



*"O cloth! The goddess Revathi prepared a sinner by beating you out of weeds. The goddess Spinning spun you into yarn. The goddess Weave did the weaving. The goddess Cut cut and took you out of the loom. The above goddesses and thousands more made up the ends. The goddess gave the cloth to the one god and even as he put it on, his greatness became explicit. So too, is the cloth."*  
*Apurvaashilina Gitaaya Sutra -3000 B.C.*



## NEWS LETTER

CENTRAL INSTITUTE FOR COTTON RESEARCH, NAGPUR

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# GEAC Approval for ICAR Transgenic BN Bt Cotton



*Agrobacterium* mediation at ARS, UAS, Dharwad. Prominent Indian *G.hirsutum* cultivars viz., BN (Bikaneri Nerma) from UAS, Dharwad, Anjali ( LRK 516) and LRA 5166 and *G.arboreum* cultivar RG 8 from CICR, Nagpur were transformed with Bt *cry* 1 Ac gene using meristem and embryonic axes explants and regenerated by direct shoot organogenesis. The putative transformants were confirmed by PCR, Southern blot and ELISA test for Bt *cry* 1 Ac + *npt*-II gene integration and transgene expression respectively. From 2002-2003 season onwards the various stages of transformed plants were evaluated and permission was obtained from IBSC/RCGM to take-up strip trial followed by Confined Open Field Trial (COFT) in all the three zones with T2 generation transgenic plants during 2004-05. Based on the yield characters, *Cry* protein expression and resistance to bollworm attack, BN Bt was promoted to RCGM replicated Multilocation Research Trial (MLRT) in all the three zones viz., North (Sirsa, Faridkot, Sriganaganagar and Hisar), Central (Nagpur, Nanded,

Bikaneri- Nerma- Bt (BN-Bt) was approved for commercial cultivation in May, 2008. This development is perceived as a landmark achievement of collaborative efforts of three institutes viz. CICR, Nagpur; UAS, Dharwad and IARI, New Delhi. Development of Bt

cotton for insect resistance was initiated under NATP in collaboration between NRCPB, New Delhi; CICR, Nagpur and ARS, UAS, Dharwad from year 2000 onwards. Bt *cry* 1 Ac gene with plant selection marker *npt*-II was designed by NRCPB, New Delhi and CICR, Nagpur and was transferred into genetic background of most popular cotton cultivars by

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Bikaneri- Nerma Bt approved for commercial cultivation



Khandwa and Surat ) and South (Dharwad , Coimbatore, Guntur and Nandyal) during 2006-07 *Kharif* season and simultaneously the following biosafety experiments were conducted.

Toxicity and Allergenicity studies on lab animals such as rat, rabbit and guinea pig, large animals like milking cows and goat/sheep, birds (broiler chicken) and fish (common carp) were completed at DBT / RCGM recognized research institutes. Environmental safety studies such as pollen flow, Cry protein expression, soil microflora and fauna and soil dehydrogenase activities were completed with BN Bt cotton with their Non-Bt counter part. All these experiment results revealed that the BN Bt cotton cultivar seeds were found to be non-toxic and non-allergenic to the animal system and safe to the environment. The flanking sequence for event specific gene integration and LOD 0.01 % were completed as per the protocol. All the experiment results were submitted and presented to RCGM/GEAC for consideration and approval for commercial cultivation during crop season (2008-09). The Genetic Engineering Approval Committee (GEAC), the apex body in India, finally approved to use BN BT cotton from public sector (ICAR) as a new event for commercial cultivation from the current season (2008-09) onwards.

Release of BN Bt marks a significant milestone for public sector research in this direction. As on July, 2008, about 281 transgenic hybrids from private sector have been approved for cultivation. Their exorbitant pricing takes them beyond reach of small farmers. Furthermore, all the Bt transgenics released by the private sector are hybrids making it impossible for farmers to use their own



Dr. Gautum being felicitated by Dr. Khadi, Director CICR

produce as the seed stock and thus further increasing their cost of cultivation. Release of transgenic Bt variety in commercially popular Bikaneri Nerma background will provide small and marginal cotton farmers with a viable method of insect management at moderate cost. This transgenic BN Bt variety is expected to cost farmers less than Rs. 100/- per acre. Apart from Bikaneri Nerma, three to four transgenic cotton varieties having this gene and suitable for cultivation in each cotton growing zone are in pipeline.

