



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

INTRODUCTION

India has made remarkable advances in the cotton front in the recent years and generated exportable surplus longer staple category. 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 and interspecific hybrids such as DCH 32 and NHB 11. 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. Sustained efforts have thus been in progress to bridge the gap by raising the production of existing ELS cotton. The efforts made in this project led to the identification of promising entries GSB 40, GSB 41, RAB 8, TCB 26 and CCB 5 under the AICCP multi-location trial. The project aims at improving the yield levels of barbadense cotton.

OBJECTIVES

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

SALIENT FINDINGS

1. Evaluation of Germplasm lines

Fifty three germplasm lines were evaluated at five locations viz., CICR, Coimbatore, TNAU, Coimbatore, UAS, Dharwad, NAU, Surat and MPKV, Rahuri. Of the 53 lines tested at UAS Dharwad, NDGB 49 recorded the highest yield of 99.6 g/plant followed by NDGB 23 (95.2g/plant). Boll weight varied from 2.1 to 4.0 g. Ginning out turn showed good variability ranging from 37.4 (NDGB 85) to 21.4 per cent (NDGB 85). However, for

fibre quality the check variety Suvin was the best. At TNAU, Coimbatore NDGB 93 recorded the highest yield of 106 g/plant as against 50g/plant of Suvin (c).

At CICR, Coimbatore as for fibre length and strength, none of the accessions exceeded the check variety Suvin. Micronaire ranged from 3.2 to 5.2 as against 3.2 of Suvin. Highest seed cotton yield of 95.0 g/ plant was recorded in NDGB 50 with ginning out turn of 32 percent. NDGB 81 recorded the highest ginning outturn of 38 per cent. Among the cultures tested NDGB 89 with single plant yield of 80 g/plant, ginning out turn of 32 %, fibre length of 32 mm and fibre strength of 25 g/tex was the best. Entries NDGB 21, NDGB 50, NDGB 80 and NDGB 92 were identified (Table 1.2.1) promising for seed cotton yield and fibre properties based on performance over the three locations (i.e. UAS, Dharwad, TNAU, Coimbatore and CICR, Coimbatore).

The yield levels were low at MPKV, Rahuri of several lines. The seed cotton yield (g/plant) varied from 10g to 120g. (Table 1.2.2) The genotype NDGB-5 recorded the highest yield (120 g/plant) followed by NDGB-17 (90 g/plant) and NDGB-18 (72 g/plant). The genotype NDGB-12 and NDGB-17 exhibited earliness in respect of 50 per cent flowering (62 DAS). The germplasm line NDGB-40 and NDGB-41 recorded the highest 2.5 % span length (32.3mm), followed by NDGB-79 (32.0mm). NDGB 61 recorded the highest fibre strength of 25.2g/tex followed by NDGB 40 with 25.1 g/tex.

At NAU, Surat the yield levels were low. The highest yield of 69 g/plant was recorded in NDGB 12. Ginning out turn of 37.5% was observed in NDGB 81. None of the lines tested exceeded the check variety Suvin in 2.5 % span length. As regards fibre strength, NDGB 62 was the best (29.8 g/tex) and was marginally superior to the check variety Suvin (28.6 g/tex). Based on data of two locations

Table 1.2.1: Evaluation of *G. barbadense* germplasm at UAS, Dharwad, TNAU, Coimbatore and CICR, Coimbatore

