

## Performance of two Cotton Cultivars in two Different Tracts of Tamil Nadu

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In a study of two cotton varieties, MCU 5 and MCU 9 for four years during winter and summer seasons, it has been brought out that both the varieties could be grown successfully in summer as well as winter seasons. Better seed cotton yield was recorded in summer than winter. MCU 9 was found to give better than MCU 5. MCU 9 between the varieties and winter season among the two seasons have been observed to be better for improving the lint index. Both the varieties were equal in mean fibre length. The characters mean fibre length, fibre fineness and maturity coefficient were not influenced by environmental factors. The fibres produced during summer season were noted to possess better bundle strength.

The potentiality of the summer and winter cambodia tracts of Tamil Nadu for production of superior long staple cotton was well recognised. Many strains have been released for general cultivation in these tracts. Among the strains released, two strains viz., MCU 5 and MCU 9 have been outstanding in view of their superior quality and high yielding potential. Even though these two strains are released for the winter cambodia tract, these are being grown extensively in summer cambodia tract too. In order to get an appraisal of the relative performance of these two strains in the winter and summer seasons, a study was undertaken with the performances obtained from Co-ordinated Varietal Trials conducted over four years in the Cotton Breeding Station, Coimbatore (winter tract) and Cotton Research Station, Srivilliputhur (Summer tract).

### MATERIAL AND METHODS:

The data on various characters of MCU 5 and MCU 9 were obtained from

results of Co-ordinated Varietal Trials conducted during 1975-76, 1976-77, 1977-78 and 1978-79 (referred to as years in text) in both winter and summer seasons (indicated as seasons in text). The characters studied were (a) yield of kapas, (b) ginning out turn, (c) seed and (d) lint indices, (e) mean fibre length (f) fibre fineness (micronaire value), (g) maturity coefficient and (h) bundle strength. The data were processed through statistical pooled analysis.

### RESULTS AND DISCUSSION:

The mean values for four years, two strains and two seasons are given in Table 1. The values of interaction are given in Tables 2 to 4.

a) *Yield of kapas*: The yield levels between the years attained statistical significance, the year 1975-76 recording the highest yield of 2042 kg/ha. There was no significant difference between the varieties MCU 5 and MCU 9 over the years, MCU 5 recorded a mean

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yield of 1279 kg/ha while MCU 9 recorded 1390 kg/ha (Table 1).

Between the seasons, however, significantly higher yield was recorded in summer season than the winter season by both the varieties. Mean summer season yield was 1720 kg/ha and mean winter season yield was 950 kg/ha. The wider adaptability of both MCU 5 and MCU 9 to the summer and winter seasons is brought about by the variety x year and variety x season interactions (Table 2 and 3) since both the varieties are essentially released for the winter cambodia tract only. In all the years (Table 4) significantly higher yields have been recorded in summer season which indicates that the summer season is better suited for maximising the production of seed cotton in Tamil Nadu.

b) *Ginning outturn*: It was observed from the data in Table 1 that the variety MCU 9 (34.8 percent) ginned significantly better than MCU 5 (32.4 per cent) over the years. The mean values obtained for this trait during the four years and the two seasons have been noted to have no statistical differences indicating stability for the lint outturn for both the varieties. Similarly the interaction effects of variety x year, variety x season and year x season have also no influence on the ginning outturn, which confirms that this trait is not influenced by the environment factors (Antony *et al.*, 1981).

c) *Seed and lint indices*: Both the characters showed significant differences for years as well as seasons. Between the two seasons, the lint and seed indices recorded during the winter season were significantly superior to that of

summer season values. Between the two varieties, MCU 9 was superior to MCU 5 in lint index while it was on par with MCU 5 in seed index which probably accounts for the higher GP recorded by MCU 9 over MCU 5. The interaction between variety and year was not significant. The interaction of year with season for seed and lint indices was significant. In all the years winter season recorded higher lint index.

d) *Mean fibre length*: There was no significant difference among the years, varieties and seasons which denotes that either of the varieties can be grown in any season. The interactions have no influence on the mean fibre length.

e) *Fineness (Micronaire value) and maturity coefficient*: There existed no significant difference among years, varieties, seasons and their interactions for the above characters (Antony *et al.*, 1981). This shows that these characters are not influenced by the environmental factors. Both the varieties are equal in fibre-fineness and maturity.

f) *Bundle strength*: There was no significant difference among the years and varieties. The seasonal differences were significant. Between the two seasons, summer is found to be favourable for high bundle strength. The effects of interactions were not significant. The bundle strength recorded in summer season fell into the category "very good" and the same recorded in winter into the category "good" as classified by Sundaram (1974).

#### REFERENCES

- ANTONY, A. K., SANTA, V., NAYAR, C. P., VENUGOPALAN and KAMALANATHAN, S. 1981. Technological and economic performance of some improved varieties developed for rice fallows in Tamil Nadu to replace MCU 7. *Cotton Development*, 10: 11-14.
- SUNDARAM, V. 1974. Definitions of some technical terms used in cotton development, trade and technology. *Cotton Development*, 4:35-40.



