2002 BELTWIDE COTTON CONFERENCES, ATLANTA, GA – JANUARY 8-12

PM 2344 BG/RR, A MEDIUM-MATURITY STRIPPER "STACKED" VARIETY

Tom R. Speed
Delta and Pine Land Company
Lubbock, TX
Richard Sheetz
Delta and Pine Land Company
Hale Center, TX

Abstract

Delta and Pine Land Company is introducing a new high-yielding, medium-maturing stripper variety that possesses the Bollgard® (BG) and Roundup Ready® (RR) technologies. PM 2344 BG/RR represents a medium maturing variety, slightly earlier than PM 2326 BG/RR, however its average staple length and yield has been higher than PM 2326 BG/RR. PM 2344 BG/RR was developed at Delta and Pine Land's breeding locations in Munday, TX; Aiken, TX and Hale Center, TX by Dr. Richard Sheetz. Testing in 2000 and 2001has shown that PM 2344 BG/RR is well-adapted to the Northern and Southern cotton growing regions of the Texas High Plains. Delta and Pine Land data shows that PM 2344 BG/RR has produced more average lint yield per acre than PM 2326 BG/RR and PM 2280 BG/RR. Seed supplies of PM 2344 BG/RR are expected to be adequate for the 2002 growing season. PM 2344 BG/RR is slated as a replacement variety for PM 2326 BG/RR and some areas where PM 2280 BG/RR grown.

Introduction

In 1999, Delta and Pine Land Company's Paymaster product line launched the first two Bollgard and Roundup Ready (stacked) stripper-type varieties; PM 2326 BG/RR and PM 2280 BG/RR. PM 2344 BG/RR represents a second generation of improved "stacked" varieties available to growers in the Texas High Plains. This new variety has had higher average yields than both PM 2326 BG/RR and PM 2280 BG/RR, in trials conducted in 2000 and 2001. This new variety also has shown improved fiber length, when compared to PM 2326 BG/RR. In terms of maturity, it falls between the more indeterminate PM 2326 BG/RR and the slightly earlier PM 2280 BG/RR. The agronomic characteristics of PM 2344 BG/RR are similar to PM 2326 BG/RR. Plant mapping data indicates that the average node of first fruiting branch is very similar to PM 2326 BG/RR and slightly lower than PM 2280 BG/RR. Its intended market of adaptation will be the Northern and Southern High Plains cotton growing regions of Texas. Yield data from 2000 and 2001 have shown PM 2344 BG/RR produces more average lint per acre than PM 2326 BG/RR and PM 2280 BG/RR. Trial data suggests that PM 2344 BG/RR will be a replacement variety for PM 2326 BG/RR due to its higher average yield and longer staple length. Fiber strength, gin turnout, leaf pubescence and storm resistance are similar to PM 2326 BG/RR. Micronaire has averaged has averaged approximately 0.1 micronaire unit higher than PM 2326 BG/RR. Bacterial Blight has been observed in PM 2344 BG/RR.

Materials and Methods

The parent material for PM 2344 BG/RR was a selection made for fiber improvement Paymaster HS 26 made in 1990. In 1991, the selection was given the experimental designation of PMX 413340. Breeding lines for PM 2344 BG/RR were developed from a backcross of PMX 413340 and a Bollgard and Roundup Ready donor parent. Line selections were made by Dr. Richard Sheetz and Mark Mayo at Taft, Munday, Hale Center, Inadale and Finney breeding nurseries in 1999. PM 2344 BG/RR was tested as PMX 99V05BR in 2000 and tested as PM 2344 BG/RR in 2001. Seed supply of PM 2344 BG/RR is expected to be adequate for the 2002 growing season.

Data reported herein are from either Delta and Pine Land Company Technical Services Agronomic Service Trials (ASTs) or D&PL Research trials. All data reported are from all trial data available as of December 19, 2001. PM 2344 BG/RR was entered in five trial locations conducted by the Texas A&M University Research and Extension in 2001, however yield performance and fiber quality parameters have not been made available to date.

Results and Discussion

Growth and fruiting characteristics of PM 2344 BG/RR (Table 1) are conducive to many production systems across the stripper harvested area of the Texas High Plains, enabling the variety to be widely-adapted. Yield performance has been good in both the Northern and Southern cotton growing regions of the Texas High Plains. Yield data averaged across 32 trials in 2000 and 2001 shows PM 2344 BG/RR outyielded PM 2326 BG/RR and PM 2280 BG/RR by 2.1% and 3.8%,

respectively. PM 2326 BG/RR and PM 2280 BG/RR were used as comparison varieties because they represent the only commercially available of the stripper-type "stacked" varieties grown on the Texas High Plains (Source: USDA-AMS). Other characteristics averaged across these 32 trials show the following: turnout was 32.7 %, staple averaged 34.6, micronaire 4.4, strength 29.5, and uniformity averaged 83.1 for PM 2344 BG/RR (Table 2).