Entry	Seedcottonyield (g/p)			BollWt.(g)	Ginning%		2.5% SL(mm)			Micronaire			Strength(g/tex)		
	DH	TNAU	CICR Coim		DH	CICR Com	DH	TNAU	CICR Com	DH	TNAU	CICR Com	DH	TNAU	CICR Com
NDGB 5	74.0	28.9	38.5	2.9	29.8	36.0	27.8	30.2	26.8	3.3	4.1	4.5	25.5	27.6	24.4
NDGB12	89.6	71.6	49.9	3.0	29.8	32.0	29.8	30.1	27.7	3.3	4.0	4.8	25.3	27.7	22.9
NDGB 21	89.6	30.9	64.0	3.2	25.2	34.0	32.4	33.7	35.2	3.8	4.3	4.3	25.2	28.9	25.1
NDGB 23	95.2	39.6	58.2	3.0	30.0	33.0	31.5	31.9	29.3	3.5	4.3	4.4	25.6	25.1	23.3
NDGB 33	82.8	51.2	77.3	3.2	34.8	35.0	31.8	32.1	30.0	3.5	4.0	4.0	26.4	27.4	23.3
NDGB46	82.4	65.1	81.2	3.0	30.1	36.0	31.3	32.6	29.5	3.9	3.7	4.5	24.4	25.7	22.7
NDGB 49	99.6	49.2	66.0	3.0	24.2	33.0	32.1	31.9	29.5	2.9	3.5	3.9	24.7	25.3	23.1
NDGB 50	60.8	18.9	95.0	3.0	26.3	32.0	30.5	35.3	32.0	3.1	3.5	4.2	26.4	27.2	23.1
NDGB 60	40.8	48.0	64.8	3.2	37.4	30.0	28.8	31.2	30.2	3.4	3.2	3.8	24.6	27.1	22.0
NDGB 62	44.4	44.8	85.3	3.2	34.6	33.0	30.6	31.8	29.2	3.6	3.2	4.2	24.7	29.5	26.0
NDGB 63	84.0	31.4	80.0	3.1	32.3	35.0	26.7	28.5	26.9	4.1	4.1	4.9	22.6	27.5	23.0
NDGB 65	87.6	57.8	55.5	3.2	28.6	34.0	28.1	28.3	28.0	3.6	3.8	4.0	22.6	21.0	21.7
NDGB 67	30.4	74.5	37.3	2.5	24.4	35.0	27.6	35.7	26.3	3.3	3.1	4.7	22.6	26.9	23.6
NDGB 72	82.4	41.9	45.5	3.7	22.9	32.0	34.0	32.6	30.7	3.3	4.0	4.3	25.4	25.8	25.8
NDGB 76	62.0	75.4	44.5	2.8	24.9	34.0	31.1	36.8	29.2	2.8	3.5	4.4	26.1	27.8	21.5
NDGB 78	70.0	91.0	55.8	2.9	28.3	31.0	27.7	33.9	31.7	3.8	3.8	4.4	24.0	23.4	25.1
NDGB 79	93.6	69.0	53.6	3.0	22.4	30.0	30.3	30.0	30.1	3.3	3.3	4.6	26.3	27.1	25.2
NDGB 80	46.4	82.6	62.0	2.9	28.8	31.0	35.5	33.3	33.5	2.9	3.9	3.3	25.5	27.0	28.5
NDGB 81	87.2	62.9	67.3	3.9	32.8	38.0	28.4	30.1	27.5	4.0	4.4	4.5	21.9	22.7	22.6
NDGB 86	78.8	33.0	70.9	2.8	24.8	31.0	28.0	30.1	28.6	3.7	4.1	5.2	24.4	26.2	21.7
NDGB 89	56.0	52.0	80.0	2.4	30.6	32.0	31.8	31.9	32.0	3.1	3.9	4.2	27.5	25.0	25.0
NDGB 92	84.4	72.4	74.2	3.1	31.1	33.0	35.6	33.6	32.9	3.6	3.8	4.7	25.4	24.8	27.7
NDGB 93	42.8	106.4	80.0	2.6	24.6	35.0	30.6	33.7	29.8	3.4	3.9	4.8	23.4	24.7	23.7
Suvin	50.0	50.5	55.0	2.3	29.3	29.0	37.7	36.4	36.1	3.2	3.9	3.2	25.2	29.3	29.1

Table 1.2.2: Evaluation of *G. barbadense* germ plasm at MPKV, Rahuri and NAU, Surat

