Three new CSIRO varieties

Peter Reid and Greg Constable
CSIRO Cotton Research Unit, Narrabri

The CSIRO breeding program at the Australian Cotton Research Institute at Narrabri aims to develop locally adapted varieties for use by Australian farmers. The program has been very successful in developing varieties for all cotton growing areas with a wide range of conventional and Ingard varieties available through Cotton Seed Distributors (CSD) for 2000 planting. Key advances from the CSIRO breeding program include the development of varieties with okra leaf (for insect and mite tolerance), better disease resistance (particularly bacterial blight and Verticillium wilt), improved fibre quality and good adaptation to cool growing areas.

As a continuation of this program of regular release of new high performing varieties we are pleased to announce the introduction of three new conventional varieties: Sicot 70, Sicot 72 and Siokra S-102.

Sicot 70

This new variety will give farmers in many growing areas a greater choice in high yielding, disease resistant varieties. Sicot 70 is a full season, normal leaf variety with a compact growth habit. It is more determinate than Sicot 189 for instance and should be an easier variety to manage in terms of vegetative growth.

The key feature of Sicot 70 is its excellent disease tolerance. It has good verticillium tolerance and most importantly is amongst the best CSIRO advanced lines for fusarium tolerance. Under fusarium situations it has shown comparable results to Sicot 189 which is our best current variety. Mean seedling survival in three years of testing Sicot 70 has been 71% where Sicot 189 was 68% in the same trials. Thus it is a real alternative to Sicot 189 and Sicala V-2 in areas where fusarium is a problem.

A point to be aware of with Sicot 70 is that it appears to be quite sensitive to 'bunchy top'. Thus care should be taken to maintain good aphid control.

Sicot 70 is quite broadly adapted and we particularly recommend farmers in the growing areas from Warren to Dalby and to the east should try Sicot 70. On the cooler parts of the Downs it should be a good alternative to Sicot 189 in fusarium situations but, being a full season variety, it will still need careful management.

The following table shows yield results from all comparisons with Sicot 70.

Table 1 Mean yields over 3 years of CSIRO trials (39 trials) Yields as % of Sicala V-2

	Mean	Cool	Central	West	North
Sicala V-2	100	100	100	100	100
Sicot 189	102	91	102	103	108
Sicala 40	109	111	110	105	108
Sicot 70	106	105	107	108	105

Cool = eastern Downs and upper Namoi
Central = Warren to Dalby
West = St George to Bourke
North = central Queensland
In CSD larger scale trials in 1999/2000, Sicot 70 averaged 2% greater yield than Sicala V-2 over seven sites from Brookstead to Warren.

Sicot 70 has good fibre properties, though not as long and strong as Sicala V-2 – hence the 'Sicot' name. The fibre of Sicot 70 is slightly finer, giving a lower micronaire than Sicala V-2, so crop management should allow the crop to mature fully.

Sicot 72

This versatile normal leaf variety should prove popular with a wide range of farmers. Sicot 72 is a full season, normal leaf variety of medium stature. A point to note is that Sicot 72 has more leaf hair than our current range of varieties. In many situations this will probably make little difference but there may be occasions when the greater leaf roughness will result in more trash in the harvested cotton and slightly lower grades. In five CSD larger scale trials in 1999/2000, Sicot 72 had the same grades as Siokra V-16 – one half grade lower than Sicala V-2.
Sicot 72 has good verticillium tolerance and on early indications appears to have reasonable fusarium tolerance though more observations are required. We do not suggest it be used in confirmed fusarium fields until more fusarium tolerance data is available.
Sicot 72 has shown extremely broad adaptation in our trials and appears suited to most growing areas (Table 2). We are particularly suggesting it be tried in the growing areas from Moree to Dalby and in the areas to the west and north. Thus it will probably overlap with the new Sicot 70 in many areas but it is better suited to the hotter regions than Sicot 70.

Table 2 Mean yields over 3 years CSIRO trials (39 trials). (Yields as % of Sicot 189)

	Mean	Cool	Central	West	North
Sicot 189	100	100	100	100	100
Sicala 40	107	122	108	102	100
Sicot 53	102	108	100	102	103
Sicot 72	107	117	108	105	103

Cool = eastern Downs and upper Namoi
Central = Warren to Dalby
West = St George to Bourke
North = central Queensland
In CSD large scale trials in Moree, Bourke and Mungindi in 1999/2000, Sicot 72 had 11% higher yield than Sicot 189.

Siokra S-102

This new short season okra leaf variety extends the range of earliness available in CSIRO varieties. Siokra S-102 is very similar in most characteristics to Siokra S-101 but importantly it is slightly earlier - perhaps five or six days faster to maturity. This significant earliness has been achieved without any loss of yield. In fact in the cooler target environments Siokra S-102 has out yielded S-101 by 3% in CSIRO trials (Table 3).

Like Siokra S-101, the new S-102 is a compact plant type with good verticillium tolerance and the typical 'stay green' leaf. S-102 is susceptible to fusarium and should not be grown where the disease is a threat.

An important advantage of S-102 is a slightly higher micronaire than S-101 - this can be very important in cool areas and seasons to avoid micronaire penalties. S-102 also has slightly stronger fibre.

Siokra S-102 is particularly suited to cool growing areas free of fusarium wilt. It provides farmers in these shorter season areas with a little more flexibility without sacrificing yield. The earlier maturity should be useful in late planting situations in other growing areas.

Table 3 Means from 4 years of CSIRO trials (42 trials). Yield as % of Siokra S-101

	mean	cool	central	Micronaire	% harvest
Siokra S-101	100	100	100	3.9	73
Siokra S-102	101	103	100	4.1	85

Conclusions

These three new CSIRO varieties will provide significant benefits to Australian farmers. Sicot 70 increases the options available for serious fusarium situations with increasing yield potential over existing fusarium tolerant varieties. Sicot 72 is a further advance in variety choice for western and northern locations. Siokra S-102 offers an advance in earliness for short season and late sowing dates.

There are further possible new varieties for 2001, with all these new conventional lines in the transgenic breeding program for possible release of two gene Ingards by 2003.

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