pulp guava. He suggested that more emphasis should be given on native flower crop breeding especially *Hibiscus*. He also suggested that collected flower crop germplasm, should be characterize to identify good germplasm to release as variety.

Dr N.C. Patel, Vice- Chancellor, AAU, Anand appreciated the scientist involved in development of varieties/hybrids in various crops. He also appreciated the all members of CISC for their contribution in crop improvement. He also emphasized on quick germplasm registration in NBPGR. He suggested that more attention is needed for long term storage of germplasm with NBPGR. He suggested that intense work required in medicinal and aromatic crops to produce superior nutraceutical genotypes. He also suggested that research should be carried out for fast multiplication of medicinal plants through tissue culture or in green house to cap the gap between demand and supply of planting material. He also emphasized that scientist should do interaction with subject experts in various research centers/institutions within countries as well overseas to explore new working domains.

The programme was concluded with vote of thanks by Dr. V. P. Ramani, Associate Director of Research, AAU, Anand.

PROCEEDING OF THE 15th JOINT AGRESCO MEETING
(CROP IMPROVEMENT SUB COMMITTEE)
ANAND AGRICULTURAL UNIVERSITY
HELD AT AUDITORIUM, BACA, AAU, ANAND ON MARCH 12-13, 2019

CROP IMPROVEMENT

Dr. H. L. Dhaduk, Convener, Crop Improvement Sub-Committee presented the proceeding

A. RECOMMENDATION FOR FARMING COMMUNITY

(1)	**Castor:Gujarat Castor Hybrid 10 (GCH 10)**
	The proposed hybrid has 10.21 % of yield advantage over GCH-7 in different trials under irrigation conditions in Gujarat. The proposed hybrid gave higher yield over check GCH 7 in different regions by 14.07% in Middle Gujarat, 7.58% in North Gujarat, 1.14% in Saurashtra and 5.01% in South Gujarat. In AICRP trials, it gave 4.41, 12.95 and 17.58% higher yield than hybrid checks GCH 7, DCH 519 and DCH 177, respectively. Incidence of wilt in sick plots and pot method at Anand and S. K. Nagar revealed that the proposed hybrid was found wilt resistant. The oil content of proposed hybrid is 50.03 % which is higher than check. The proposed hybrid is medium duration having profuse branching with medium plant stature and higher 100 seed weight. The proposed castor hybrid GCH 10 is recommended for release in Gujarat under irrigated condition.
	Approved with following suggestions • Re-analyse the seed moisture content of proposed hybrid at Department of Seed Science and Technology, BACA, AAU, Anand. • Ricinoleic acid needs to be analysed.
	[Action: Associate Research Scientist, ARS, AAU, Sansoli]
(2)	**Maize: Gujarat Anand Pop Corn Hybrid 21 (GAPCH 21)**
	The proposed popcorn hybrid GAPCH 21 gave 53.96% higher kernel yield than check Amber popcorn during *rabi* season. It also gave 12.40 % higher kernel yield over national checks VL Amber popcorn in AICRP trials during *kharif* season. This hybrid is having high popping (92%) and popping volume (213 ml/cm^3). It is medium maturing, orange flint kernel, high test weight (190 g) and high yielding single cross popcorn hybrid. The proposed hybrid was resistant against *Curvularia* Leaf spot and *Puccinia* rust under hot spot condition. It was moderately resistant against stem borer under field condition. The proposed pop corn hybrid GAPCH 21 is recommended for release in *rabi* cultivation under irrigated condition of Middle Gujarat.
	Approved with following suggestion • Include new photographs with the scale in final proposal.
	[Action: Associate Research Scientist, MMRS, AAU, Godhra]