Genotype	Yield/ pl.(g)		BollWt. (g)		Ginning %		2.5%SL(mm)		Micronaire		Strength(g/tex)	
	Rah.	Sur.	Rah.	Sur.	Rah.	Sur.	Rah.	Sur.	Rah.	Sur.	Rah.	Sur.
NDGB-5	120	50	2.7	2.5	37.5	33.5	30.0	30.9	3.0	3.9	21.1	23.5
NDGB-12	45	69	1.6	2.6	35.1	32.1	27.2	30.9	2.8	4.1	20.0	23.9
NDGB-17	90	14	2.5	2.1	33.8	28.8	31.0	32.1	3.3	3.2	24.7	26.8
NDGB-18	72	14	2.3	2.1	33.3	30.9	28.5	30.8	3.1	3.8	21.2	22.0
NDGB-22	55	15	2.1	2.3	33.6	31.2	30.1	32.6	3.7	4.0	23.2	23.9
NDGB-31	50	43	1.4	2.4	30.4	33.0	26.3	29.5	3.2	3.8	18.8	24.3
NDGB-35	25	46	1.2	2.1	30.7	28.4	31.3	33.0	3.1	3.1	23.4	24.5
NDGB-40	24	09	1.3	1.9	35.8	30.7	32.3	32.5	3.4	4.5	25.1	23.2
NDGB-41	22	40	1.3	2.7	35.1	35.2	32.3	33.2	3.5	3.8	23.9	25.7
NDGB-49	10	75	1.1	3.2	31.4	31.4	30.7	34.5	3.2	3.5	22.5	24.9
NDGB-60	60	34	1.4	3.2	36.6	33.7	30.0	34.1	3.0	3.5	22.5	26.1
NDGB-61	12	29	1.5	3.0	36.0	33.5	30.7	30.5	2.9	3.2	25.2	26.3
NDGB-62	30	41	1.3	2.8	34.5	34.0	30.0	33.8	3.4	3.4	23.5	29.1
NDGB-63	48	28	1.6	3.3	37.5	34.0	29.8	33.1	3.1	4.8	22.5	25.8
NDGB-65	30	56	1.0	3.0	31.3	35.1	28.1	30.4	3.3	3.9	23.2	25.2
NDGB-79	20	52	1.7	2.8	37.1	29.5	32.0	33.9	3.3	3.7	24.7	26.1
NDGB-81	25	41	1.4	2.2	36.7	37.5	28.3	30.4	3.1	4.5	21.2	21.0
NDGB-88	45	27	1.9	2.0	38.7	33.5	27.0	30.1	3.2	3.4	19.9	24.9
Suvin©	45	23	2.5	2.9	35.4	27.6	29.1	38.3	3.1	3.5	21.6	28.6

of the central zone, entries NDGB 17 and NDGB 63 were identified as promising entries compared to the suvin.

Combined analysis over the five location of *G. barbadense* germplasm

Combined analysis of *G. barbadense* accessions across five locations representing south (Dharwad, Coimbtore) and central zone (Rahuri, Surat) indicated that the mean seed cotton yield ranged from 25.6 to 65.0 g/plant (Table 1.2.3). The check variety Suvin recorded a mean seed cotton yield of 44.7 g/plant. Higher boll weight of 3.2 g

was recorded in NDGB 33. Five accessions recorded more than 3.0g boll weight. Nine accessions recorded a ginning out turn of 34 per cent and above, with NDGB 81 recording the highest ginning out turn of 36.3 per cent. The check variety Suvin recorded the highest fibre length of 35.3 mm. For fibre strength NDGB 72 (26.1 g/tex) was on par with Suvin with 26.1 g/tex. Based on combined analysis, two entries NDGB 72 and NDGB 92 were identified as promising with moderate seed cotton yield and desirable fibre properties.

