

COTTON Innovate



Weekly Newsletter from Central Institute for Cotton Research, Nagpur

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RESEARCH ROUND-UP



New native fungal isolates to control reniform nematode *Dr. J. Gulsar Banu, Principal Scientist (Nematology), CICR, RS, Coimbatore*

The reniform nematode, *Rotylenchulus reniformis* and root nematode, *Meloidogyne incognita* are two important nematode pests of cotton in India. Survey conducted in South India revealed the wide spread distribution of reniform nematode. Currently nematicides are used to control nematodes. However, concerns about hazardous effect of nematicides have led to the search for native effective and safer biocontrol agents against nematodes. Moreover native bioagent isolates will have ecological compatibility with nematodes and a reduced risk of significant impact on non – target organisms when compared with exotic isolates. At CICR regional Station Coimbatore two native isolates of nematophagous fungi, *Paecilomyces lilacinus* and *Pochamia* sp. were found to be effective in reducing the hatching and caused significant juvenile mortality of reniform nematode under *in vitro* condition.

SCIENTIFIC TALK

As a part of the weekly scientific seminar, a scientific talk on “Digital Signatures” was delivered by Dr. K. Rathinavel, Principal Scientist (Seed Technology) on 23rd November, 2013. Signatures are an essential part of the literate world. In practice, a person who cannot sign & prefers to affix his thumb impression is treated as an illiterate. In the digital world, only 12 lakh persons are digitally literate. As a matter of concern for signing an electronic document, Digital Signatures were introduced through Information Technology Act, 2000 and Information Technology amendment Act, 2008 which defines the term Digital Signature ‘as the means authentication of any electronic record by a subscriber by means of an electronic method or procedure’. The authentication of the electronic record shall be effected by the use of asymmetric crypto system and hash function which envelop and transform the initial electronic record into another electronic record.



Hash and asymmetric crypto system are both based on mathematical operations that can be performed on a numerical value. These systems can also be used with electronic documents since every electronic document is a binary expression which can be treated as a number. The electronic document intended to be digitally signed is passed through the hash algorithm, it produces a result which is called hash code or message digest or hash value. The hash code of the document is encrypted using the private key of who intend to sign the document. The encrypted file of the hash code constitutes a digital signature. The encrypted hash code is attached to the document and sends to the recipient via e-mail. Up on the receipt of document the recipient decrypt the hash code using the public key of the sender and confirms the authenticity of document. The recipient then calculates the hash value of the document and matches with the decrypted has value of the document. If both the values are similar, then the document has not been changed since last signed. Section 5 of the Information Technology Act, 2000 provides legal recognition of Digital Signature to Signature as we know in the paper world. Thus encouragement and practice of digital transactions using digital signatures will prevent the cyber theft of vital information’s such as research findings, data bases, e-mails, personal identity etc.

Relay sowing of wheat in cotton at CICR, Regional Station, Sirsa

Relay sowing of the wheat was done in standing cotton with different methods at Central Institute for Cotton Research, Regional Station, Sirsa in collaboration with Directorate of Wheat Research, Karnal and Department of Farm Power and Machinery, CCS HAU, Hisar on November 21, 2013. In northern zone, generally farmers have to harvest their cotton crop with 10-15% of unopened bolls in order to do timely sowing of wheat as delayed sowing of wheat adversely affects its yield. Harvesting of cotton with 10-15% unopened bolls also affects overall yield of cotton crop. To overcome this situation, the Department of Agriculture has conducted demonstrations on the relay sowing of wheat in standing cotton leading to the timely sowing of wheat and allowing the remaining bolls to open. Last year, 500 demonstrations of one acre each were taken at farmer fields. To refine this technique further and to work out the economics of cotton wheat system, the sowing of wheat was carried out with different methods as broadcasting of dry seed, soaked seed and sprouted seed of wheat followed by light irrigation, broadcasting of dry seed and mixing it in soil with power weeder, sowing with power weeder driven seed drill along with normal and late sown controls at CICR, RS, Sirsa.



Power weeder driven Seed Drill in Operation sowing wheat in standing cotton crop

HDPS Farmers meet at CICR, Nagpur



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CICR develops HDPS for better cotton yield

■ Cotton Farmer Workshop at CICR

■ Staff Reporter

ABOUT four hundred farmers from Chandrapur District visited the Central Institute for Cotton Research on 18th November to participate in a one-day workshop on a novel method of cotton production called 'High Density Planting Systems -HDPS' recently developed by the institute. The workshop was jointly organized by the State Agricultural Department of Maharashtra and CICR.

The new HDPS system was specially developed by CICR based on low input costs for high yields in marginal soils under rain-fed conditions of Vidarbha. The plant population is kept at 2.0 lakh plants per hectare compared to the normal 10 to 15 thousand plants with Bt hybrids. The variety seed cost is low at Rs 100 per kg as compared to Rs 2000 per kg of Bt hybrid seed. Moreover the seed can be reused by farmers for at least 5-6 seasons, whereas the hybrid seeds can be used only for one season. Bollworms are effectively managed with one or two insecticide sprays.

