

CSIRO Mainstream Varieties

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Last season there were four (Siokra 1-4, Siokra L22, Sicala 33 and CS 189) CSIRO mainstream varieties being grown commercially in most districts. In addition the new variety CS 50 was trialled in most areas as was Sicala 34, the higher strength replacement for Sicala 33. In some districts, our three special purpose varieties (Sicala V1, CS 7S and Siokra S324) were also grown. Peter Reid will discuss their performance in his article.

General Features of The Mainstream Varieties

Both Siokra 1-4 and Siokra L22 are distinguished by their okra leaf shape. This leaf type confers some pest resistance, especially to mites. L22 is a more vigorous grower than 1-4 and has shorter fruiting branches and larger bolls, with the first boll being set higher up in the plant. Both varieties are widely adapted with high yield potential but L22 with its later maturity and lower micronaire is better suited to longer season growing areas. Its vigorous growth enables it to cope better with compacted or "tight" soils, and it is also better adapted to dryland growing than Siokra 1-4, except for the cooler areas.

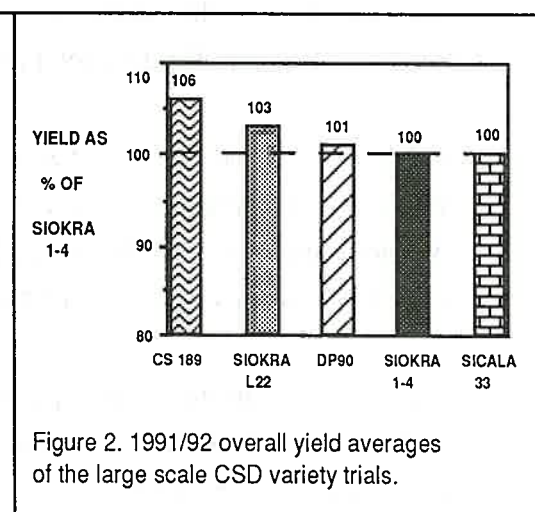
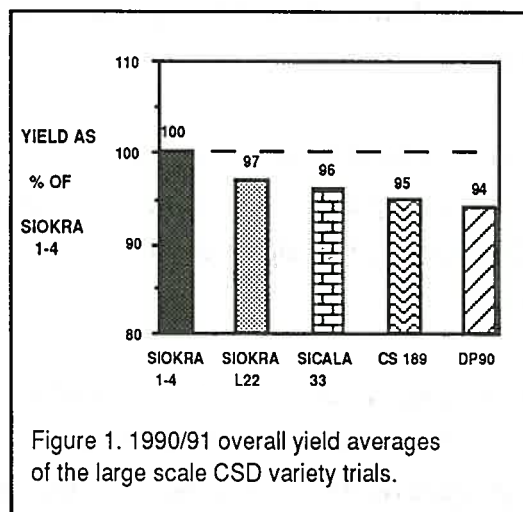
CS 189, a normal leaf type, has a tall erect plant habit with medium length fruiting branches. It is high yielding and widely adapted and has some yield tolerance to Verticillium wilt. Like Siokra L22 it copes with compacted soils somewhat better than less vigorous growing varieties.

Sicala 34 is a normal leaf type of medium stature with short to medium length fruiting branches and very small bolls. Its predecessor, Sicala 33, often commanded a premium for its high quality, and Sicala 34, with its improved strength (1.8g/tex greater than Sicala 33) and the high maturity of its fibre should consolidate this market advantage. Furthermore Sicala 34 has a better yield potential than Sicala 33, having averaged 4% more than the latter in three years of testing in the Australian Cotton Cultivar Trial (ACCT).

The other new variety, CS 50, is also a normal leafed, medium statured variety with short to medium length fruiting branches and very small bolls. It has a high gin turn out, averaging 1% greater than Siokra 1-4 and 2+% greater than the Sicalas and DP 90. It has a very high yield potential having, over three years of ACCT testing, averaged 3.5% greater yield than the top yielding commercial varieties (Siokra 1-4 and Siokra L22).

A tale of two seasons: 90/91 and 91/92

The two seasons that have elapsed since our last cotton conference differed considerably in many aspects. In most areas 90/91 was hot and dry with the exception being central Queensland, especially Emerald, where it was overcast and intermittently wet throughout January and February. These conditions led to fruit shedding and considerable boll rot. Because of the hot dry conditions elsewhere, *Verticillium* wilt was of little consequence (except on the eastern Darling Downs) and there was almost no premature senescence (leaf reddening). A further feature was the high *Heliothis* pressure experienced along with high mite pressure. Under these conditions the okra leaf varieties showed great resilience and versatility with Siokra 1-4 and Siokra L22 being at or near the top for yield in most locations and overall (Fig.1.).



