## NEW DELTAPINE CLASS OF '10 VARIETIES FOR MID TO FULL SEASON MARKETS: DP 1032 B2RF AND DP 1044 B2RF Eric Best Monsanto Lubbock, TX David W. Albers Monsanto Saint Louis, MO

### **Abstract**

DP 1032 B2RF with Genuity<sup>™</sup> Bollgard II® Roundup Ready Flex® (B2RF) is a mid maturity variety with excellent yield and fiber quality potential that will be released for commercial sales in the 2010 growing season. This variety has a smooth leaf pubescence and a medium - tall plant height. Average fiber properties of DP 1032 B2RF include fiber length of 1.14 inches, 4.7 micronaire, 29.1 g/tex fiber strength and 83.0 uniformity. For a mid maturity variety DP 1032 B2RF has shown very good storm resistance and moderate resistance to bacterial blight. The yield performance of DP 1032 B2RF is similar to several competitor products and Deltapine brand products in trials conducted in Texas. DP 1032 B2RF has improved average lint yield and many fiber qualities over FM 9160B2F, FM 1740B2F and ST 5458 B2RF. The regional performance of DP 1032 B2RF showed the best trial performance in the Texas region.

DP 1044 B2RF is mid to full season variety also with excellent yield potential that will be released for commercial sales in the 2010 growing season for the West Texas region. This variety has smooth leaf pubescence and a tall plant height. Average fiber properties of DP 1044 B2RF include fiber length of 1.17 inches, 4.6 micronaire, 28.5 g/tex fiber strength and 82.3 uniformity. DP 1044 B2RF also has excellent storm resistance, moderate resistance to bacterial blight and Verticillium wilt response rated as very good. The yield performance of DP 1044 B2RF is similar to FM 9180 B2F and FM 906 B2F in the Texas High Plains Region, with similar fiber properties.

### **Introduction**

In 2010, Deltapine brand is releasing for commercial introduction, a new mid-season maturity variety: DP 1032 B2RF and a new mid to full season variety: DP 1044 B2RF which both contain the Genuity<sup>TM</sup> Bollgard II and Roundup Ready Flex traits. The characteristics describing DP 1032 B2RF and DP 1044 B2RF are summarized in Table 1. The highlights of DP 1032 B2RF are outstanding yield and fiber quality potential with a maturity which makes it a great fit for Texas regions. DP 1044 B2RF also features outstanding yield potential combined with excellent fiber quality when compared to similar full-season varieties of Deltapine brand products and competitive check varieties. Both of these varieties are moderately resistant to Bacterial Blight, and DP 1044 B2RF is rated as very god for Verticillium wilt.

Trait	DP 1032 B2RF	DP 1044 B2RF			
Maturity	Mid	Mid-Full			
Leaf Pubescence	Smooth	Smooth			
Plant Height	Med-Tall (40.5 inches)	Med-Tall (39.5)			
Micronaire	4.7	4.6			
Length	1.14	1.17			
Strength	29.1 g/tex	28.5 g/tex			
Uniformity	83.0	82.3			
Number of Nodes	21.0	21.1			
Number of Fruiting Nodes	11.7	12.2			
Node First Fruiting Branch	5.7	7.1			
Node Uppermost Harvestable Boll	16.4	17.1			
Bacterial Blight	Mod. Resistance	Mod. Resistance			
Rating and measurements from 2009 Field Advancement Coordination Trials					

 Table 1. DP 1032 B2RF and DP 1044 B2RF Characteristics and Fiber Quality

## **Materials and Methods**

The data describing DP 1032 B2RF and DP 1044 B2RF (along with internal and competitive check varieties) was obtained from the following sources: Monsanto breeder trials (2008), and Monsanto on-farm trials (2009) referred to as Field Advancement Coordination Trials (FACT). Plant growth, fruiting, and maturity comparisons were made by plant mapping a subset of the Deltapine brand on-farm trials when approximately 50% of the bolls were open. All available yield, fiber quality and plant mapping data were queried on the dates noted in each data table for these analyses.

## **Results and Discussion**

## DP 1032 B2RF Yield, Fiber Quality, and Value Comparisons

The improvements in DP 1032 B2RF over FM 9160B2F in testing conducted in Texas were crop value (increase of \$54.26 /acre), average lint yield (increase of 104 lb/acre), lint % (increase of 3.1%), and micronaire (increase of 0.3). DP 1032 B2RF had a slight reduction in fiber length and uniformity index when compared to FM 9160B2F (Table 3). The improved yield performance of DP 1032 B2RF gives growers a higher yield potential option for several Texas markets that fit the mid maturing varieties.

