

Consultancy, Patents, Commercialisation Of Technology

Breeder Seed Production

Breeder seed production of the following varieties has been taken up and would be commercially sold to the Seed Producers as per the Government of India allotment.

| Name of Variety/ hybrids | | 2005_06 | |
|--------------------------|--------|------------|----------------|
| | | Indent (q) | Production (q) |
| LRA 5166 | | 3.81 | 4.80 |
| LRK 516 (Anjali) | | 1.96 | 2.98 |
| Surabhi | | 0.99 | 1.0 |
| Supriya | | 0.80 | 1.00 |
| Sumangala | | 0.15 | 0.50 |
| CSHH 198 | Female | — | 0.50 |
| | Male | — | 0.20 |
| CISAA2 | Female | — | 0.20 |
| | Male | — | 0.20 |

Patent

Detection of insecticide resistant insects, 2006.

Significant Decisions Of Rac, Src, Imc Meetings

Research Advisory Committee (RAC)

The annual meeting of Institute's Research Advisory Committee was held on 21 April, 2005 at CICR, Nagpur under the chairmanship of Dr. S. N. Puri, Vice Chancellor, Central Agricultural University, Imphal. The following members attended the meeting.

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| 1. | Dr. S. Sreenivasan, Director, CIRCOT, Mumbai | Member |
| 2. | Dr. B. M. Khadi, Principal Scientist, UAS, Dharwad | Member |
| 3. | Dr. N. K. Singh, Principal Scientist, NRC for Biotechnology, New Delhi | Member |
| 4. | Dr. S. K. Ghosh, Principal Scientist, CRIJAF, Barrackpur | Member |
| 5. | Dr. P. P. Tarhalkar, Ex.Head, Division of Crop Production, CICR, Nagpur | Member |
| 6. | Shri Nanabhau Embedwar, | Member |
| 7. | Shri Ankushrao Tope | Member |
| 8. | Dr. P Singh, Director (Acting), CICR, Nagpur | Member |
| 9. | Dr. N. K. Taneja, Principal Scientist, CICR, Nagpur | Member Secretary |

The proceedings of the meeting were approved by the Council. The following are specific recommendations for the research work to be carried out/strengthened.

- Develop blue print for fast track development of Bt, keeping in view the quality aspects.
- Studies should be conducted to evaluate efficacy of micronutrients in improving micronaire value of Bt cotton.
- Breeding for drought tolerant varieties which will give yield even under water scarce situations.
- Breeding good fibre quality cotton
- Varieties suitable for shallow soils should be developed.
- DNA finger printing of germplasm in view of IPR
- Work on genomics should be initiated
- INFOCROP model should be fine tuned.
- Cotton mechanization projects need to be strengthened.
- CICR should develop better types of 80s and 120s counts *barbadense* cotton.
- Management of bollworms involving IPM/IRM

Staff Research Council (SRC)

The Annual Staff Research Council meeting was held on 27-28 April, 2005 at CICR, Nagpur under the chairmanship of Dr. Phundan Singh, Director (Acting), CICR to discuss the results of the research work carried out during 2004-05 and to finalise the technical programme for the year 2005-06. Besides all the scientists of CICR, Nagpur, the meeting was also attended by Dr. T.P. Rajendran, Project Coordinator & Head, CICR Regional Station, Coimbatore. Achievements made in all the Institute projects and funded projects in operation at the institute were presented by the individual scientist and progress of research critically reviewed.

The technical programme of research for the year 2005-06 was finalised after detailed discussion.

Two new project proposals were presented and approved after discussion. Publication entitled "Achievements in Cotton Research" brought out by the Project Coordinator & Head, CICR Regional Station, Coimbatore was released

during the meeting.

Dr. Nandini Gokte-Narkhedkar, Secretary and Dr. V Santhi, Jt. Secretary, SRC assisted in conducting the proceedings of the meeting.

The staff research council meeting of CICR Regional Station, Sirsa was held on 13 April, 2005 at Sirsa Station. The meeting was chaired by Dr. P. Singh, Director (Acting), CICR, Nagpur and attended by the scientists. All the scientists of this station presented the research findings of various projects and research programmes for the year 2005-06 were finalised.

