

"I think the golden thread program is about by knitting you out of India. The golden threadly spun you have spun. The golden thread did the weaving, the golden thread did not tear you out of the loom. The above golden thread and shawl, were made by the wife. The golden thread was made in the old and new as the past is in, the golden thread equal, the way, is the same."

Atal Bihari Vajpayee - 1000 B.C.

# CI-CR

## NEWS LETTER

CENTRAL INSTITUTE FOR COTTON RESEARCH, NAGPUR

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### RESEARCH HIGHLIGHTS



Mealy bug Female-ventral view



Mealy bug infestation on cotton

#### Infestation of Indian cotton by mealy bug species, *Phenacoccus solenopsis* (Tinsley) (Hemiptera:Pseudococcidae)

Mealy bug, which was hitherto considered to be a minor pest, now appears to be a major threat to cotton production in almost all the cotton growing states of India. A taxonomic study was carried out on mealy bug populations collected (312 colonies) from July,2007 to February,2008 from a total of 47 locations in north, central and south India. Results of the study showed that all the samples collected comprised of only two species, *Phenacoccus solenopsis* (Tinsley) (95%) and the pink hibiscus mealy bug, *Maconellicoccus hirsutus* (Green) (5%). *P. solenopsis* was the major predominant exotic mealy bug species that infested cotton throughout the country and caused significant economic damage. *P. solenopsis*, which was not known to occur in India, appears to have assumed the status of a major pest on cotton in India.

#### *Phenacoccus solenopsis* as Exotic species

*Phenacoccus solenopsis*, was first described from the U.S. where it was widespread on ornamental and fruit crops. The report of *P. solenopsis*, infesting cultivated cotton (*G.hirsutum*) plants appeared in 1991 from USA, wherein it was also found to infest 29 other plant species belonging to 13 families. Subsequently, the species was also reported to occur on other crops in Central America, the Caribbean, and Ecuador in 1992, Chile in 2002, Argentina in 2003 and Brazil in 2005. Occurrence of *P. solenopsis*, on cotton in Pakistan and the widespread damage that it caused in the country in 2006 has been of utmost concern to the entire subcontinent. This report from neighboring country of India assumes significance because of the fact that the species *P. solenopsis*, was not known to occur in India or Pakistan prior to that and no record existed of its infestation on any crop in both the countries. The above mentioned reports indicate that *P. solenopsis*, could have been probably introduced into India.

Mealy bug populations establish and spread more easily than of many other insect species, since they possess a waxy coating on the dorsal side that protects them from insecticides and natural enemies, have a high reproductive rate, their ability to hide in the soil, cracks and crevices of plants and propensity to spread quickly through natural carriers such as plant products, wind, water, rain birds, human beings and farm animals. Therefore, mealy bug have immense potential to emerge as crops pests and thus pose grave threat to agriculture in the country. Therefore, it is necessary to develop appropriate area-wide ecofriendly strategies for management of mealy bug along with other insect pests.

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## For the effective prevention of mealy bug infestation

- Regular monitoring of the pest is necessary after sowing of cotton crop.
- Since mealy bug multiply on weeds on field bunds and move on to crop plants during the seasons, it is important to remove the weed hosts, which grow on field bunds, water channels and wasteland in the area.
- Preliminary studies conducted at CICR, Nagpur showed that pigeon pea does not support the growth and multiplication of *P. solenopsis*. Therefore, cultivating border rows of pigeon pea as barrier crops around cotton fields may also prevent mealy bug infestation that spread from weeds present on bunds.
- The pest can be effectively managed through early detection and interventions of early stages of infestation. The pest is initially restricted to a few plants along the border rows, adjacent to the source of infestation. The infested plants should be removed to prevent further spread..
- Insecticides with high eco-toxicity such as methyl parathion (WHO Class 1a: extremely hazardous category), monocrotophos, dichlorvos, methomyl, trizophos and metasystox (WHO Class 1b: highly hazardous ) should be avoided since they are not only ecologically hazardous, but are also detrimental to several important predatory insects such as the coccinellid beetles and several parasitoid wasps that control mealy bugs and other insects. Moreover, the FAO specifically recommended that WHO Class 1a and WHO class 1b should not be used in developing countries.
- However, if plants are infested, the affected stems can be drenched with an insecticides such as acephate (WHO Class III, Slightly hazardous category), to control the pest and its carriers as ant.

