

# CICR

## News Letter



CENTRAL INSTITUTE FOR COTTON RESEARCH, NAGPUR

VOL. 25, NO. 1

JAN. - MAR., 2009

### MEETING OF ICAR STANDING COMMITTEE FOR TMC MM-I

The seventh meeting of ICAR Standing Committee for Technology Mission on Cotton Mini Mission-I (TMC MM-I) was held under the Chairmanship of Dr. Mangala Rai, Secretary, DARE and DG, ICAR to review the annual progress of TMC MM-I programme. The other distinguished participants were: Dr.S.P.Tiwari, DDG(CS), ICAR; Dr.K.C.Jain, ADG (CC) ICAR; Dr. N.D. Jambhale, ADG (Seeds) ICAR; Dr.Pitam Chandra, ADG (Engg) ICAR; Dr.A..K.Gogoi, ADG (NRM) ICAR; Dr.V.K.Yadava, Director, IPM, Faridabad; Dr.S.Sreenivasan, Director, CIRCOT, Mumbai; Dr.Suresh Kotak, Chairman,CTTAP (EICA); Dr.Aunpam Barikh, Director, DOCD, Mumbai; Dr.S.V. Sarode, Director of Research, Dr. PDKV, Akola and Dr. R.K.Pal, Zonal Director of Research, ARS, Navgaon and Dr. K.R.Kranthi, Director, CICR, Nagpur.



Dr. Mangala Rai, DG, ICAR chairing ICAR Standing Committee for TMC MM1

Dr.K.C. Jain ADG (CC) delivered the welcome address. He described the relevance of cotton Mini Mission I programme in meeting the current challenges being faced by cotton farmers all over the country and the role of technologies developed under the programme in increasing the production and productivity of cotton. Dr.S.P. Tiwari, DDG(CS) in his remarks mentioned that though Bt cotton has led to significant increase in country's cotton production, the emergence of secondary pests subsequent to the introduction of BT cotton demands development of eco- friendly management approaches. The proceedings of the sixth meeting of ICAR Standing Committee on TMC MM-I as well as the Action Taken Report were approved in the meeting. Dr. K.R. Kranthi, Member Secretary, TMC MM-I and Director, CICR, Nagpur presented the research achievements of TMC MM-I research projects.



TMC MM1 presentation by Dr. K.R.Kranthi, Director, CICR, Nagpur

Following work plan for 2009-10 was presented by the Director, CICR Nagpur which was deliberated upon and finalized by DG and other members.

- ❖ Multilocational trial of promising Desi and ELS cotton to be conducted.
- ❖ Seed Production of the identified lines to be taken up based on the anticipation of likely requirement of seeds.
- ❖ The promising segregating material identified in ELS cotton to be stabilized.
- ❖ ICAR BN Bt variety needs to be popularized among farmers through printing and distribution of pamphlets/leaflets, folders, brochures, training etc.
- ❖ Effective transformants to be identified by evaluating a specific number of elite varieties and hybrids.
- ❖ More emphasis has to be placed on development of varieties rather than hybrids and that too in desi cotton.

### IN THIS ISSUE

TMC Annual Review Meeting	2
National Science Day Celebration	2
Training Programmes	3
Research Highlights	4
KVK Round-up	6
Publications	7
Human Resource Development	8
Meetings Attended	8
Personnel	8
Honours and Awards	8

- ❖ The number of working collection which will be subjected to DNA fingerprinting to be stated clearly.
- ❖ The number of machinery and the type of machinery which will be demonstrated on farm need to be clearly mentioned.
- ❖ Total factor productivity in Bt cotton to be studied by analyzing change in each input separately.
- ❖ Centre-wise work plan in each project should be submitted in a matrix form. The Chairman appreciated the sincere efforts put forth by cotton scientists all over the country in achieving the targets under TMCMM-I. The meeting ended with vote of thanks proposed by Scientist In-Charge TMC Cell.

## ANNUAL REVIEW WORKSHOP OF TMC MM1

The Annual Review Workshop (2008-09) of Technology Mission on Cotton, Mini Mission 1 was held at CICR, Nagpur on March 20-21, 2009. The inaugural session was chaired by Dr. C.D.Mayee, Chairman ASRB, New Delhi and Co-Chaired by Dr. K.C.Jain, ADG (CC), ICAR. At the onset, Dr. K.R.Kranthi, Director, CICR and Member Secretary, TMC MM1 made a brief presentation on the research achievements of TMC MM1 projects during last two years.



Dr. C.D.Mayee, Chairman, ASRB addressing at Annual Review Workshop of TMC MM1



Dr. Kranthi, Director, CICR, Nagpur addressing the participants of TMC Workshop

Dr. Mayee in his inaugural address expressed satisfaction about the progress being made in Mini mission 1 which was initiated seven years back under his leadership. He suggested that breeding programme of desi Bt needs to be strengthened. The technical and concluding sessions were held under the chairmanship of Dr. K.C.Jain, ADG (CC), ICAR. The PIs of various projects presented the significant achievements during 2008-09 and outlined the technical programme for 2009-10. In all there were 19 presentations under five different themes viz. Genetic improvement of cotton, Natural Resource Management, Biotic stress management, Post Harvest technology and Technology Impact and assessment.