The staff research council meeting of the CCR Regional Station, Coimbatore was held at Coimbatore on July 29, 2005 under the Chairmanship of Dr. B. M. Khadi, Director, CICR, Nagpur.

Shri. K N Gururajan, Project Coordinator & Head I/c, in his introductory remarks highlighted research achievements of the regional station, during 2004-05. All the scientists from regional station, Coimbatore presented achievements made in their project(s). The Director reviewed the results of thirty-two institute projects, eleven TMC projects and two NATP projects. The technical programme for next year was finalised.

Institute Management Committee (IMC)

Forty fourth Institute Management Committee meeting was held at CICR, Nagpur on 1st February, 2006 at CICR, Nagpur under the Chairmanship of Dr. B. M. Khadi, Director, CICR, Nagpur. The meeting was attended by the following members.

| | | |
|----|---|---------------------|
| 1. | Shri Nanabhau Embadwar | Non-Official Member |
| 2. | Shri Ankush Raoji Tope | Non-Official Member |
| 3. | Shri P. N. Singh, Sr. F & AO, NBSS & LUP, Nagpur | Member |
| 4. | Shri S. L. Baviskar, Divn. Supt. Agril. Officer, Nagpur | Member |
| 5. | Shri D. K. Agarwal, Scientist | Member |
| 6. | Dr. Dilip Monga, Head I/c, Regional Station, Sirsa | Special Invitee |
| 7. | Shri Kumar Rajesh, Administrative Officer, CICR, Nagpur | Member Secretary |

The following are the major recommendations:

- The committee expressed their satisfaction on the revenue realization during last financial year as well as in the current year. The committee also expressed that utilization of funds in HRD sub-head may be ensured.
- The committee expressed that possibilities may be explored to install a biogas unit in the farm for proper utilization of farm waste. The non-official members of the committee opined that the CICR Officers or their representatives may witness the process of tender finalization by CPWD in the respect of CICR works.
- The committee expressed its satisfaction and agreed for continuation of farm development work.
- Committee felt that cotton farmers from various districts in the vicinity of the institute may be invited to attend the KVK programme.



Dr. Mangala Rai, Secretary, DARE & Director General, ICAR addressing the Scientists of the Institute.

Dr. M. S. Swaminathan, Chairman, National Farmers Commission, addressing the Scientists



Shri Anees Ahmed, Hon'ble Minister for Animal Husbandry, Dairy Development and Fisheries, Govt. of Maharashtra delivering the inaugural address

Dr. Gautam Kalloo, DDG (H & CS), ICAR addressing the participants.



Nineteenth Meeting of ICAR Regional Committee No. VII

The Nineteenth meeting of ICAR Regional Committee No. VII was held at International Centre, Goa on November 18-19, 2005. Shri Anees Ahmed, Minister of State for Animal Husbandry, Dairy Development and Fisheries, Govt. of Maharashtra was the Chief Guest and Dr. Mangala Rai, Secretary DARE and DG, ICAR Chaired the Inaugural Session.

The meeting was attended by Vice -Chancellors of Agricultural Universities, DDGs' & ADGs of ICAR Headquarters, Directors of ICAR Institutes, Secretaries and Commissioners of various states departments, Directors of Research & Education of Universities and Project Coordinators of All India Coordinated Projects in Maharashtra, Goa and Madhya Pradesh.

Hon'ble Shri Anees Ahmed in his inaugural address mentioned the efforts of Shri Sharad Pawar, Hon'ble Minister of Agriculture, Govt. of India with regard to animal welfare in the State. He expressed the need to have livestock policy for long term as well as short term. He also informed that a consultative meeting would be held shortly to work out a micro plan for livestock production and genetic improvement of cow and buffalo.

The Hon'ble Minister has mentioned about a joint venture of Nagpur University with the private sector for the development of pocket PC based module data retrieval based system for animal performance.

Dr. Mangala Rai Chairman, Secretary, DARE and DG, ICAR, New Delhi emphasized the importance of the regional committee meeting and its role in assessing and reviewing the various issues and bringing out useful recommendations for implementation. The importance of researchable issues like floriculture for which special attention is required was emphasised. The D.G., ICAR highlighted the following issues for detailed deliberation.