In 91/92, by contrast, almost all districts had a wet December with often damaging hail storms and a wet cool period in February although March and April were dry and warm. *Verticillium* wilt was widespread and premature senescence (leaf reddening) was prevalent in most districts. However *Heliothis* pressure was

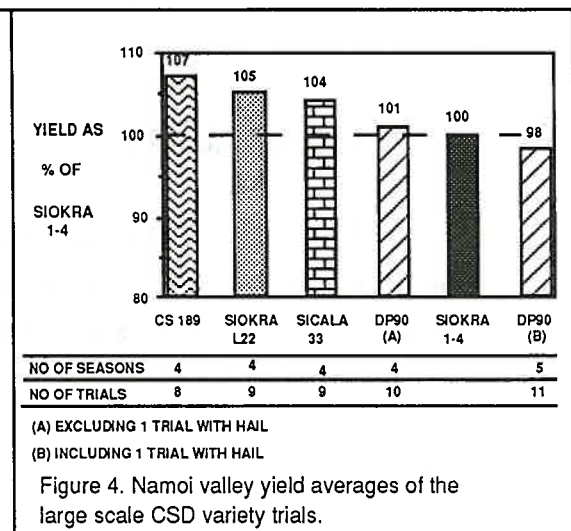
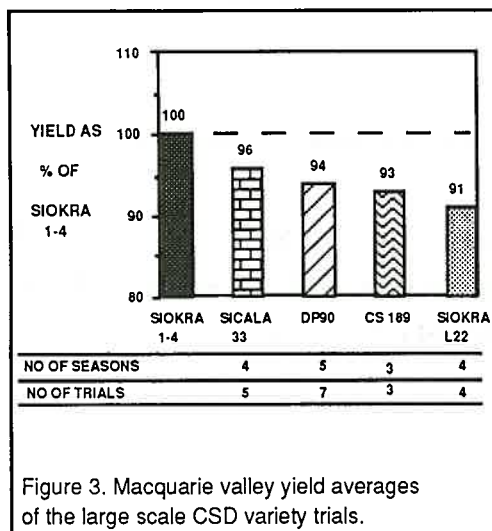
generally low (except in the Macquarie and at Bourke until mid season). Mites also were of little consequence. As a generalization the longer season varieties - CS 189, Siokra L22 and DP 90 - did relatively better than the shorter season Siokra 1-4 (Fig.2.). Perhaps the biggest surprise of all was the high absolute yields recorded in just about all areas despite the seasonal vicissitudes that were encountered.

Long term trends in varietal performance on a regional/district basis.

Varietal performance can vary markedly from season to season as has just been discussed. It is therefore desirable, in examining the suitability of a variety in a region or district to study results, wherever possible, for at least three seasons. This has been done for a number of districts using the average variety yields from the CSD trials expressed as a percentage of the standard variety, Siokra 1-4. In all, besides Siokra 1-4, four varieties (Siokra L22, Sicala 33, CS 189 and DP 90) have been trialled for three to five seasons and the number of comparisons made, together with the number of seasons, is shown on each graph.

The Macquarie valley (Sites: Trangie, Warren)

Siokra 1-4, on average, has outyielded all other four varieties (Fig.3.). Given the excellent performance of Siokra L22 and CS 189 in other districts their poor performance in the Macquarie is somewhat surprising. However the results accord with commercial experience and little CS 189 or Siokra L22 is grown there.

