DP 104 B2RF - A NEW EARLY MATURITY VARIETY FOR THE TEXAS HIGH PLAINS

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Abstract

Delta and Pine Land is proud to introduce DP 104 B2RF, an early maturing B2RF variety for the 2008 growing season. DP 104 B2RF will be primarily marketed in the Texas High Plains, Oklahoma and Kansas cotton growing areas. This new product will be available in a 250K bag as well as a 9.5 million seed Boll Box. This new variety has shown improved yield and/or fiber quality potential over other currently available varieties for the given growing areas. DP 104 B2RF showed similar yield, shorter staple and similar micronaire when compared to DP 143 B2RF across the entire West Texas cotton growing area. When compared to DP 164 B2RF, DP 104 B2RF showed similar yields, shorter staple and lower micronaire when compared across the entire West Texas geography. When DP 104 B2RF was compared to both DP 143 B2RF and DP 164 B2RF in just the Northern High Plains (NOHP) geography, DP 104 B2RF showed a 10.2% and 8.1% higher yield average, respectively. When compared to FM 9063 B2RF across the entire West Texas geography, DP 104 B2RF showed a higher yield average (+3.1%), lower micronaire and shorter staple. Staple length, Micronaire, Strength (g/tex), and Uniformity ratios averaged 36.9, 3.72, 29.9 and 83.7 respectively for DP 104 B2RF (n=35). Seed supply is expected to be good for commercial introduction in 2008.

Introduction

DP 104 B2RF will be released as a new early maturing Bollgard II® / Roundup Ready Flex® variety for the 2008 growing season. DP 104 B2RF was tested as DPLX 07V140DF and PM 2150 B2RF prior to being given the commercial name. DP 104 B2RF was developed by Richard Sheetz and Doug Shoemaker at the Delta and Pine Land Hale Center, TX and Scott, MS breeding stations, respectively.

Materials and Methods

The data describing this new product was extracted from the Delta and Pine Land Agronomic Information System database December 18, 2007 as well as D&PL Research data from cotton breeders Richard Sheetz and Gary Rea. This database contains both the public data from university OVT's and County Extension Agent Trials along with Delta and Pine Land (D&PL) trials from the research and Technical Services departments. The data extracted from the database included yield and HVI fiber quality data to calculate "loan value" based on the 2007 USDA loan chart, using a base value of $0.52 / lb. Comparisons for yield and fiber quality were made with other commercially available varieties and were all balanced head to head comparisons for all locations included.

Results and Discussion

General Characteristics

DP 104 B2RF is an early maturing variety with a semi-smooth leaf type (Table 1). The preliminary disease tolerance rating of DP 104 B2RF to Fusarium wilt and Verticillium wilt has shown to be good. Storm resistance on DP 104 B2RF has been rated as very good. Plant height has been rated as Medium, similar in height to FM 9063 B2RF.

Yield, Fiber Quality, and Crop Value

The yield and HVI fiber quality of DP 104 B2RF compared to 2 other B2RF varieties (DP 143 B2RF and DP 164 B2RF) are summarized in Tables 2 and 3. DP 104 B2RF is compared to FM 9063 B2RF in Table 4. DP 104 B2RF yielded numerically higher and statistically similar to DP 143 B2RF when compared across all West Texas trials. However when the same yield comparison was analyzed in just the NOHP region, DP 104 B2RF showed a 10.2% yield advantage over DP 143 B2RF. Staple length of DP 104 B2RF was statistically shorter than DP 143 B2RF in all comparisons. Fiber strength and uniformity ratios for DP 104 B2RF were statistically higher than DP 143 B2RF in all comparisons. Loan price for DP 104 B2RF was numerically higher in the NOHP analysis than DP 143 B2RF. Crop value of DP 104 B2RF ($/acre) was numerically greater than DP 143 B2RF in both analyses. No statistical differences were noted in the crop value analysis.

DP 104 B2RF yielded numerically lower than DP 164 B2RF when compared across all West Texas trial locations. However, DP 104 B2RF yielded numerically higher than DP 164 B2RF (+93 pounds) when only the NOHP locations were analyzed. Staple length and micronaire were shorter and lower respectively for DP 104 B2RF when compared to DP 164 B2RF. Fiber strength was numerically higher for DP 104 B2RF when compared to DP 164 B2RF in both analyses. Crop value for DP 104 B2RF ($/acre) was statistically similar in both analyses and numerically higher in the NOHP region. The average uniformity ratio of DP 104 B2RF was numerically higher than DP 164 B2R. Average loan price for DP 104 B2RF was numerically lower than DP 164 B2RF when analyzed across all West Texas trial locations and was numerically higher in the NOHP analysis.

