

TMC MM I.3 :	Consolidation of repository of high strength cotton genotypes and evaluation for quality traits and yield in specific agro-eco zones
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Lead Centre :	CICR, Coimbatore
Cooperating centres	CICR Nagpur; ANGRAU, Guntur; NAU, Surat; UAS Dharwad; PAU, Faridkot

Introduction

In the multi-location trial conducted under All India Coordinated Cotton Improvement Project, several cotton cultivars are evaluated at both National and Zonal levels along with the zonal check and local check varieties every year. Based on the average performance of the cultivar, the best performing cultivars vis-a-vis the check varieties are promoted and then released over the years. While promoting the cultivars, major emphasis is given to the yield characters and so some of the cultivars with better fibre quality parameters get eliminated in the preliminary stage itself. Hence, the sub-project is being proposed to collect all those cultivars with superior fibre quality parameters and to reconfirm their fibre quality parameters again along with efforts to maximize their yield potential through suitable agro-techniques as their potential could not be realized through AICCIP system. Further, few cultivars will be identified with the best fibre quality parameters in different cooperating centres and also efforts will be made to maximize their yield potential through suitable agro-techniques.

In various All India Coordinated Cotton Improvement Project centres and in Central Institute for Cotton Research and its regional station, different research projects are under way to improve the fibre quality of *Gossypium hirsutum* cultivars by following various breeding programmes. The breeders were able to satisfy both the farmers through improved yield levels and the textile mills with matching fibre quality parameters to their requirements. During the recent years, more emphasis was given to the fibre quality parameters and only after satisfying the industrial requirements, the cultivars were identified and released for commercial cultivation. In recently concluded Technology Mission on Cotton projects also, sufficient funds were allocated for fibre quality improvement of *G. hirsutum*, *G. barbadense* and *G. arboreum* cultivars. Because of all these efforts, good quality cultivars have been identified in all the above three species with good yielding ability.



During the past few years, some good quality cultivars with very high fibre strength could not be promoted from Initial Evaluation Trials for the want of yield since they ranked below check varieties or on par with them at the zonal level when average yield was taken into consideration. However, it is found that these good quality cultivars showed superior performance in one or two locations within the zone vis-a-vis check varieties. Further, all these cultures were evaluated with the same agronomic practices without considering their plant types and geometry. This led to the loss of some useful cultivars in the preliminary stage of evaluation and hence could not be promoted further. Also, usually with increase in fibre quality traits, there is a decrease in yield of a genotype which can be manipulated through suitable agronomic practices.

Objectives

- To collect and prepare a repository of all the high strength *Gossypium hirsutum* genotypes developed in various AICCIP centres and cooperating centres.
- To develop appropriate geometry and agronomy to maximise the yield of high strength cultures.

Technical programme

The common evaluation trial will be conducted in all the centres with identified cultivars which have already been tested under AICCIP multi-location trials. In this trial, the fibre quality attributes and yielding ability will be tested vis-a-vis good quality check varieties. In each centre, one or two best cultivars will be identified and they will be evaluated for yield maximization through suitable geometry and agronomic practices. Apart from these, new



cultures with good fibre quality and yield will be identified in various centres from segregating population at desired advanced generation stage and will be entered in AICCIP for multi-location testing.

S.No.	Activities	Cooperating centres
1.	Sourcing of high-strength cultures from cotton breeding stations	CICR,Coimbatore
2.	Evaluation of high strength cultures for high yields through appropriate geometry and agronomy	CICR,Coimbatore CICR, Nagpur ANGRAU, Guntur NAU, Surat UAS Dharwad PAU, Faridkot
3.	Evaluation of high strength cultures developed in various cooperating centres	CICR,Coimbatore CICR, Nagpur ANGRAU, Guntur NAU, Surat UAS Dharwad PAU, Faridkot

Time frame

Sr. No.	Activity	Time frame									
		2012-13		2013-14		2014-15		2015-16		2016-17	
		I	II	I	II	I	II	I	II	I	II
1.	Sourcing of high-strength cultures from cotton breeding stations										
2.	Evaluation of high strength cultures for high yields through appropriate geometry and agronomy										
3.	Evaluation of high strength cultures developed in various cooperating centres										

Output

- Repository of high strength cultures tested already in AICCIP
- Identification of high strength cultures with good yield potential
- Identification of new high strength cultures with good yield potential