Importance of soybean as a major protein (45%) crop and how its by-products could be fortified for diversified value added products and their marketing.

Development and use of appropriate farm machinery is of paramount importance in the coming years and needs more attention and the optimum plant population will be a major factor. Enhancing the spread of horticulture in the farming community of MP on the Maharashtra pattern with emphasis on processing and packaging.

In respect of Bt-Cotton, mixed response by the farmers has brought about the need to get Bt under good agronomic background.

More emphasis on grapes for wine production especially by selecting appropriate plant materials and growing them properly alongwith much needed marketing strategies and diversification of products.

The need to enhance export potential of Banana alongwith technologies for improving water use efficiency.

Promoting the use of micro irrigation techniques for enabling judicious use of scarce water resource.

Prominent among those present were: Dr. G.Kaloo, DDG (Horticulture and Crop Sciences), Dr. S.Ayyappan, DDG (Fisheries), Dr. P Das, DDG (Extension), Dr. Nawab Ali, DDG (Engg.), Dr. Lal Krishna, ADG (AH), Dr. G C Tiwari, ADG (Edun.) and Dr. R C Maheshwari, ADG (TC) from ICAR, Shri. J. P Dange, Principal Secretary (ADF) and Dr. V.G. Ramteke, Joint Commissioner of AH, Govt. of Maharashtra, Mrs. Ranjana Choudhary, Principal Secretary, (Fy/AH/Dairy), Shri. R R Siddiqui, ADF, Shri. Rajkishor Swai, Secretary, Agriculture, Shri. L P Patel, Director, Agriculture, Govt. of Madhya Pradesh and Shri JKDadoo, Development Commissioner, Shri R. G Joshi, Director of Agriculture, Shri A K Wahal, Chief Conservator of Forest, Dr. T T Naik, Director, Animal Husbandry & Veterinary Science, Shri S C Verenkar, Director of Fisheries,

Govt. of Goa, Dr. D.P. Singh, Vice Chancellor, JNKVV, Jabalpur, (M.P.), Dr. A T Sherikar, Vice Chancellor, MAFSU, Nagpur.

Action Points and Key Areas for Agricultural Research and Development in Region VII

1. Development plans for medicinal and Aromatic plants would be crystallized and niche area would be identified by every universities.
2. Demonstration plots of latest varieties of green peas to be grown for farmer's exposure.
3. To access all the varieties of green peas available and grow in staggered planting in M.P. and to fulfill the frozen pea demand by providing a continuous supply of peas.
4. Demonstrations, seed production and popularization of high yielding rice varieties in upland tracts. Explore the possibility of improving the local red kernel types by laying hands on some CSR series material developed by CSSRI, Karnal.
5. Study of micronutrient deficiency in soil to be accelerated
6. For tackling obnoxious weeds collaborative efforts have to be made to come out with some remedial measures
7. Life cycle of hairy caterpillar in soybean has to be studied inclusive of the biology of the pest.
8. Emphasis on dormancy in green gram and black gram has to be given by exploring the available genetic resources. Intensify efforts to induce dormancy
9. Perspective plan for the study of yellow vein mosaic virus and Rhizoctonia in soybean has to be brought out.
10. Priority attention is needed in chickpea and other pulses, especially lentil. JNKVV center has to be strengthened. ICARDA could be explored to avail lentil genetic resources.
11. Export potential of niger crop has to be

promoted by increasing breeder's seed production.

12. Composites, hybrids to be promoted in other crops as in the case of maize.
13. Identify areas where in research could be accelerated especially rice hybrids could be popularized. Guidance could be obtained from ICAR.
14. ICAR may not fund for seed production; the universities should bring out some innovative ways.
15. In order to meet growing menace of pest and disease and also looking into the prevalence of uncertainty of Bt gene expression over the years, gene-pyramiding approach, and multiple resistance breeding have to be adopted.
16. Productivity could be enhanced through diversification of CMS exploring the TGMS system of male sterility.

