DP 0912 B2RF: A NEW EARLY MATURING CLASS OF 2009 B2RF VARIETY FROM DELTA AND PINE LAND Tom Speed Delta and Pine Land / Monsanto Lubbock, TX David W. Albers Delta and Pine Land / Monsanto Memphis, TN Doug Shoemaker Robert E. McGowen Monsanto Scott, MS

Abstract

DP 0912 B2RF is an early maturity variety with excellent yield potential that will be released for commercial sales in the 2009 growing season. The variety has semi-smooth leaf pubescence, medium plant height and a bushy plant type. The average fiber properties of DP 0912 B2RF are ~35 staple, 4.81 micronaire, and 28.3 g/tex fiber strength. The node of the first fruiting branch averages 6.1 nodes. DP 0912 B2RF was developed from the Monsanto cotton breeding program using elite genetics. As a result of these breeding techniques high yields have been reported for several of the new tested varieties including DP 0912 B2RF.

The yield performance of DP 0912 B2RF is improved compared to ST 4554 B2RF in Beltwide comparisons and FM 9180 B2RF in the W. Texas region. DP 0912 B2RF has improved lint yield and gin turnout over ST 4554 B2RF, and FM 9180 B2RF. The regional performance of DP 0912 B2RF showed the best performance in N. Southeast, N. Delta, and S. Delta, with strong performance in other full-season markets (S. Southeast, E. Texas, W. Texas, and Arizona/California).

Introduction

Deltapine brand is releasing for commercial introduction in 2009, a new early maturity variety that contains both the Bollgard II and Roundup Ready Flex traits: DP 0912 B2RF. The characteristics describing DP 0912 B2RF are summarized in Table 1. DP 0912 B2RF was developed by Doug Shoemaker and Robert McGowen at the Monsanto Cotton Breeding site in Scott, MS. The highlights of P 0912 B2RF characteristics are improved yield and gin turnout compared previous Deltapine brand varieties and competitive check varieties.

Trait	Description			
Maturity	Early			
Leaf Pubescence	Semi-Smooth			
Plant Height	Medium			
Seed Size	4400 - 4800 seed / lb			
Verticillium Tolerance	Good			
Micronaire	4.81			
Staple	~35			
Strength	28.3 g/tex			
Node First Fruiting Branch	6.1			

Table 1. DP 0912 B2RF Characteristics and Fiber quality

Materials and Methods

The data describing DP 0912 B2RF (along with internal and competitive check varieties) was obtained from the following sources: Monsanto breeder trials (2007), Monsanto on-farm trials (2008). Plant growth, fruiting, and maturity comparisons were made by plant mapping a subset of the Monsanto 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. Analysis of variance was completed using JMP 5.0 statistical software (SAS Institute) and LS Means are presented in the data tables.

Results and Discussion

Plant Mapping Comparisons

The growth and fruiting characteristics of DP 0912 B2RF, as measured by end-of-season plant mapping, are summarized in Tables 2. The growth and fruiting variables of DP 0912 B2RF are similar to ST 4554 B2RF, with the exception of total nodes, where DP 0912 B2RF total nodes averages 0.4 greater than ST 4554 B2RF (Table 2). DP 0912 B2RF is characterized as an early maturity variety, with medium plant height due, in part, to the similarity of its fruiting and plant development characteristics compared to ST 4554 B2RF and early-mid maturity.

Table 2. Plant mapping compa	rison of DP 0912 B2RF an	nd ST 4554 B2RF in on-fari	n variety trials, 2008

	DP 0912 B2RF	ST 4554 B2RF				
Plant Ht.	36.1	35.9				
Total Nodes	20.5	20.1				
Fruiting Nodes	10.2	10.3				
HNR	1.76	1.78				
NFFB	6.1	6.1				
n= 158 locations, 2008 HNR = Height to Node Ratio (inches / node); NFFB = Node of First Fruiting Branch						

Yield, Fiber Quality, and Value Comparisons

The improvements in DP 0912 B2RF over ST 4554 were crop value (increase of \$50 / acre), lint yield (increase of 115 lb/ acre), gin turnout (0.9 % increase) and micronaire (.26 higher) (Table 3). DP 0912 B2RF had loan values 1.26 cents per lb lower than ST 4554 B2RF due to the relative fiber quality differences. The improved production of DP 0912 B2RF gives growers a higher yield potential and higher crop value potential choice for early season markets and environments that fit the early maturity of this variety.