Table 1.2.3: Combined Analysis of *G. barbadense* germplasm

Sl. No	Entry	Seed Cotton Yield g/Pt	%inc Over Suvin	Boll Wt. (g)	Ginning %	2.5% SL (mm)	Micronaire	Strength (g/tex)
1	NDGB12	65.0	45	2.4	32.3	28.9	3.8	23.0
2	NDGB 33	64.1	43	3.2	34.5	31.6	3.9	24.1
3	NDGB 5	62.3	39	2.7	34.2	28.9	3.7	23.6
4	NDGB 78	61.2	37	2.3	31.2	30.8	4.1	24.7
5	NDGB 49	60.0	34	2.4	30.0	31.7	3.4	24.4
6	NDGB 79	57.6	29	2.5	29.8	31.6	3.7	25.6
7	NDGB 65	57.4	28	2.4	32.2	28.7	3.7	23.2
8	NDGB 48	57.2	28	2.2	34.7	30.5	3.2	23.2
9	NDGB 29	56.8	27	2.4	33.7	30.3	3.4	22.9
10	NDGB 81	56.7	27	2.5	36.3	28.6	4.0	21.7
11	NDGB 46	56.3	26	2.3	32.7	30.2	3.9	23.5
12	NDGB 63	54.3	21	2.7	34.7	29.1	4.2	23.5
13	NDGB 88	53.5	20	2.1	34.3	28.0	3.7	22.9
14	NDGB 45	53.4	19	2.2	32.6	29.0	4.4	23.2
15	NDGB 72	53.2	19	3.0	28.2	33.1	3.8	26.1
16	NDGB17	52.9	18	2.3	30.8	30.5	3.6	25.2
17	NDGB 92	52.8	18	2.5	31.7	33.1	3.8	25.0
18	NDGB 22	50.9	14	2.5	31.1	30.7	4.0	22.9
19	NDGB 31	50.9	14	2.1	30.8	28.8	3.8	22.5
20	NDGB 43	50.7	13	1.9	31.3	32.0	3.8	23.2
21	NDGB 71	25.6	-43	2.2	31.4	30.9	3.4	23.7
22	Suvin (c)	44.7	0	2.6	30.3	35.3	3.3	26.1

2. Evaluation of promising germplasm lines

Based on the previous two years performance, six germplasm accessions alongwith check variety Suvin were evaluated in a replicated trial at three locations viz., CICR, Coimbatore, TNAU, Coimbatore and UAS, Dharwad to assess their suitability for direct introduction (Table 1.2.4).

Among the genotypes tested at UAS, Dharwad, ICB 125 recorded the highest seed cotton yield of 1347 kg/ha followed by ICB 134 with 1216 kg/ha. These two entries were distinctly superior to Suvin, which was the lowest yielding entry in the trial. ICB 125 and ICB 134 had boll

weight of 3.6 g and 3.4 g, respectively. However, these genotypes had lower 2.5 span length. (34.2mm and 32.7 mm, respectively), as compared to Suvin (36.9mm). Suvin had the highest staple length of 36.9 mm. ICB 125 had fiber strength (26.2 g/t) compared to that of Suvin (26.3).

At CICR, Coimbatore all the accessions except ICB 164 were found to be significantly superior to Suvin © for seed cotton yield. ICB 125 recorded the highest ginning out turn of 36 per cent with highest seed cotton yield of 2251 kg/ha.

All the accessions except ICB 134 were found to be

significantly superior to Suvin in seed cotton yield at TNAU, Coimbatore. ICB 3 recorded the highest ginning out turn of 32.9%.

Entries ICB 125 and ICB 183 were identified as promising for seed cotton yield and fibre properties based on data of three locations.

Table 1.2.4 : Evaluation of promising *G. barbadense* germplasm at UAS, Dharwad, TNAU, Coimbatore and CICR, Coimbatore.

Genotype	Seed cotton yield (Kg/ha)			BollWt. (g)			Ginning%	2.5%SL (mm)			Ginning%			Micronaire (g/tex)			Strength		
	DH	CICR COM	TNAU COM	DH	CICR COM	TNAU COM		DH	CICR COM	TNAU COM	DH	CICR COM	TNAU COM	DH	CICR COM	TNAU COM	DH	CICR COM	TNAU COM
ICB125	1347	2251	1569	3.6	4.0	4.0	28.0	35.7	31.8	34.2	31.6	33.9	3.4	4.4	3.9	26.2	26.9	32.6	
ICB134	1216	1571	948	3.4	3.3	4.1	24.2	31.0	31.1	32.7	32.3	32.4	3.8	4.1	4.1	22.2	26.4	31.8	
ICB 183	597	2219	1263	1.9	3.2	3.7	31.8	32.0	31.8	33.0	31.6	33.3	3.1	3.7	3.5	27.1	25.9	32.5	
ICB201	507	-	-	2.9	-	-	25.6	-	-	32.4	-	-	3.2	-	-	23.2	-	-	
ICB3	-	1579	1395	-	4.3	4.5	-	34.7	32.9	-	32.4	33.0	-	4.8	3.8	-	22.4	28.9	
ICB182	505	1995	1178	2.7	3.6	4.4	25.7	30.7	31.5	31.1	32.2	33.3	3.4	4.8	4.8	24.9	25.6	31.9	
ICB164	394	1504	1162	2.4	3.6	4.2	28.4	30.0	30.3	35.3	35.2	35.8	3.1	4	3.6	24.0	26.1	31.9	
SUVIN	319	1098	988	2.4	3.9	3.2	28.9	28.0	29.8	36.9	37.0	37.7	2.8	3.5	3.2	26.3	30.9	35.7	

