



TMC MM 1.2: Development of Extra long staple *G. barbadense* Cotton with improved fibre qualities to meet the requirement of textile industry

Introduction:

Indian Textile Industry, requires about 3 to 5 lakh bales of Extra long Staple Cotton capable of spinning 100s count and above. The indigenous production of this staple length category comes from the only *G. barbadense* cotton variety, *Suvin*. However, the area under *Suvin* has drastically reduced due to low yield, long duration and un-remunerative prices. Hence, the entire quantity of this category of cotton is currently met from imports. The project aims at improving the yield levels of *G. barbadense* cotton.

Objectives:

1. Screening of Germplasm lines for earliness, yield, ginning outturn and fibre quality parameters.
2. To identify suitable genotypes with earliness, higher ginning outturn and fibre quality parameters.

Salient findings:

Combined analysis of fifty *G. barbadense* germ plasm accessions from four locations indicated that ICB4 was the highest yielder (65.5 g/plant) followed by ICB 5 (62.5 g) and ICB 3 (58.9 g). ICB 178 recorded

the highest ginning out turn of 36.0 per cent. As regards fibre quality, ICB 174 recorded the highest 2.5% SI of 36.2 mm followed by ICB 235 with 35.3 mm. ICB 174 recorded the highest fibre strength, 32.6 g/tex. However, micronaire was low at 2.7. ICB 241 recorded fibre strength of 29.2 g/tex with a good micronaire of 3.5.

Segregating generations (F₂ to F_J) were evaluated at all the centres. As many as 598 plants were selected from 51 progenies at OCR, Coimbatore. The data indicate the possibility of selecting high yielding lines with acceptable fibre properties. Culture (SN x ICB 75)7-5-2 with a mean seed cotton yield of 126 g/plant, fibre length of 34.2 mm, micronaire of 4.0 and fibre strength of 34.1 g/tex was promising. At TNAU, Coimbatore, (SN x ICB 115)3-7 with a single plant yield of 88.8 g/Plant, 2.5%SI of 36.1mm and fibre strength of 26.8 g/tex was promising. At Sural, SN (SN x ICB 172)09-153 recorded 38 per cent ginning outturn with a fibre length of 38 mm. The yield was moderate with 54.0 g/plant. Thirteen *G.*

barbadense cultures were tested in a common trial. Culture RHCb 011 recorded the highest yield of 1745 kg/ha, closely followed by GSB 40(1672 kg/ha) and TCB 1 (1660 kg/ha). The percentage increase over the check variety was of the order of 62 to 56 per cent. Cultures CCB 8 and CCB 9 recorded the highest fibre strength of 29.3 and 29.4 g/tex respectively. Micronaire was moderate to good in all the cultures.

In the Station Trial at OCR, Coimbatore, three cultures viz., CCB 6, CCB 5 and CCB 11 were statistically superior to the Check variety *Suvin*. The increased seed cotton yield was of the order of 48 to 71 per cent. At TNAU, Coimbatore, Culture B47 (1895 kg/ha) recorded as much as 100 per cent increased seed cotton yield over *Suvin*. However, quality wise *Suvin* was the best.