Table 3. Lint Yield, Fiber Quality, and Value comparisons of DP 0912 B2RF and DP ST 4554 in 2008 Beltwide on-farm trial testing.

	Crop	Lint		Staple		Fiber		Loan
	Value	Yield	% Gin	(32^{nd}) 's		Strength	Uniformity	Value
Variety	(\$/acre)	(lb/acre)	Turnout	inch)	Micronaire	(g/tex)	Index	(cents/lb)
DP0912B2RF	608	1121	36.3	34.8	4.81	28.3	82.0	53.89
ST 4554 B2RF	558	1006	35.4	35.5	4.55	29.2	81.9	55.15
Notes: Beltwide Data, 2008 testing, 174 locations								

Loan Value = 0.52/lb +/- premiums or discounts according to 2008 USDA Loan Chart, assuming 31 color and 3 leaf grade. Data available as of 12.03.08

In W. Texas testing, DP 0912 B2RF had improved crop value (increase of \$52 / acre), lint yield (increase of 117 lbs/acre), gin turnout (1.9% increase) and micronaire (.31 higher) compared to FM 9180 B2RF in 16 comparisons (Table 4).

Table 4. Lint Yield, Fiber Quality, and Value comparisons of DP 0912 B2RF and FM 9180 B2RF in 2008 on-farm testing in W. Texas.

	Crop	Lint		Staple		Fiber		Loan
	Value	Yield	% Gin	(32 nd 's		Strength	Uniformity	Value
Variety	(\$/acre)	(lb/acre)	Turnout	inch)	Micronaire	(g/tex)	Index	(cents/lb)
DP 0912B2RF	619	1130	35.5	35.4	4.51	28.2	81.9	54.39
FM 9180B2RF	567	1013	33.6	37.4	4.20	30.0	81.9	55.75
Notes:W. Texas data, 2008 testing, 16 locations.								
Loan Value = \$0.52/lb +/- premiums or discounts according to 2007 USDA Loan Chart, assuming 31 Color and 3								
leaf grade. Data available as of 12.03.08								

Regional Yield and Crop Value Performance

The regional yield (lb lint/acre) and crop value (\$/acre) of DP 0912 B2RF was compared to ST 4554 BRRF to calculate the % difference within each data region listed below (Figure 1). In all regions N. Southeast, S. Southeast, N. Delta, S. Delta, E. Texas, W. Texas, and Arizona/California both the lint yield and crop value were greater than ST 4554 B2RF regional performance.

In the N. Southeast region, the percent yield difference was greatest for DP 0912 B2RF with over a 24.6% difference when compared to ST4554 B2RF with also a 22.2% crop value difference. Results were most similar in the S. Delta region with DP 0912 B2RF at 4.3% increase in yield difference and 0.9% increase in crop value over ST 4544 B2RF.



Figure 1. DP 0912 B2RF regional yield and crop value performance expressed as % difference when compared to ST 4554 B2RF in 2008 testing. Regions: N. SE (N. Southeast), S. SE (S. Southeast), N. Delta, S. Delta, E. TX (E. *Texas), W. TX (W. Texas) and AZ/CA (Arizona/California). Data available as of 12.03.08*

<u>Summary</u>

DP 0912 B2RF was found to have greater yield performance to ST 4554 B2RF Beltwide (+ 11.5%) and FM 9180 B2RF (+11.5%) in W. Texas. Crop value (\$/acre) and gin turnout of DP 0912 B2RF was improved compared to ST 4554 overall in Beltwide comparisons and compared to FM 9180 B2RF in W. Texas comparisions. The regional performance of DP 0912 B2RF showed increases in both yield and crop value differences when compared to ST 4554 B2RF in all major growing regions.