#### DDG (CS) DR. P.L.GAUTUM VISITS CICR NAGPUR

Dr. P.L.Gautum, DDG (CS) visited CICR, Nagpur on May 4, 2008. This was his first official visit to the institute after joining as DDG (CS) on Oct. 12, 2007. Dr. Gautum has earlier served as VC, GB Pant University of Agriculture and Technology; Director,

NBPGR, New Delhi and Dean, YS Parmar Univ. of Hort. and Forestry, Solan. In 1997, during his tenure as Director, NBPGR was adjudged as best ICAR institute. During his visit to CICR, Nagpur, Dr. Gautum visited experimental fields and important laboratories as Biotechnology lab, Insecticide resistance management lab, Bt referral lab, Molecular pathology lab, Nutrient management lab etc. Dr. Gautum showed keen interest in progress of ongoing research projects. During his visit, Dr. Gautum addressed the scientists and interacted with them personally.



Dr. Gautum Visiting Insecticide Resistance Management Lab

### RESEARCH HIGHLIGHTS

#### TRYPSIN INHIBITOR MEDIATED BOLLWORM (*HELICOVERPA ARMIGERA*) TOLERANT COTTON (PART II)

Four genotypes have been developed with trypsin inhibitory properties. Of these, CINH Ti 1 and CINH Ti 2 developed in Bikaneri Nerma background were reported in CICR Newsletter, Vol 23(3). Using GCot10, a sucking pest tolerant variety, two other genotypes with trypsin inhibitory properties were developed, simultaneously, using EC140834(a bollworm tolerant but jassid susceptible poor yielding line). The two genotypes named CINH Ti 3 and CINH Ti 4 have the following unique features.

S.No.	Unique feature	CINH Ti 3	CINH Ti 4
1	background	G. cot. 10	G. cot .10
2	Leaf	Normal	Okra
3	Jassid tolerance	Grade I	Grade I
4	Per plant yield	80g	102 g
5	Insect bioassay		
	Larval mortality 1	47%	43.2%
	Growth inhibition 2	86%	89%
6	Trypsin inhibition 3	68.57±4.63%	68.68±4.11%
7	TIU (mg)	3.99±0.62	3.80±0.68

1 Against white stage larvae of *H. armigera* through diet incorporation after 7 days

2 (larval weight (LW) in control-LW in treatment) \LW in control) \* 100 after 7days

3 In vitro enzyme inhibitor assay

TIU= trypsin inhibitory unit defined as the amount of inhibitor in mg required to inhibit 1 U of trypsin

S.no 5-7 refers to assays with boll rind tissue of 10 day old bolls

S.Kranthi, K.R Kranthi, M.Kshirsagar, N.Zade, D.Shivare and B.M.Khadi





## A METHOD FOR ACCOUNTING COTTON BIOMASS SHED DURING CROPGROWTH

A novel method using linen mosquito net cloth spread between the crop rows was used to collect the biomass of RCH2 Bt cotton shed during crop growth at regular intervals under winter-irrigated situation in a mixed red and black calcareous clay loam soil (Vertic Ustropept) of Periyanaickan Palayam series at the CICR Regional Station, Coimbatore. The cumulative shed biomass ranged from 453 kg/ha in no nitrogen control to 909 kg/ha under 120 kg N/ha. This shed biomass added nutrient and carbon to soil during crop growth and future evaluation is underway in incorporating this data for simulation model of crop growth.

