



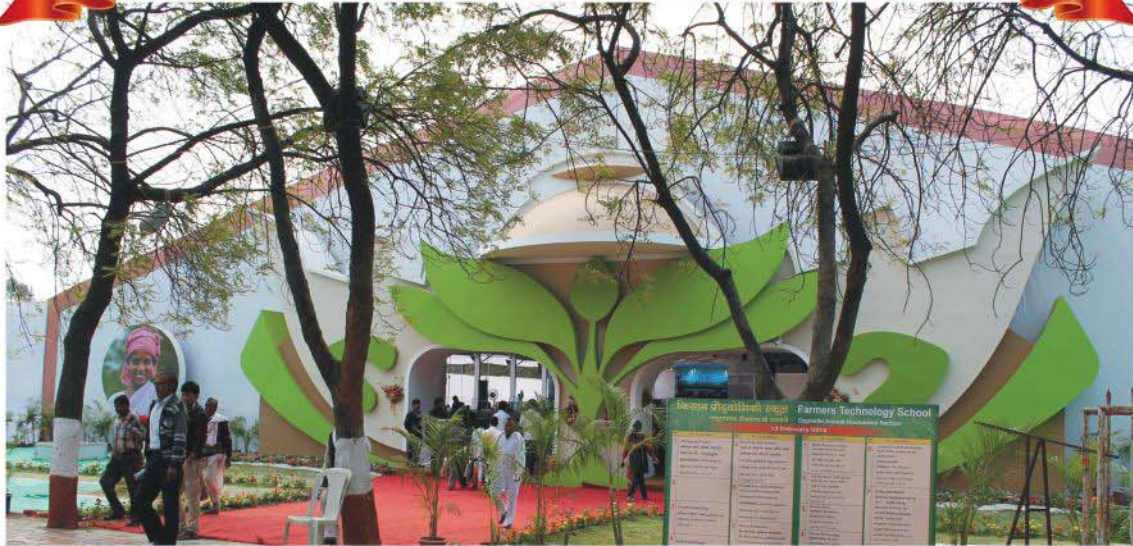
*Annual Report 2013-14*

CENTRAL INSTITUTE FOR

**COTTON**

RESEARCH, NAGPUR

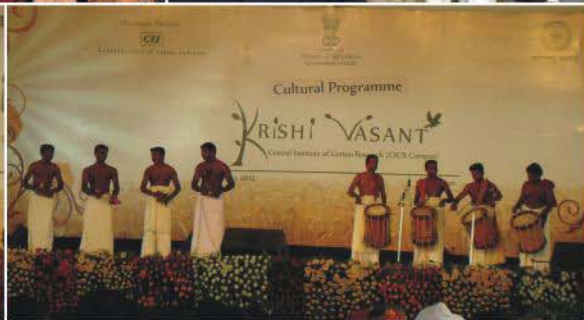
GLIMPSES OF KRISHI VASANT 9-13 FEB. 2014