Combined analysis of promising germ plasm lines

All the six genotypes evaluated were superior in yield to the check variety Suvin (Table 1.2.5). ICB 125 recorded the highest yield of 1722 kg/ha and was superior to Suvin by 115 per cent. ICB 3 recorded the highest boll weight of 4.4 g and highest ginning outturn of 33.8 per cent.

However, quality wise Suvin was the best. Among the lines tested, ICB 125 was the best in yield and fibre qualities as per the requirement of the textile industry. Large scale testing of ICB 125 and spinning evaluation will be taken up during the current year to assess its suitability for commercial cultivation.

Table 1.2.5 : Combined analysis of promising Germplasm lines

Sl. No	Entry	Seed Cotton Yield Kg/ha	%inc Over Suvin	Boll Wt (g)	Ginning (%)	2.5% SL (mm)	Micronaire	Strength (g/tex)
1	ICB 125	1722	115	3.9	31.8	33.2	3.9	28.6
2	ICB 3	1487	85	4.4	33.8	32.7	4.3	25.7
3	ICB 183	1360	70	2.9	31.9	32.6	3.4	28.5
4	ICB 134	1245	55	3.6	28.8	32.5	4.0	26.8
5	ICB 182	1221	52	3.5	28.9	33.0	3.9	27.5
6	ICB 164	1025	28	3.5	30.0	34.6	4.0	27.3
7	Suvin	802	0	3.2	28.9	37.2	3.2	31.0

3. Utilization of desirable lines in crosses with good agronomic base.

Three Pima (USA) selections and two Sudan selections were used in crossing at CICR Coimbatore. Four hundred single plants were selected in segregating population involving BC1 F₃ (9 progenies), BC1 F₂ (18 progenies), BC1 F₁ (25 progenies), F₂ population (7 crosses) and F₄ progenies (20 progenies). At UAS Dharwad, single row unreplicated trial of 114 (F₃) lines and 44 selections were made. Eighteen F₁ hybrids involving Giza 70 and other promising lines were developed advanced to F₂ at TNAU, Coimbatore. Gamma radiation and crosses were made at MPKV, Rahuri and NAU, Surat, respectively.

4. Screening of segregating material for earliness, boll number, boll weight, ginning out turn and fibre quality parameters.

At CICR, Coimbatore three crosses of F₄ segregating lines evaluated for yield and quality. Single plants with increased seed cotton yield and fibre quality have been

obtained. The culture (SN x ICB 75)1-5-6-3 with a 2.5 % span length of 35.4 mm and fibre strength of 34.9 g/tex was the best.

At TNAU, Coimbatore a total of 52 single plants were selected in the F₃ segregating materials for yield. The highest single plant yield of 102.8 g was recorded by SN x ICB 6 - 2- 5 followed by double cross F₂ (SN x ICB 188) x (SN x ICB 263) - 1 - 5 (92.6 g). The highest mean single plant yield was also registered in the above F₃'s. In F₃, the highest single plant yield of 81 g was recorded in the cross SN x ICB 75-2-4 followed by SN x ICB 24-2-2 (67.49).

The progeny of two crosses in F₄ generation were raised at MPKV, Rahuri. (SN x ICB-75)1-6-1-6 showed early boll bursting (117 DAS) followed by progenies (SN x ICB-179)17-1-3 and (SN x ICB)75-1-931. (SN x ICB-75)11-1-1 and (SN x ICB-75)1-9-1-16 showed relatively high yield as compared to others. Regarding the fibre properties, (SN x ICB-179)17-1-3 recorded the highest 2.5% span length (34.6 mm) and highest strength (25.6g/tex).

5. Evaluation of existing materials

i. Evaluation of cultures in TMC trials

Six cultures from different participating centres were evaluated in a common TMC trial at all the five centres. The results of three centres is presented in table 1.2.6.