Nagrare, V.S., Kranthi, S., Khadi, B.M. & Kranthi, K. R.

### Potential Parasitoid of Mealy bug, *Phenacoccus solenopsis* Tinsley in Cotton

A potential parasitoid (*Aenasius bambawalei* Hayat) of mealy bug, *Phenacoccus solenopsis* Tinsley has been noticed while recording observations on mealy bug at experimental area of CICR Regional Station, Sirsa during 1<sup>st</sup> week of August. The body of parasitized mealy bug can be easily recognized by the absence of wax from its thoracic region as well as the disappearance of two characteristic strips from its abdominal region. The parasitoid probably lays its egg in 2<sup>nd</sup> and 3<sup>rd</sup> nymphal instars and adult female mealy bug. It completes its life cycle after passing through 5-6

nymphal instars. After pupation the adult emerges from the body of mealy bug leaving the empty mummified mealy bug behind. The adult leaves a characteristic emergence hole after breaking through the carcass of the mealy bug.

The parasitization percentage of this parasitoid has been recorded to range between 50 to 62 % in field observations. The population of this parasitoid as well as its parasitization efficiency is also affected by chemical interventions made for the management of mealy bug. The parasitoid has also been recorded in IRM adopted villages of District Sirsa also. Further studies on parasitization efficiency and preference for various mealy bug stages are being carried out.

Rishi Kumar, D.Monga & K.R.Kranthi

### RECORD OF PARASITOID POPULATION ON A PREDATOR

An encyrtiid parasitic wasp, *Homalotylus eytelweinii* (Ratzeburg) has been recorded in large numbers on the coccinellid predator, *Cheilomenes sexmaculata*. Belonging to family Encyrtidae of Hymenoptera, whose insects have a greatly enlarged mesosternum and stout apical spur, it was found to cause large scale mortality of coccinellid larvae on cotton, RCH 2 Bt, a sucking pest susceptible genotype that was Gaucho untreated. It was recorded during mid-September when both coccinellids (5 larvae/plant) and aphids (more than 100 per plant) were abundant. Functioning as an endo parasitoid, parasitized larval density seemed to be related to the larval density of the predator. Of the 250 coccinellid larvae collected from a single field 223 (89.20%)



Adult Parasitoid



Exit hole in mealy bug body



Mummified Body



Parasitized *Cheilomenes sexmaculata* showing emergence holes



were parasitized with *Homalotylus*. Parasite adults that emerged from coccinellid larvae were released on lab cultures of the mealy bug *Phenacoccus solenopsis* to study their efficacy as mealy bug parasites. Preliminary studies indicated that this parasite species resulted in 25% parasitization of mealy bugs in the lab.

**The parasitoid features are as follows:**

a) Adults are black in color with the mid leg possessing typical white tarsi, that is 5 segmented carrying a single white spur. The mid legs are enlarged to facilitate jumping. The nine segmented antennae possess a white terminal segment.

b) It is a parasitoid of larvae of the coccinellid and not of its adult's.

c) It is gregarious in nature. Four to eight parasitoids emerge from a single adult. This is evidenced both by the number of adults emerging from a single parasitized predator that is marked by multiple exit holes with the number of holes closely associated with the number of emerged adults.

d) Emergence of parasitoid adults is simultaneous from a single parasitized predator larva while emergence from predator larval collections are staggered over 48-120 h after collection.

**Parasitized larvae**

a) Initially becomes exceedingly sluggish but however cannot be distinguished from healthy larvae, visually.

b) Parasitized, dead, blackened larvae are restricted to the adaxial surface of upper leaves.

d) Internal contents of the coccinellid larvae are completely hollowed out leaving only the exoskeleton, before the parasitoid adult emerges.

This parasitoid has been reported earlier from Maharashtra in 1995. However, its occurrence was rare and numbers limited. With its increased intensity this year, *Homalotylus eytelweini* appears to be re-emerging on Bt cotton and this must be seen together, in the context of a change in insecticide use spectrum (Gaucho, Confidor, Thiomethoxam etc *vis a vis* broad spectrum molecules such as metasystox, monocrotophos).

