

DP 1133 B2RF: A NEW MID MATURING CLASS OF 2011 B2RF VARIETY

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Abstract

DP 1133 B2RF with Genuity® Bollgard II® with Roundup Ready Flex® (B2RF) is a mid-maturing variety with excellent yield potential that will be released for commercial sales in the 2011 growing season. This variety has smooth leaf pubescence with a bushy plant type. Average fiber properties of DP 1133 B2RF include fiber length of 1.14 to 1.15 inches, 4.8 micronaire, 31-32 g/tex fiber strength and 83-84% length uniformity. The node of the first fruiting branch averages 5.3 to 6.4 nodes. DP 1133 B2RF was developed from the Monsanto breeding program using elite genetics rather than conversion of previous high yielders. As a result of these breeding techniques high yield potentials have been reported for the varieties Class of 11 release.

The yield performance of DP 1133 B2RF reported higher yield potential when compared to averages taken from competitor stacks (2-gene insect protection + herbicide tolerance) which included Stoneville®, FiberMax®, and PhytoGen® varieties tested containing Genuity® Bollgard II® with Roundup Ready® Flex, LibertyLink® with Bollgard II® , and Widestrike® with Roundup Ready® Flex traits. DP 1133 B2RF has improved lint yield and many fiber qualities over many competitor stacks. The regional performance of DP 1133 B2RF showed the best performance in the Lower Midsouth and East Texas regions.

Introduction

Deltapine brand is releasing for commercial introduction in 2011, a new mid maturity variety that contains both the Genuity® Bollgard II® and Roundup Ready® Flex traits: DP 1133 B2RF. The characteristics describing DP 1133 B2RF are summarized in Table 1. The highlights of DP 1133 B2RF are improved % lint, strength, uniformity and outstanding yield potential compared to previous Deltapine brand products and competitive check varieties.

Table 1. DP 1133 B2RF Characteristics and Fiber quality

| Trait | Description |
|----------------------------|--------------------|
| Maturity | Mid |
| Leaf Pubescence | Smooth |
| Plant Height | Bushy |
| Micronaire | 4.8 |
| Length (in.) | 1.14 - 1.15 |
| Strength (g/tex) | 31 – 32 |
| Length Uniformity (%) | 83 – 84 |
| Number of Fruiting Nodes | 8.3 - 11.1 |
| Node First Fruiting Branch | 5.3 - 6.4 |

Materials and Methods

The data describing DP 1133 B2RF (along with internal and competitive check varieties) was obtained from the following sources: Monsanto breeder trials (2008), Monsanto on-farm strip trials (2009 and 2010) referred to as Field Advancement Coordination Trials (FACT), on-farm module-sized trials referred to as New Product Evaluation (NPE) in 2009 and 2010, and university variety trials in 2010. 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. Analysis of variance was completed using JMP 5.0 statistical software (SAS Institute).

Results and Discussion

Regional Comparison of Characteristic Ratings and Evaluations

Cotton characteristics ratings and evaluations of DP 1133 B2RF are summarized in Tables 2. In the table, DP 1133 B2RF is compared to DP 0912 B2RF which have been averaged by region. DP 1133 B2RF exhibited similar plant height, fruiting nodes, and total nodes when compared to DP 0912 B2RF in the Northern Tier, Southern Tier and Texas regions. DP 1133 B2RF reported a significantly higher vigor rating (less vigor) in the Texas region, but similar in the other 2 regions when compared to DP 0912 B2RF. DP 1133 B2RF reported a lower average node of first fruiting branch when compared to DP 0912 B2RF in all three regions.

Table 2. Characteristic ratings and evaluation comparisons of DP 1133 B2RF and DP 0912 B2RF (average ratings and evaluations of cotton products by region) in Deltapine brand Plant Map and In-Season Summary Trials 2010.