DP 104 B2RF was compared to FM 9063 B2RF across the entire West Texas area since these two products are most similar in maturity. DP 104 B2RF showed a higher average yield (+46 pounds/acre) than FM 9063 B2RF when compared across all fifteen locations. Staple length and micronaire were significantly shorter and lower respectively when compared to FM 9063 B2RF. Fiber strength were statistically similar between the two varieties. DP 104 B2RF had a slightly higher Uniformity ratio (+0.9) than FM 9063 B2RF. DP 104 B2RF averaged a significantly lower loan price (-1.05 cents/pound) in the twelve locations available when this analysis was performed. Crop value was numerically higher for DP 104 B2RF (+$11/acre).

Summary

DP 104 B2RF is a new early maturing B2RF variety with similar yield and improved fiber quality (strength and uniformity ratio) potential over several comparison B2RF varieties (DP 143 B2RF, DP 164 B2RF and FM 9063 B2RF). The HVI fiber properties of DP 104 B2RF showed the following averages: 36.9 staple, 3.72 micronaire and 29.9 g/tex. Seed supply is expected to be good for commercial introduction in 2008.

Table 1. Characteristics of DP 104 B2RF.

Former Design.	DPLX07V140DF
Breeder	Richard Sheetz
Maturity	Early
Leaf Hair	Semi-Smooth
Storm Resist.	Very Good
Fusarium tolerance	Good
Verticillium tolerance	Good

Table 2. Head to Head Yield and HVI Performance of DP 104 B2RF compared to DP 143 B2RF across the entire West TX geography and restricted to the NOHP region only. Data includes both DPL AST data from DPL AIS database as of 12.18.07 and DPL breeder data.

Variety	Crop Value ($/Acre)	Yield (lb/acre)	% Gin Turn Out	Staple (32nd inch)	Micro-naire	Strength (g/tex)	Uniformity Index (%)	Loan Value (cents/lb)
DP 104 B2RF	778	1373	31.5	36.7	3.79	30.2	83.7	56.69
DP 143 B2RF	779	1371	32.4	38.3	3.74	28.6	81.6	56.78
n	25	29	29	25	25	25	25	25
t-Test†	NS	NS	NS	***	NS	**	***	NS
NOHP Only								
DP 104 B2RF	705	1234	30.7	36.8	3.9	30.9	84.1	57.12
DP 143 B2RF	627	1120	30.6	38.8	3.7	29.2	82.3	56.01
n	9	9	9	9	9	9	9	9
t-Test†	NS	NS	NS	**	NS	***	**	*

† Prob >|t| that values for each variety are not different; *, **, *** indicate significance at alpha = 0.1, 0.05, 0.001, respectively; NS=not significant

Table 3. Head to Head Yield and HVI Performance of DP 104 B2RF compared to DP 164 B2RF across the entire West TX geography and restricted to the NOHP region only. Data includes both DPL AST data from DPL AIS database as of 12.18.07 and DPL breeder data.

Variety	Crop Value ($/Acre)	Yield (lb/acre)	% Gin Turn Out	Staple (32nd inch)	Micro-naire	Strength (g/tex)	Uniformity Index (%)	Loan Value (cents/lb)
DP 104 B2RF	736	1300	31.5	36.5	3.61	29.6	83.1	56.64
DP 164 B2RF	749	1306	32.1	37.9	3.88	28.9	81.7	57.37
N	15	18	18	15	15	15	15	15
t-Test†	NS	NS	NS	***	NS	NS	**	NS
NOHP Only								
DP 104 B2RF	723	1253	31.2	36.4	3.6	30.4	83.2	57.72
DP 164 B2RF	649	1160	31.8	37.8	3.7	29.1	81.4	55.93
N	5	5	5	5	5	5	5	5
t-Test†	NS	NS	NS	NS	NS	NS	NS	NS

† Prob >|t| that values for each variety are not different; *, **, *** indicate significance at alpha = 0.1, 0.05, 0.001, respectively; NS=not significant

Table 4. Head to Head Yield and HVI Performance of DP 104 B2RF compared to FM 9063 B2RF. Data includes both DPL AST and Research data from DPL AIS database as of 12.18.07.

Variety	Crop Value ($/Acre)	Yield (lb/acre)	% Gin Turn Out	Staple (32nd inch)	Micro-naire	Strength (g/tex)	Uniformity Index (%)	Loan Value (cents/lb)
DP 104 B2RF	881	1539	32.0	36.6	3.87	30.0	84.0	57.24
FM 9063 B2RF	870	1493	32.3	38.2	4.20	30.6	83.1	58.29
N	12	15	15	12	12	12	12	12
t-Test†	NS	NS	NS	***	**	NS	*	**

† Prob >|t| that values for each variety are not different; *, **, *** indicate significance at alpha = 0.1, 0.05, 0.001, respectively; NS=not significant