The cost of sowing, weeding and other operations are very less but yields are high with superior cotton fibre quality.

The farmers from Warora, Chimur and Bhadravati taluqas of Chandrapur District who adopted the new HDPS system in their farms shared their success stories with other farmers. The farmers visited cotton fields of CICR and were



Dr C D Mayee felicitating a farmer. Dr Keshav Kranthi and others look on.

highly appreciative of some new compact varieties developed by the institute specifically designed for high density planting. Dr Venugopalan, Dr Blaise, Dr Sandhya Kranthi, Dr Wasnik, Dr A. R. Raju, Dr Nandini Narkedkar, Naphade, Tule and Gokulpure coordinated the field visits.

In the interactive workshop that followed, Dr Kranthi Director CICR said that he was confident that the new HDPS system would lay the foundation for a sustainable low cost and high yield cotton production for the marginal soils in rainfed tracts of Vidarbha. He said that the current average yield in Vidarbha was 8 quintals per hectare now and this can be increased at least 2-3 fold easily in the next 4-5 years. He said that the cost of production would also be reduced to half of the current systems. Dr Vinita Gotmare, Co-ordinator for Chandrapur district welcomed the Dignitaries and farm-

ers. SB Rajwade, Sub Divisional Agri Officer Warora stressed that HDPS in cotton was the most sustainable option for cotton farmers of this rain fed region. Jadhav District Superintending Agricultural Officer, Chandrapur briefed about the overall implementation of HDPS in Chandrapur. He said that the new system can be strengthened with ridges and furrow planting methods, efficient water harvesting and other soil and moisture conservation practices. Mr. Mohan Rathod, Director, Information, Nagpur was the chief guest at the function. He said that the new systems deserved support and promised full cooperation to achieve the targets for increased cotton yield and to bring a cotton revolution in Maharashtra. He said that cotton sown as HDPS on broad bed and furrow system sustains low as well as heavy rains and he informed that the Bed Makers (Ridges and Furrow) are available

in the market.

Dr.C.D.Mayee ex chairman ASRB, New Delhi was the guest of honor. Speaking on the occasion Dr.C.D.Mayee enlightened the audience that every technology in cotton has longevity of a decade. He thought it was the right time that farmers adopted the HDPS in cotton in a big way. Narrating his experiences as Vice Chancellor MAU, Parbhani where cooperative farming resulted in high yields in a village called Ashta, he urged farmers to cultivate cotton under the HDPS system, adopting the recommendations made by CICR. He suggested that a village or cluster of villages may be adopted for propagating HDPS with one or two newer varieties.

Based on the success of HDPS on rocky and undulated farms of Jiwati Taluka of Chandrapur district, one audio CD "Shivar Fulala Pandhrya Sonyana"- lyrics, music and singer - Wankhede, Taluka Agriculture Officer was released. The farmers enacted a short play and dance programme on the new cotton production system developed by CICR. Three farmers, Pandurang Aglave (Bhadravati), Datta Kavdu Khamankar (Bhadravati) and Baba Sitaram Dhoke (Madhali) and Agri. Department official's Arun Shankarrao Niwal (Warora), Priyanka Pathare and Prafulla Dhumal (Bhadravati) were felicitated for the high yields through successful implementation of HDPS in Chandrapur District. Dr Sandhya Kranthi proposed the vote of thanks.



Business meet on cotton technologies at Bathinda (Punjab)

A business meet on cotton technologies related to Ginning, Linters and Calibration Cotton was organized under the aegis of 'Zonal Technology management & Business Planning and Development Unit (ZTM&BPD Unit), Central Institute for Research on Cotton Technology (CIRCOT), Mumbai' in association with its Regional Unit at Sirsa and the Northern India Cotton Association. Dr. Dilip Monga, Head, CICR, RS, Sirsa addressed the gathering as a special guest and discussed in detail about Indian cotton scenario with special reference to North Zone. He apprised the audience with the issues related to cotton production and productivity and about the new technologies of cotton production in progress at CICR, RS, Sirsa like production of quality compost through chipping of cotton stalks, high density planting system, surgical cotton and cotton wheat relay cropping for improving productivity and livelihood of farmers.