In his concluding remarks, Dr. Jain complemented the PIs and CoPIs of various participating centres for the excellent progress made but at the same time cautioned them against complacency. He

emphasized that TMC MM1 was among the few programmes being constantly monitored by PMO. The meeting ended with a formal vote of thanks proposed by Dr. V. Santhy, Scientist I/C TMC cell.

## CELEBRATION OF NATIONAL SCIENCE DAY

National Science Day was observed on Feb. 28, 2009 in befitting manner at CICR, Nagpur in line with theme of the year 'Expanding the horizons of Science'. Dr. P.K.Chakravarty, Principal Scientist delivered a talk titled 'Biotechnological innovations that can change the future' while Dr. G.Balasubramani, Sr. Scientist gave a talk titled 'Fruits of Biotechnology'. The highlight of the celebrations was an intra-institute Quiz competition among different categories of staff members in which Scientific, technical, KVK and research associates teams competed.



Participants of intra-institute Quiz competition



Dr. K.C.Jain, ADG (CC) addressing at concluding Session of National Science Day celebrations

Scientific team comprising of Dr. V.Nagrare, Dr. S.Gawande and Dr. K. Velmourougane emerged as winner while runner team was technical comprising of Dr. V.V.Katara, Dr. M.S.Yadav and Shri H.B.Kumbhalkar. Dr. M.V.Venugopalan Pr. Scientist, Dr. Sandhya Kranthi Sr. Scientist, Mrs. Mukta Chakravarty, Scientist (SG), Dr. Nandini Gokte-Narkhedkar, Pr. Scientist and Dr. G. Balasubramani, Sr. Scientist were involved in conducting the quiz.. Speaking on the occasion, Dr. K.R.Kranthi, Director, CICR appreciated the efforts made and Dr. P.R.Bharambe, Head, Crop Production Division proposed the vote of thanks. Mrs. Mukta Chakravarty compered and conducted the proceedings.

The concluding session of National Science Day celebrations was held under the chairmanship of Dr. C. D. Mayee, Chairman, ASRB, New Delhi. Dr Mayee delivered a talk on "Current status of Agricultural Biotechnology with special emphasis on GM crops in India". He emphasized that food and nutritional security have to be ensured and he presented an exhaustive analysis on how agricultural biotechnology research can be dovetailed to achieve the above goal. He added that science has to be simplified to remove ignorance from the society".

On this occasion, Dr KC Jain, ADG (CC), ICAR, Sh D.R. Sharma, Curator, Nehru Science Centre and Sh S.P. Pathak, Project Coordinator, Raman Science Centre were also present. Dr Jain, in his address, desired that fundamental principles of science must be understood for transforming the knowledge into applied aspects. Shri Sharma urged that thinking process needs to be triggered in the students' mind while Sh. Pathak wanted that Raman Science centre can be a very suitable platform for spreading the interesting research outcome of CICR to common masses. At the outset, Dr KR Kranthi, Director, CICR briefed about the activities held on National Science Day. Prizes were distributed to speakers, Quiz winners and other contestants. Dr MV Venugopalan, Principal Scientist proposed a vote of thanks. The proceeding of the function was compered and conducted by Mrs. Mukta Chakrabarty, Scientist (SG).

## NATIONAL TRAINING ON “VARIETY PURITY TESTING OF SPECIFIED TRAITS”

A National training on “Variety Purity Testing of Specified Traits” was conducted on February 23 to 27, 2009 at CICR, Nagpur in which 30 officials of seed Production, Seed testing, Seed certification etc. participated. Dr R.K.Deshmukh, Principal Scientist was Training organizer and Organizing Secretary was Dr. P.R.Vijaya Kumari, Sr.Scientist.



Release of Bulletins by the dignitaries



Dr. Kranthi, Director, CICR, Nagpur addressing the participants of the Training programme



Participants of National Training Programme on Variety Purity testing of specified Traits

Two Bulletins namely- 'legislations for seed Quality Regulation in India' by V. Santhy, P.R Vijaya Kumari, Anshu Vaiswanathan & R.K. Deshmukh and 'Hybrid Seed production in cotton' by V.Santhy, B.M. Khadi, Phundan Singh, P.R. Vijaya kumari, Anshu Vaiswanathan & R.K. Deshmukh. were released in the Inaugural Session. A Manual titled “Testing of Specified traits” was compiled & edited by Dr.P.R Vijaya Kumari, Anshu Vaiswanathan & Sharmistha Mondal for the participants.

## TRAINING ON “COTTON PRODUCTION TECHNOLOGY & MEALY BUG MANAGEMENT 2009”

Venue - CICR Regional Station SIRSA

A state level training (two days) programme was organized on 'Cotton Production Technology & Mealy bug Management' under implementation of Action Plan of ICDP Mini Mission-II of TMC. Three such training programmes were organized on March 2-3, March 4-5 and March 9-10, 2009.