K.K. Bandyopadhyay, AH. Prakash, K.Shankaranarayanan and B. Dharajothi

## EFFECT OF SOIL COVERS ON COTTON IN A SEMIARID SOIL

A field trial conducted on cotton with readily available farm bio-wastes on a medium deep and medium fertile but well drained soils at Coimbatore, India revealed that application of neem leaves @ 5 t/ha as soil cover along with NPK was superior to both NPK and control; and was found to be equally effective with those of FYM @ 5 t/ha + NPK. The crop received 643.4, 593.3 mm rainfall and 674, 757.3 mm of cumulative pan evaporation during the last two study years. Higher productivity in plots with neem as soil cover was also evident from increased biomass, sympodia, burst bolls and seed cotton plant<sup>1</sup> and petiole N per cent at 90 days after sowing. Significantly higher fibre productivity efficiencies were observed in plots with soil cover over control and were 13.2 % higher over NPK alone. However, the biological efficiency was observed to be much superior in neem cover because of greater nutrient assimilation efficiency (59.3 kg dry weight gained per kg NPK removed over and above the control). However, quality of fibre and pest load was not influenced due to soil cover. Maximum economic yield advantages were obtained with easily decomposable bio-wastes like neem cover over than that in control, NPK or even FYM. In conclusion, Integrated Plant Nutrient System involving rational and appropriate use of fertilizers and organics viz., neem leaves @ 5 t/ha as soil cover along with NPK @60: 13 :25 kg/ha, has resulted in higher nutrient use efficiency, low cost of production and higher return.

C.S. Praharaj, K. Sankaranarayanan and N. Gopalakrishnan

## METHYLOBACTERIUM COMPATIBILITY WITH OTHER BIOINOCULANTS

The compatibility of *Methylobacterium sp.* with *Azospirillum lipoferum*, *Bacillus megaterium var. phosphaticum*, *Bacillus thuringiensis var kurstaki*, *Bacillus subtilis* and *Pseudomonas fluorescense* proved that *Methylobacterium*, a new bio inoculant isolated from Cotton ecosystem can be mixed with

other bio-inoculants and bio-agents for promoting the growth, biological nutrient mobilization and pest and disease management in cotton.

P.Nalayini and R.Anandham

## SHORT DURATION COMPACT GENOTYPE CCH 724-5

Early, Compact and Medium staple *G. hirsutum* genotype CCH 724-5 recorded a mean seed cotton yield of 3751 kg/ha as against 3392 kg/ha of the check variety Anjali under irrigated conditions at Coimbatore during 2007-2008. The variety was also tested under rainfed conditions in Central Zone for three years from 2004 to 2007 in the AICCIP trials and recorded a mean seed cotton yield of 1297 kg/ha, as against 1094 kg/ha of LRA 5166.

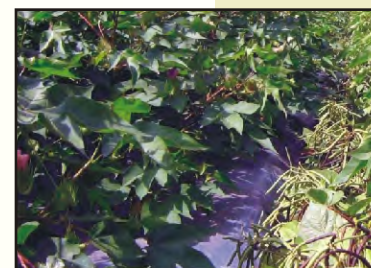
Culture CCH 724-5 has a mean ginning out turn of 36 per cent. It has round bolls with an average boll weight of 5 g. The first bursting commences on the ninetieth day and 90 per cent of the harvest is completed in 140 days. With Yellow Petals and Yellow anthers, CCH 724-5 can be easily identified from most of the other genotypes. With a mean fibre length of 27 mm and fibre strength 20 g/tex, the textile industry's requirement of medium staple cotton can be met by this genotype.

The culture CCH 724-5, with short internodes and compactly placed bolls on the sympodial branches, is suited for close planting and for growing under rice fallow situations in Tamil Nadu and Andhra Pradesh. The culture is being tested under TMC Project on 'Development of *G. hirsutum* Genotypes for Mechanical Picking'. The Culture CCH 724-5 would also be extensively tested under Rice fallow conditions of Tamil Nadu during the next summer season.

K.N. Gururajan, Dr. P. Anantha Raju, K. Subashree, N. Venugopal and N. Gopalakrishnan

## RESPONSE OF ELS BT COTTON TO DRIP AND POLYMULCHING

Field experiment was conducted during Winter 2007 - 08 to find out the response of ELS Bt cotton, RCHB 708 Bt under drip, poly mulching and drip + poly mulching as compared to conventional Irrigation. The highly conducive growth environment under poly ethylene mulching and poly mulch + drip system has resulted in significant increase in assimilate partitioning towards economic produce with many fold enhancement in production of harvestable bolls in cotton cv. RCHB



708 Bt contributing significantly to higher seed cotton yield ranging from 37.6 to 59.1 per cent higher yield than conventional method. The yield enhancement due to drip system ranged from 8.16 to 21.6 % higher than conventional method. The poly ethylene mulch + drip at 0.4 Etc recorded 30.9% higher seed cotton yield than drip at 0.8 Etc without poly ethylene mulching.