HORTICULTURE

17. Grape genetic resources need to be augmented for wine production. Appropriate training in the areas of production and processing of wine should be organized.
18. New initiatives, research programmes in cashew processing have to be developed and niche area of excellence would be instituted.
19. Promoting export of vegetable crops viz, vegetable hybrids for bacterial resistance of tomatoes, brinjal and cucurbits
20. Improvement of local mango variety by screening the available material and genetic resources should be taken up.

NATURAL RESOURCE MANAGEMENT

21. Ridges and furrows are to be followed where in water would be harvested/ conserved to enhance productivity.
22. Creating awareness for sustainable use of fertilizers.

ANIMAL SCIENCE

23. Strategic areas have to be worked out to

- initiate cattle improvement.
24. Veterinary survey/ identification of development modules.
 25. Genetic upgradation of local breeds in animals in Maharashtra should be given a new facelift.
 26. In order to increase the quality testing of meat and milk, it has been advocated to charge the samples for generating income. A budget line has to be there to expedite the available financial resources.
 27. Improvement of local breeds- Principles and strategies have to be worked out to upgrade the existing cattle breeds.
 28. Fodder banks and seed banks could be set up which could serve as a helping hand under drought situations.
 29. A base paper has to be prepared on researchable and development issues relevant to genetic improvement of breeds and has to be submitted to ICAR through State Dept. of Agriculture
 30. An efficient pool of animal population is to be developed in the country by adopting appropriate breeding strategies to upgrade local breeds of cattle, sheep, fish, ducks etc.

FISHERIES

31. Brood stock production, quality is important- one KVK would be earmarked for each district.
32. Renovation of Balaghat hatcheries in M.P. to be taken up.
33. Khazan lands to be explored for fish farming in Goa
34. Promote marine culture production (Mussel farming), intensify marine culture practice; diversify farming, evaluate fishes in Khazan lands and integrated farming of carp seed, ornamental fish to be grown for value addition, pearl culture - all the ICAR institutes would be involved. Promote Aqua-tourism in all the three states especially Goa.
35. Diversified products of Shrimp to be

brought to Goa.

36. Optimization of fishing fleets to be taken up to cater to registration of all the vessels.
37. Fishing policy has to be harmonized.
38. For efficient fish seed transportation, research work has to be initiated for the production of canvas bags, Jute impregnated in plastics.
39. Develop models for integrated fish farming.
40. Fish rearing centers have to be set up and also studies related to wave conditions should be taken up.
41. Fishing rights from reservoirs have to be sought from the Ministry of Irrigation.
42. Techno- feasibility of setting up of hatcheries is very important aspect and need to be considered.

AGRICULTURAL ENGINEERING

43. The post harvest aspects in soybean and turmeric have to be reviewed.

EXTENSION

44. Guidance has to be given to farmers for organic farming.
45. Extension work has to be accelerated.

AGRICULTURAL EDUCATION

46. Training programme on WTO matters would be organized for all the states of Maharashtra, Madhya Pradesh and Goa and ICAR will be the nodal agency.
47. Human Resources Development has to be enhanced in Agriculture Universities through up gradation of course curricula Courses should not be duplicated in different universities
48. The State Universities would address issues relating to upgradation of course curriculum. College of Agriculture, Nagpur has to be given a new facelift being a premier institution.

Workshops / Seminars / Summer Institutes / Farmer's Day Organized

Rashtriya Kapas Mela

A one day Rashtriya Kapas Mela 2005 with the theme 'Sustainable Cotton Production' was organized on 16.10.2005 at the campus of CICR, Nagpur. The objective of the Mela was to provide a common platform for all agencies associated with cotton production, protection, harvest and marketing and also equip farmers with latest technology so that dream of sustainable cotton production can be realized.

The Mela was inaugurated by Hon'ble Union Minister for Agriculture, Shri Sharad Pawarji. In his address, Shri Pawarji exhorted scientists to work towards developing high yielding, low cost intensive, disease and pest resistant and eco-friendly varieties with good fibre quality that could suit various agro-ecological zones. He added that after the signing of multi-fibre agreement, India will have to compete in the international market. He mentioned that laws to curb menace of spurious Bt seed are in pipeline. Speaking on the occasion, Shri Dutta Meghe, Rajya Sabha, Member stressed on the need for taking latest technologies to the farmers.