These training programmes were attended by officials of State Agriculture department of Haryana. State extension officers from eleven cotton growing districts of the state participated in these programs. Course curriculum consisted of a capsule of ten lectures i.e. four in Crop Improvement, one in Crop Production and five in Crop Protection technologies. Special emphasis was made on emerging pest problems like mealy bug and its management. All the scientists of this Regional Station and agronomist from KGK, CCSHAU, Sirsa were involved in imparting these trainings. In addition to this a Training Manual compiled and edited by Dr. S.K. Verma & Dr. Monga was also supplied to the participants for their further use.

## IDENTIFICATION OF VARIETY CISA 614 FOR NORTH ZONE

The variety CISA 614 was tested in 32 locations in the North Zone (Punjab, Haryana and Rajasthan) during 2004-2007 and has recorded an overall mean seed cotton yield of 2204 kg/ha as against 1834 kg/ha of HD 123 (zonal check) and 1990 kg/ha of local checks. The increase in seed cotton yield of the new variety CISA 614 over the common (Zonal check) check was 20.17 per cent. The variety CISA 614 has remained in the group of top five in 25 out of 32 trials. In agronomy trial the proposed variety CISA 614 recorded the highest seed cotton yield of 3792 kg/ha at 67.5 x 30cm spacing whereas at



67.5 x 45cm, the yield of 3148kg/ha was recorded. The proposed variety CISA 614 also recorded slightly superior fibre technology characteristics in comparison to zonal local check varieties.

### FIELD EXPERIENCE TRAINING IMPARTED TO ARS TRAINEES

A group of six Agricultural Research Service Scientist trainees of the 85th Foundation Course for Agricultural Research Service (FOCARS) of the NAARM, Hyderabad comprising of Dr. Bhuvanewari, Dr. Sugitha, Dr. Dharumarajan, Mr. Rajesh, Mr. V.V. Patil and Mr. Puran Chandra were attached to the CICR RS, Coimbatore for Field Experience Training (FET) from March 20, 2009 to April 9, 2009. The training programme was coordinated by Dr. K.K. Bandyopadhyay, Senior Scientist and Dr. S. Usha Rani,



Dr. Gopalakrishnan, Project Coordinator, AICCIP and Head CICR RS Coimbatore addressing ARS trainees

Scientist (Senior scale), CICR, Coimbatore. The trainees had interaction cum orientation programme on research activities carried out at CICR with all the scientists of CICR Regional station, Coimbatore individually. As a part of the training, they explored the agricultural situation in Allapalayam village, Annur Block of Coimbatore district from March 20-30, 2009 using Participatory Rural Appraisal (PRA) technique. They identified that water scarcity is a major researchable problem responsible for low agricultural productivity in Allapalayam village of Coimbatore district. The trainees developed multi disciplinary action plans based on their fields of specialization to mitigate this problem. They suggested that practicing crop diversification, scientific livestock production, agroforestry, growing drought resistant plant varieties and medicinal plants, aquaculture in water harvesting ponds, improvement of soil health through mulching and encouraging on-farm and non-farm micro enterprises to uplift the socio-economic well being of the region. They delivered a seminar in the Allapalayam village on March 30, 2009 in the presence of Dr A. Gopalam, FET monitoring faculty from NAARM. Scientists from CICR and officials from the State Agricultural Department and about 70 farmers of the village participated in this seminar. These scientist trainees also delivered a seminar in the Institute on April 1, 2009. The seminar was chaired by Dr. N. Gopalakrishnan, Project Coordinator (Cotton) and Head, CICR. Dr. R. Vijayaraghavan, Professor (Community E-radio centre, TNAU) was the special guest. This seminar created awareness for development of need based research projects to mitigate water scarcity and efficient utilization of limited available water resources to enhance the water productivity so that the farming community can earn more money per each drop of water used as it is one of the

scarce agricultural inputs in the present days.

## RESEARCH HIGHLIGHTS

### INDUCTION OF POLYPOIDS IN WILD COTTON SPECIES

Colchiploidization gives high hopes for the development of novel and superior genotypes that would revolutionize agriculture since many crop species including cotton are polyploids. Wild species of cotton provide useful traits such as special and superior fibre properties, cytoplasmic male sterility, resistance to biotic and abiotic stress that can be introgressed in to the cultivated species for crop improvement. Since variability available in cultivated germplasm is limited and it has been exhaustively utilized in breeding programmes, it has become a necessity to develop basic germplasm materials enriched with rare useful genes from the wild species through introgression. However, the ploidy level of wild genetic source and cultivated species is a strong barrier impeding gene exchange between these two groups of species.

Hence, attempts have been made to develop superior genotypes by making crosses between cultivated and wild species (*G. hirsutum* x *G. aridum* and *G. hirsutum* x *G. armourianum*). The resultant F1 hybrids are triploids ( $2n=2x=39$ ) and these triploids are treated with colchicine to synthesis useful polyploids for further exploitation. Mitotic studies were carried out on the triploids in order to confirm the chromosome numbers. The induced tetraploid was compared with the natural triploids. Success was obtained in seed treatment with 1% colchicine for 24 hrs while in seedling treatment, 0.7% colchicine in 72 hrs through cotton plug soaking technique was found effective. In seed treatment, 3 out of 7 seedlings showed successful polyploidization. While, in seedling treatment, 2 out of 10 seedlings showed successful induction. Morphologically autotetraploids were easily distinguished from the standard.

