THE AUSTRALIAN COTTON CULTIVAR TRIAL : THE LAST TWO SEASONS

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The Australian Cotton Cultivar Trial (ACCT), which is conducted throughout the cotton growing regions, tests the most promising locally bred and introduced lines. It is important for the proper evaluation of cultivars that they be tested as widely as possible to get a precise reading on relative performance, to evaluate stability of performance and to detect any adaptation to a particular region which a cultivar may show. CSIRO and QDPI have been conducting these trials since the 1974/75 season and they have proved their value in helping select cultivars for commercial production. The number of sites has expanded over the years as new cotton areas developed.

It is now two years since we advised the previous conference on the progress of the trials so will take this opportunity for a further update. The 1986/87 trial comprised sixteen entries and results were obtained for the following ten sites: Warren, Breeza, Narrabri, Bourke, Moree, Boggabilla, St George, Darling Downs, Biloela and Emerald. Results for that season have been printed in the Australian Cotton Grower (Nov. 1987). This season thirty entries were tested at twelve sites, the ten just cited, plus Theodore and Merah North. No yield results were able to be obtained from Merah North, effectively limiting the trial to eleven sites.

Twelve varieties were common to both years and overall means for the two years and all sites are presented in Table 1. Siokra 1-4, and Siokra 107B, were highest yielding. Compared to Siokra 1-1, it can be seen that 1-4 has a slightly lower lint % but a larger boll and longer and stronger fibre. Siokra 107B is

generally similar to Siokra 1-1 but has a shorter, coarser fiber and could yet establish a commercial niche in the shorter season areas if CSD tests scheduled for this year are successful. Siokra 1-2 is being grown commercially this year for its progressive, albeit modest improvement over Siokra 1-1 in yield and quality. Siokra 1-3 has considerably better strength than Siokra 1-1 or 1-2, and has been considered as their possible replacement, but is late maturing and not as high yielding as Siokra 1-4.

Siokra 2-1 is a nectariless, okra variety. Entomologists, including Gary Fitt and Peter Twine, are assessing the value of nectariless under commercial conditions but the variety itself is not high yielding enough nor of sufficient quality to be competitive to the other Siokras.

The three higher quality varieties, Sicala 3-2, 3-1 and DP90 grouped together on average over the two years fairly similarly for performance characteristics with Sicala 3-2 just having a slight edge for yield, length and strength over DP90. Although all yielded much more than the obsolete commercial variety Namcala, there is still a considerable gap in strength remaining to be bridged.

Some of the eighteen new varieties evaluated this least season performed promisingly (Table 2). It can be seen that 83203-510 performed exceptionally, only ranking poorly at the Darling Downs, where yields were low and varietal performances generally atypical. 83203-510 is a rather vigorous growing okra leaf variety with bolls similar in size to Siokra 1-4, i.e., appreciably larger than Siokra 1-1. Allied to its more vigorous growth is somewhat later maturity, being similar to DP90 in this respect. It's strength is also similar to DP90, but it has slightly longer and finer fibre (Table 3).

83203-189 has a similar pedigree to 83203-510, combining both Siokra and DP90 germplasm, but it is normal leafed with smaller bolls and slightly weaker fibre. 8325-161 is an okra leafed, small bolled variety, maturing early with a

high ginning out-turn. It has yielded well in two seasons of multi-site testing. 82237-175 is a normal leafed variety with good length and strength. Siokra 324 is an early maturing Siokra with a relatively high micronaire value. It is yielding well in the cooler, shorter season areas.

The ACCT, covering as it does all the main growing areas, continues to provide an excellent means of evaluating the potential worth of lines emanating from our breeding programmes. We look forward to continued support from our co-operators in the future to ensure its continued functioning.

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Table 1. Overall mean results for the twelve varieties common to both the 1986/87 and 1987/88 ACCT .

	Lint yield % overall mean	Lint %	Boll wt (g)	Length (in)	Strength (g/tex)	Micronaire
Siokra 1-4	110	39.9	5.0	1.19	27.4	4.00
" 107B	110	41.0	4.4	1.15	26.2	4.37
" 1-2	104	40.6	4.5	1.18	26.6	4.00
" 1-1	103	40.6	4.4	1.17	26.2	4.03
" 1-3	103	41.8	4.6	1.16	27.8	4.28
" 2-1	100	40.2	4.4	1.17	26.8	4.02
Sicala 3-2	97	37.6	5.6	1.19	29.2	3.88
" 3-1	96	37.8	5.7	1.19	28.2	4.08
DP 90	95	38.5	4.5	1.15	28.5	4.20
" 61	91	38.5	4.8	1.15	25.0	4.36
" 16	86	37.3	5.2	1.16	24.5	4.15
Namcala	83	36.1	5.6	1.17	31.4	3.85

Table 2. Some high yielding entries in the 1987/88 ACCT. Yields expressed as a % of the site mean yields.

	WA	BRZ	N	BKE	MO	BO	SG	DD	TH	BI	EM	Overall Mean %	Overall Mean (kg/ha)
83203-510	110	108	105	113	117	109	113	90	110	110	114	110	1861
83203-189	100	106	109	105	107	102	115	127	103	101	116	107	1802
83235-161	101	106	106	105	108	104	103	97	106	110	106	105	1773
82237-175	106	106	104	110	111	101	102	102	102	102	107	105	1762
Siokra 324	106	110	105	111	96	104	102	114	104	108	93	104	1752
CONTROLS													
Siokra 1-1	104	97	102	95	95	92	97	96	101	101	102	99	1667
DP90	97	98	77	111	105	91	109	98	99	97	106	99	1662
Site Mean Yield	1762	1356	1920	1658	1707	1880	1437	448	2163	2070	2141		

WA = Warren; BRZ = Breeza; N = Narrabri; BKE = Bourke; MO = Moree; BO = Boggabilla; SG = St George; DD = Darling Downs; TH = Theodore; BI = Biloela; EM = Emerald

Table 3. Lint percentage and fibre quality of some high yielding entries in the 1987/88 ACCT.

	Lint %	Length (in)	Strength (g/tex)	Micronaire value
83203-510	40.1	1.19	28.4	4.0
83203-189	39.7	1.16	27.4	4.1
83235-161	42.3	1.13	26.4	4.3
82237-175	38.5	1.21	28.2	4.2
Siokra 324	40.4	1.14	25.7	4.3
CONTROLS				
Siokra 1-1	40.7	1.17	25.6	4.1
DP90	38.7	1.14	28.0	4.2