S.Kranthi, K.R.Kranthi, N.N.Zade, D.Shivare, S.Vennila, V.N.Nagrare, & V.V.Ramamurthy

**Parasitoids on mealy bugs of rainfed cotton**

*Solenopsis* mealy bug *Phenacoccus solenopsis* Tinsley and pink hibiscus mealy bug *Maconellicoccus hirsutus* (Green) occur on rainfed cotton at Vidarbha. While *P. solenopsis* has attained pest status in pockets of cotton growing districts since 2007 and the incidence of *M.*

*hirsutus* is sporadic and limited. A survey conducted on the occurrence of natural enemies on both the species of mealy bugs led to records of four hymenopterous parasitoids, with their taxonomic identification established by Indian Agricultural Research Institute, New Delhi. *Aenasius bambawalei* Hayat (Encyrtidae) and *Promuscidea unfasciiventris* Girault (Aphelinidae) were recorded on *P. solenopsis*. *Mhirsutus* was parasitized by two encyrtids (*Encyrtus aurantii* (Geoffroy) and *Prochiloneurus pulchellus* Silvestri) and the aphelinid *Promuscidea unfasciiventris* Girault. *P. unfasciiventris* is a common parasitoid of both the mealy bug species and has already been reported by National Centre for Integrated Pest Management on *P. solenopsis* from Parbhani district of Marathwada region in Maharashtra.

In general, parasitization levels were higher on *M. hirsutus* than *P. solenopsis*. Although the diversity and abundance of parasitoids were high on *M. hirsutus*, assessment of parasitization levels was difficult on account of the highly aggregated colonies becoming hardened due to parasitization while still covered with white mealy coating. *P. solenopsis* nymphs parasitized by *A. bambawalei* and *P. unfasciiventris* did not grow into mealy bug adult females, but transformed into brown mummies from which adult parasitoids emerged out. Seasonal mean parasitization of *P. solenopsis* by *A. bambawalei* and *P. unfasciiventris* was estimated to be 21 per cent with a maximum of 48 per cent during August. It was also observed that the spread of *P. solenopsis* and *M. hirsutus* was slow in cotton fields not treated with insecticides due to the action of parasitoids. On the other hand, *P. solenopsis* infesting cotton plants under pot and polyhouse



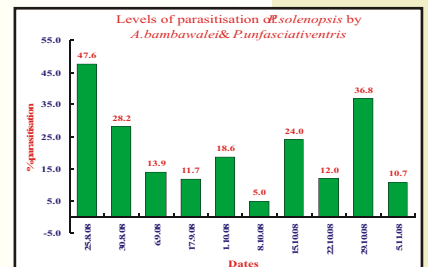
*Homalotylus eytelweini* Adult



Heavily parasitised colonies of *M.hirsutus*




Mummified *P.solenopsis* due to parasitisation by *A.bambawalei* & *P.unfasciiventris*



*Phenacoccus solenopsis* Tinsley infestation on cotton





conditions sprayed with insecticides showed no parasitoid activity despite increased severity of mealy bug infestation. Considering the significant field control of mealy bugs by native parasitoids, it becomes essential to preserve and encourage the population of the latter. Detection of initial invasion of mealy bugs through regular inspection and opting for cultural methods and bioinsecticidal sprays in the presence of parasitoids in cotton fields would go a long way in tackling mealy bugs.

S. Vennila, V. V. Ramamurthy<sup>1</sup>, K. R. Kranthi, B. S. Ghodki & D. B. Pinjarkar

<sup>1</sup>Indian Agricultural Research Institute, New Delhi

### **Soil health Maintenance is a prerequisite for sustaining cotton productivity at higher level**


Though there is spectacular improvement in the cotton production in the country, the National productivity of cotton (523 kg lint/ha) is far below the world average (715 kg lint /ha). This may be attributed to the fact that major area of cotton cultivation (65 per cent) is under rainfed condition, where there is no control over distribution of water. Further soil management has not been paid adequate attention as deserved compared to the cotton growing countries, where the productivity is quite high. This aspect needs urgent attention to meet the production target of 350 lakh bales by 2010 as demanded by the Confederation of Indian Textile Industries. For any crop, soil characteristics are very important as the environment provided by soil and climate governs the growth of the crop. Cotton being a commercial crop, its soil site suitability characteristics has been worked out. The soils in the Northern cotton growing zones include alluvial (Entisol), sierozem (Entisol and Inceptisol) and sandy soils (Aridisol), in the Central zones the soils are shallow to deep black (Vertisol) and alluvial (Entisol) and in the Southern zone the soils are black (Vertisol), red (Alfisol), alluvial (Entisol) and to a negligible extent laterite soil (Oxisol). Each of these soils is having inherent constraints for crop production.