	Crop	Lint				Fiber	
	Value	Yield		Fiber		Strength	Uniformity
Variety	(\$/acre)	(lb/acre)	Lint %	Length	Micronaire	(g/tex)	Index
DP 1032 B2RF	788.89	1438	42.6	1.11	4.6	28.7	82.0
FM 9160B2F	734.63	1334	39.5	1.12	4.3	28.5	82.4
% Difference	7.8%	7.4%					

Table 3. Crop Value, Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength and Uniformity Index comparisons of DP 1032 B2RF and FM 9160B2FB2RF in 2009 Field Advancement Coordination Trial testing.

Notes: Field Advancement Coordination Trial located in the Central, West and South Texas Regions. Data as of December 15, 2009 (n=11 locations)

Crop Value = Lint Yield x Loan Value (assume color grade 31 and leaf grade 3)

In Field Advancement Coordination Trial testing in 2009, DP 1032 B2RF also showed improvements over FM 1740B2F in Central, West and South Texas regions. DP 1032 B2RF showed improvements in crop value (increase of 66.73 \$/acre), average lint yield (increase of 70 lb/ acre), Lint % (increase of 1.2%), fiber length (increase of 0.06) and fiber strength (increase of 0.9 g/tex). In comparisons DP 1032 B2RF showed similar results for micronaire and slightly less results for uniformity index (Table 4).

Table 4. Crop Value, Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1032 B2RF and FM 1740 B2F in 2009 Field Advancement Coordination Trial testing.

	Crop	Lint				Fiber	
	Value	Yield		Fiber		Strength	Uniformity
Variety	(\$/acre)	(lb/acre)	Lint %	Length	Micronaire	(g/tex)	Index
DP 1032 B2RF	826.00	1498	43.3	1.13	4.7	29.0	83.6
FM 1740B2F	759.27	1428	42.1	1.07	4.7	28.1	84.2
% Difference	8.8%	4.9%					
Notes: 2009 Field Advancement Coordination Trials located in the Central, West and South Texas							
Regions. Data as of December 15, 2009 (n=17 locations)							
Crop Value = Lint Yield x Loan Value (assume color grade 31 and leaf grade 3)							

### **DP 1032 B2RF Stability Graph**

Stability analysis was performed by comparing the lint yield (lb/acre) of DP 1032 B2RF and ST 5458B2RF in the 2009 FACT locations to the average lint yield of each location. The data for each variety was fit with a linear regression and the intercept, slope, and  $R^2$  were compared. Comparing the linear fits of the data, DP 1032 B2RF had a 36 lb / acre higher intercept, a greater slope (1.05 vs. 0.99), and a greater  $R^2$  compared to ST 5458 B2RF (Figure 1). The regression analysis indicates that DP 1032 B2RF had higher yields than ST 5458 B2RF across the yield



range of the 2009 FACT plots, and DP 1032 B2RF also had less scatter to the yield data than ST 5458 B2RF.



Figure 1. DP 1032 B2RF versus ST 5458 B2RF comparing variety lint yield (lb/acre) by location average lint yield from several locations.

# DP 1044 B2RF Yield, Fiber Quality, and Value Comparisons

DP 1044 B2RF was compared to both FM 9180B2F and FM 9063 B2F in 2008 breeder trials conducted in the Texas High Plains region. DP 1044 B2RF had similar average lint yield compared to FM 9180 B2F and greater yield than FM 9063 B2F (increase of 180 lb/ acre). Fiber properties for DP 1044 B2RF were similar to those of both FM 9180 B2F and FM 9063 B2F.

Table 6. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1044 B2RF and FM 9180B2F in 2008 breeder trial testing.

	Lint				Fiber	
	Yield		Fiber		Strength	Uniformity
Variety	(lb/acre)	Lint %	Length	Micronaire	(g/tex)	Index
DP 1044 B2RF	1626	40.4	1.17	5.0	29.7	83.7
FM 9180B2F	1603	39.5	1.16	4.8	30.5	83.3
FM 9063B2F	1491	39.7	1.16	4.8	30.8	83.1
Notes: 2008 Breeder Trials located in the Texas High Plains Region. Data as of December 15, $2009 (n = 3 \text{ locations})$						

In 2009 FACT Trials DP 1044 B2RF showed improved fiber properties over FM 1740 B2RF in the West Texas region. Averaging results from 4 trials conducted in West Texas, DP 1044 resulted in an increase in fiber length (0.03 inches), fiber strength (increase of 1 g/tex), with similar micronaire and uniformity (Table 7).