Among the 9 genotypes tested at UAS, Oharwad GSB 21 (2649 kg/ha), PCB 45 (2622 kg/ha) and DB 12 (1967 kg/ha) recorded highest seed cotton yield. They were distinctly superior in productivity compared to Suvin (1279 kg/ha). TCB 45 had higher fiber strength of 26.3 g/tex as compared to 26.1 g/tex of Suvin. However all the entries showed lower 2.5 span length as compared to Suvin (37.1 mm). Among the entries CCB-9 recorded highest fiber strength 26.5 g/tex..

All the six cultures tested at CICR, Coimbatore were found to be higher yielding than Suvin. Quality wise, none

of them was found to be better than Suvin. Among the cultures evaluated, CCB 9 recorded the highest fibre quality with moderate yield increase over Suvin.

Among the cultures tested at TANU, Coimbatore, TCB 45 was the highest yielder with 1631 kg/ha followed by GSB 21 (1588 kg/ha) and CCB 1 (1329 kg/ha). The entry GSB 21 recorded the highest GOT of 38.5 per cent.. The culture CCB 1 recorded 3.9 g of boll weight.. The cultures TCB 45 and GSB 21 recorded significantly higher yield over the check Suvin (1034 kg/ha). Among the test entries, the highest 2.5% span length of 36.1 mm and a bundle strength of 30.9 g/tex was recorded by CCB 1. However the fibre quality of Suvin was the best with a 2.5% span length of 38.8mm and a bundle strength of 33.9g/tex.

Table 1.2.6 : Common TMC trial conducted at CICR Coimbatore, TNAU Coimbatore and UAS Dharwad

Genotype	Seed cotton yield (Kg/ha)			BollWt.(g)			Ginning %			2.5%SL(mm)			Micronaire			Strength (g/tex)		
	OH	CICR. COM	TNAU COM	OH	CICR COM	TNAU COM	OH	CICR COM	TNAU COM	OH	CICR. COM	TNAU COM	OH	CICR COM	TNAU COM	OH	CICR COM	TNAU COM
TCB45	2622	2196	1631	3.4	3.7	3.6	20.0	36.0	35.1	33.3	31.5	34.0	3.4	4.3	4.4	26.3	26.8	29.0
TCB47	1690	2047	1221	2.7	3.5	3.8	22.4	35.0	32.1	32.5	28.3	32.7	3.5	4.7	4.1	25.9	22.5	27.8
CCB1	1465	1779	1329	2.2	3.7	3.9	24.9	36.3	34.6	35.6	34.3	36.1	3.1	4.0	3.4	25.5	25.5	30.9
CCB9	1060	1478	1026	3.3	3.4	3.3	33.4	34.7	37.0	35.5	35.3	35.9	3.0	3.8	3.5	26.5	27.5	29.4
GSB21	2649	2600	1588	3.3	3.7	3.3	20.9	37.3	38.5	33.2	32.8	32.4	3.6	4.4	4.1	24.4	22.8	26.6
GSB39	1954	2184	-	2.7	3.6	---	22.8	33.7	---	36.1	35.2	-	3.2	3.9	-	24.9	23.8	-
RAB10	1619	--	-	3.3	---	-	22.3	-	-	35.6	-	-	3.2	-	-	24.8	-	-
OB12	1967	--	1188	2.0	-	3.3	22.2	-	35.4	35.0	-	35.2	3.5	-	3.3	25.2	-	29.7
Suvin	1279	1117	1034	3.0	3.6	3.5	32.4	28.7	27.6	37.1	36.6	38.8	3.2	3.4	3.4	26.1	31.6	33.9

In central zone evaluation of cultures of TMC trial were conducted at Rahuri and Surat (Table 1.2.7) At MPKV, Rahuri genotype GSB-21 (889 kg/ha), TCHB-45 (694 kg/ha), TCHB-47 (616 kg/ha), CCB-1 (365 kg/ha) and GSB-39 (354 kg/ha) recorded significantly higher seed cotton yield over the check Suvin (165 kg/ha). For fibre properties, the genotype GSB-39 recorded 35 mm staple length followed by CCB-1 (34.0 mm). The genotype GSB-21 recorded the highest fibre strength 25.3 g/tex followed by CCB-1 (25.0g/tex).