K.P.M. Dhamayanthi

### SUSTAINING SOIL NUTRIENT BALANCE THROUGH ORGANIC COMBINATIONS

Application of locally and readily available organic resources vis-à-vis costly fertilizer inputs based on nutrient balance in soil plays a vital role for increasing input use efficiency and reducing the cost of cultivation. Quantification of soil nutrient balance under different nutrient management practices can serve as an appropriate indicator in solving sustainability issues in the long run.

A nutrient balance study was carried out in an alkaline black clay loam soil (Typic haplustalfs) with low fertility at Coimbatore (Tamil Nadu) under winter irrigated condition as influenced by various organics vs inorganic fertilizers applied only to cotton and ragi grown in residual fertility after 3 years of crop rotation. The balance sheet of nutrients obtained from NPK applied by organics/inorganic, initial/post harvest soil fertility and crop removal, revealed that nutrient balance could be maintained significantly higher & positive by combined application of FYM @ 5 t/ha before sowing, cotton crop residues @ 2.5 t/ha (applied 2 months before planting) & sun hemp seeded @ 15 kg/ha in inter-rows as green manure (GM, buried at 45 DAP). This combination left around +76 kg NPK/ha in 0-15 cm and +94 kg NPK/ha in 15-30 cm soil profile after a period of 3 year cycle.

Besides positive nutrient balance, the combination also resulted in highest yield, fibre productivity efficiency and fibre quality index at the end of 3 years of cropping.

Returning residues to soil increased soil organic carbon (SOC) through addition of residues and increase in root and shoot biomass. Moreover, the application of residues partially as surface mulch over the soil surface reduces the soil loss and arrests thermal oxidation of surface organic matter. Thus, an appropriate combination of cost effective organics available locally at reduced dosage can act as an effective substitute for inorganic fertilization in cotton crop and result in concomitant increase in carbon sequestration.

C.S. Praharaj, K. Sankaranarayanan, K.K. Bandyopadhyay & N.Gopalakrishnan

## RECORD OF PARASITES AND PARASITIDS ON MEALY BUG AT DIFFERENT LOCATIONS

### Two natural parasitoids of mealybug at Sirsa

The mealy bug, *Phenacoccus solenopsis* Tinsley was observed from January to May, 2009 on weed, congress grass in different villages of district Sirsa with intensity of 1st and 11nd grade. Initially during January to March, a parasitoid *Paranathrix tachikawai* was observed on mealy bug and under laboratory condition its parasitization efficiency was found around 30 to 39 %. This parasitoid is comparatively smaller than the earlier reported parasitoid i.e. *Aenasius bambawalei*. The parasitoid, *Aenasius bambawalei* Hayat was noticed in the month of April 2009 at different places in District Sirsa on congress grass.

Rishi Kumar & D.Monga

### Natural parasitism on mealy bug *Phenacoccus solenopsis* and *Paracoccus marginatus* at Coimbatore

Natural parasitisation on cotton mealybug *Phenacoccus solenopsis* (Tinsley) and *Paracoccus marginatus* (Williams and Granara de Willink) was recorded at CICR, Regional Station, Coimbatore during 2008-09 cotton season, on cotton and weed hosts. In the present study, 20 *P.solenopsis* and 100 *P.marginatus* adult mealybugs were randomly collected from the cotton crop and alternate hosts from October, 08 to February, 09 at weekly interval and kept for parasite emergence. The data were recorded on the number of parasitoids emerged, based on which percentage parasitism was calculated.

#### *Aenasius sp* on *P. solenopsis*

The parasitoid *Aenasius sp.* (Hymenoptera:Encyrtidae), a solitary endoparasitoid was recorded on mealybug collected from cotton and weed hosts viz., *Parthenium hysterophorus*, *Abutilon indicum*, *Phyllanthus niruri*, *Tridax procumbense*, *Commelina bengalensis*, *Convolvulus arvensis* and *Cleome viscosa*. In cotton, 10-45% parasitism by *Aenasius sp* was recorded. Among the alternate hosts, maximum percentage of parasitism was recorded on *A. indicum* (5-65%), followed by *P. hysterophorus* (5-30%).