The cropping season witnessed a heavy effective rainfall of 25.54 cm and the total water requirement ranged from 37.60 to 77.54 ha cm for various treatments. Poly mulched cotton with or without drip recorded higher water use efficiency than drip alone without poly mulching. Among the treatments, drip at 0.4 Etc + polyethylene mulching recorded the highest water use efficiency of 161.9 kg seed cotton /ha cm in cotton cv RCHB 708 Bt as against 114.6 kg seed cotton/ha cm at drip at 0.8 Etc without poly ethylene mulching. The lowest water use efficiency of 49.4 kg/ ha cm has been recorded under conventional method.

P.Nalayini and K. Sankaranarayanan

### MANAGEMENT OPTIONS FOR EFFICIENT WATER USE IN COTTON

#### *Crop rotation*

Cotton-sorghum system resulted in 21.6% higher seed cotton yield (cv Surabhi) and 32% higher biomass production than cotton-fallow system. Furthermore, the former system also registered higher water productivity (Rs 6.86/m<sup>3</sup>) and nutrient use efficiency (17.8 kg seed cotton/kg NPK uptake) than the latter system (Water productivity of Rs 5.52/m<sup>3</sup> and nutrient use efficiency of 13.6 kg seed cotton/kg NPK uptake).

#### *Residue management*

Integrated residue management involving rational and appropriate use of dried neem leaves/twigs @ 5t/ha (as soil mulch or incorporated) plus RDF (60:30:30 kg NPK/ha) produced higher seed cotton yield and water use efficiency over that in control or NPK levels.

#### *Integrated nutrient management (INM)*

INM practice in hirsutum cotton variety (cv Surabhi) involving 60:30:30 kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O per hectare (RDF) plus FYM @ 5 t/ha resulted in higher Water use efficiency (WUE, 32.9 kg / h a - c m ), water productivity (Rs.7.35/M<sup>3</sup>) and seed cotton yield with better fibre quality under irrigated upland condition.

#### *Irrigation management*

Advantages of drip irrigation (wherever possible) over conventional flood or furrow or even alternate

furrow irrigation has been proved over the years. It was observed that irrigation through drip (0.8 Etc) and fertilization (RDF in 6 splits applied at 15 days interval up to 90 DAS) through fertigation in RCHB 708 Bt resulted in higher seed cotton yield and WUE over other levels of drip and surface irrigation method and soil application of fertilizer. Furthermore with drip, only 1464 litres of water were used per kg of seed cotton of HxB Bt hybrid under 0.8 Etc drip in comparison to 2004 litres in surface furrow irrigation through IW/CPE of 0.6 resulting in a net saving of 540 litre of water per kg of seed cotton production.

#### *Split application of nutrients*

Synchronization of nutrient supply as per crop demand also has a role in realizing higher yield and water use efficiency. Under the existing semi arid condition, only four splits of N was needed for higher input use efficiency and productivity (with maximum yield of 3570 kg/ha).

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

### MEETINGS HELD

#### **Annual Group Meeting: AICCIIP- 2007-08**

The annual group meeting of All India Coordinated Cotton Improvement Project of ICAR was held at PAU Ludhiana on April 9-11, 2008. The inaugural session of the meeting was graced by the august presence of Dr P. L. Gautam, Hon'ble DDG (Crop Sciences) ICAR, Dr M. S. Kang, Hon'ble Vice Chancellor, PAU, Ludhiana, Dr K. C. Jain ADG (Commercial Crops), Dr B. M. Khadi, Director, CICR, Nagpur, Dr P. S. Minhas Director of Research, PAU, Ludhiana and Dr. M. S. Aulakh, Dean PAU Ludhiana. During the inaugural address, DDG emphasized the importance of transfer of improved cotton production technologies to the farmers and fine tuning research programmes to meet the emerging problems of mirid and mealy bugs, parawilt, CLCuV in north zone, drought etc. He urged the researchers to suitably refine the package of the practices in order to profit the cotton farmers and make available appropriate quality cotton to the consumer industries. He also congratulated Project Coordinator and his team of scientists for bagging the coveted Choudary Devi Lal Award for outstanding All India Coordinated Research project for AICCIIP. Dr. Kang stressed the need for developing salinity and waterlogging tolerant cotton genotypes. Dr. B. M. Khadi outlined the cotton developments taking place in the world both on quantitative and



