

COMMERCIAL GROWING OF SICOT 3

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In 1981 we released SICOT 3 to the industry. This variety is distinguished by glabrous (ultra-smooth) leaves and stems, and frego bracts (these morphological characteristics and their effects on pests are described in another paper - "Host Plant Resistance Studies at Narrabri Research Station by myself, Peter Reid and Gary Fitt). However, besides advantages of Heliothis resistance and fibre quality, these characteristics are associated with less desirable agronomic effects such as increased vegetativeness and delayed maturity. They also appear to be associated with higher sensitivity to some members of the bug complex, further accentuating rankness of growth and delayed maturity if these pests are not controlled.

We and CSD have therefore co-operated in proceeding cautiously with this variety and seed initially was only made available to a few venturesome farmers. This paper reports on some of the results of commercial growing of this variety and discusses ways by which it can be best handled commercially.

80/81 and 81/82 Season

SICOT 3 was grown on five farms over the two seasons in areas ranging in size from 7 to 25 ha. Results that are typical of those recorded for both seasons are shown below:

Season	Farm	Variety	Yield (b/ac)	Grade % of class:					Staple	Mike
				GM	SM	M+	M	SLM+		
80/81	1	SICOT 3	2.45	73	27	-	-	-	1 3/32	4.7
		DP 61	2.47	-	41	55	4	-	1 3/32	5.0
81/82	1	SICOT 3	3.83	-	68	32	1	-	1 3/32	4.0
		DP 61	3.76	-	-	53	40	7	1 1/16	4.3

SICOT 3 yields were similar to Deltapine 61 with better grades, equal or better length and slightly lower (but always acceptable) micronaire.

#### 82/83 Season

This was a very hot dry season with water shortages occurring during the growing period followed by drenching rains disrupting and delaying harvest. Of the four SICOT 3 growers two reported that it had outyielded Deltapine 61 grown either on the same block or on a comparable adjoining block by 10% although at one farm in Queensland SICOT 3 was classed 1 1/32" cf to Deltapine 1 1/16". On the third farm SICOT 3 yielded 3.89 bales/acre and had 8% more mature bolls just prior to harvest than adjoining Deltapine 61 although a final yield comparison wasn't made. On the remaining farm lack of water prevented a valid comparison but SICOT 3 appeared to suffer more stress than adjoining Deltapine 61.

At least two of the farmers commented that SICOT 3 weathered the heavy rains at harvest better than Deltapine, losing less seed cotton while retaining better quality. They also remarked that SICOT 3's growth habit with the bolls set well clear of the ground was a decided plus in the wet boggy conditions that pertained during harvest.

#### 83/84 Season

Following the successful crops of the previous three seasons some 1000 hectares of SICOT 3 was grown by fourteen producers. Most was grown in the Namoi Valley or nearby Moomin Creek area and a block was also grown at Emerald.

The season was wet and very cool - coolest recorded in the last 24 years at Narrabri Research Station. It was feared that SICOT 3 would perform poorly under these conditions. Yet in many cases good yields (relative to Deltapine 61) were obtained. In an effort to see whether any practices contributing to success or failure with the variety could be found, growers were invited by a questionnaire to report on SICOT 3's performance as compared to similarly managed Deltapine 61. Besides yield and quality, information was obtained on sowing date and sowing rate, previous crop, fertilization, irrigation, waterlogging, number of sprays and their general timing. Replies were received from all except a couple of producers.

Three categories of yield were apparent: (i) the majority (9) where yields were better than Deltapine's by as much as 16% (ii) a small group of 2 whose yields were slightly less than Deltapine and (iii) a small group of 3 with yields about 25% less. Other general features were that SICOT 3 on almost every farm had almost a full grade advantage. Staple length was generally similar except in a few cases where SICOT 3 recorded shorter staple. On average differences in micronaire were small although at the individual farms considerable variations were often apparent.

#### Relationship of Agronomic Practices to Yield Differences between Deltapine 61 and SICOT 3

Associations between agronomic practices and yield of SICOT 3 relative to Deltapine 61's yield were examined. Generally SICOT 3 responded favourably to early sowing: to land previously cropped to cotton (rather than fallow): to stringent pest control: and to frequent irrigations. SICOT 3 crops grown under these conditions then benefited more than Deltapine 61 from applications of foliar nitrogen. High yielding SICOT 3 crops were also quicker setting and matured earlier than low yielding crops.

I personally inspected all the Namoi crops during the season and visually such differences were also obvious. The three crops that "went badly wrong" were all grown on fallow land and during growth they appeared "nitrogen rich". All suffered severe tipworm damage so that they went into a cool wet January without any developing bolls to restrict growth. Thus by February they were rank and tall before setting a heavy crop during that month and March. However any chance for these late-set crops was "nipped in the boll" by the frosts of early May: and their huge potential remained unrealized.

#### Summary and Conclusions

In all, our total experience demonstrates that SICOT 3 is more sensitive or less robust i.e. less buffered than Deltapine 61 to environmental hazards. On the other hand it also appears that SICOT 3 has the potential to outyield Deltapine 61. To reduce the risk involved with growing this variety, and to realize as much of its potential as possible, it is advisable to:

- (1) Plant as early as possible.
- (2) Restrict early growth by planting on land with low levels of immediately available nitrogen.
- (3) Pay strict attention to control of sap-sucking pests.
- (4) Once the crop is fruiting ensure that water and nitrogen are not limiting.
- (5) Be prepared to wait if necessary for the crop to mature before defoliation and picking.

It should be clear that SICOT 3 is not an all-purpose variety and no grower should attempt growing it until he is sure he can meet its particular requirements. It would also seem wise that no grower commit too high a proportion of his cotton growing area to it since it is not always possible to manage crops as well as might be planned. However should heavy Heliothis pressure be encountered I feel that SICOT 3, with the advantages conferred by its glabrous leaf and frego bract, will have a better chance of "riding the storm" than conventional hair and bract varieties and this is surely also an important consideration for all producers.

#### Acknowledgements

I thank all the SICOT 3 growers who generously gave of their time to work out the detailed answers to the questionnaire and to their helpful comments.