Table 7. Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1044 B2RF and FM 1740B2F in 2009 Field Advancement Coordination Trial testing located in West Texas region.

			Fiber		
	Fiber		Strength	Uniformity	
Variety	Length	Micronaire	(g/tex)	Index	
DP 1044 B2RF	1.17	4.4	31.4	83.7	
FM 1740B2F	1.14	4.6	30.4	83.6	
N=4 comparisons					
Notes: 2009 Field Advancement Coordination Trials conducted in the					
West Texas Region. Data as of December 15, 2009					

In 2009 FACT Trials conducted in Texas, the average lint yield for DP 1044 B2RF was 41 lbs/A higher than the average of all commercial checks varieties (FM 9160B2F, FM 1740B2F, ST 5458B2RF, DP 0935 B2RF, DP 0949 B2RF, DP 0912 B2RF, DP 0920 B2RF, and DP 0924 B2RF) in 37 comparisons. The % lint for DP 1044 B2RF was slightly less than the average for all commercial checks in the trials (Table 8). The yield performance and fiber quality of DP 1044 B2RF gives growers an excellent yield potential option for Texas markets that fit mid to full maturing varieties

Table 8. Lint Yield and Lint % comparisons of DP 1044 B2RF to all commercial checks in 2009 Field Advancement Coordination Trial testing located in Texas region.

Variety	Lint Yield	Lint %		
DP 1044 B2RF	1791	39.4		
All Commercial Checks	1750	40.1		
N=37 comparisons				
2009 Field Advancement Coordination Trials conducted in Texas Region. Data as of				
December 15, 2009				
Commercial Checks: FM 9160B2F, FM 1740B2F, ST 5458B2RF, DP 0935 B2RF, DP 0949				
B2RF, DP 0912 B2RF, DP 0920 B2RF, DP 0924 B2RF				

# DP 1032 B2RF and DP 1044 B2RF Bacterial Blight Ratings

Bacterial blight ratings were collected for a FACT Trial located in Garden City, Texas. Bacterial blight is potentially a very destructive bacterial disease in cotton. DP 1032 B2RF is moderately resistant to bacterial blight which is illustrated in the rating results. In the trial, DP 1044 B2RF received a 0.5 rating which means only 5% of the plant is defoliated from the bacterial blight, and is also rated moderately resistant. (Table 9).

Table 9. Bacterial Blight Ratings for varieties in 2009 Field Advancement Coordination Trial in Garden City, TX.

Variety	Rating (0=no blight; 9 – total defoliation)
DP 1032 B2RF	0
FM 9160B2F	0
FM 1740B2F	0
DP 1044 B2RF	0.5
ST 5458B2RF	1
DP 0935 B2RF	1.5
DP 0949 B2RF	2
Example – a 5 rating is 50% defoliated	

In the 2009 FACT Trials located in Texas, DP 1032 B2RF reported a higher yield and crop value than competitor products FM 9160B2F and FM 1740B2F. When DP 1032 B2RF was compared to competitor product ST 5459B2RF, DP 1032 B2RF indicated greater yield stability and performance across the range of yields in the FACT locations. In a trial conduct on bacterial blight, DP 1032 B2RF reported very limited bacterial blight indicating the variety carries moderate resistance.

DP 1044 B2RF was found to have greater yield performance, lint%, fiber length and micronaire than competitor products FM 9180 B2F and FM 9063B2F in 2008 breeder trials located in the Texas High Plains Region. In 2009 FACT Trials located in Texas DP 1044 B2RF reported a higher average lint yield when compared to the average of all commercial checks which included FM 9160B2F, FM 1740B2F, ST 5458B2RF, DP 0935 B2RF, DP 0949 B2RF, DP 0912 B2RF, DP 0920 B2RF, and DP 0924 B2RF. In West Texas Field Advancement Coordination Trials, DP 1044 B2RF reported a higher fiber length, strength and uniformity when compared to FM 1740B2F.

The 2010 introduction of mid maturity variety DP 1032 B2RF and mid to full maturity variety DP 1044 B2RF will provide Texas cotton producers new options for Deltapine products with advanced trait technology combined with exceptional yield potential and fiber quality. In a trial conducted on bacterial blight in Texas DP 1032 B2RF and DP 1044 B2RF both reported none to very little damage from bacterial blight, indicating that both varieties have moderate resistance to bacterial blight.

### Notes / Disclaimers

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.