Shri N. P. Hirani, Administrative Head, Maharashtra State Cotton Marketing Federation stressed on regulation of seed market and called for strict laws to protect farmers. Shri Anil Deshmukh, Minister, PWD, Shri Dharamrao Baba Atram, Minister of State for Transport and Social Justice; Shri Manohar Naik, Minister of Food and Drug Administrative, Maharashtra State; Dr. Rajendra Shingne, Minister Revenue and Rehabilitation, Maharashtra State.; Shri Nanabhau Embedwar, Former Minister, Maharashtra State and Member, Institute Management Committee, Dr. G. Kalloo, DDG (Hort. & CS), ICAR; Dr. Sharad Nimbalkar, Vice Chancellor, Dr. PDKV, Akola and Shri Sudhir Goyal, Agricultural Commissioner, Maharashtra

State were also present on the occasion. Dr. Kalloo in his address presented a brief overview of cotton scenario in India. Earlier, the welcome address was delivered by Dr. B. M. Khadi, Director, CICR, Nagpur.

The significant feature of Mela was the exhibition which was organized to apprise the farmers of latest technologies of cotton production, protection, processing, product development and income generation. Latest technologies regarding Bt cotton production, Integrated Pest Management, Integrated Nutrient Management, latest cotton varieties and hybrids and Farm Machinery were demonstrated to farmers. Farmers were given information on other avenues of income generation livestock rearing, fishery, cultivation of fruit and ornamental plants, mushroom cultivation etc. More than 40 companies dealing in seed, bio-pesticides, equipments, fertilizers, sprinkler, drip irrigation and financial institutions exhibited their wares. A "Kisan Goshti" was also organized to provide technical expertise and on the spot clarification of farmers queries.

Krishi Mela

A Krishi Mela was organized by the CICR, Nagpur on 29.01.2006 under the cotton front line demonstration (FLD) programme at Zilla Parishad Primary School premises in village Rampur in Warora Tahsil of Chandrapur district. Dr. MRK Rao, Head, Division of Crop Production, CICR was the Chief Guest. On the occasion, Dr. Rao asked the farmers to adopt crop production technology like Ridges and Furrow technique, use of proper dose of NPK as per recommendations, green manuring, use of biofertilizers, vermi-compost, intercropping, organic manures, harvesting of rain water in



Shri Sharad Pawarji,
Hon'ble Minister for Agriculture,
Govt. of India,
addressing the farmers.

Shri Sharad Pawarji,
Hon'ble Minister for Agriculture,
Govt. of India,
releasing Souvenir during the
Rashtriya Kapas Mela.



Shri Sharad Pawarji,
Hon'ble Minister for Agriculture,
Govt. of India, interacting with
the Director and Scientists in
the experimental field.

Dr. M. S. Swaminathan,
Chairman,
National Commission on Farmers
discussing with the
Director and Scientists



ponds and using it during drought like situation, etc. Speaking on the occasion Dr. Phundan Singh, Head, Division of Crop Improvement stressed on use of quality seed for increasing cotton productivity. He emphasized the need for adoption of recommended varieties/hybrids and advised to purchase the seeds from reliable sources only; Dr. R. K. Deshmukh, Principal Scientist and Incharge FLD outlined about various interventions/ technologies demonstrated. Dr. S. M. Wasnik asked the farmers to help in group formation and spread of the technologies to the other and nearby farmers.

On the occasion, many FLD farmers shared their experiences of cotton FLD programme, the success stories and the benefits received due to technology adoption. Out of 93 FLD farmers, three farmers namely Shri Raju Dumare, Shri Milind Bhojar and Shri Sanjay Nannaware were felicitated. More than 300 farmers, farmwomen and rural youth participated.