Soil constraints refer to a situation where the soil environment is not in optimum condition to produce high yield of crops. Soil constraints may be physical, chemical and biological in nature. The physical constraints include soil erosion, highly permeable soil, slowly permeable soil, soils with subsurface mechanical impedance, shallow soils, crusting soils, hardening soils etc., and the chemical constraints include soil salinity and alkalinity, soil acidity, soil nutrient mining etc. and the biological constraints include depletion of soil organic carbon, changes in soil microbial biomass and their activity etc. Unless these constraints are ameliorated using site-specific, economically viable and environmentally sustainable technology, the genetic potential of a crop cannot

be realized even when all other inputs like water and nutrients are supplied in adequate quantity. Besides its role on cotton productivity, soil characteristics also influence the fibre quality parameters of cotton. Thus maintenance and improvement of soil health is indispensable for sustainable cotton production. The term soil health and soil quality are often being used interchangeably in the scientific literature. Soil quality is defined as the capacity of soil to function within ecosystem and land use boundaries, to sustain biological productivity, maintain the environmental quality and promote plant, animal and human health (Doran and Parkin, 1994). Soil quality includes three groups of mutually interactive attributes i.e. soil physical, chemical and biological quality, which must be restored at its optimum to sustain productivity at higher levels in the long run. For maintaining the soil health there is a need for proper assessment and regular monitoring of the soil health. The minimum data set of the physical indicators of soil quality include texture, depth of top soil, infiltration and soil bulk density, water holding capacity; the chemical indicators include soil organic matter, pH, EC, Extractable N, P and K and the biological indicators include microbial biomass C and N, potentially mineralizable N, soil respiration etc. Attempts have been initiated in this direction for constant monitoring of soil quality through development of Soil Health Card in a farmers participatory approach.

The Govt. of Tamil Nadu is distributing such soil health cards in local language among the farmers based on their soil and water test data carried out in mobile soil testing laboratories. Though there is a scope for further improvement yet this may be considered as a good initiative in this direction. The villages where the front line demonstration (FLD) program of the All India Coordinated Cotton Improvement Project, CICR, Regional Station, Coimbatore is going on, the farmers are advised to go for soil test in collaboration with the State Government and the soil health card is distributed to them. This program should be replicated and upscaled at the National level and the farmers should be educated properly about the importance of soil testing and maintenance of soil health. Based on the soil test data, proper advice is given to farmers to follow the site-specific integrated nutrient management practices (STCR-INM approach) and the ameliorative measures to alleviate the soil constraints for maintaining soil health and improving cotton production through efficient utilization of the inputs.

K.K. Bandyopadhyay and N. Gopalakrishnan



### Evaluation of Bt hybrids released for Central Zone under rainfed situation

Cotton is very important crop grown in India under diverse agro-ecological regions in about 95 lakh hectares. The diverse agro-ecological zones comprise Central, South and North. The central zone occupies highest acreage (64 lakh hectares) with production of 191 lakh bales. The central zone is mainly rainfed occupying more than 56 % of the total area but contributing less than 50 % of the total production. The productivity is highest in the northern zone and lowest in the central zone. The north zone occupies 15 lakh hectares of the total cultivated area but contributes about 49 lakh bales of the production as the entire area is irrigated. In south zone area (16 lakh hectares) under cotton cultivation is both irrigated and rainfed and contribute about 56 lakh bales.

The government of India has approved commercial cultivation of the Bt cotton since 2002. During these six years, the number of Bt cotton hybrids released for cultivation has risen from three in 2002 to around two hundred eighty in 2008. The cultivable land area under Bt cotton cultivation is gradually increasing due to higher seed cotton yield

and resistance to bollworms in Bt hybrids released. For farmers, Bt cotton offers advantages over conventional cotton varieties and hybrids in that the insecticidal proteins are produced directly by the plants thereby reducing the application costs of synthetic chemical insecticides. For identifying suitability Bt hybrids for central zone, 12 Bt-hybrids (Table 1) released for central zone were evaluated under rainfed situation at Central Institute for Cotton Research, Nagpur during the year 2006-07.

