# PRESENT AND FUTURE VARIETIES

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You are all aware that currently there are three varieties available commercially: Siokra 1-2, Sicala 3-1 and DP90 (Deltapine - Acala) .

Among these three, Siokra with its okra leaf, is very distinct from the other two with their normal shaped leaves. Siokra is also distinguished by it's vigour in germination and establishment, it's heavy production of fruiting forms and it's small, storm resistant bolls. Although Siokra doesn't usually flower any earlier than Sicala or DP90 its crop matures earlier, and it's okra leaves confer some resistance to pests especially mites. It is also practically immune to Bacterial Blight which causes severe damage in susceptible varieties. Siokra yields well under a range of planting dates and sowing conditions but does tend to lodge with a heavy crop leaving it vulnerable to boll rots and perhaps *Alternaria*, while it also at times suffers "premature senescence" with earlier than expected "cut-out" of either sections or the whole of the crop.

Like Siokra, Sicala is resistant to Bacterial Blight but looks quite different being normal leafed with long lower fruiting branches and big bolls. Both it and DP90 are higher strength varieties. Both of them are also vigorous growers with DP90 having shorter fruiting branches and a very erect structure which makes it somewhat less vulnerable to diseases such as Phythophora boll rot. However DP90 is extremely susceptable to Bacterial Blight. Interestingly both Sicala and Siokra (especially) tolerate and recover from hail damage much better than DP90. This seems to be associated with their more open canopy and more supple, less brittle stems.

## YIELDS

### (a) Siokra 1-1 compared to DP90

On average over the last five seasons Siokra has on average outyielded DP90 by 8 %. But you can see that the relative yields of the two have fluctuated quite a deal with DP90 yielding much less than Siokra in three of the seasons but almost equal to it in the other two (Fig1).

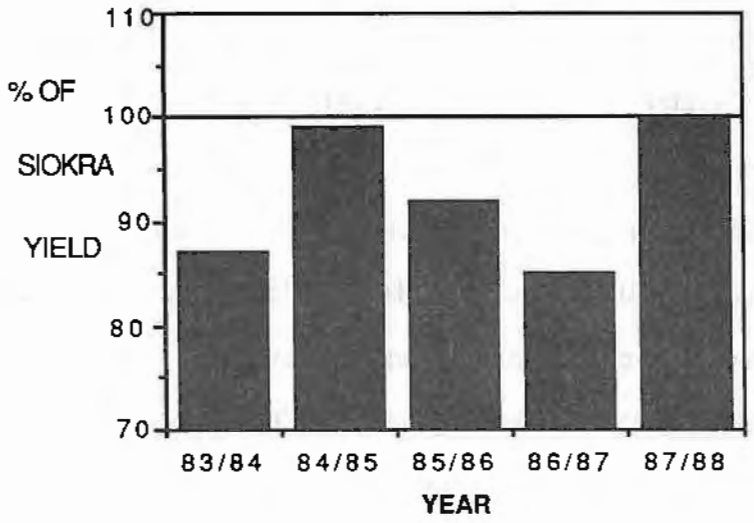


FIG 1. DP90 YIELD AS A % OF SIOKRA 1-1 OVER 5 SEASONS (MEAN ACCT RESULTS)

This demonstrates anew how greatly varieties can differ in their response to seasons and how necessary it is to take several seasons into account when assessing varietal performance (and how it may be good insurance in most areas to plant more than one variety). This season's results with Siokra and DP90 on average almost "even Stephen" were somewhat of a disappointment, since, in much of the Australian cotton growing area, the season overall was cooler than usual which should have favoured Siokra.

I think several factors were associated with Siokra's "not so good as expected" performance. Firstly much cotton was early planted and this often leads to Siokra's first bolls being set too close to ground level and early planting

seems associated with a greater tendency for lodging. These effects led to less efficient picking during the extremely wet conditions that prevailed at harvest, while also leading to more boll rot and in some places *Alternaria* as well. I believe another major influence was the quite exceptional cold spell in February (at Narrabri three weeks in February had 30% less heat units than usual). This phenomenon seemed to especially affect more advanced Siokra crops which went red and finished prematurely. However, Siokra, which was less mature and was growing vigorously at this time, was not so detrimentally affected and thus, as in the case of our large scale experiment on leased land, late growing Siokra often ended up outyielding DP90 by a wide margin.