Hon'ble President Sh. Pranab Mukherjee Inaugurating the Event



Dignitaries visit to Theme Pavilion



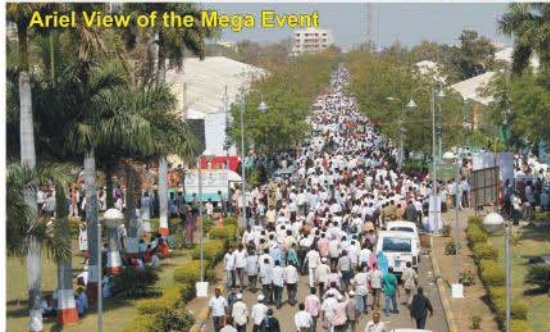
Theme Pavilion



Exhibition Pavilion

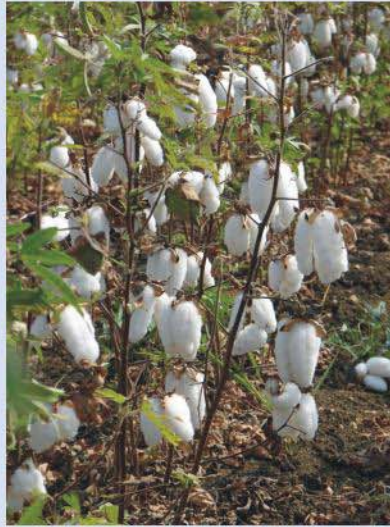


Ariel View of the Mega Event

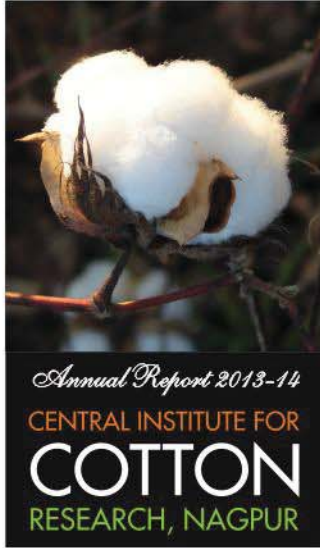




वार्षिक प्रतिवेदन  
ANNUAL REPORT  
2013-14



केन्द्रीय कपास अनुसंधान संस्थान, नागपुर  
CENTRAL INSTITUTE FOR COTTON RESEARCH, NAGPUR



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*Cotton crop offers tremendous challenges to researchers. The 2013-14 season, was exceptionally different. Rainfall was more than double the normal in major cotton growing regions of the country. Cotton crop was damaged in several regions. Despite the abnormal conditions, yields reached an all time high record production of 375 lakh bales (170 kg lint/bale) from 115.53 lakh hectares. CICR played an important role in reaching the milestone. The institute is addressing several challenges such as the cotton leaf curl virus (CLCuV) in north India, labour shortages that mainly affect sowing operations, weeding, inter-culture and harvesting; emerging problem of insect resistance to insecticides and Bt cotton; and physiological stress caused by nutrient imbalances.*

*The cotton leaf curl virus resurfaced after a lull period of about 6 years and has starting causing concerns once again in north India. There is hardly any variety or hybrid that seems to escape the scourge of the disease. CICR scientists of the Sirsa regional station did a great job of evaluating 6000 germplasm lines for resistance to CLCuV during the past two years. Some exciting results were obtained at the Coimbatore regional station. New cotton-endophytes that have immense potential for eco-friendly pest control were discovered. A new 'hydroponic' technique was used to precisely characterize nutrient deficiency symptoms. A new concoction of bio-consortia was developed for yield enhancement. A new technique of ratooning was developed to extend the season for Bt cotton, which minimizes costs and increases yields. The scientists at CICR Nagpur head-quarters, addressed many core issues. The crop protection division did a commendable job in monitoring insecticide resistance in sap-sucking insects and Bt toxins in bollworms and discovery of new genes and design of novel gene constructs for pest management. The division initiated marker assisted breeding to convert elite varieties for resistance against the bacterial leaf blight (BLB) disease and nematodes. The main marker for BLB has been validated and the first back-cross population was characterized. New predators and parasitoids were identified from the cotton eco-system. The crop production division developed new agronomic practices for high density planting, weed management, and mitigation of leaf reddening. A new small-scale cotton harvester was developed and tested for efficiency in high density planting systems. The crop improvement division evaluated 8000 germplasm lines in three years to characterize them for fibre quality and traits for resistance to biotic and abiotic stresses. The plant breeders developed several new advanced cultures for compact plant type, drought tolerance, premium fibre quality of high strength and heavy boll weight. Interestingly, new genotypes were identified for resistance to water logging, drought and herbicide resistance. DNA fingerprinting of major elite varieties and hybrids was carried out. Biotechnologists identified new genes for fibre strength, and several economic important traits. New transgenic cotton events were generated and are being rigorously evaluated. The CICR technologies that are already making waves on farmer fields are 'High density planting technique for high yields'; 'early sowing of early maturing varieties to escape insect pests including bollworms' and 10 lakh 'e-Kapas' voice mail messages in 10 languages. CICR hosted India's largest farmers Agri-Expo 'KRISHI VASANT' during 9-13 Feb. 2014, which attracted more than 10 lakh farmers from all parts of the country.*