Among 12 Bt-hybrids, NCS 145 Bt (Bunny Bt) recorded highest seed cotton yield of 1804 kg/ha followed by JKCH 99 Bt (1710 kg/ha) and NCEH 2R (1695 kg/ha). However, hybrids MRC 7301(BG-II), MRC 7326(BG-II), NCS 913, KDCHH-44, RCH-138, Ankur 09 and NCS 207 were at par with conventional hybrid NHH 44. JKCH 99 Bt recorded highest lint yield of 661 kg/ha followed by NCS 145 Bt (656 kg/ha). For fibre properties, Bt hybrids NCEH 2R Bt, NCS 145 Bt and NCS 207 Bt were identified as promising. Thus, three Bt hybrids namely, NCS 145 Bt (Bunny), JKCH 99 Bt and NCEH 2R Bt were identified as promising Bt-hybrids under rainfed situation.

**Table 1. Mean values of seed cotton yield and fibre properties in Bt hybrids evaluated during 2006-07**

Sl. No.	Bt - Hybrid	Bt-gene	Event	Seed cotton yield (Kg/ha)	Lint yield (Kg/ha)	2.5 % Span length (mm)	Uniformity ratio	Fineness Micro naire 10 -6 g/in	Bundle strength Tenacity (g/tex) at 3.2 mm gauge
1.	MRC-7301	Cry 1 Ac+ Cry 2 Ab	MON 15985	1254	459	28.25	48.50	3.75	21.25
2.	MRC-7326	Cry 1 Ac+ Cry 2 Ab	MON 15985	1389	562	29.00	47.50	3.70	20.95
3.	NCS-913	Cry 1 Ac		1173	480	27.30	47.50	3.85	19.45
4.	JKCH-99	Cry 1 Ac	Event 1	1710	661	26.40	50.00	4.55	20.30
5.	NCEH-2R	Cry 1 Ab+ Cry 1 Ac	GFM	1695	627	30.50	49.50	3.70	22.65
6.	KDCHH-441	Cry 1 Ab+ Cry 1 Ac	MON 531	1372	523	26.35	47.00	3.65	18.45
7.	RCH-144	Cry 1 Ac	MON 531	1539	584	24.20	48.00	3.55	17.90
8.	RCH-138	Cry 1 Ac	MON 531	1149	450	26.90	49.00	3.05	19.50
9.	ANKUR-09 (Non Bt)	Conventional hybrid	-	1292	504	26.65	50.00	4.00	19.25
10.	MECH 184	Cry 1 Ac	MON 531	1173	452	26.95	47.50	3.85	21.05
11.	RCH 2	Cry 1 Ac	MON 531	1566	564	27.95	47.50	3.20	20.50
12.	NCS-145 (Bunny)	Cry 1 Ac	MON 531	1804	656	29.10	49.00	3.60	22.25
13.	NCS 207 (Mallika)	Cry 1 Ac	MON 531	1178	454	29.50	47.50	3.85	23.00
14.	NHH 44 (Non Bt)	Conventional Hybrid	-	1151	434	24.30	49.00	3.60	17.70
	CV			11.63	11.25	2.57	2.78	4.35	4.59
	CD (0.05)			352	130	1.52	1.25	0.35	2.01

S. M. Palve

## MEETINGS ATTENDED

Dr. K.R.Kranthi, Director (Acting), CICR, Nagpur participated in the awareness cum training programme on Mealy Bug Management and delivered lecture on 'Mealy Bug Management Strategies' on July 16, 2008 at Hyderabad, participated on TMC MMI Annual Review Workshop held at CICR RS Coimbatore on July 22-23, 2008 and participated in the 'Management Development Programme on Leadership for Innovation in Agriculture' at MANAGE, Hyderabad on Aug. 25-29, 2008.

Dr. K.R.Kranthi, Dr. N.Gopalakrishnan, PC & Head, CICR, RS, Coimbatore, Dr. M.R.K.Rao, Principal Scientist, CICR, Nagpur, Dr. R.R.Gupta, I/C Rajbhasha Anubhag, CICR, Nagpur, attended

the meeting convened by second sub-committee of Parliamentary Committee of Official Language on Sept. 16, 2008 at CICR RS Coimbatore for implementation of Official Language.