#### *Torymus sp.* and *Prochiloneurus aegyptiacus* on *P. marginatus*

Two parasitoids viz., *Torymus sp.* (Torymidae:Hymenoptera) and *Prochiloneurus aegyptiacus* (Mercet) (Chalcidoidea: Hymenoptera) was recorded on *P. marginatus* in cotton with per cent parasitisation



*Torymus sp.*



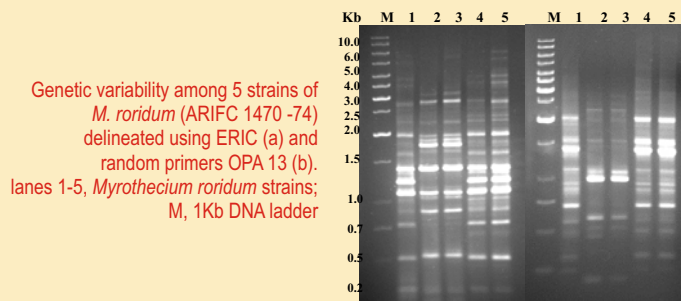
*Aenasius sp.* and parasitoid cocoon

of 21% and 7%, respectively. *Torymus sp.* was recorded on mealybug from alternate hosts viz., *P. hysterophorus*, *A. indicum*, *P. niruri*, *C. benghalensis*, *C. arvensis* and *C. viscosa*. Maximum percentage parasitisation was recorded in mealybugs from *A. indicum* (2-23%) and on *P. hysterophorus* (4-15%). *Prochiloneurus aegyptiacus* was seen in mealybugs on weed hosts viz., *A. indicum*, *C. benghalensis* and *C. arvensis*. Per cent parasitisation recorded being 8-9% on *A.indicum*, followed by 3-7% on *C. benghalensis*.

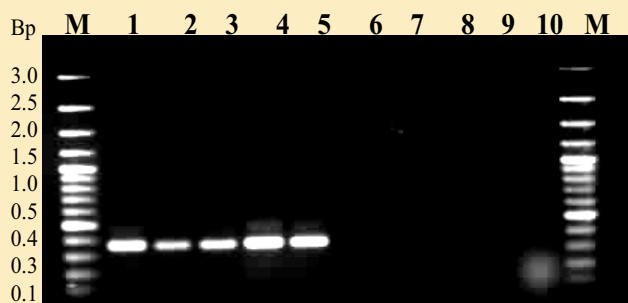
M. Amutha, B. Dhara Jothi, T. Surulivelu & N. Gopalakrishnan

## SPECIFIC DNA PRIMERS TO DETECT MORPHOLOGICALLY AND GENETICALLY DIFFERENT STRAINS OF MYROTHECIUM RORIDUM - THE LEAF SPOT PATHOGEN OF COTTON

Myrothecium leaf spot disease of cotton (*Gossypium spp.*), assumed serious proportion in recent years and losses to the extent of 15 percent has been documented. The disease is more prevalent at seedling stages. Cultivars of *G. hirsutum* and *G. barbadense* are more susceptible than *G. arboreum*. Five strains of *M. roridum* (ARIFC 1470 -74) were isolated from infected cotton leaves collected from different regions of Dharwad and Vidarbha. The identity of the strains was confirmed by Agharkar Research Institute, Pune. The morphological and molecular patterns clearly distinguished 5 strains into two distinct groups. Group I



## KVK ROUND UP



Specific detection of *Myrothecium roridum* strains by PCR. Lanes 1-5, *M. roridum* (ARIFC 1470 -74) strains; lanes 6-9, strains of *Rhizoctonia solani*, *R. bataticola*, *Ramularia areola*, *Alternaria macrospora*, lane 10, Negative control; M, 100 bp DNA ladder.

accommodated two strains ARIF 1471-72 collected from Dharwad region while Group II comprised of the 3 strains ARIF 1470, 73, 74) collected from the Vidarbha. The rDNA fragment of 618 bp was cloned from each of these strains, sequenced and identity was confirmed by BLAST search. The multiple alignments of rDNA sequences of *M. roridum* with other pathogens were done using web-based software. ITS1 and ITS2 regions of fungi showed greater sequence divergence compared to rRNA genes. Based on unique nucleotide sequences in the ITS region of *M. roridum*, a set of species-specific primer (pMror) was designed. The primer amplified a specific fragment of 350 bp from all strains of *M. roridum*, collected from different geographical regions but failed to detect any other pathogens of cotton tested.