TMC-MM1 Annual Review Workshop

The Annual Review workshop of TMC MMI was held on 16-17 June, 2005 at CICR, Nagpur under the Chairmanship of Dr. B. B. Khadi, Director, CICR, Nagpur and Member Secretary, ICAR Standing Committee for TMC MMI. All the Principal Investigators attended the workshop and presented the significant findings of their project work. The major findings are :

Genetic Improvement

Diploid cotton

- 97 newly developed strains were tested for their yield potential and fibre traits in five activities over 13 centres. In addition, 1622 genotypes in early generation (F_2 to F_6) were evaluated and more than 2500 single plant selections were made at various centres to create

desirable variability for enhancing genetic improvement of diploid cotton.

- Nine strains, viz. PAIG-29, AH-65, AH-11, AH-1 (from Parbhani), CINA-318, CINA-316, CINA-343 and CINA-344 (from Nagpur) and JLA-2199 (Jalgaon) have been tested under All India Co-ordinated Cotton Improvement Project (AICCIP) during 2005-06.

Tetraploid cotton

- Two hundred and nineteen cultures were evaluated at five centres in north zone. Promising cultures with 22.0 to 24.0 g/tex fibre strength, 4.0 to 4.9 micronaire and up to 38 per cent ginning out turn have been identified.

Introgressed derivatives

- Large segregating populations have been evaluated and individual plants selected for the desirable traits viz. biotic and abiotic stress tolerance and fibre quality. Stabilized lines also were screened. AKA 01-1, AKA 01-2, IGM-28, IGM 42, MSP-345, TCH 1648, TCH 1653, LD-327, AKDH-33, RAC-023, and AKH-2053 were identified to be tolerant to bollworm complex.

Cottonseed oil

- In AICCIP Trial, a culture CNHO 12 has been promoted to Br 03 (a) in South zone, Central zone and North Zone for 2005-06. Similarly, CNHO 3 has been promoted to Br 03 (b) in South zone for 2005-06.

Molecular markers

- DNA markers for confirmation of hybrid characters of G.Cot HY-8, NHH-44 and NSPHH-7 were detected. STMS primer MGHE573, found to be polymorphic between the parents of hybrids of G cot Hy 8 and NHH-44 was used to determine seed purity of these two hybrids.

Natural Resource Management

Integrated Nutrient Management

- In the north zone of irrigated cotton-wheat

double cropping system, significant response to S was observed at Hisar and Zn at Sri Ganganagar

- For rainfed cotton based cropping system, significant response to Zn and B was noticed at Parbhani, Bhopal and Banswara.
- With Site-specific nutrient management (SSNM), target yields were achieved at Bhopal, Nagpur, and Coimbatore.

Integrated water management

- Maximum gross returns were accrued with intercropping of cotton either with black gram or green gram or soybean, followed by protective irrigation and opening of furrow in every row.

Yield prediction

- INFOCROP, a generic model has been adopted, calibrated, validated and further refined for cotton yield prediction and the model has been calibrated for prediction of soil water balance in vertisols. An integrated approach for production assessment was developed utilising remote sensing, GIS and crop model was tested Nagpur, Dharwad, Bharuch and Sirsa districts. The results are as such promising.

Implements for cotton production

- A Self-propelled air assisted boom sprayer was developed and field-tested. The cost of operation was Rs. 260 compared to Rs. 300 in conventional method of spraying. The saving in cost of operation was 10 to 20 per cent, labourer cost was 20 to 30 per cent and saving in time was 45 to 55 per cent.

Biotic stress management

Integrated pest management (IPM) at village level

- Sex pheromone polymorphism was confirmed.

Diagnostic tools for insect pests and pathogens

- The PCR protocol developed for detection

of *Xanthomonas axonopodis* pv. *malvacearum* strains was further refined.

- PCR-RFLP and multiplex PCR protocols have been developed to detect intra-specific haplotype variation in *H. armigera*.
- PCR based rapid protocol developed in CICR for CLCuV detection has been validated for mapping the prevalence of virus in cotton, whitefly vectors as well as new weed species in different zones in North India.
- SCAR markers have been developed for host specific strains of whitefly.

Commercialisation of bioagent mass-production

- Two technologies - Liquid fermentation technology of *Beauveria bassiana*, *Metarhizium anisopliae*, *Trichoderma harzianum* and *T. viride* and solid state mass production of *Nomuraea rileyi* have been developed.