**(b) Other relevant varietal comparisons**

Over three seasons Sicala 3-1 has yielded slightly more than DP90, while Siokra 1-2 has also yielded slightly better than Siokra 1-1 (original Siokra).

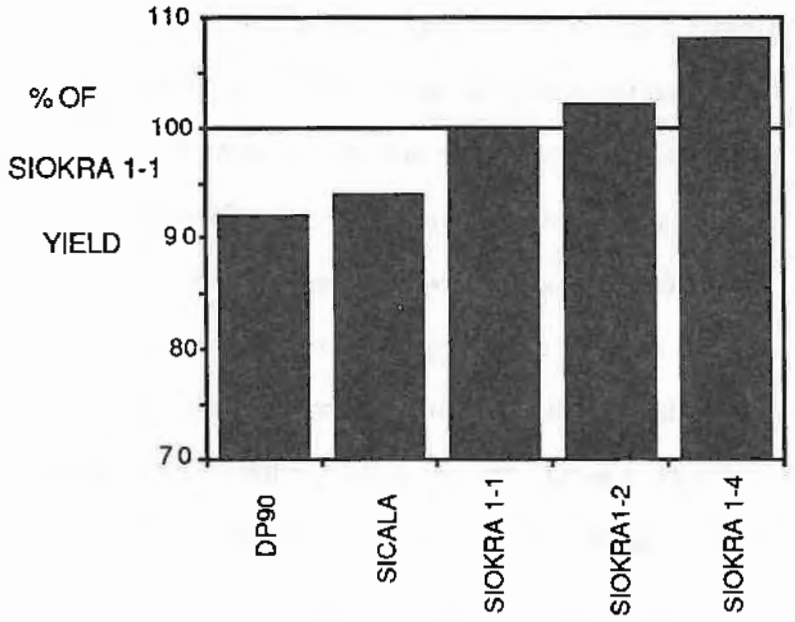


FIG 2. "OTHER" VARIETIES YIELD AS A % OF SIOKRA 1-1.

(MEANS OF 3 SEASONS MULTISITE COMPARISONS)

Of great interest to you all I'm sure is the promise shown by Siokra 1-4 with its nearly 8% better yield than Siokra 1-1. Generally in it's growth, flowering pattern and response to growing conditions it resembles Siokra 1-1 or 1-2 but it does differ in having a larger boll, slightly better strength and considerably better yield. By next year it will completely replace Siokra 1-2 while Sicala 3-2 will completely replace Sicala 3-1 as it has even higher strength and is slightly earlier maturing.

## FUTURE VARIETIES

What lies beyond Sicala 3-2 and Siokra 1-4? We have much promising material and are working on a number of fronts. We have lines deriving from a number of different sources which are yielding around Siokra's 1-4 level and which have improved quality along with a vigorous, taller more erect growth, which should help avoid "soil-splash" type bollrot and the premature senescence phenonomen while improving their efficiency of picking. Additionally we are continuing to pursue insect resistance with various combinations of okra leaf, glabrous, nectariless and frego bract being developed. The most advanced of the pest resistant types so far developed is an okra leafed, glabrous (the glabrous trait reduces *Heliothis* egglay and improves lint grade) one of Peter Reid's which has yielded up to the level of Siokra 1-4 while having Sicala-type fibre quality. Further back we are making good progress to developing Bacterial Blight resistant, high strength replacement to our glabrous leafed, frego bract Sicot 3 which established such a good agronomic and yielding reputation in 1984-5 before having to be withdrawn for it's lack of fibre strength.

We also have a lot of high quality material featuring a good deal of Acala percentage and we will now begin selecting it under high verticillum wilt conditions. This material also forms the basis for our breeding efforts to develop

strong, fine fibre to meet the anticipated needs of the latest spinning technology as we move closer to the 21st century.

We now have enough suitable material to deliberately and meaningfully test some varieties for special suitability for specific regions. Thus this coming season CSD will evaluate four earlier maturing Siokras and two normal leaf, short season lines with higher micronaires for the shorter season Darling Downs, Breeza etc conditions, some six others that should specially suit the mainstream growing areas and two that should do well in the western Bourke region. This "regionalizing" activity will grow more pronounced in the years ahead while hopefully, as will be discussed by other speakers, genetically engineered varieties will extend the advantages being achieved by our conventional program.

## ACKNOWLEDGMENTS

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