**P. K. Chakrabarty and R. L. Chavhan**

### SUPERIOR GOSSYPIUM ARBOREUM GERmplasm IDENTIFIED FOR FIBRE QUALITY TRAITS

Geographically and phenotypically 540 diverse lines of *G. arboreum* (L.) were screened at CICR RS Sirsa for identification of superior germplasm lines for Fibre Quality Traits and Locule Retentivity. The superior genotypes with 2.5 % span length (above 25.6 mm) were CISA 12 (27.5), DLSA 8 (26.8), PA 255 (26.5), 1789 (26.4) and AK 580 (25.6); for fiber fineness CISA 12 (5.0), 1789 (4.9) AK 60-2 (4.8), AKH 607 (4.6), AK 580 (4.6) and 6629 (4.5); for fiber strength AC 3370-1 (24.8), KWAN 3 (24.5), CISA 245 (24.1), 6629 (23.2) and PA 255 (22.7); for ginning outturn AKH 592 (37.3), DLSA 8 (35.5), AK 580 (35.0), 6571 (35.0) and KWAN 3 (34.5); for lint index AK 580 (4.8), AKH 592 (4.3), 6612 (4.2), 6619 (4.1) and 7038 (4.0) and for yield potential AC 1374 (128.8), DLSA 8 (103.4), KWAN 3 (99.9), 7173 WL NLL (98.6) and 6586 (97.5). The genotypes exhibiting >0.9 strength length ratios were CISA 245 (1.05), KWAN 3 (1.02), 6629 (0.92), 6644 (0.91) and CISA 329 (0.90). Among the superior lines for fibre properties, eight lines PA 255, CISA 196, CISA 290, CISA 334, CISA 338, CISA 342, 6637 and AC 3088 were observed completely resistant to shattering. The cultivar CISA 290 showed good yield potential also. In addition to superiority for strength-length ratio some genotypes were also noticed superior for other quality traits such as culture 6629 for fineness, strength and GOT; KWAN 3 for GOT and yield and CISA 245 for fiber strength and GOT. These cultures can be used further in crop improvement programmes for desired traits.

### Training Courses conducted

Eighteen (1 to 3 days) on campus and off campus training courses



Dr. Meshram Addressing farmers at KVK Farmer's Day



Dr. Tayade coordinating FLD programme organized

were conducted in different disciplines viz. Crop Production, Horticulture, Plant Protection, Veterinary Science, Home Science and Extension for 228 practicing farming, 112 rural youths and 17 extension functionaries. In all 367 participants benefited from the courses.

### Group discussion on "Marketing of chilli" organized

KVK, CICR, Nagpur organized a group discussion on "Marketing of chilli" on January 16, 2009 at Ranmangli village. 35 chilli growers of Ranangli & nearby village participated in this discussion. Gulbir Singh, SMS (Horticulture) discussed the methods of clean harvesting, grading, transportation and marketing of chilli. Sh. M. K. Meshram, Programme Coordinator was present on the occasion.

### Cotton IPM field day organized

KVK, CICR, Nagpur organized a cotton IPM field Day at village Mandavghorad on February 7, 2009 about 200 cotton growers participated in the programme. Dr. A. R. Raju Sr. Scientist Agronomy and Dr. V. Nagrare Sr. Scientist Entomologist were chief guests for this function. Sh. M. K. Meshram Programme Coordinator was the chairperson. Dr. R. R. Gupta (PI. Protection) coordinated the programme.

### Kisan mela organized

KVK, CICR, Nagpur organized a Kisan Mela at village Mandavghorad on February 13, 2009 in which about 175 cotton and vegetable growers participated. Dr. S. V. Malve Rtd Prof. Agronomy was chief guest for this function. Sh. M. K. Meshram Programme Coordinator was the chairperson. Dr. A. S. Tayde SMS (Agronomy) coordinated the programme.

## Farmers meet on Nursery Management

KVK, CICR, Nagpur organized Farmers & KVK staff meet on 'Nursery management of vegetable' on Feb. 16, 2009 at village Ranmangali in Bhiwapur Tehsil. The aim of this meet was to discuss the latest scientific nursery management techniques so that farmers can get disease free healthy seedlings of vegetables. Sh.M.K.Meshram programme Coordinator, Sh. Gulbir Singh, Sh. S.S. Patil and Dr. U.V. Galkate participated in the programme.

## Participation in exhibition

KVK participated in "Rashtriya Kisan Mela 2009" organized by NRC for Citrus, Nagpur at its campus on February 25-26, 2009. More than 1500 farmers visited the stall and appreciated the activities of CICR. Visitors showed keen interest in Bt. Detection Kit & transgenic Bt. straight varieties of cotton developed by CICR, Nagpur.

## PUBLICATIONS

- \* Kadam, B.P., Chavhan, R.L., Chakrabarty, P.K. and Patil, F.S. 2009. Characterization of variability in some economically important species of *Alternaria* based on the nucleotide sequences of nuclear ribosomal DNA. *J. Plant Biochemistry & Biotechnology* 18:59-64.
- \* Gururajan, K. N., Manickam, S., Anantha Raju, P. and Subashree, K. (2008). "Suraj (CCH. 510-4)" A new long staple high yielding cotton variety. *J. Indian Soc. Cotton Improv.*, 33 (3): 161-164.
- \* Prakash, A.H., Bandyopadhyay, K.K. and Gopalakrishnan, N. (2008) Growth and biomass partitioning in Bt vs non Bt cotton hybrids in winter irrigated situation in southern zone of India. *J. Indian Soc. Cotton Improv.* 33 (3): 129-142.
- \* Jena, D., Dash, A.K. and Bandyopadhyay, K.K. (2008) Effect of different modes and forms of nitrogen application on productivity and nitrogen use efficiency of rice in the North Eastern Coastal plain zone of Orissa. *An Asian Journal of Soil Science* 3 (2): 293-296.
- \* Dixit, Swati and Hirwade, Mangala, A. (2008). Traditional knowledge protection under IPR in India. *Information Age*, V2(4): 31-36.
- \* Kranthi, S., Dhawad, C. S., Naidu, S., Bharose, A., Chaudhary, A., Sangode, V., Nehare, S.K Bajaj, S.R and Kranthi, K. R. (2009) Susceptibility of the cotton bollworm, *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae) to the *Bacillus thuringiensis* toxin Cry 2Ab before and after the introduction of Bollgard II. *Crop Protection* 28 (5): 371-375.
- \* Nagrare, V.S., S. Kranthi., V. K. Birader, N.N. Zade, V. Sangode, G. Kakde, R. M. Shukla, D. Shivare, B. M. Khadi and K. R. Kranthi (2009) Wide spread infestation of the exotic mealybug species (*Phenacoccus solenopsis* (Tinsley) Hemiptera, Pseudococcidae) on cotton in India *Bulletin of Entomological Research*, 19th Feb 2009 (online)
- \* Kranthi, K. R., Davis, M., Mayee, C. D., Russell, D. A., Shukla, R. M., Usha, S., Mansi, K., Divya, S and S. Kranthi. 2009. Development of a colloidal-gold based lateral-flow immunoassay