Shri M.K.Meshram, Principal Scientist & Programme Coordinator KVK and Shri Gulbir Singh attended Annual Zonal Workshop of KVK organized by Director of Extension, Dr PDKV Akola on Sept 25.2008.

Shri M.K.Meshram (Programme Coordinator) attended All India radio meeting at Warood (Pusad) on July 29,2008.

Shri M.K.Meshram and Shri S.S. Patil attended ATMA (AMC) meeting at office of Superintending Agriculture Officer Nagpur on August,22,2008.

## KVK ROUND-UP

### Training Programmes

Thirty two short duration (1-3 days) *on campus* and *off campus* training courses were conducted in different disciplines for 373 practicing farmers (PF) 298 rural youth (RY) and 90 extension functionaries (EF).

Discipline	No. of courses	No. of participant			Total
		PF	RY	EF	
Crop Production	5	107	-	-	107
Horticulture	8	100	45	23	168
Plant protection	11	60	132	42	234
Veterinary Science	1	24	-	-	24
Home Science	3	21	49	-	70
Extension	5	61	72	25	158
Total	32	373	298	90	761

### Details of Assessment of technologies under Front Line Demonstrations on farmers Field

Sr. No.	Crop	Village	Technologies Demonstrate	No of farmers	Area (ha)
1	Pigeon pea	Mangli + Mandhav Ghorad	IPM	25	10
2	Soyabean	Mangli + Mandhav Ghorad	INM	25	10
3	Cotton	Mangli + Mandhav Ghorad	Production technology	50	20
4	Cotton	Mangli + Mandhav Ghorad	IPM	50	80
5	Chilli	Ranmangli	Varietal	10	04
6	Okra	Mangli + Mandhav Ghorad	varietal	10	04

## TMC UPDATE

Technology Mission on Cotton Mini Mission I Programme launched during the year 2007-08 under the XI plan with significant achievements in various projects completed one year. A total of twenty projects covering various aspects such as diploid & tetraploid cotton improvement, Bt cotton production technology, characterization of newer pests & IPM / IRM in Bt cotton, Post harvest fibre technology, total factor productivity and social dynamics of cotton cultivation in distress areas are being implemented with 24 cooperating centers all over the country. An Annual Workshop was conducted at CICR, RS, Coimbatore on July 22 23, 2008 to review the progress in TMC MMI

under the chairmanship of Dr. T. P. Rajendran, ADG (PP & CC). The chairman in his inaugural address emphasized the need to shift from conventional technology generation mode into direct technology utilization / commercialization mode, for which, a thorough analysis need to be performed based on the needs of the cotton textile industry. The document made on Technical Programme of TMC MMI was also released in the



Release of Technical Programme of TMC MMI by Dr. T. P. Rajendran, ADG(PP)

workshop followed by presentation by each Principal Investigators of all projects.. The Chairman in his closing remarks mentioned that CICR should take up a special drive for monitoring of all the projects operating under Mini Mission I of TMC. The progress being made in various TMC MMI projects of North zone was reviewed by Dr. K.R.Kranthi, Director, CICR, Nagpur, Dr. P.R. Bharambe, Head, Crop Production Division and Dr. V.V.Singh, Head, Crop Improvement Division, CICR, Nagpur. The various field trials laid out under different projects such as TMC MM 1.1 (Diploid cotton), 1.3 (Machine picking), 1.4 (Bt cotton), 2.1 (Bt cotton production), 2.2 (Cropping system), 3.1 (Emerging pests) & 3.2 (IPM / IRM) projects were monitored at Sirsa, Faridkot, Abohar, Hisar & Sriganaganagar.

### HONOURS & AWARDS



Dr. Vennila Receiving Award at the hands of Shri Kantilal Bhuria Union Minister of State for Agriculture

- Dr. S. Vennila, Senior Scientist, CICR, Nagpur was awarded the coveted Punjabrao Deshmukh Woman Agricultural Scientist Award 2007 on the eve of ICAR Foundation Day in a ceremony at NASC, New Delhi on July 16, 2008. Dr. Vennila got the award for her work on cotton crop

protection and for development of tools for extension workers/ researchers for disseminating integrated pest management technologies. She applied weather based forecast models for predicting commencement and severity of pests across cotton growing zones. Implementation of Integrated pest Management Strategies resulted in increased yields and reduced cost of cotton production. Dr. Vennila received the award consisting of a cash prize of Rs. 50,000/- and a citation from Shri Kantilal Bhuria, Union Minister of State for Agriculture in presence of Shri Sharad Pawar, Union Agriculture Minister and ICAR President and Dr. Mangala Rai, Director General, ICAR.