(3)	**Maize: Gujarat Anand Sweet Corn Hybrid 11 (GASCH 11)**
	The proposed sweet corn hybrid GASCH 11 gave 46.82 % higher green cob yield than check Win Orange Sweet corn in *rabi* season. The hybrid is having high Total Soluble Solid (18.4 °Brix) than Win Orange Sweet corn. It is medium maturing and high yielding single cross sweet corn hybrid. The proposed sweet corn hybrid is resistant against *Turcicum* leaf blight and resistant against stem borer under field condition. The proposed sweet corn hybrid GASCH 11is recommended for release in *rabi* cultivation under irrigated condition of Middle Gujarat.
	Approved with following suggestion • Isolation distance should be as per the Minimum Seed Certification Standard.
	[Action: Associate Research Scientist, MMRS, AAU, Godhra]
(4)	**Brinjal: Gujarat Anand Brinjal 6 (GAB 6)**
	The proposed variety exhibited 44.70, 38.82, 17.72, 26.28, 40.74 and 40.20 % higher fruit yield at Anand over the checks GOB 1, GBL 1, GJB 2, GJLB 4, Doli 5 and Punjab Sadabahar, respectively. The proposed genotype has dark pink fruit skin colour with strong glossiness, club shaped fruit with medium size and cluster fruiting pattern. The proposed variety contains higher dry matter (14.32%), total phenol (87 mg/100g) and protein (0.82%) as compared to the checks GJB 2, GJLB 4, Doli 5 and Punjab Sadabahar. The proposed brinjal variety GAB 6 is recommended for release in *kharif-rabi* season under irrigated condition of Middle Gujarat.
	Approved
	[Action: Research Scientist, MVRS, AAU, Anand]
(5)	**Potato:Kufri Sadabahar**
	The proposed variety (333.66 q/ha) produced 15.45, 12.65 and 9.00 % higher total tuber yield over the checks Kufri Badshah, Kufri Lauvkar and Kufri Pukhraj, respectively. The proposed variety has less prevalence of early blight, late blight, leaf curl and number of whitefly compared to checks *viz.*, Kufri Badshah, Kufri Lauvkar and Kufri Pukhraj. The proposed potato variety is recommended for endorsement for cultivation during *rabi* season in middle Gujarat.
	Approved with following suggestion • Source of the photographs should be mentioned in the proposal.
	[Action: Research Scientist, MVRS, AAU, Anand]
(6)	**Garlic: Gujarat Anand Garlic 7 (GAG 7)**
	The proposed genotype gave bulb yield of 80.48 q/ha which was 16.00, 11.65, 15.13 and 14.00 % higher over the check varieties GG 4, GJG 5, GAG 6 and G 282, respectively in the Gujarat state. The proposed genotype has dark green leaves, strongly concave shape in cross section of leaf, medium density of leaves with erect foliage attitude, radial distribution of cloves, purple colour of dry external scales and purple scale colour of clove. It contains higher pyruvic acid (80.05 µmol/g), carotenoids (7.75 mg/100g), total soluble solids (21.82%), reducing sugar (2.23%) and total antioxidant activity (0.118 %) as

	compared to check varieties. The proposed genotype had low incidence of thrips as compared to check varieties. The proposed garlic variety is recommended for release in Gujarat for *rabi* season under irrigated condition.
	Approved
	[Action: Research Scientist, HMRS, AAU, Dahod]
(7)	**Desi Cotton: Gujarat Anand Desi Cotton 3 (GADC 3)**
	The proposed variety gave 34.02, 15.01 and 27.54% higher seed cotton yield and 34.87, 26.67 and 27.28% higher lint yield over check varieties G. Cot.21, ADC 1 and GADC 2, respectively in the rainfed condition of Gujarat state. The ginning out turn (%) of proposed genotype is 44.8% which is at par with check variety G. Cot. 21 (44.2%) and higher than ADC 1 and GADC 2. The proposed genotype is having fibre length (upper half mean) of 22.7 mm, fibre fineness of 5.1 µg/inch and bundle strength of 22.5 g/tex. The proposed desi cotton variety is recommended for release in agro climatic zone V & VIII of Gujarat State under rainfed conditions.
	Approved
	[Action: Associate Research Scientist, RCRS, AAU, Viramgam]
(8)	**Forage sorghum: Gujarat Anand Forage Sorghum 13 (GAFS 13)**
	The proposed genotype exhibited 22.87 and 26.24% higher green forage yield (336.3 q/ha); 10.38 and 41.46% dry matter yield (108.5 q/ha) as well as 1.65 and 43.45 % higher crude protein yield over the check varieties GAFS 11 and GFS 5, respectively of middle Gujarat conditions. The proposed genotype contains 30.92% dry matter, 6.93% crude protein, 68.83% neutral detergent fiber and 42.98% acid detergent fiber content. The HCN content in proposed variety is less (41.93 ppm) hence, it is less toxic to animals. The proposed genotype is early maturing, taller and more numbers of tillers per plant as compare to checks. The proposed forage sorghum variety is recommended for release in Middle Gujarat under irrigated and rainfed condition during *kharif* season.
	Approved
	[Action: Research Scientist, MFRS, AAU, Anand]