kit for 'quality-control' assessment of pyrethroid and endosulfan formulations in a novel single strip format. *Crop Protection* 28(5): 428-434.

- \* Kranthi, K. R., Kranthi S., GopalaKrishnan, N. Asokan, R and C. D. Mayee 2009. Bt resistance- its management and prospects in the current context of climate change. In *IPM Strategies to Combat Emerging Pests in the Current Scenario of Climate Change*. (Eds. Ramamurthy, V. V., Gupta, G. P. and Puri, S. N) Proceedings of the National Symposium on IPM strategies to combat emerging pests in the current scenario of climate change held at College of Horticulture & Forestry, Central Agricultural University. Pasighat Arunachal Pradesh 791002. January 28-30, 2009 (Invited Lectures), pp 237-261.
- \* Peshin, R., Dhawan, A. K., Kranthi, K. R. and Singh, K. 2009. Evaluation of the benefits of an insecticide resistance management programme in Punjab in India. *International Journal of Pest Management*, 55, 3, 207- 220

## POPULAR ARTICLE

Dharajothi, B. and Dr.N.Gopalakrishnan, "Mealybug -A new threat to Cotton Cultivation" Hindu dt. 01.01.2009.

## BOOK

Dr.S.N. Rokde, Senior Scientist (Livestock Production & Management) published a book entitled, "Shastriya Paddhatine Shelipalan" in Marathi language (Scientific Goat farming) for the benefit of goat farmers, rural youths and other clientele. Published by Gyanesh Prakashan, 136 P.

## PATENT FILED

S. Kranthi, K.R. Kranthi, N.N. Zade, M.Kshirsagar (2009) Patent on 'Enhancing Cry1Ac expression in Bt cotton using jasmine perfume' has been filed. (111/Mumbai/2009).

## GENETIC STOCKS REGISTERED

S. Kranthi, K. R. Kranthi, V. V. Singh, N. N. Zade, M.Kshirsagar and B. M. Khadi (2008) Registration of CINH Ti1 and CINH Ti2 as CINH Ti1 (INGR 08088) and CINHTi 2 (INGR 08089) are the two registered genetic stocks with NBPGR, New Delhi.

## PARTICIPATION IN CONFERENCES /WORKSHOPS

- \* Dr S. Manickam, Senior Scientist, CICR, RS, Coimbatore attended the State Level Workshop on "Management and Monitoring of Field Trials of Genetically Engineered Crops in SAUs" at TNAU, Coimbatore on February 01, 2009
- \* Dr B. Dharajothi, Senior Scientist, CICR, RS, Coimbatore attended the State Co- coordinators meeting of TMC MM II-IRM project held at CICR-Nagpur during March 24-25, 2009 and presented the work done report and the technical programme for the year 2009-10.
- \* Dr K.K. Bandyopadhyay, Senior Scientist, CICR, RS, Coimbatore participated and presented paper entitled "Efficient utilization of water and nitrogen in Bt cotton using a generic simulation model Infocrop" in the 4th World Congress on Conservation Agriculture, New Delhi, 4-7, February, 2009

## HUMAN RESOURCE DEVELOPMENT

Dr B. Dharajothi, Dr M. Amutha and Dr. Rishi Kumar, Senior Scientist attended a training programme on Statistical tools for data analysis from March 2-7, 2009 at CRIDA, Hyderabad under the NAIP project "Development of Decision Support Systems for insect pests of major rice and cotton based cropping systems".

Dr. R.R. Gupta and Dr. P.B. Deulkar attended two HRD training programme on "Maintenance of agriculture equipments, tool and machinery for mechanization of small farms" and "Innovative crop production technologies evolved by the University" held on March 4-5, 2009 and March 6-7, 2009 respectively at Dr. PDKV Akola.