- Dr. M.V.Venugopalan Principal Scientist (Agronomy) and a member of the research team led by Dr. Tapas Bhattacharaya, Principal Scientist, NBSS & LUP, Nagpur received the prestigious ICAR Award for team Research for the Biennium 2005-06. Hon'ble Shri Sharad Pawar, Union Minister for Agriculture, Government of India, presented this award on July 16, 2008 for their contribution in understanding the role of soil in mitigating greenhouse gases and also for identifying 22 benchmark soils and production systems that can contribute to higher carbon sequestration. Their study also recommends a

minimum soil organic content of 0.63% (bulk density 1.6g/cc) and a maximum soil organic content of 2.42% (bulk density 1.22g/cc) as threshold limits to identify systems for carbon sequestration in soils.

### HUMAN RESOURCE DEVELOPMENT

- Shri Gulbir Singh, Dr. U.V. Galkate (SMS Vet.Sci) and Shri S.S. Patil (SMS Extn.) attended ten days training on "Website design and development" at Zonal Coordination Unit Hyderabad during July 21 to 1 August, August 3-16, 2008 and August 18-29, 2008, respectively.
- Dr. Jagvir Singh, Principal Scientist, Dr. P.R. Vijayakumari, Sr. Scientist and Dr. M.S. Yadav, Technical Officer (T7-8), CICR, Nagpur attended two days training Course on 'Patenting system in India' at National Institute for Intellectual Property Management, Nagpur on Sept. 1-2, 2008.

### Visit of Parliamentary Sub-committee on official Language

Members of 2<sup>nd</sup> Parliamentary Sub-Committee on Official Language visited CICR Regional Station, Coimbatore on Sept. 16, 2008 to monitor the progress of implementation of Official Language in official work. The committee is chaired by Hon'ble Dr. Laxmi Narayan Pandey, MP (Lok Sabha). The other members of the committee are : Shri Kunwar Sarvaraj Singh MP (Lok Sabha), Dr. Rajesh Kumar Mishra MP (Lok Sabha), Shri Uday Pratap Singh MP (Rajya Sabha), Prof. Alka Balram Kshatriya MP (Rajya Sabha), Smt. Poonam Juneja, Secretary, Govt. of India, Dr. Ramesh Chandra Sharma, Under Secretary, Govt. of India, Shri. Om Prakash Tripathi, Hindi Officer and Shri. Devendra Singh, Reporter. From ICAR side, the meeting was attended by Dr. K.C. Jain, ADG (CC), ICAR, New Delhi, Dr. K.R.Kranthi, Director (Acting), CICR, Nagpur, Dr. N.Gopalakrishnan, PC & Head, CICR, RS, Coimbatore, Dr. M.R.K.Rao, Principal Scientist, CICR, Nagpur, Dr. R.R.Gupta, I/C Rajbhasha Anubhag, CICR, Nagpur, Shri Manoj Kumar, Hindi Officer, ICAR, New Delhi and Shri Shubh Shree, Technical Assistant, CICR RS, Coimbatore.

Dr. N.Gopalakrishnan presented the progress report of use of official language at CICR RS, Coimbatore. The report was critically evaluated by the Hon'ble members of the Committee. The Hon'ble Chairman Dr. Laxmi Narayan Pandey and other members gave valuable suggestions for more use of Official Language as per the constitutional provision. The attempts made by the PC and Head, CICR, RS Coimbatore for enhancing use of Official Language in this station under the category of C region were appreciated by the committee. The meeting concluded with vote of thanks proposed by Dr. K.R.Kranthi, Director, CICR,

## VISITS ABROAD

Dr Dilip Monga Head Central Institute for Cotton Research Regional Station Sirsa attended the 4<sup>th</sup>