| Rating / Eval | Northern Tier | | | Southern Tier | | | Texas | | |
|---|---------------|--------------|----|---------------|--------------|----|--------------|--------------|----|
| | DP 1133 B2RF | DP 0912 B2RF | | DP 1133 B2RF | DP 0912 B2RF | | DP 1133 B2RF | DP 0912 B2RF | |
| Vigor Rating | 3.6 | 3.4 | ns | 3.8 | 3.5 | ns | 4.9 | 3.5 | * |
| Plant Ht. (inches) | 37.8 | 37.3 | ns | 43.9 | 42.4 | ns | 32.4 | 32.0 | ns |
| NFFB | 5.2 | 5.6 | * | 5.3 | 5.7 | * | 6.4 | 6.7 | ns |
| Total Nodes | 19.3 | 19.1 | ns | 19.8 | 19.7 | ns | 18.6 | 17.9 | ns |
| Fruiting Nodes | 9.5 | 9.8 | ns | 11.1 | 10.9 | ns | 8.3 | 7.8 | ns |
| Relative Maturity (HU) | +14 | | ns | +36 | | * | +24 | | ns |
| Vigor rating 1 = excellent; 9 = poor NFFB = Node of First fruiting branch ‘*’ Statistically significant difference from the check variety (p>F = 0.05) ns = non significant difference vs. check variety | | | | | | | | | |

Yield, Loan Value, and Crop Value Comparisons

The improvements in DP 1133 B2RF over competitor stacks in testing were lint yield (increase of 97 lbs/acre), loan value (increase of .0024 \$/lb) and crop value (56.16 \$/acre) (Table3). The improved production of DP 1133 B2RF gives growers a high quality option for several markets that fit the mid maturing varieties.

Table 3. Lint Yield (lb/acre), Loan Value (\$/lb), and Crop Value (\$/acre) comparisons of DP 1133 B2RF and Competitor Stacks in 2009 and 2010 field testing, East Texas and Lower Midsouth regions.

| Variety | Lint Yield (lb/acre) | Loan Value (\$/lb) | Crop Value (\$/acre) |
|--|----------------------|--------------------|----------------------|
| DP 1133 B2RF | 1232 | 0.5518 | 679.85 |
| Competitor Stacks | 1135 | 0.5494 | 623.69 |
| % Difference | 8.5% | 0.4% | 9.0% |
| % Wins – DP 1133 B2RF | 69.5% | | |
| Number of comparisons | 337 | | |
| Notes: Loan value is based on 2010 USDA - CCC Loan chart, assuming 31 color grade and 3 leaf grade. Crop Value is lint yield x loan value. Competitor Stacks includes all ST, FM, and PHY varieties containing Genuity® Bollgard II® with Roundup Ready® Flex, Widestrike with Genuity® Roundup Ready® Flex, and Liberty Link® with Genuity® Bollgard II® traits. Data available in Mirage database 12.17.10 | | | |

In field testing in 2010, DP 1133 B2RF also showed improvements over *Phytogen ®Widestrike® Roundup Ready® Flex cotton products in East Texas and the lower Midsouth regions. DP 1133 B2RF showed improvements in lint yield (increase of 100 lb/acre), loan yield (increase of .0029 \$/lb), and crop value (increase of 58.35 \$/acre) (Table 4).

Table 4. Lint Yield (lb/acre), Loan Value (\$/lb), and Crop Value (\$/acre) comparisons of DP 1133 B2RF and Phytogen cotton products in 2009 and 2010 testing in East Texas and the lower Midsouth.

| Variety | Lint Yield (lb/acre) | Loan Value (\$/lb) | Crop Value (\$/acre) |
|---|----------------------|--------------------|----------------------|
| DP 1133 B2RF | 1253 | 0.5514 | 690.67 |
| Phytogen® Cotton Products* | 1153 | 0.5485 | 632.32 |
| % Difference (DP vs. Comp.) | 8.6% | 0.5% | 9.2% |
| % Wins – DP 1133 B2RF | 77.6% | | |
| Number of Comparisons | 150 | | |
| Notes: Loan value is based on 2010 USDA - CCC Loan chart, assuming 31 color grade and 3 leaf grade. Crop Value is lint yield x loan value. Data available in Mirage database 12.17.10 | | | |

In testing in 2009 and 2010, DP 1133 B2RF also showed improvements over *Stoneville® Genuity® Bollgard I®I with Roundup Ready® Flex cotton products in East Texas and the lower Midsouth regions. DP 1133 B2RF showed improvements in lint yield (increase of 66 lb/acre), loan yield (increase of .0046 \$/lb), and crop value (increase of 41.91 \$/acre) (Table 5).