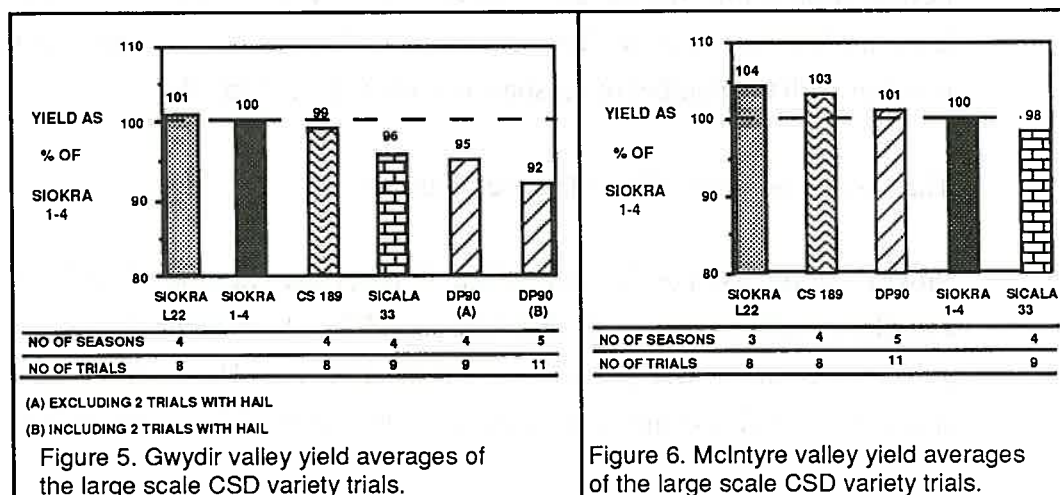


The Namoi valley (west of Narrabri) Sites: Myall Vale, Merah North

CS 189 has performed best, followed by Siokra L22 and Sicala 33 (Fig.4.). Average yields of Siokra 1-4 and DP 90 have been similar. With the increasing incidence of Verticillium in this long-farmed area, the commercial trend appears to be directed increasingly to the new Sicala V1 variety with CS 189 a popular alternative, while Siokra L22 and Siokra 1-4 are being grown in the more disease free areas.

The Gwydir valley (Sites: Midkin, Colly Farms)

Siokra L22 and CS 189 have, on average, performed similarly to Siokra 1-4 while Sicala 33 and DP 90 have yielded less (Fig.5.). Commercially Siokra L22 has become a favourite with smaller areas of Siokra 1-4 and Sicala 33 being grown.

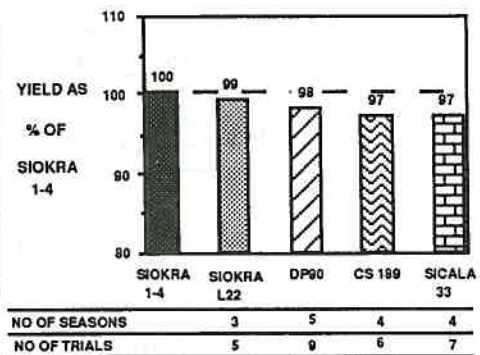
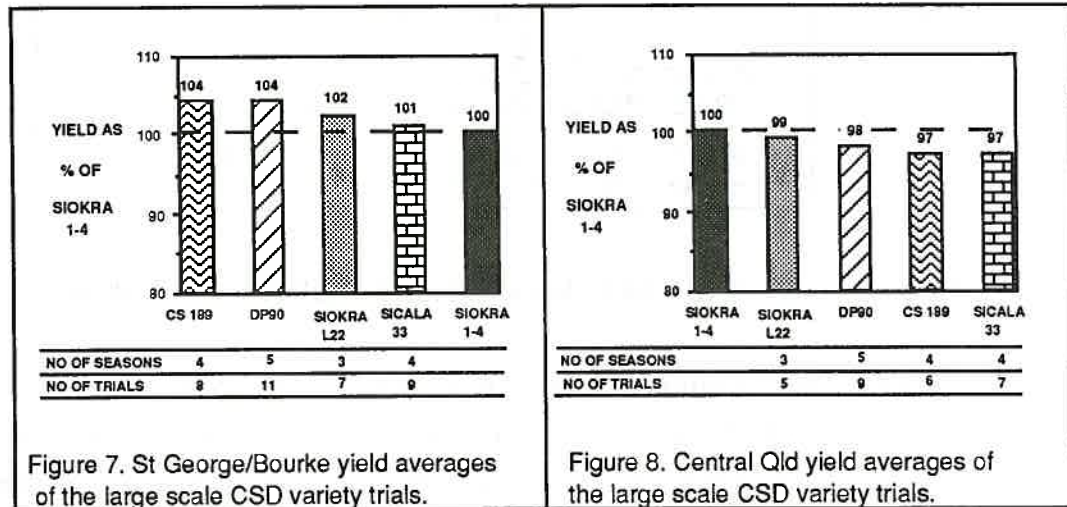


The MacIntyre valley (Sites: Boggabilla, Goondiwindi, Mungindi)

Siokra L22 and CS 189 have averaged more than Siokra 1-4 (Fig.6.). DP 90 has recorded a slight (1%) yield advantage over Siokra 1-4. Again Siokra L22 has become a widely grown variety in the last few seasons.

The Arid Western Districts (Sites: St George, Bourke)

DP 90 and CS 189 have both averaged four percent greater yield than Siokra 1-4 while Siokra L22 and Sicala 33 have shown only a slight yield advantage (Fig.7.). DP 90 has been the major variety grown in this region but there is increasing interest in CS 189 for yield and Siokra L22 and Sicala 33 for their quality.