Asian Cotton Research and Development network meeting at Anyang, Henan, China from 22<sup>nd</sup> to 26<sup>th</sup> September 2008. He participated in the meeting on the invitation of International Cotton Advisory Committee (ICAC), Washington, USA and his program was

supported by Commonwealth Agricultural Bureau International (CABI) of United Kingdom. He presented a research paper entitled "Problems and prospects of Bt cotton cultivation in Northern Indian zone". The meeting was attended by Asian cotton growing countries which include China, India, Pakistan, Uzbekistan, Tajikistan, Kazakhstan, Iran, Turkey, Thailand, Indonesia, Bangladesh, Philippines, Vietnam, Azerbaijan, Turkmenistan and other countries which contribute maximum cotton to the world. The countries like China, India, Uzbekistan and Pakistan have more share of production of cotton among Asian countries. Asian countries contribute to 70% of world cotton area and 74% world cotton production. A total of around twenty delegates from different countries attended this network meeting where as there were around sixty participants from different cotton growing regions of China.

During deliberations, Dr Monga suggested that it was a good occasion to understand the strengths and weaknesses of Asian cotton producing countries which will help India to devise strategies to improve our production and productivity and reduce cost of cultivation. This will also help in developing research networks on common important issues with other cotton producing countries.

### User Awareness Program on CeRA conducted

CeRA (Consortium for e-Resources in Agriculture) is the e-journal consortium under NAIP and informatics India Ltd. CICR, Nagpur Library is participating in the consortium for e-Resources in Agriculture (CeRA), and facilitating on-line accessibility of over 1500 scientific e-journals. In this regard, CICR Library conducted a user Awareness Program on CeRA for scientists and other user of CeRA on September 18, 2008. Dr Maya Avasia from informatics India Ltd. was the

resource person. The Director and scientists, present for this user Awareness program found the program extremely useful.

### Visit of PME Committee

Members of Project Monitoring and Evaluation Committee (PMEC) comprising of Dr. K.R.Kranthi, Director (Acting), Dr. P.R. Bhrambe, Head, Crop Production Division, Dr. V.V.Singh, Head, Crop Improvement Division and Dr.S.Vennila Sr. Scientist and Member Secretary PME, alongwith Dr. P.R.Vijayakumari Sr. Scientist visited CICR RS Sirsa on Sept. 25-26, 2008. The committee discussed and analyzed every project of each scientist. The members appreciated the performance of GMS based *G.arboreum* CICR 2 released from this station and for seed procurement of the hybrid for its popularization in central zone. Dr.K.R.Kranthi also advised scientists regarding reporting of quantifiable and monitorable targets and achievements in quarterly and six monthly reports. The projects under operation at regional station were discussed with each scientist in detail and suggestion for their improvement and streamlining were given. The committee member also visited the experimental fields of individual projects and rendered useful advice to scientists.

### Publications:

- 1) S.K. Verma and O.P.Tuteja (2008). Assessment of Genetic divergence among genotypes of upland cotton (*Gossypium hirsutum* L.) developed using different sources of cytoplasm. *Journal Indian Society Cotton Improv.* **33** (1): 1-6
- 2) O.P.Tuteja, Anil Mehta and Hamid Hasan (2008). Impact of plant densities and nitrogen level on seed cotton yield and fibre quality on promising hybrids of *Gossypium hirsutum* L *Journal Indian Society Cotton Improv. Society.* **33** (1): 54-56.
- 3) Nandini Gokte-Narkhedkar, N.V. Lavhe, P.R. Panchbhai and B. M. Khadi. (2008). Cottage industry scale *in vivo* production of Entomopathogenic nematode *Heterorhabditis indica* for the control of *Helicoverpa armigera* on cotton. *International Journal of Nematology* **18**(



Dr. Dilip Monga Attending Meeting of ACRD Network



Visit of Experimental fields at CICR, RS, Sirsa by PMEC

Compiled & Edited by : Dr. Nandini Gokte-Narkhedkar ( Principal Scientist )

Produced & Published By : Dr. K. R. Kranthi, Director (Acting)

Central Institute for Cotton Research Post Bag No. 2, Shankar Nagar P. O., Nagpur - 440 010, Phones : 07103-275536/275538 Fax : 07103-275529

Gram : Kapassanathan, E-mail : cicrngp@rediffmail.com CICR NewsLetter also available at Website : www.cicr.org.in