Annual Group Meeting: AICCIIP- 2007-08



Lighting of lamp by dignitaries at AICCIIP Meeting

qualitative spectrum and elaborated on the progress made in public sector Bt Cotton programme in the country. Dr. K. C. Jain urged the scientists of AICCIP for effective functioning of the system and also for planning to meet emerging global climate challenges. Dr. N. Gopalakrishnan, Project Coordinator (Cotton) presented in detail various achievements made during 2007-08 by AICCIP centres. Annual report of AICCIP and Souvenir on 'Cotton in Punjab' was released during the occasion. The meet was attended by Scientists from AICCIP, CICR, Private and public sector R&D organizations. The technical programme formulated during the meeting for the year 2008-09 can be viewed at [www.cicr.Org.in](http://www.cicr.Org.in).

### INSTITUTE RESEARCH COUNCIL MEETING HELD



Institute Research Council was organized jointly for CICR, Nagpur and its two Regional Stations at Coimbatore & Sirsa on April 28-May1, 2008. The meeting was held at CICR, Nagpur under the Chairmanship of Dr. B.M. Khadi, Director, CICR.

All the Scientists of CICR, Nagpur and its regional stations at Coimbatore & Sirsa participated in the meeting. Each Research Project was discussed thoroughly and technical programme for the year 2008-09 was finalized for each project. IRC also felicitated Dr. M.R.K.Rao and Dr. N.K.Perumal, Principal Scientists who will be superannuating by this year. The research contributions made by them in the field of cotton physiology was lauded by the Director CICR and IRC. The meeting was conducted by Dr. S. B. Nandeshwar, Secretary IRC.



Dr. Rao & Dr. Perumal being felicitated at IRC Meeting

Prior to IRC meeting, Pre-IRC meetings were held at CICR, Nagpur and regional stations at Sirsa and Coimbatore wherein annual progress report for each project was presented and new projects were critically reviewed. Pre- IRC meeting for regional station Coimbatore was held on April 23-25, 2008 under the chairmanship of Dr B.M. Khadi, Director, CICR. Pre-IRC meeting at Sirsa was held on April 5, 2008.

### CICR FOUNDATION DAY CELEBRATED

32<sup>nd</sup> foundation day of CICR, Nagpur was celebrated at its campus on April 1, 2008. The program was graced by Dr V. M. Mayande, Vice chancellor, Dr PDKV Akola . While speaking on the occasion as chief guest, Dr V. M. Mayande appreciated the work done by the CICR especially

in generation of various cotton production and protection technologies for the benefit of cotton grower. He assured for close linkages and collaboration in research, development, technology assessment and refinement from Dr.PDKV Akola. Earlier Dr. K.R.Kranthi Director (Acting) welcomed the guests and gave brief introduction of the chief guest. while Dr.M.R.K. Rao presented salient achievements of the institute. On this occasion Hon. Dr. V. M. Mayande was felicitated at the hands of Director CICR, Dr. K.R.Kranthi as this was his first visit to CICR after taking over as vice Chancellor, Dr. PDKV Akola. Dr.S.M. Wasnik, Principal Scientist ( Extension ) and Coordinator of the function compered the programme while Dr. L.A. Deshpande, Head Crop Improvement Division proposed the vote of thanks.



Dr. Mayande addressing the Gathering on CICR Foundation Day

### CICR BIDS FAREWELL TO DR. KHADI

CICR Nagpur bid farewell to Dr. B.M.Khadi, Director CICR on May 24, 2008. Dr. Khadi had joined CICR, Nagpur on deputation from UAS, Dharwad on May 5, 2005 . Dr. K.R.Kranthi , Head Crop Protection Division, CICR, Nagpur has taken over as Director (Acting), CICR, Nagpur.



