

**A CONSULTANT'S EXPERIENCES WITH  
AUSTRALIAN COTTONS IN THE  
MISSISSIPPI DELTA IN 1997**

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**Abstract**

AgrEvo GmbH and Cotton Seed International of Australia announced on October 20, 1997 a joint venture agreement to market CSIRO bred cotton seed in the United States. This agreement should open the way for increased competition in the Delta for the marketing of cotton seed. Both conventional and genetically altered cotton seed should become available in the near future.

In 1996, nine lines of cotton seed from Australia were tested in the United States in five cotton growing states. Many of these varieties proved to be competitive with currently planted varieties. In 1997 CSI brought into the United States twenty seven lines of cotton which was tested in twelve cotton growing states at more that seventy locations including the entire cotton belt.

The CSI varieties tested in the Delta in 1997 are shown in Table 1. Given is the cotton variety number, the way it was tested in 1997 in the Delta, and the brand name by which it will be marketed in the future.

Table 1. Australian cotton varieties planted in the Mississippi Delta in 1997.

US tested variety name	Joint venture sales name	Description
IF1000		early season
IF1001	FiberMax 962	early season
IF1002		okra leaf
IF1003	FiberMax 989	early – mid -season
IF1004	FiberMax 975	mid – season
IF1006	FiberMax 832	okra leaf
IG 1010 BT		BT
IG 1011 BT		BT
IG 1012 BT		BT
IG 1013 BT		BT
IG 1014 BT		BT
IG 1015 BT		BT

Clients of Townsend Ag. Consulting, Inc. planted approximately 605 acres of Australian cotton in 1997, including 35 acres of six different Bt or Ingard varieties. A brief description of the major varieties planted is given in Table 2.

Table 2. Descriptions of Australian cotton varieties planted in the Delta in 1997.

Variety	Growth	Disease tolerance	Seeds per pound	Pix response	Leaf shape
1001	vigorous erect	Verticillium tolerant	4800	mod.	Normal
1003	compact	Verticillium tolerant	4400	mod.	Normal
1004	med. stature	?	5300	excellent	Normal
1006	compact	vert. tolerant	4300	low	Okra

The first thing noticed about the Australian varieties was the seedling vigor. In practically every case the Australian cottons emerged sooner than the conventional varieties they were tested beside. On the Locke Brothers Farms of Marks, Mississippi, the 6 varieties of Australian Bt cottons all emerged a full day earlier than the Sure Grow 125 they were planted beside. All the cotton was planted May 6, 1997.

Westside Farms of Friars Point, Mississippi planted 35 acres each of 1003, and 1006 on May 1, 1997. They were both in the same field, which was surrounded on three sides by Paymaster 1220 Bt which was planted the same or the following day. On June 27 the 1003 had an average of 13 main stem nodes, with the first square on node 7.4. The 1006 okra leaf cotton had 12.2 nodes with the first square on node 8.2. The first open bolls on both varieties were found on August 25, 1997. The first cotton to be defoliated on Westside Farms was the Australian cotton, and it was also the first to be picked. Thirty two ounces of Mepaquat chloride was used on both varieties in three applications. It must be said that the 1006 okra leaf cotton did not respond to Mepaquat chloride as well or as rapidly as was hoped. Also, Insect control for both varieties was the same, both being sprayed 5 times for *Heliothis* spp. If there was a difference in the okra leaf cotton regarding its attractiveness to insects we could not see it. In fact bollworm, budworm, boll weevil, plant bug, aphids, mites, and all the leaf feeding larvae were found at least in equal numbers to what was found on the normal leaf cotton. The 1006 cotton was planted in an area where boll weevils are historically severe, and the weevils did not let us down. It was hoped to see possible advantages to the okra leaf character in boll weevil populations, but no advantage was seen. The joining Paymaster 1220 Bt was sprayed twice for bollworms, and once for cabbage loopers. An economic advantage was gained by the Australian cotton, even though it was conventional. With the technology fee for the Bt figured as part of the insecticide bill, and the yields of 96 pounds per acre more with the Australian cotton it was definitely the variety of choice on Westside farms when compared to the Paymaster cotton. Although it is not significant the 1003 out yielded the 1006 okra leaf by 28 pounds of lint per acre, after two pickings. Hand picked samples from this cotton showed 4.61 grams per boll in the 1003 cotton and 4.86 grams for the 1006. Boll production for each variety was equal with an average of 276 bolls per 10 feet of row in the 1003, and 274 in the 1006. This translated into 3,622 pounds of seed cotton per acre with the 1003, and 3,911 in the 1006.