Commercial technology development for value addition

Some important findings are :

- Machine for Compacting Cotton Stalk Using Hydraulic System.
- Biological Softening of Lignocellulosic Material for Preparing Binderless Boards
- Preparation of Multilayer Particle Board from Cotton Plant Stalks

Technology intervention

- The full package of Integrated Pest Management in cotton produced 16 % higher yield with reduction in cost to the tune of Rs 2647/ per ha.
- The economic viability of Integrated Nutrient Management is 1.33 per cent with added returns of Rs 3388/ per ha.

Information, cotton website and documentation

All the collected data were digitized and

appropriate databases were created and Information retrieval menu were also developed using the software Visual Basic.NET. Significant progress was made in the development of information retrieval system by attempting the developed software converted to ASP.NET for online access to the database by the web users.

The following technologies have been found to be beneficial after review of the progress of work and may be tested on a large scale with the support of Mini Mission II.

- Promotion of released varieties
- Dry sowing in cotton
- Rainwater management (*in-situ* soil moisture conservation)
- Site specific nutrient management for a targeted yield
- Popularisation of bio-inoculant like Pink Pigmented Facultative Methyloph
- Detection of seed borne infection by PCR in different cotton growing areas.
- Monitoring the spread of leaf curl virus infection in cotton and its weeds by PCR.

Small Committee Meeting of CAB

4th meeting of Small Committee of CAB (Cotton

Advisory Board) was organized on Aug 26, 2005 at CICR, Nagpur under the Chairmanship of Dr. H. R. Das, Textile Commissioner, Ministry of Textiles, Govt. of India. The meeting was attended by members representing ICAR Institutes, SAUs, Textile Research Associations, User Industries, Textile Ministry and Textile Mills.

The recommendations are:

- Emphasis should be made for Extra long staple cotton cultivation under contract farming
- The promising cultures identified on the basis of fibre parameters are required to be further tested
- End uses of cotton have been diversified and the breeders need to keep in mind the requirement of end users while developing varieties and hybrids.

Cotton produced by Culture RH 021, developed at MPKV, Rahuri was claimed to absorb nearly eight times more water/moisture than the cotton from the presently available cotton cultivars. If it can be promoted, it will be quite profitable over the absorbent developed through chemical treatments. The House discussed that such cultures, which are useful for a specific purpose may be promoted under contract farming, as there may not be general buyers.



**Participation of Scientists in Seminars /
Symposia / Workshops/ Training**

| Sr. No. | Seminars/Conferences /Symposia/ Workshops | Place and Date | Participants |
|----------------|--|--|---|
| 1. | Annual Group Meeting of All India Coordinated Cotton Improvement Project | Sri Ganganagar 7-9 April, 2005 | T. P. Rajendran, A. Kannan, P. Chidambaram, T. Surulivelu, S. Manickam, |
| 2. | National Seminar on "Cotton Fibre Quality Standards" | Coimbatore 23 rd April, 2005 | T. P. Rajendran K. N. Gururajan, K. Rathnavel, Sankaranarayanan, S. Manickam D. Monga,, S.L.Ahuja, R.A.Meena, O.P.Tuteja and S.K.Verma |
| 3. | National Workshop on Planning & Management of Agricultural Extension Trainings | New Delhi 19-20 May, 2005 | H.L. Gajbhiye |
| 4. | National Seminar on Five Decades of Extension in India : Experiences and Prospects | New Delhi 21-22 July, 2005. | H.L. Gajbhiye |
| 5. | International workshop on Field evaluation techniques on GM crops | Delhi 08-09 August,, 2005 | S.L. Ahuja |
| 6. | 4 th meeting of CAB, Small Committee | CICR, Nagpur 26 August, 2005 | S. B.Singh V.N.Waghmare |
| 7. | National Symposium on Recent trends in Biochemistry | TNAU, Coimbatore 17 September, 2005 | N. Gopalakrishnan |
| 8. | National Symposium on Microbial Technology for Productive Agriculture | TNAU, Coimbatore 7-8 October, 2005 | P. Nalayini |
| 9. | International Conference on Plant Genomics and Biotechnology: Challenges & Opportunities | IGAU, Raipur, 26-28 October, 2005 | V.N.Waghmare Surender Kumar |