*While we are addressing challenges, and are highlighting the Indian record productivity of 552 kg lint /ha, it is important to note that many countries are surging ahead in yields. During 2013-14, Australia raced to the top with 2351 kg lint/ha, Mexico, Brazil and China harvested 1400-1500 kg lint/ha, and at least 32 countries were ahead of India in productivity. It is a matter of concern that India is almost completely saturated with hybrid technology. It is also important to note that out of the 80 cotton growing countries only India has adopted the hybrid technology but ranks 33<sup>rd</sup> in productivity. It is also paradoxical that a country like India, where majority farmers are not input oriented, should choose to adopt 'the hybrid technology' which is highly input-responsive, fragile and most vulnerable to biotic and abiotic stresses. It is widely acknowledged in academic circles that hybrid systems are expensive and input-intensive. They are not suited for sub-optimal conditions. At least half of the India's cotton area is not responding to hybrids for high yields. Therefore there must be a serious reconsideration to move back to varieties that can give high yields using technologies such as high density planting in marginal rain-fed soils. The institute is working on developing alternative systems of cotton cultivation for high yields with lesser inputs and are suited for marginal soils in rain-fed conditions. It is certain that good times for the cotton farmer will be round the corner with good research in the country.*

(K. R. Kranthi)



Preface	
<b>1. Executive Summary</b>	01
<b>2. Introduction</b>	07
<b>3. Research Achievements</b>	09
3.1 : Cotton Genetic Resources	09
3.2 : Hybrid Cotton	12
3.3 : Genetic Improvement	12
3.4 : Genetic Diversity through Introgression	17
3.5 : State Multi-location Varietal Trial (SMVT)	18
3.6 : Molecular Breeding	18
3.7 : Development of Transgenic Cotton	21
3.8 : Seed Production and Seed Quality Improvement	25
3.9 : Nutrient Management	27
3.10 : High Density Planting System (HDPS) for Maximizing Productivity	29
3.11 : Weed Management	32
3.12 : Agronomy of <i>G. arboreum</i> race <i>cernuum</i>	33
3.13 : Soil Biology and Biochemistry	33
3.14 : Management of Abiotic Stress	34
3.15 : Extra Long Staple (ELS) Cotton	35
3.16 : Cotton Mechanization	36
3.17 : Socio Economic Dimensions of Cotton Farming	37
3.18 : Seasonal Dynamics of Insect Pests and Diseases	38
3.19 : Biological Diversity of Insect Pests and Pathogens	40
3.20 : New Genes and Gene Sources for Pest Management	42
3.21 : Development of New Methods, Tools and Protocols	43
3.22 : Host-Plant Resistance to Insect Pests and Diseases	45
3.23 : Biological Control	45
3.24 : Integrated Pest Management	48
<b>4. Technology Assessed and Transferred</b>	51
<b>5. Education and Training</b>	53
<b>6. Awards and Recognitions</b>	55
<b>7. Linkages and Collaborations</b>	57
<b>8. All India Coordinated Cotton Improvement Project</b>	58
<b>9. Krishi Vigyan Kendra</b>	62
<b>10. General</b>	66
10.1 : Research Papers Published in refereed Journals	66
10.2 : List of On-going Projects	68
10.3 : Consultancy, Patents, Commercialization of Technology	71
10.4 : Significant Decisions of RAC, IRC, IMC and Other Important Meetings	71
10.5 : Results - Framework Document (RFD) Committee	74
10.6 : Participation of Scientists in Seminars/Symposia/Workshops/Meetings	75
10.7 : Distinguished Visitors	78
10.8 : Personnel	79
10.9 : Other Information	80
10.10 : Weather	84
10.11 : Cotton Scenario	85
Annexure-I	86