The Australian cottons defoliated very well, and no difference in the performance of defoliants or Prep was seen. Four samples of each of the Australian varieties were sent to Starlab, Inc. of Knoxville, Tennessee to test the cotton for quality. The cotton was submitted for fibre and spinning tests, Arealometer, and HVI tests. Results of these tests are given in Table 3.

Table 3. Average quality measurements of two Australian varieties of cotton grown in the Mississippi Delta in 1997.

Test	FiberMax 989	FiberMax 832
Mic	4.1	3.6
EI	6.8	7.5
TI	25.4	24.5
50%	.61	.63
2.5%	1.27	1.28
WT	11.05	10.80
LOAD	1691	1607
YS	148.9	150.6
YN	27.2	26.6
AH	493	549
-A-	461	509
-D-	32	40
-IM-	1.8	1.94
KAT	82	76
-PER-	49.04	47.87
WF	4.11	3.63
WALL	2.61	2.32
Len	1.19	1.24
UR	84.6	85.5
STR	36.6	32.8
EI	9.9	9.6
Mic	4.0	3.6
Rd	65.4	67.3
b	7.2	7.2
CG	56-4	52-2

AH - Specific surface of fibers at high pressure

Mat - Percent maturity

A - Specific surface at low pressure

PERIM - Fiber perimeter in micron(distance around the fiber)

DIF - Difference ( AH-A)

Im - Immaturity ratio

WT-FN - weight fineness in microns per inch

WALL - the fiber wall thickness in microns

Side by side comparisons between 1006 and Stoneville 474 were made on July 22 on Trout Valley Farms in Charleston, Mississippi. Main stem nodes produced were 19.8 for the 1006, and 19.6 for the Stoneville 474. The 1006 had squares produced on an average of 13.2 nodes, as compared to 13.8 for the Stoneville 474. The first square was produced on the average ninth node in the 1006, and 8.8 in the Stoneville 474. The average first bloom date was July 20 for the 1006, and July 17 for the Stoneville 474. On Trout Valley Farms Stoneville 474 out yielded the 1006 by approximately 80 pounds of lint per acre. 1003 yielded basically the same as the Stoneville 474, and the 1001 yielded 20 pounds less than the Stoneville 474, but the quality was significantly better, and will probably be planted again on this farm.

Locke Brothers Farms of Marks, Mississippi planted six varieties of Australian Bt or Ingard cotton on 35 acres in the middle of a field, which had Sure Grow 125 planted on either side of it. Due to scheduling of insecticide applications for bollworm/budworm control when the center pivot's irrigation made ground application impossible the Bt was not properly tested. It was treated as the rest of the field with pyrethroid insecticides and combinations for insect control. This cotton was also treated with Pix, PGR IV, and defoliants when the rest of the field was treated. Table 4 gives data collected from hand picked samples showing boll numbers, weight, and grams of seed cotton per boll.

Table 4. Yield characteristics from hand picked Australian ingard cotton samples from the Locke Brothers Farms, Marks, Mississippi.

Variety	Open	Green	Lb Seed	
	Bolls/5 ft.	Bolls/ 5 ft.	cotton/A	Gms / boll, s.c.
IG 1010 BT	90	15	3060	5.62
IG 1011 BT	127	8	3506	4.57
IG 1012 BT	100	28	2820	4.66
IG 1013 BT	117	18	3163	4.47
IG 1014 BT	125	13	3094	4.10
IG 1015 BT	123	12	2923	3.93

Cotton varieties can be considered to be successful in the Delta if individual growers plant them in subsequent years to their initial planting. Of the eight growers planting Australian cottons in 1997 all said they would plant them again. However, not all eight growers would be willing to plant a large portion of their crop to all the varieties tested in 1997.

It is my opinion that more work needs to be done on the Australian cottons to better determine maturity dates, nematode tolerance, and disease tolerance or resistance to Mid - South strains of cotton diseases. It is apparent the quality is good with the Australian cottons, and that they can compete with the currently planted varieties. Seedling vigor, plant type, size, and growth habits are all acceptable with the Australian cottons. With the apparent push for genetically altered cottons it should be significant and positive that new genetics in conventionally bred cottons be introduced into the Mid - South. As of yet none of the genetically altered cottons have offered yield increases, only possible savings in insect or weed control. It can be argued that the yield increases of the past decade have come from improved varieties, and that these increases will not be forthcoming without new and improved conventionally bred cottons.