Dr. Khadi being felicitated by Dr. Kranthi

### SEMINAR ORGANIZED ON IMPROVED CROP PRODUCTION STRATEGIES

A seminar was organized at the CICR, Regional Station, Coimbatore on "Improved crop production strategies for enhancing cotton productivity, quality and economic return" by SIMA-CDRA under TMC MM-II in collaboration with Directorate of Cotton Development, Mumbai on June 7, 2008. It was graced by the presence of leading cotton scientists, textile technologists and mill owners. Dr Anupam Barik, Director, Directorate of Cotton Development, Dr V. Santhanam, Ex UN/FAO Consultant, Mr P.D. Damodaran, Chairman SIMA-CDRA, Mr P.D. Patodia, Chairman, CITI, CDRA, Mumbai and Dr N. Gopalakrishnan, PC and Head, CICR, Regional Station, Coimbatore delivered special addresses on various issues related to problems and prospects of cotton production in Tamil Nadu and also emerging cotton scenario in the country. Around 200 delegates including progressive farmers participated in the day long event.



## AGRICULTURE FARMER'S DEVELOPMENT WORKSHOP-CUM- EXHIBITION

Agriculture workshop-cum-exhibition was organized by State Department of Agriculture from June 9 to 13, 2008 in collaboration with various agencies including CICR, RS, Sirsa at Punjab Palace, Sirsa. More than ten thousand farmers from Sirsa, Fatehabad, Hisar, Bhiwani and Jind distts. participated in this workshop-cum-exhibition. The information on cotton production technologies was provided by the scientists and technical persons to the farmers at the stall of CICR. An exhibition was organized in the exhibition hall showcasing the technologies i.e. Bt cotton, Mealy Bug management and Varieties/hybrids released by CICR, RS, Sirsa. The chief guest, Dr. K.V. Singh (OSD to Chief Minister, Haryana) visited stall and exhibition of CICR and interacted with the scientists regarding mealy bug management. All the scientists of the station participated in the workshop-cum-exhibition. Dr. D.Monga, Dr. O.P. Tuteja and Dr. Rishi Kumar delivered lectures during the workshop and interacted with the farmers. On closing day Dr. J.C. Katyal, Hon'ble, Vice Chancellor, CCSHAU, Hisar visited the stall & exhibition and interacted with scientists of CICR, RS, Sirsa.

### TRAINING ON COTTON HYBRID AND VARIETAL SEED PRODUCTION

CICR Regional Station, Sirsa imparted training on hybrid and varietal seed production to 30 farmers of this zone during 2007-08 season under Sir Ratan Tata Project. Farmers from district Sirsa and Fatehabad of Haryana and Hanumangarh of Rajasthan were selected for this training. The training was given mainly on seed production of intra-hirsutum hybrid CSHH 198; GMS based intra arboreum hybrid CICR-2

and desi cotton variety CISA 310 which are released from this station for cultivation in north zone. Most of the farmers could get sufficient profit in this venture. Some of the farmers who involved their family members in crossing programme could get profit up to 4 to 5 times of their expenditure i.e. Bharpoor Singh (5.15), Trilok Chand (4.96), Lalita Devi (4.59). The profit was higher in hybrid seed production of GMS based desi hybrid CICR 2.

### ARIS LAB AT CICR, REGIONAL STATION, COIMBATORE.

Agricultural Research Information system (ARIS) lab has been established at CICR, Regional Station Coimbatore. The lab has the capacity of 128 kpbs V - sat, web server with five node, Wireless LAN connectivity to the campus, Internet & emailing facilities. The facility was inaugurated by Dr. B M Khadi, Director, CICR, Nagpur on April 23, 2008.

### NATIONAL CONSULTATION ON RESISTANCE MANAGEMENT STRATEGIES HELD

A National Consultation on Resistance Management Strategies in Bt cotton was organized by the ministry of Environment and Forests, Government of India in association with the Biotech Consortium India Limited, New Delhi and CICR, Nagpur at the NASC Complex at New Delhi on the January 21-22, 2008. The meeting was attended by 87 participants. Director, Dr. B.M. Khadi delivered a lecture on the cotton scenario in India. Dr. K.R.Kranthi, Head Crop Protection Division presented the resistance mechanism to Cry toxins in the cotton bollworm. Dr. S. Kranthi, Senior Scientist, Crop Protection Division presented on the resistance monitoring to Cry toxins in the cotton bollworm. Workable strategies for resistance management in bollworm to Cry toxins were debated upon by representatives of seed companies, members of the GEAC and representatives from ICAR and State Agriculture Universities.