All entry were significantly superior to check Suvin (583 kg/ha) except the entry TCB-47 at NAU, Surat.. The highest seed cotton yield was recorded by OB-12 (1396 kg/ha) followed by GSB-21 (1282 kg/ha), CCC-1 (1163kg/ha) and GSB-39 (1041 kg/ha). Maximum ginning out turn of 33.8 % was recorded by GSB-21 followed by TCB-47 (32.7 %) as against 24.9% of Suvin. Maximum fibre length of 42.0 mm and fibre strength of 31.6 g/tex were recorded by GSB-39.

Table 1.2.7 : Common TMC trial conducted at MPKV, Rahuri and NAU, Sural..

S.No	Entry	Yield (kg/ha)		BollWt. (g)		Ginning %		2.5% SL (mm)		Micronaire		Strength (g/tex)	
		RH.	SUR.	RH.	SUR.	RH.	SUR.	RH.	SUR.	RH.	SUR.	RH.	SUR.
1	TCHB-45	694	900	2.5	2.9	35.8	29.9	31.7	36.1	3.2	3.5	24.6	30.1
2	TCHB-47	616	721	2.4	3.1	36.0	32.7	31.1	33.0	2.8	3.6	20.1	25.1
3	CCB-1	365	1163	2.5	2.9	39.6	31.3	34.0	38.4	2.8	3.1	25.0	29.1
4	CCB-9	265	869	2.5	3.0	37.4	29.6	32.7	38.3	3.0	3.5	24.8	29.5
5	GSB-21	889	1282	2.7	3.0	36.0	33.8	32.3	33.9	3.3	3.8	25.3	26.5
6	GSB-39	354	1041	2.6	2.9	31.3	30.2	35.0	42.0	2.7	3.0	24.1	31.6
7	OB-12	272	1396	2.3	3.0	36.8	30.8	30.2	37.4	3.1	3.1	21.8	29.8
8	RAB-10	158	1002	2.4	3.2	36.5	29.3	32.9	34.8	2.6	3.6	24.4	29.0
9	Suvin	165	583	2.6	3.5	37.1	24.9	33.9	39.1	3.1	3.3	24.2	29.2
	CO at5 %	111	215										
	CV (%)	15	12.5										

Combined Analysis of five locations

Combined analysis of all the eight cultures at five locations (Table 1.2.8) indicated that GSB 21 was the best entry with a mean seed cotton yield of 1602 kg/ha.

There was not much variation in boll weight which varied from 2.7 g to 3.1 g. CCB 9 recorded the highest ginning out turn of 34.4 per cent.. Among the cultures tested, TCB 45, GSB 39 and CCB 1 were promising for yield and the quality which was found to be on par with Suvin.

Table 1.2.8 : Combined Analysis of *G.barbadense* cultures in TMC Trial

S. No	Entry	Seed Cotton Yield Kg/ha	%inc Over Suvin (c)	BollWl. (g)	Ginning %	2.5% SL (mm)	Micronaire	Strength (g/tex)
1	GSB21	1602	109	3.1	32.3	32.9	3.7	25.7
2	TCB 45	1462	91	3.1	30.2	33.8	3.6	27.5
3	DB12	1206	58	2.7	31.3	34.4	3.2	26.6
4	GSB 39	1083	42	2.9	29.0	37.2	3.2	27.1
5	CCB 1	1080	41	2.9	32.6	36.0	3.1	27.6
6	TCB 47	1062	39	3.0	30.8	32.3	3.5	24.7
7	RAB10	943	23	3.2	30.9	34.3	3.4	26.7
8	CCB9	805	5	3.0	34.4	35.6	3.2	27.6
9	Suvin ©	765	0	3.1	30.5	37.2	3.2	28.3

ii. Evaluation of promising materials in AICCIP Trials:

Eleven *G.barbadense* cultures were evaluated under AICCIP in Central and South Zones. Culture GSB 40, GSB 41 and RAB 8 were found to be the top three entries in both Central and South zones. However, quality wise

Suvin was the best.. CCB 5 and TCB 1 in Central Zone and TCB 26 and CCB 11 in South Zone were on par with Suvin in fibre quality. TCB 26 (34.1 %) in Central Zone and CCB 11(35.2%) in South zone recorded high ginning out turn.