## LECTURES DELIVERED

**Varietal Purity Testing of Specified Traits" at CICR, Nagpur on Feb.23-27, 2009.**

- ✿ Dr. N. Gopalakrishnan, PC and Head CICR-RS, Coimbatore-PPV&FR Act, 2001 and DUS Guidelines.
- ✿ Dr. G. Balasubramani, Sr. Scientist- Detecting GM crops, labeling issues: LOD and LOQ tests
- ✿ Dr. R.K. Deshmukh, Pr. Scientist- Seed quality improvement by different techniques.
- ✿ Dr. P. Singh, Ex. Head & Pr. Scientist- Seed law enforcement, conventional and Bt cotton, issues and challenges.
- ✿ Dr. V. Santhy, Scientist (Sr. Sc.) Seed certification, Accreditation- ISTA standards.
- ✿ Dr. A.B. Dongre, Pr. Scientist- Hybrid purity seed testing using molecular markers.
- ✿ Dr. P.R. Vijaya Kumari, Sr. Scientist- Existing policies and laws to curb unapproved GM crops and spurious seed in India.
- ✿ Dr. Sandhya Kranthi, Sr. Scientist - PCR & event identification of GM cotton
- ✿ Dr. K.R. Kranthi, Director, CICR- Conventional and GM seeds: sampling methods, ELISA and statistical analysis, ELISA and strip test to detect Bt- cotton.
- ✿ Dr. G. Balasubramani and Dr. J. Amudha, Sr. Scientist- DNA fingerprinting for varietal purity and molecular markers to identify varieties.
- ✿ Dr. K. Rathinavel, Pr. Scientist- Tolerance Tables and their Utility Calculation and Reporting Results.

Dr. U. V. Galkate SMS (Vet.Sci) delivered guest lectures on "Conservation of green fodder", Computation of home made concentrate for milking animals", "Goat farming for self employment generation" and "Care and management of milking cows" at RAMETI Nagpur on March 22 and 23, 2009 respectively.

Dr. A.S. Tayade, SMS (Agronomy) delivered guest lecture on "Cropping system module" at RAMETI Nagpur on March 22, 2009 respectively.

## MEETINGS ATTENDED

Dr. K.R. Kranthi, Director, CICR participated in Agropedia workshop organized by ICRISAT at New Delhi on Jan 13, sub-committee meeting of GEAC as Chairman on Jan. 14 and also Directors Conference meeting under the chairmanship of DG, ICAR on Jan.

15- 16, 2009.

Dr. K.R. Kranthi, Director, CICR attended National Meeting of Entomological Society of India and delivered lead lecture on 'Insecticide pest Management in the Conference on global climate scenario on Jan 28, 2009 at Pasighat, Arunachal Pradesh.

Dr. P.K. Chakarabarty, Principal Scientist participated in Seminar on 'Opportunities and Challenges in Marker-Assisted Breeding' organised by Rasi Seeds Pvt. Ltd., held at Attur, Salem, Feb 14, 2009.

Sh. M.K. Meshram Principal Scientist & Programme Coordinator, and Shri S.S. Patil (SMS Extn.) participated in one day Workshop on "Mealy Bug in cotton" at Akola on Feb. 24, 2009. This workshop was jointly organized by Dr. PDKV Akola and NCIPM New Delhi.

Dr. K.R. Kranthi, Director, CICR participated in the second meeting of CAB under the chairmanship of Textile Commissioner at Mumbai on Feb. 13, 2009

Dr. P.K. Chakarabarty, Principal Scientist participated in sixth meeting of Task force on Agricultural Biotechnology, DBT held at TNAU, Coimbatore, from March 16-18, 2009.

Shri S.S. Patil (SMS Extn.) attended Monthly workshop of State Agriculture Department organized by Superintending Agriculture Officer at Agronomy Hall, College of Agriculture Nagpur held on January 14, February 12 and March 16, 2009.

Mrs. S.N. Chauhan attended National workshop on "Orienting home science activities in KVKs" organized by Zonal Project Directorate (Zone IV) at SVBPUAT, Meerat, UP on March 19-20, 2009.

## PERSONNEL

Dr. (Mrs.) T.P. Swarnam, Scientist (Sr. Sc.) Soil Science joined CICR Reg. Station Coimbatore on Feb. 16, 2009.

Shri K. Chinnapaniswamy T-2, CICR Regional Stn. Coimbatore and Shri Purushottam, DMS T-2, CICR Reg. Stn. Sirsa superannuated from service on Feb. 28, 2009 while Shri B.G. Meshram, T4, CICR, Nagpur reached superannuation on March 31, 2009.

## HONOURS & AWARDS

**DR. KRANTHI, CICR DIRECTOR AWARDED AS 'ICAC COTTON RESEARCHER FOR 2009'**

Dr. K.R. Kranthi CICR Director (Acting) has been selected as ICAC Cotton Researcher for 2009. The award carries an honorarium of 1000 US dollars and a shield. Dr. Kranthi was selected from 12 candidates in three disciplines of plant breeding/ production, plant protection and biotechnology from 8 countries who had applied for or were nominated for the award. Dr. Kranthi was awarded for his work on development of



diagnostic kits to detect transgenic cotton, insecticide resistance and quality of insecticides, mechanism of resistance and development of strategies to counter development of insecticide resistance for the benefit of small and medium scale cotton farmers.