TABLE 1

	Yield of kaps (kg/ha)	G. P.	Seed index (d gm)	Lint index (d.gm)	Mean fibre length (mm)	Fineness (Micronaire value) -6 10 g/in	Maturity coefficient	Bundle strength PSI 'O' GAUGE (lb/mg)
<i>Year</i>								
1975-76	2042	34.7	109	58	28.2	3.45	0.67	8.3
1976-77	1136	33.9	103	52	28.5	3.39	0.70	8.5
1977-78	1124	32.6	117	57	28.0	3.38	0.70	8.5
1978-79	1037	32.5	113	54	28.3	3.36	0.69	8.6
Significance by 'F' test	Yes	No	Yes	Yes	No	No	No	No
S. E.	56.0	0.38	1.71	0.54	0.31	0.12	0.01	0.16
C. D.	254.0	-	7.71	2.43	-	-	-	-
<i>Variety</i>								
MCU 5	1279	32.4	109	52	28.4	3.33	0.77	8.5
MCU 9	1390	34.8	113	58	28.0	3.86	0.78	8.4
Significance by 'F' test	No	Yes	No	Yes	No	No	No	No
S. E.	39.9	0.27	1.21	0.39	0.22	0.08	0.01	0.10
C. D.	-	1.22	-	1.74	-	-	-	-
<i>Season</i>								
Summer	1720	33.3	108	54	28.1	3.54	0.69	8.98
Winter	950	33.6	114	57	28.4	3.25	0.68	7.94
Significance by 'F' test	Yes	No	Yes	Yes	No	No	No	Yes
S. E.	40.0	0.27	1.2	0.4	0.22	0.08	0.01	0.11
C. D.	180.0	-	5.5	1.7	-	-	-	0.50



TABLE 2  
Variety  $\times$  Year

	Yield of kaps (kg/ha)	G. P.	Seed index (d.gm)	Lint index (d.gm)	Mean fibre length (mm)	Finess (Micronaire value) -6 10 g/in	Maturity coefficient	Bundle strength PSI 'O' gauge (lb/mg)
<i>MCU. 5</i>								
1975-76	1988	34.8	105	54	28.7	3.46	0.67	8.2
1976-77	1076	32.8	105	51	29.1	3.18	0.67	8.4
1977-78	1063	31.6	113	52	27.7	3.35	0.71	8.7
1978-79	991	31.7	112	52	28.3	3.33	0.70	8.8
Mean	1279	32.4	109	52	28.4	3.33	0.77	8.5
<i>MCU. 9</i>								
1975-76	2096	35.7	113	61	27.7	3.44	0.68	8.4
1976-77	1197	35.0	102	54	28.0	3.60	0.72	8.5
1977-78	1185	33.7	122	61	28.3	3.41	0.70	8.9
1978-79	1084	33.3	115	57	28.2	3.40	0.68	8.5
Mean	1390	34.8	113	58	28.0	3.86	0.78	8.4
Significance by								
'F' test	No	No	No	No	No	No	No	No
S. E.	80	0.54	2.4	0.76	0.44	0.17	0.02	0.22
C. D.	-	-	-	-	-	-	-	-



TABLE 3

Variety Season

	Yield of kapas (kg/ha)	G. P.	Seed index (d. gm)	Lint index (d. gm)	Mean fibre length (mm)	Fineness (Micronaire value) -6 10 g/in	Maturity coefficient	Bundle strength PSI 'O' gauge (lb/mg)
<b>MCU 5</b>								
Summer	1648	32.9	104	52	28.8	3.50	0.70	9.1
Winter	911	32.0	113	53	28.1	3.16	0.67	7.9
<b>MCU 9</b>								
Summer	1792	33.7	111	56	27.4	3.58	0.69	8.9
Winter	989	35.1	114	61	28.7	3.35	0.70	8.0
Significance by 'F' test	No	No.	No.	Yes	No	No	No	No
S. E.	56	0.38	1.7	0.54	0.31	0.12	0.01	0.16
C. D.	-	-	-	2.43	-	-	-	-



TABLE 4  
Year x season

	Yield of kapas (kg/ha)	G. P.	Seed index (d.gm)	Lint index (d.gm)	Mean fibre length (mm)	Fineness (Micronaire value -6 10 g/in)	Maturity coefficient	Bundle strength PSI 'O' gauge (lb/mg)
1975-76								
Summer	2170	34.0	109	57	28.7	3.60	0.89	8.3
Winter	1914	35.4	109	59	27.7	3.30	0.66	8.3
1976-77								
Summer	1321	34.3	90	47	28.1	3.50	0.67	9.3
Winter	952	33.5	117	57	29.0	3.28	0.72	7.7
1977-78								
Summer	1983	32.7	119	57	28.2	3.35	0.70	9.1
Winter	264	32.6	116	59	27.8	3.41	0.71	8.0
1978-79								
Summer	1405	32.3	113	53	27.4	3.70	0.72	9.3
Winter	670	32.7	113	55	29.1	3.03	0.66	7.9
Significance by 'F' test	Yes	No	Yes	Yes	No	No	No	No
S. E.	80.0	0.54	2.40	0.76	0.44	0.17	0.02	0.22
C. D.	359.0	-	10.9	3.44	-	-	-	-