

# COTTON *Innovate*



Weekly Newsletter from Central Institute for Cotton Research, Nagpur

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## HDPS MEET

About 50 farmers and field scouts implementing the CICR initiated IRM-HDPS programme visited CICR on October 3, 2013. The purpose of the visit was to reinforce the fundamental concepts of High Density Cotton Planting. Dr. Blaize Desouza, Head Crop Production Division, Dr. Sandhya Kranthi, Head Crop Protection Division along with Dr. M. V. Venugopalan, Coordinator (HDPS in Maharashtra) and Dr. V. Nagrare, Coordinator (CROP-SAP in Maharashtra) interacted with the farmers and provided practical tips to enhance productivity under HDPS. The emphasis was on dry sowing, selection of appropriate genotype and sowing at 45, 60 or 75 cm spacing (based on plant type and soil condition) but keeping the distance between plants at 10cm. The importance of scouting for pest management and window based pest management based on CICR's recommendation was also highlighted. Dr. K. R. Kranthi, Director CICR also addressed the farmers and put forward the idea of seed sovereignty through HDPS. In the second session the farmers visited the experimental HDPS fields at the CICR farm. Shri N.R.Tandulkar, Assistant Chief Technical Officer, Ms. Shubhangi Lakde and Ms. Ankita Deshmukh, SRFs who coordinated the field visit explained the importance of timely sowing and maintaining appropriate plant density. The farmers assured full co-operation in continuing the HDPS technology in future and also took upon themselves the responsibility of spreading the technology to their neighbours.



## RESEARCH ROUND-UP



### Enhancing seed germination in cotton using H<sub>2</sub>O<sub>2</sub> seed treatment

Dr. V. Santhy, Senior Scientist, Seed technology

Exogenously applied Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) in a dose-dependent manner has been reported to ameliorate seed germination in crops. Seed treatment study carried out with H<sub>2</sub>O<sub>2</sub> @ 80 mM on delinted cotton seed (Variety: NH 615) proved effective in enhancing uniform seed germination. Increase in root length was observed in H<sub>2</sub>O<sub>2</sub> treated seeds compared to water treated and untreated control under laboratory condition.

The seedling emergence when studied in pots showed the enhanced effect of treatment over untreated control. The effect on final emergence was clear under moisture stress condition where the H<sub>2</sub>O<sub>2</sub> treated seeds resulted in superior plant stand. Further effect on plant growth and seed cotton yield is underway.



Treated

Untreated

Effect of seed treatment on root length



Treated



Untreated

Effect of H<sub>2</sub>O<sub>2</sub> treatment on seedling emergence in pots

## SCIENTIFIC TALKS

Two scientific talks were delivered by Dr. A.R.Raju, Principal Scientist, Agronomy, Crop Production Division and Dr. T. R. Loknathan, Principal Scientist, Division of Crop Improvement under the aegis of CICR Innovation Cell and Library Club respectively on October 5, 2013.

### GLYPHOSATE PREPAREDNESS IN COTTON

Dr. A.R. Raju, delivered talk on 'Glyphosate Preparedness in cotton'. He opined that *Gossypium hirsutum* and *Gossypium arboreum* can tolerate up to 10ml/litre of direct application of Glyphosate. Higher concentrations of Glyphosate are not tolerated by cotton even with protective application of amino acids or amino acid inducing urea foliar/ soil application. He listed herbicides which are used in other crop ecosystems and may find use for weed management in cotton in changing climate scenario. These herbicides need to be evaluated for efficacy and possible phytotoxicity for cotton.



## FEELING THE FIBRE ON FARM

The theme was testing the fibre quality in the experimental field using portable fibre quality testing equipment. Rodgers *et al.*, 2010 advocated the application of NIR spectrometer in measuring micronaire of the lint. The principle was based on linking reflectance values with absorbance bands and creating NIR algorithms. Calibration of equipment required the use of chemometric modeling techniques *viz.*, multiple linear regression (MLRS), Partial Least Squares (PLS), Principal Component Analysis (PCA). The NIR spectral region ranged between 1000-2500 nm. In solids such as cotton fiber, the light from the instrument reflects diffusely from the sample surface. The diffused reflection  $R$  is collected as varying wavelengths ( $\lambda$ ) by the instrument over the wavelength of interest and the diffused reflectance can be converted into absorbance by a relationship. The NIR absorbance spectrum which is the equation derived from the relationship and absorbance can be obtained by plotting against  $\lambda$  over the wavelength of interest. For field measurements, calibration and method development were also performed over tighter NIR spectral region with the primary moisture peak at 1930 nm. Recording fibre quality on farm also indicates the differences in micronaire values in varying soil moisture regimes occurring due to soil heterogeneity. This would help in designing a field map for fibre quality. The sample size required is 5 g in the lab or keeping the equipment on a single boll on farm. Such portable fibre quality testing equipments will permit breeders to do instant *in situ* selection for quality in cotton breeding trials.



## Hindi Fortnight Celebrations

As part of Hindi fortnight celebrations, various competitions were held at CICR, Nagpur by CICR Hindi Unit. An essay competition was held on September 30, 2013 on the two topics "Saga of Central Institute for Cotton Research, Nagpur" and "Alienation of farmers from Agriculture- Cause and Remedy". Poetry composing competition was held on Oct.1, 2013 and topic was "Inflation- Cause and effect" while debate on "Food Security Bill- Pros and Cons" was conducted on Oct. 3, 2013.

## Meetings

Dr. K.R.Kranthi, Director, CICR, Nagpur delivered a talk on 'Doubling cotton yield in Vidarbha through HDPS' at Amravati on Oct. 1, 2013 during the 'Vasantrao Naik Centenary Exhibition and Seminar'. The meeting was inaugurated by Shri Prithviraj Chavan, Chief Minister, Maharashtra and attended by Shri Ajit Pawar, Deputy CM, Shri ShivajiRao Deshmukh, Speaker Vidhan Parishad, Shri Vasant Rao Purke, Deputy Speaker, Shri RadhaKrishna Vikhe Patil, Minister of Agriculture, Maharashtra and other important dignitaries.



IRC meeting was also held Oct. 5, 2013 to felicitate and bid farewell to Dr. P.K. Chakrabarty.



Division of Crop Improvement bid farewell to Dr. P.K. Chakrabarty, Head, Division of Crop Improvement on Oct. 1, 2013 who has recently joined as ADG, Crop Protection, ICAR, New Delhi.

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