B. RECOMMENDATION FOR SCIENTIFIC COMMUNITY

(1)	**Development of tissue culture protocol for mass multiplication of seedless lemon**
	Micropropagation protocol for seedless lemon variety Konkan Lemon involves *in vitro* multiplication of cultures obtained on Murashige and Skoog (1962) (MS) medium supplemented with BA (0.2 mgl^{-1}) , Kn (1.0 mgl^{-1}) and IBA(0.5 mgl^{-1}) with the highest number of multiple shoots (4.20) which was found to be consistent for four subculturing on same medium. *In vitro* rooting was found maximum in MS medium supplied with auxins IBA (1.0 mgl^{-1}) and NAA (0.2 mgl^{-1}) inducing highest rooting % (100 %) and number of roots (2.69). Primary hardening was achieved when Cocopeat alone used as substrate leading to least mortality (3.12 %) and better growth characteristics.
	Approved
	[Action: Asstt. Res. Sci. and Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]

NEW TECHNICAL PROGRAMMES

Sr. No.	Department / Research Station/Center
1	**Centre for Advanced Research in Plant Tissue Culture AAU, Anand**
	Optimization of tissue culture protocol in oil palm (*Elaeis guineensis*)
	Approved
	[Action: Asstt. Res. Sci. and Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]
2	Development of micropropagation protocol for large scale multiplication of guava (*Psidium guajava* L.)
	Approved
	[Action: Asstt. Res. Sci. and Head, Centre for Advanced Research in Plant Tissue Culture, AAU, Anand]
3	**Department of Agricultural Biotechnology**, **AAU, Anand**
	Screening and evaluation of diverse germplasm of okra for root knot nematode resistance
	Approved
	[Action: Res. Sci. & Unit Officer, Dept. of Agricultural Biotechnology, AAU, Anand]
4	QTL mapping for wilt resistance in castor
	Approved
	[Action: Res. Sci. & Unit Officer, Dept. of Agricultural Biotechnology, AAU, Anand]
5	Molecular markers based characterization of diverse germplasm of *Gossypium herbaceum*
	Approved
	[Action: Res. Sci. & Unit Officer, Dept. of Agricultural Biotechnology, AAU, Anand]

6	**Department of Biochemistry, B. A. College of Agriculture, AAU, Anand**
	Biochemical changes associated with induction of silicic acid in leaf and fruit of okra
	Approved with following suggestion • Specify the total number of treatments with Factor-1(Variety) and Factor-2 (Level of foliar application).
	[Action: Professor and Head, Department of Biochemistry, BACA, AAU, Anand]
7	**Medicinal and Aromatic Plants Research Station, AAU, Anand**
	Evaluation of turmeric genotypes for higher yield and quality
	Approved
	[Action: Assoc. Res. Sci. & Head, M&APRS, AAU, Anand]
8	**Hill Millet Research Station, AAU, Dahod**
	Evaluation of linseed (*Linum usitatissimum L.)* genotypes for yield and quality parameters
	Approved with following suggestions • Specify Gross and Net plot size • Design RBD
	[Action: Research Scientist & Head, Hill Millet Research Station, AAU, Dahod]
9	**Department of Genetics and Plant Breeding, BACA, AAU, Anand**
	Identification of molecular markers associated with Yellow Mosaic Disease resistance in blackgram (*Vigna mungo* (L.) Hepper)
	Approved
	[**Action: Professor& Head, Department of Genetics & Plant Breeding, BACA AAU, Anand]**
10	**College of Horticulture, AAU, Anand**
	Evaluation of different chrysanthemum genotypes (loose flower) for yield and growth parameters
	Approved
	[**Action: Principal College of Horticulture, AAU, Anand]**