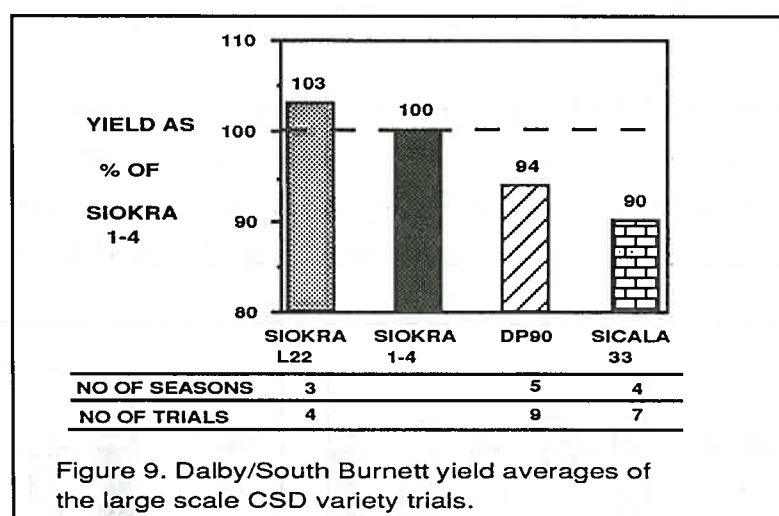


Central Queensland (Sites: Biloela, Theodore, Emerald)

On average Siokra 1-4 has slightly outyielded Siokra L22 and DP 90 while CS 189 has had the lowest yield (Fig.8.). DP 90 is the most widely grown variety but Siokra L22 has been gaining in popularity, not only for its yield but because in this very hot area its lower micronaire is an advantage.

Dalby/South Burnett (Sites: Dalby, Murgon)

Siokra L22 has yielded more than Siokra 1-4 which in turn has substantially outyielded DP 90 with Sicala 33 having yielded the least (Fig.9.). Siokra L22 has replaced Siokra 1-4 as the main commercial variety in these areas.



Performance of the New Mainstream Varieties Sicala 34 and CS 50

There are no long term commercial records yet established for these two varieties. Besides the small scale ACCT trials, however, Sicala 34 and CS 50 have been grown in 3 to 4 CSD trial sites in 1990/91 (Midkin, Colly, Boggabilla and Goondiwindi) and in 13 to 16 sites from Lake Tandou to Emerald in 1991/92. Mean yields (as a % of Siokra 1-4) of CS 50 and Sicala 34 compared with some other commercial varieties are shown below.

Season	Sites	CS 50	Siokra 1-4	Siokra L22	Sicala 34	Sicala 33
1990/91	3 to 4	103.5	100	97.7	96.2	94.4
1991/92	13 to 16	105.6	100	104.1	102.9	101.3

Sicala 34 showed about 2% superior yield to Sicala 33 (as well as having higher fibre strength). CS 50 has confirmed our ACCT data in being the variety with the highest yield potential, even in two very different seasons.

General Discussion

This paper, following suggestions of the Conference Organisers, has concentrated on the long term performances of the mainstream varieties rather than just individual trial results over the last one or two seasons (which have been put out in booklet form by CSD). As initially mentioned Peter Reid's paper deals with the short season program and features Sicala V1, CS 7S and Siokra S324. His paper needs

to be read in conjunction with this paper to give an overall balanced view of the CSIRO bred varieties available for planting by growers, especially since the Verticillium tolerant Sicala V1 variety has much to offer in many districts besides the short season areas.

The long-term results undoubtedly help describe the general suitability of varieties for various districts. Of course, besides this, individual farms or individual blocks on a farm may have their own peculiarities eg. be long-fallowed, or long farmed or mite prone or compacted or whatever. In such cases the variety best suited may differ from the usual for the district. Our suite of varieties is designed to cover this range of needs and the reader is directed to the selection guide published in the 1992 CSD Variety Handbook.

Future Varieties

We are well advanced in testing possible replacements for CS 189 - possibly even by next year. Next year we will also replace Siokra L22 with the higher yielding, more length-uniform and stronger Siokra L23. We are now testing high yielding blight resistant, high strength glabrous, frego bract and glabrous, okra leaf lines which should provide greater tolerance to Heliothis and mite levels. Superimposed on all our programs is our consistent drive to raise fibre quality. There is a great deal of emphasis now on improving fibre quality in other major areas of the world and we believe we have little option but to continue to emphasize this in our program so that our marketing advantage in this important area is maintained.

Acknowledgements

I thank the CSD Board for permission to present their trial results and to their staff, especially Bill McDonnell, Louise Mills and Theresa Grebert for carrying out the trials. I also wish to thank the CSIRO breeding team members, Peter Reid, Craig Patrick, Lindsay Heal, Lenore Carpenter and Tony McCumstie for their dedication in meeting our program's goals.



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