

8. AICRP ON COTTON

During the year 2016-17, the Golden Jubilee Celebration of the All India Coordinated Research Project on Cotton (AICRP on Cotton), formerly known as All India Coordinated Cotton Improvement Project (AICCP), was a historic moment. This Coordinated project has been one of the pioneers in the field of agricultural research in the country, especially for cotton. It is a matter of great satisfaction in Indian Council of Agricultural Research (ICAR) that during the last 50 years, the project has developed a number of cotton varieties and hybrids that have contributed to the economic well-being of not only cotton farmers but also the associated industries in India, thus justifying its establishment and also the continued need for its relevance. The success achieved by the AICRP on Cotton is due to the dedication and hard work of scientists and other technical personnel since 1967.

Over the years, AICRP on Cotton has made significant achievements and contribution in the discipline of Plant Breeding, Agronomical practices and production physiology, Plant Protection and dedicated fibre quality evaluation. AICRP on Cotton has developed more than 350 improved cotton varieties/hybrids since its inception. AICRP on Cotton has focused on formulating innovative methodologies and technical programmes to develop improved cotton varieties and economically viable agronomical practices along with eco-friendly and cost effective plant protection strategies for increasing cotton productivity of the country.

In commemoration of the Golden Jubilee Year of AICRP on Cotton, Brain storming sessions were organized at ICAR-CICR, Regional station, Coimbatore on 9th and 10th November, 2016. The sessions covered wide range of topics including past achievements and present status and road map for future of Cotton and in particular to AICRP on Cotton; Cotton Biotechnology: Issues & Tasks Ahead; New Molecules and Chemistries – an array for plant protection and production; and

finalization of the road map for cotton R & D. The Plenary session was addressed by Dr. Trilochan Mohapatra, Hon'ble DG, ICAR and other eminent cotton scientists and representatives from private R&D.

It is worth mentioning that, India is the leading country in terms of area under cotton cultivation and raw cotton production in the world. As per CAB estimate, cotton production in India during 2016-17 is estimated at 351 lakh bales of 170 kg from 105 lakh hectare with a productivity of 568 kg lint/ha (CAB as on 24:10:2016). According to USDA estimate, during the last ten years from 2007-08 to 2016-17, the average total domestic raw cotton consumption was 275 lakh bales of 170 kg and the average export during the period was 80 lakh bales of 170 kg. During the current year, Gujarat, Maharashtra and Telangana were the major cotton growing states covering around 70% (74.5 lakh hectare) in area and 67% (232 lakh bales) of cotton production in India.

During the year 2016-17, Nineteen cotton cultivars / hybrids evaluated through ICAR-AICRP on Cotton system have been notified for various agro-climatic zones *viz.*, RHC 0717 (Phule Yamuna), SVHH 139, F 2164, RHCb 011 (Phule Rukmai), RHB 0711 (Phule Dhara), RHH 0707 (Phule Tarang), NDLH 1938 (Sri Rama), MR 786, CO 14, F 2383, G Cot 20 (GSHV 97/59), DHB 915, SVPR 5 (TSH 0250), F 2228, Cotton Hybrid SVPR 1 (TSHH 0629), RAHH 455 (Raichur Shakthi 455), JLA 505, GN COT 25, and GN COT 22.

As quality seed availability is a key component in enhancing productivity of any crop, an effective maintenance of Nucleus and Breeder seed programme was undertaken by the concerned participating centres of AICRP on Cotton. The Breeder seed production, as per the Department of Agriculture, Cooperation and Farmers Welfare indent for the year 2016-17, was taken up at different centres of AICRP on Cotton and at ICAR-CICR, Regional Station, Coimbatore. The



production was 102 quintals as against allocation of BSP-I of 24 quintals.

With active participation from scientists of AICRP on Cotton and ICAR-CICR, 26 weekly advisories were issued to cotton farmers in nine regional languages. The advisory included sowing recommendation, agronomical interventions, nutrient management and irrigation scheduling, pest and disease management. The advisories were uploaded at ICAR-CICR website (www.cicr.org.in/weekly_advisory.htm). Periodical monitoring of pest and disease was carried out by AICRP scientists across centres and timely advisories have been issued especially for whitefly and CLCuD management. Pink bollworm damage and surviving larvae on Bollgard-II hybrids have been recorded from different regions in Gujarat, Andhra Pradesh, Telangana, Maharashtra and Karnataka. Immediate monitoring and management measures were recommended in the ICAR-CICR advisory to prevent any further damage.

Under the activity of Implementation of PVP legislation, 2001 and DUS testing of cotton under ICAR-SAU system, the data base on extant cotton varieties have been updated from time to time. Seed multiplication, characterization and maintenance breeding of 109 extant cotton varieties were carried out. Reference varieties for conduct of DUS test in tetraploid and diploid cotton are maintained in respect of 66 in *G. hirsutum*, 38 in *G. arboreum* and 5 in *G. herbaceum*.

During the year, Front Line Demonstrations under NFSM - Commercial Crops, 275 FLDs on Integrated Crop Management (ICM) on cotton, 225 FLDs on *Desi*/ELS cotton/ELS cotton seed production and 95 FLDs on intercropping with cotton were conducted by fifteen centers of All India Coordinated Research Project on Cotton with a budgetary outlay of 43.90 lakh rupees. Under the program of Tribal Sub Plan (TSP), a sum of 14.00 lakh rupees was utilised to conduct training programmes, demonstrations and other extension programs to disseminate the cotton production technologies exclusively to the tribal cotton farmers for improving their livelihood status.

As regards *G. hirsutum* genotypes tested under irrigated condition, HS 298, CPD 1602 and RHC 1217 gave the higher seed cotton yields in both central and south zones. Compact genotypes RS 2818, BS 30 and GISV 298 were found promising in irrigated trials. Interspecific ELS hybrids, ARBHB 1601 and ARBHB 1602 were promising in Central and South zones. In North zone, the average yield potential of *G. arboreum* genotypes was 3187 kg/ha in irrigated situation. Under long linted *arboreum* trial, the entries indicated the maximum UHML of 31.2 mm (PAIG 373) and strength of 32.3 g/tex (PA 781).

In Zonal trials, RS 2815, GSHV 172 and BGDS 1033 were the top ranking genotypes under irrigated condition in all the three zones. The compact cultures, RS 2814, DSC 1501 and LHDP 1 were the best in zonal trials under irrigated conditions, whereas GSHV 180 and GTHV 13/32 were the best in rainfed trials. Nutritional and geometrical requirements for normal as well as High Density Planting System (HDPS) were worked out. Nineteen genotypes were identified as drought tolerant and thirteen genotypes were identified as salt tolerant. Oil, protein and gossypol contents of different genotypes were estimated for deploying the genotypes in breeding programmes.

Genotypes tolerant to sucking pests were identified from national and zonal breeding trials. Pest dynamics was recorded in all the three zones under experimental field conditions for sucking pest and bollworms. Evaluation of organic cotton production indicated that the population of sucking pests, square, open boll and locule damages were significantly lower in seed treatment and soil application of recommended bio-fertilizer and foliar application of PPFM + neem cake + intercropping with green gram/black gram/ ground nut/ soya bean. Cotton leaf curl virus in north zone, *Alternaria* leaf blight, bacterial blight and tobacco streak virus in central zone and *Alternaria* leaf blight, bacterial blight, grey mildew and rust in south zone were the major diseases reported during 2016-17 crop season.