Workshop on "Business meet on cotton technologies related to Ginning, Linters and Calibration Cotton" at Bathinda (Punjab)

Field Day celebrated at Wanarchuha, Wardha

A field visit-cum-workshop on High Density Planting System (HDPS) was held at Wanarchuha village, Samudrapur (tehsil), Wardha (district), Maharashtra on 23/11/2013 under the aegis of Ramakrishna Bajaj College of Agriculture, Pipri, Wardha. Dr. K.R. Kranthi Director CICR, Dr. Sandhya Kranthi, Head Crop Protection Division, Dr. Sumanbala Singh, Acting Head Crop Improvement Division and Dr. M.V. Venugopalan participated in the programme and reinforced the basic concepts of HDPS. The programme commenced with a visit to 3 HDPS fields in Wanarchuha village. The emphasis was on the selection of appropriate genotype based on soil type and water availability, dry sowing and early crop establishment, maintenance of recommended population (1.5-2.0 lakh plants/ha), pest scouting and use of only the recommended pesticide application schedules, cost effective weed management using glyphosate and the importance of planting on ridges. Around 100 farmers from Wanarchuha, Shivanfal, Arvi, Mohgaon, Tawi and Sakhara villages of Samudrapur tehsil participated.

Farmers who were adopting HDPS expressed their views on the perceived benefits of this system, the recovery of the crop after excess rainfall during the vegetative phase and also provided an eye estimate of the anticipated yields. Majority of them were expecting 8-10 q seed cotton/acre; almost double the average yields realized. Some farmers, who attended the workshop conducted at CICR on 3rd Oct. 2013, narrated their experience for the benefit of others. The participating farmers were advised to harvest the seed cotton from the middle portion of their field, gin the produce separately and use the seeds for the next season. Shri J. N. Singh, Regional Manager, Akola represented Cotton Corporation of India (CCI), who provided critical inputs for the IRM-HPDS demonstrations. The programme was coordinated by Shri Atul Sharma, Dean, Extension Shiksha Mandal, Agriculture College, Pipri, and IRM Coordinator (Wardha).



Project Monitoring and Evaluation (PME) for Crop Improvement Division

Research projects of Crop Improvement Division were monitored and evaluated by Project Monitoring Committee, Chaired by Dr. K.R. Kranthi, Director, CICR and members Dr. M.V. Venugopalan, Head, PME, Dr. D. Blaise, Head, Crop Production Division, Dr. Sandhya Kranthi, Head, Crop Protection Division, Dr. Suman Bala Singh, Head i/c, Crop Improvement Division and Mr. K. Velmourougane, IRC Secretary on Nov.20, 2013 at, CICR, Nagpur.

DISTINGUISHED VISITORS

CCI members visited CICR, Nagpur
 Sh. B. K. Mishra, Chairman cum Managing Director, Sh. M. M. Chockalingam, Director, Marketing and Sh. P. K. Agarwal, Director, Finance, of Cotton Corporation of India (CCI) visited CICR, Nagpur on Nov. 19, 2013.

Dr. V. Santhanam, First Project Coordinator (Cotton) & FAO (Consultant-Retd) visited the Regional Station on November 20, 2013. Dr. A.H. Prakash and Dr S. Manickam explained in brief the present activities being carried out. Dr. V. Santhanam shared his experiences and wisdom of Cotton which is still relevant in the present era.



Technical Assistance Program trainees on Study Tour

Under Technical Assistance Program (TAP) for African Countries (Nigeria, Uganda, Malawi, Benin, Burkino-Faso, Chad) trainees are undergoing fellowship training program at CICR, Nagpur from 21st October to 20th December, 2013. As a part of the training program, a study tour was arranged for the trainees from 18th to 21st November to visit State Agricultural University Dr. PDKV, Akola and private R & D centres (MAHYCO R&D centres of Jalna and Aurangabad, Ankur seeds). The trainees were exposed to different cotton based cropping systems, field trials of Bt cotton and research activities of ten different biotechnological laboratories at MAHYCO, R&D centre). They also visited world heritage centres as Ellora caves (5th to 11th AD and Bibi Ka Maqbara – Black Taj Mahal) of Aurangabad and Lonar Crater of Buldhana District.



Monitoring of High Density Planting System (HDPS) trials

Monitoring of HDPS fields under the project entitled "Dissemination of IRM Strategies in India" was taken up by a team headed by Dr. B. Dharajothi, Principal Scientist (Entomology) & CCPI of the project along with the team members Dr. Isabella Agarwal, Senior Scientist (Agricultural Economics) and Dr. M. Amudha, Scientist (Entomology).

The team visited the HDPS fields in two blocks viz., Pollachi (North) and Kinathukadavu of Coimbatore district. Two farmers had taken up HDPS in the Kinathukadavu block with Supriya variety in an area of one acre each, under irrigated condition. It was noticed that flaring of squares and jassids incidence was below Economic Threshold

Level (ETL). The overall crop growth was satisfactory. The farmers were educated for managing the pests and need based plant protection measures were advised.

In the Pollachi (North) block, four farmers have taken up HDPS with Supriya variety, two under rainfed and the rest two under irrigated conditions. The spacing followed in these fields was 60 – 75 cm (row to row) and 20 cm (plant to plant). The crop condition is healthy with low incidence of pests very much below ETL. Necessary plant protection measures were advised based on the observations.



Monitoring of High Density Planting System (HDPS) trials

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