Northern High Plains Performance

PM 2344 BG/RR's yield performance has been strongest in the Northern High Plains when compared to PM 2326 BG/RR and PM 2280 BG/RR. Table 3 illustrates the yield and fiber quality means from 12 trials conducted in the Northern High Plains in 2000 and 2001. PM 2344 BG/RR produced 3.3% and 5.8% more pounds per acre than PM 2326 BG/RR and PM 2280 BG/RR, respectively. Fiber strength, uniformity, and gin turnouts were very similar among the three varieties, however PM 2344 BG/RR's staple length was 0.8 units longer than PM 2326 BG/RR. Micronaire was slightly higher for PM 2344 BG/RR than either PM 2326 BG/RR and PM 2280 BG/RR.

Southern High Plains Performance

Versatile agronomic characteristics and the medium-maturity of PM 2344 BG/RR have allowed this new variety to perform well in the Northern as well as Southern High Plains environments. Table 2 showed PM 2344 BG/RR's overall performance, while Table 3 illustrates its performance in the Northern areas. Table 4 reports yield and fiber quality parameters from 20 trials conducted in the Southern High Plains in 2000 and 2001. PM 2344 BG/RR produced 1.5% and 2.6% more pounds per acre than PM 2326 BG/RR and PM 2280 BG/RR, respectively. PM 2344 BG/RR still maintained a 0.3 staple unit advantage over PM 2326 BG/RR in these trials. Micronaire, Fiber strength, uniformity and gin turnout were similar to PM 2326 BG/RR's values.

Summary

PM 2344 BG/RR is a medium-maturing, high-yielding variety that has performed well in many regions of the stripper harvested areas of the Texas High Plains. However, its strongest performance has been in the Northern High Plains, when compared to PM 2326 BG/RR and PM 2280 BG/RR. Across the entire High Plains, it has averaged higher yields than PM 2326 BG/RR and PM 2280 BG/RR and has averaged longer fiber length than PM 2326 BG/RR. Agronomic characteristics and plant mapping data of PM 2344 BG/RR have shown it to be similar to PM 2326 BG/RR, although it is slightly earlier than PM 2326 BG/RR. On average, PM 2344 BG/RR has a lower node of first fruiting branch and higher micronaire readings than PM 2280 BG/RR. Bacterial Blight has been observed in PM 2344 BG/RR. Supplies of PM 2344 BG/RR seed are expected to be adequate for the 2002 season.

References

USDA-AMS. 2001. Cotton Varieties Planted, 2001 Crop. USDA-AMS Cotton Program, Memphis, TN.

Table 1. Characteristics of PM 2344 BG/RR

Characteristic	Description or Rating
Maturity	Medium Maturity
Plant Height	Medium
Leaf Pubescence	Semi-Smooth
Range of Seed Size (#/lb.)	3700-4200
Storm Resistance	Very Good
Fusarium Resistance	Very Good
Verticillium Resistance	Good
Bacterial Blight	Susceptible
Node of 1st Fruiting Branch	5.9

Table 2. Means of lint yield and fiber quality parameters for PM 2344 BG/RR. Data are means of D&PL ASTs and D&PL Research trials (32 trials total, all conducted in 2000 and 2001) as of 19 December, 2001.

Variety	Lint Yield	Turnout %	Staple	Micronaire	Strength	Uniformity
PM 2344 BG/RR	1152	32.7	34.6	4.4	29.5	83.1
PM 2326 BG/RR	1128	33.5	34.0	4.4	29.2	82.5
PM 2280 BG/RR	1110	33.2	35.6	3.9	29.5	82.6

Table 3. Means of lint yield and fiber quality parameters for PM 2344 BG/RR. Data are means of D&PL ASTs and D&PL Research trials (12 trials total, all conducted in 2000 and 2001). Northern High Plains trial locations.

Variety	Lint Yield	Turnout %	Staple	Micronaire	Strength	Uniformity
PM 2344 BG/RR	1122	32.8	35.2	4.6	29.2	83.1
PM 2326 BG/RR	1086	33.7	34.4	4.5	29.0	83.0
PM 2280 BG/RR	1060	33.2	36.0	4.1	29.7	83.1

Table 4. Means of lint yield and fiber quality parameters for PM 2344 BG/RR. Data are means of D&PL ASTs and D&PL Research trials (20 trials total, all conducted in 2000 and 2001). Southern High Plains trial locations.

Variety	Lint Yield	Turnout %	Staple	Micronaire	Strength	Uniformity
PM 2344 BG/RR	1170	32.7	34.1	4.3	29.7	83.1
PM 2326 BG/RR	1153	33.4	33.8	4.3	29.2	82.2
PM 2280 BG/RR	1140	33.2	35.4	3.8	29.5	82.3