## KVK ROUND-UP

### Training Courses organized

Fourteen short duration (1 to 13days) *on campus* and *off campus* training courses were conducted in different disciplines for 168 practicing farmers(PF), 136 rural youths (RY) and 89 extension functionaries (EF). In all 393 participants benefited from the courses.

Discipline	No. of courses	No. of participants			Total
		PF	RY	EF	
Crop Production	2	21	23	-	44
Horticulture	4	58	43	38	139
Plant protection	2	-	22	30	52
Veterinary Science	2	33	20	-	53
Home Science	1	21	-	-	21
Extension	3	35	28	21	84
<b>Total</b>	<b>14</b>	<b>168</b>	<b>136</b>	<b>89</b>	<b>393</b>

- KVK CICR Nagpur participated in exhibition organized by Superintending Agriculture Officer Nagpur at Kadimbag Nagpur during May 3-5,2008. More than 2000 farmers visited the stall and sought information on various technologies developed by CICR.
- KVK organized Kisan Goshti on Integrated Nutrient Management in cotton at adopted village Mangali and Mandavghorad of Hingna tehsil on June 21,2008
- KVK staff participated in Action plan Workshop of KVK organized by Zonal Coordination Unit Hyderabad at College of Agriculture Nagpur during June 2-3,2008.
- A group discussion on improved cultivation practice of chilli was organized at village Dhanla of Kuhi tehsil on June 19,2008. Shri M.K.Meshram PS (Pathology) & I/C/ KVK , Shri S.S. Patil (SMS Extension ) Shri Gulbir Singh (SMS Horticulture) participated in the programme.

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

Sr. No.	Crop	Village	Technologies Demonstrated	No of farmers	Area (ha)
1	Pigeonpea	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

#### MEETINGS ATTENDED

- ◆ Dr. B.M. Khadi Director, CICR participated in GEAC meeting held on April 2, 2008 at New Delhi.
- ◆ Dr. B.M. Khadi, Director, Dr. N.Gopalakrishnan Project Coordinator & Head, CICR RS Coimbatore, Dr. D.Monga Head, CICR RS Sirsa, Dr. K.R.Kranthi Head, Crop Protection Division, Dr. P.R.Bharambe Head, Crop Production Division, Dr. L.A.Deshpande Head, Crop Improvement Division, Dr. V.V.Singh Principal Scientist, Dr. Punit Mohan Senior Scientist, Dr. Suman Bala Singh Princ. Scientist, Dr. K N. Gururajan Principal Scientist , Dr T.Surulivelu Principal Scientist, Dr B. Dhara Jothi Sr. Scientist, Dr B Manickam Scientist (SS), Dr C.S. Praharaj Sr. Scientist, Dr Usha Rani Scientist and Dr M. Sabesh Scientist (SS) participated in the annual workshop of All India coordinated Cotton Improvement Project at PAU, Ludhiana on April 9-11,2008.
- ◆ Dr N Gopalakrishnan and Shri K N Gururajan participated in meeting on Better Cotton Initiative held at MANAGE, Hyderabad April 2-4, 2008.
- ◆ Dr. P. R. Bharambe, Head, Crop Production Division, CICR, Nagpur participated in 'Cotton production technology' workshop organized in collaboration by State Agriculture Department, Vasant Rao Naik Samiti Prtishan, "Sakal" and daily Agro-One. Workshop was held at Babasaheb Naik Engineering College auditorium, Pusad and was presided over by food & drug administration Minister Shri Manohar Naik. Dr. Bharambe said that agriculture production has increased due to green revolution, however, this has led to the depletion of soil productivity as application of organic matter to soil is almost negligible.
- ◆ Dr N. Gopalakrishnan, Mr K.N. Gururajan and Dr K. Rathinavel, Principal Scientist participated in the 2<sup>nd</sup> DUS test launching function organized by PPV & FRA for working out modalities on different facets of DUS testing at NAAS, New Delhi on May 27, 2008.
- ◆ Dr. K.R.Kranthi, Director (Acting), CICR attended EFC meeting convened by DG, ICAR May 27-29, 2008 and participated and delivered lecture on the IPR at NAARM, Hyderabad
- ◆ Dr. K.R.Kranthi participated in Regional Consultation Conference on proposed National Biotechnology Regulatory Authority (NBRA) held at Mumbai on June 19, 2008
- ◆ Drs N. Gopalakrishnan and K. Shankaranarayanan Sr. Scientist participated in a two day workshop on procurement procedures of World Bank under NAIP at Tamil Nadu Agricultural University on June 19-20, 2008.
- ◆ Dr.S.M. Wasnik, Principal Scientist ( Extension ) participated in the 'National Seminar on socio-economic dimensions of technology development and technology transfer in Agriculture' organized by Maharashtra Society for Extension Education, Dr. PDKV and Directorate of Sericulture at Nagpur