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| 10. | International Conference on Plasticulture and Precision Farming-2005 | New Delhi 17-21 Nov., 2005 | K.S. Bhaskar P Nalayini |
| 11. | Special Group Meeting on Research and Development Efforts on Hybrids in Selected Crops | NBPGR, New Delhi 21-22 November, 2005 | SB Singh |
| 12. | 2 nd Global Conference on Plant Pathology | Udaipur. 25-29 November, 2005 | D Monga, P Jeyakumar |
| 13. | National Workshop on Recent Advancement in Improvement of Cotton Seed Quality | Surat 29 Nov., 2005 | R.A Meena |
| 14. | National symposium on Efficient water management for Eco-friendly, Sustainable and Profitable Agriculture | IARI, New Delhi, 1-3 December, 2005. | Jagvir Singh |
| 15. | National Symposium on Recent Advances and Research Priorities in Indian Nematology | IARI, New Delhi 8-10 Dec., 2005. | Nandini Gokte- Narkhedkar |
| 16. | National Seminar on Strategies for improved farming and ecological security of coastal region. | Thiruvananthapuram 21-24 December, 2005 | K. N. Gururajan |
| 17. | Indian Science Congress: Integrated Rural Development , Science & Technology | ANG RAU, Hyderabad 03-07 January, 2006 | C. S. Praharaj |
| 18. | Regional Workshop on Science Communication | Nagpur 7-8 Jan, 2006. | H.L. Gajbhiye |
| 19. | International conference on Antioxidants, oxidative stress and inflammation in chronic diseases” | Nagpur 12-13 Jan., 2006 | A.B. Dongre |
| 20. | DBT Task Force meeting on Biopesticides and Crop Management. | New Delhi 18-19 Jan., 2006 | Nandini Gokte- Narkhedkar |
| 21. | National Seminar on Transgenic Crops in Indian agriculture: Status, Risks & Acceptance | Hisar 28-29 January,2006 | D. Monga, , S.L.Ahuja, R.A.Meena, O.P.Tuteja S.K.Verma P.Jeyakumar |



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| 22. | National Conference on Agrobiodiversity | Chennai 12-15 February, 2006 | K. N. Gururajan |
| 23. | Breeder Seed Review Meeting | NBPGR New Delhi 13 February, 2006 | R.K.Deshmukh |
| 24. | National Workshop on Planning & Management of Agricultural Extension Trainings | New Delhi 14-15 Feb., 2006 | H.L. Gajbhiye |
| 25. | International Conference on Social Science Perspective in Agricultural Research and Development | New Delhi 16-18 Feb., 2006. | H.L. Gajbhiye |
| 26. | National Seminar on Prosperity through Quality Seed | ANGRAU, Hyderabad 24-26 February, 2006 | B.M.Khadi PR Vijayakumari V.Santhy |
| 27. | Second National Plant Breeders Congress | TNAU, Coimbatore. 1-3 March, 2006 | B.M.Khadi J. Amudha, G.Balasubramani SB.Singh PSingh K.B. Hebbar |
| 28. | Training on Advanced Biochemical and Molecular Biology Techniques | IARI, New Delhi. 1-18 March, 2006 | |
| 29. | Capacity Building Programme for Indian Agricultural Research, Extension and Development Organization in Globalized Agricultural Economy | CICR, Nagpur 3-4 March, 2006 | PR Vijayakumari V.Santhy SB Singh |
| 30. | Training-cum-Workshop on Plant Genomics 2006 | New Delhi 16-29 March, 2006 | S.K Verma |
| 31. | Modern techniques in studies of abiotic stress response and stress inducible genes in plants | ILS, Bhubaneshwar 21-24 March, 2006 | K.B. Hebbar |
| 32. | National Convention on Knowledge - Driven Agricultural Development : Management of Change | IARI, New Delhi 24-26 March, 2006 | PM.Mukewar |