

**COMPARATIVE PERFORMANCE OF BREEDING  
LINES IN AUSTRALIA AND THE DELTA**

**W. N. Stiller**

**Cotton Breeder, CSIRO Cotton Research Unit  
Narrabri, Australia**

**J. J. Gwyn**

**Research Director, AgrEvo Cotton Seed International  
Greenville MS**

**Abstract**

In 1998 a joint venture was formed between AgrEvo and Cotton Seed International (ACSI) with the aim of developing and marketing varieties for the USA using the CSIRO Australian cotton germplasm as a base. Stage 1 of this program is the marketing of existing high yielding Australian lines in the USA (Fibermax 989, 975, 963, 832 and 819). Stage 2 of the program involves evaluating preliminary strains of other advanced Australian breeding lines in the USA. The third and most important stage of the program is generating lines in the USA and Australia specifically adapted for USA cotton growing regions. This paper presents data on the relative performance of cultivars and preliminary strains in Australia and the Delta, and to a lesser extent the southeast. It was found that in previous years the yield rankings of Australian cultivars at some sites in Arkansas were consistent with their performance in Australia. However, there was no yield correlation in 1998 between the USA and Australia, within the elite strains and preliminary strains. This suggests a strong G x E effect. For lint percentage, there was a significant correlation between Australia and Mississippi, though none existed between Australia and South Carolina (MS and SC not were correlated). Quality data is not yet available for the USA harvest. On the basis of these results, future breeding efforts for regions in the USA will not aggressively select for yield in Australia. There were no sites in Australia (within a range of 9° latitude, 530 miles) that produced better correlations than any other sites. Lint percentage produced much better correlations. More sites are needed in USA regions to properly evaluate genotype performance and interactions.