Farmers being shown around the CICR campus

on during May 24-25,2008 and also attended Quarterly Advisory Committee Meeting for finalization of Rural Development Programmes of all India Radio organized at NBSS & LUP Nagpur on June 5, 2008 under the chairmanship of Director, Akashwani, Nagpur.

◆ Dr.S.N. Rokde participated in a seminar on May 10, 2008 on 'Soyabean cum Livestock based framing system approach for sustainable work and income security in Vidarbha' organized by M.S. Swaminathan Research Foundation and the Soyabean processors in Vidarbha at VANAMATI, Nagpur and also participated in National Seminar on Intellectual Property Rights at National Institute for IPR, Nagpur, on May 30, 2008.

◆ Shri S.S. Patil, SMS Extension attended monthly workshop of Agriculture Department organized by Superintending Agriculture officer at Agronomy hall, College of Agriculture, Nagpur on June 18,2008; participated in Block Technology Team meeting at Taluka Agriculture office on June 23,2008 and attended ATMA (AMC) meeting at Superintending Agriculture office Nagpur on June, 24, 2008.



Dr.K.K. Bandyopadhyay receiving certificate of NAAS Associateship from Dr. Acharya

### AWARDS AND HONOURS

Dr K.K. Bandyopadhyay, Senior Scientist (Soil Science) attended the 15<sup>th</sup> Annual General Body and Foundation Day meeting of the National Academy of Agricultural Sciences at New Delhi and received the Certificate of NAAS Associateship on June 4-5, 2008. He presented a paper entitled “Optimization of irrigation and nitrogen requirement for improving productivity and input use efficiency of Bt cotton using a simulation modeling approach” before the NAAS fellowship in the scientific session.

### PUBLICATIONS

#### RESEARCH PAPERS

Dash, A.K., Mishra, B.K., Bandyopadhyay, K.K. and Jena, D.(2007). Transport and transformation of prilled urea and nimin coated prilled urea through soil columns. *Ecology, Environment and Conservation*. 13 (4):815-819.

S.K.Verma, O.P.Tuteja and D.Monga (2008). Evaluation for Genotype X Environment interactions in relation to stable GMS based hybrids of north zone in Asiatic cotton (*Gossypium arboreum L.*). *Indian J. Agric. Sci.* 78 (4):375-8

#### POPULAR ARTICLES

Rokde, S.N. (April 2008 ). 'Krishi ke sudhar hetu ekatmik evam sumochit karya pranali'. *Kheti Duniya*, 13 (15) : 19.

Rokde, S.N. (May 2008 ). 'Bharat mein sthit Gopvannsha ke farm'. *Krushak Jagat*, 62 (33) :7.

Rokde, S.N. (May 2008). 'Unhalyat Sankarit Gainche shastriya padthatine prabhandan'. Shetkari dinadarshika half yearly periodical. Special issue for summer pp 95-97.

Rokde, S.N. (June 2008). 'Baratmein dudharu pashuo ka pradhanhan' . *Krushak Jagat*, 62 (40) :7.

### PARTICIPATION IN CONFERENCES /WORKSHOPS

Drs. C.S. Praharaj, A.H. Prakash, P. Nalayini and K. Shankaranarayanan delivered lectures in the seminar on “Improved crop production strategies for enhancing cotton productivity, quality and economic return” organized by SIMA -CDRA in collaboration with DOCD held on June 7, 2008.

### PERSONNEL

Mr Dinesh Kumar Aggarwal, Scientist (Selection grade) (Plant Breeding) has been transferred to NRC, Soybean on personal request.

Dr M. Amutha, Scientist (Entomology) was transferred from CICR, Nagpur to CICR, Regional Station, Coimbatore on personal request.



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