

NEW EARLY-TO MID-SEASON TRANSGENIC VARIETIES FROM STONEVILLE PEDIGREED SEED COMPANY

Lloyd L. McCall and Michael R. Robinson
Stoneville Pedigreed Seed Company
Leland, MS

Abstract

Stoneville Pedigreed Seed Company is introducing the new variety ST 4691B for the 2000 planting season. It was derived through a backcrossing procedure to incorporate Monsanto's Bollgard® technology into the recurrent parent ST 474. The variety is very similar to the recurrent parent; however, ST 4691B appears to have improved micronaire. Comparisons in both Stoneville and public trials indicate that the variety performs as-well-as or better than the leading conventional and transgenic varieties.

Materials and Methods

ST 4691B was developed through a backcross breeding procedure to incorporate Bollgard® into ST 474. The initial cross was made during mid-1995 and selections were made in 1997 and early 1998 using facilities at Leland, MS and in the Republic of South Africa.

Beltwide field trials were conducted in 1998 and in 1999 by Stoneville Pedigreed Seed Company's Southeast Research station at Albany, GA, Mid-South Research Station at Leland, MS, High-Plains Research Station at Idalou, TX, and Desert Southwest Research Station at Maricopa, AZ to evaluate ST 4691B. These trials were conducted with 2-row plots that were 40 feet long, replicated four times, managed conventionally, and machine harvested. Grab samples from the harvested plots were ginned with a laboratory-scale gin to generate lint percents and fiber samples for HVI analysis.

Seed increase was initiated in 1998 and continued through the winter and summer seasons of 1999.

Discussion

The yield performance of ST 4691B is similar to ST 474 over 2 years of testing (Figure 1). Trials conducted during 1999 demonstrate that ST 4691B competes very favorably with industry standard conventional and Bollgard® varieties (Table 1). Lint percent, fiber length, and fiber strength are similar to the recurrent parent, while micronaire appears to be improved (Table 1).

Plant development data shows that ST 4691B is very similar to ST 474. Total number of nodes, nodes to the first fruiting branch, plant height, and height of the first fruiting branch indicates that the variety develops the same as ST 474 (Table 2).

Summary

ST 474, the recurrent parent, has a proven record of superior and stable performance over the cotton belt. ST 4691B is very similar to ST 474 in yield, lint percent, fiber length, fiber strength, and plant development. It appears that the stable, superior performance of ST 474 was recovered in ST 4691B, while incorporating the added insect protection of Bollgard®.

Bollgard® is a registered trademark of Monsanto Company.

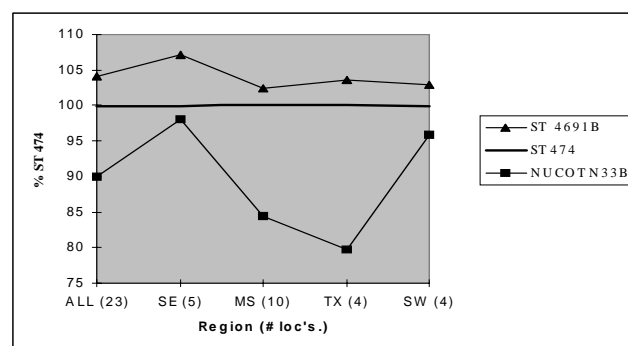


Figure 1. 1998-99 Performance of ST 4691B as a Percent of ST 474 Across Regions

Table 1. 1999 Performance of ST 4691B.

Variety	Yield	Lint %	Length	Strength	Mic
ST 4691B	1318	40.0	1.12	28.0	4.7
BXN 47	1274	39.8	1.11	28.5	4.8
SG747	1245	39.1	1.11	27.9	5.0
ST 474	1243	40.2	1.11	28.8	5.0
NuCotn 33B	1070	36.1	1.11	29.0	4.6
# Locations	14	14	5	5	5
LSD _{0.05}	190	0.8	0.01	0.6	0.2

Table 2. 1999 Plant Development Data for ST 4691B and ST 474.

Variety	Total Nodes	Nodes to 1 st Fruiting Branch	Plant Height (in)	Height of 1 st Fruiting Branch (in)
ST 4691B	21.7	7.7	44.2	11.7
ST 474	21.9	7.2	43.8	10.4