Table 5. Lint Yield (lb/acre), Loan Value (\$/lb), and Crop Value (\$/acre) comparisons of DP 1133 B2RF and Stoneville cotton products in 2009 and 2010 testing in East Texas and the lower Midsouth.

| Variety | Lint Yield (lb/acre) | Loan Value (\$/lb) | Crop Value (\$/acre) |
|---|----------------------|--------------------|----------------------|
| DP 1133 B2RF | 1205 | 0.5524 | 665.88 |
| Stoneville® Cotton Products* | 1139 | 0.5478 | 623.97 |
| % Difference (DP vs. Comp.) | 5.8% | 0.8% | 6.7% |
| % Wins – DP 1133 B2RF | 56.0% | | |
| Number of Comparisons | 118 | | |
| Notes: Loan value is based on 2010 USDA - CCC Loan chart, assuming 31 color grade and 3 leaf grade. Crop Value is lint yield x loan value. Data available in Mirage database 12.17.10 | | | |

In 2009 and 2010 testing, DP 1133 B2RF also showed improvements over competitor stacks including all Stoneville®, FiberMax®, and Phytogen® varieties containing Genuity® Bollgard II® with Roundup Ready® Flex, LibertyLink® with Genuity® Bollgard II®, Widestrike® with Genuity® Roundup Ready® Flex traits in East Texas and the lower Midsouth regions for dryland and irrigated acres. In 222 dryland comparisons, DP 1133 B2RF showed improvements in lint yield (increase of 82 lb/acre), loan value (increase of .0012 \$/lb), and crop value (increase of 46.47 \$/acre) (Table 6). In 188 irrigated comparisons, DP 1133 B2RF showed improvements in lint yield (increase of 132 lb/acre), loan value (increase of .0045 \$/lb), and crop value (increase of 78.53 \$/acre).

Table 6. Lint Yield (lb/acre), Loan Value (\$/lb), and Crop Value (\$/acre) comparisons of DP 1133 B2RF and Competitor Stacks in 2009 and 2010 testing in East Texas and the lower Midsouth for dryland and irrigated trials.

| DRYLAND | Lint Yield (lb/acre) | Loan Value (\$/lb) | Crop Value (\$/acre) |
|-----------------------------|----------------------|--------------------|----------------------|
| DP 1133 B2RF | 1161 | 0.5501 | 638.69 |
| Competitor Stacks | 1079 | 0.5489 | 592.22 |
| % Difference (DP vs. Comp.) | 7.6% | 0.2% | 7.8% |
| % Wins – DP 1133 B2RF | 69.6% | | |
| Number of Comparisons | 222 | | |
| IRRIGATED | Lint Yield (lb/acre) | Loan Value (\$/lb) | Crop Value (\$/acre) |
| DP 1133 B2RF | 1360 | 0.5549 | 754.46 |
| Competitor Stacks | 1228 | 0.5504 | 675.93 |
| % Difference (DP vs. Comp.) | 10.7% | 0.8% | 11.6% |
| % Wins – DP 1133 B2RF | 72.7% | | |

| | | | |
|--|-----|--|--|
| Number of Comparisons | 188 | | |
| Note: Loan value is based on 2010 USDA – CCC loan chart, assuming 31 color grade and 3 leaf grade. Crop Value is lint yield x loan value. Competitor Stacks includes all ST, FM and PHY varieties containing Genuity® Bollgard II® with Roundup Ready® Flex, Widestrike with Genuity® Roundup Ready® Flex, and Liberty Link® with Genuity® Bollgard II® traits. Data available in Mirage database 12.17.10 | | | |

Summary

In a regional yield comparisons, DP 1133 B2RF was found to have greater yield performance than an average of several Competitor Stacks including all Stoneville®, FiberMax®, and Phytogen® varieties containing Genuity® Bollgard II® with Roundup Ready® Flex, LibertyLink® with Genuity® Bollgard II®, Widestrike® with Genuity® Roundup Ready® Flex traits in East Texas and the lower Midsouth regions. In the 2010 trials, DP 1133 B2RF performed best in lower Midsouth, East Texas and lower Southeast regions. DP 1133B2RF provides a great combination of high yield potential and fiber quality for mid-maturing markets. DP 1133 B2RF offers a bushy plant type that under vigorous growing conditions application of PGR (mepiquat) should be applied early at 8 to 10 nodes and internode distance and fruit retention should be closely monitored for additional PGR applications.

Acknowledgements

The author wishes to acknowledge the Monsanto cotton breeding group and the Monsanto Technology Development group for their critical roles in developing and testing new Deltapine varieties.

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