DELTAPINE® EARLY MATURING BOLLGARD II® XTENDFLEX™ COTTON VARIETIES: DP 1518 B2XF AND DP 1522 B2XF

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Abstract

DP 1518 B2XF and DP 1522 B2XF are Bollgard II® XtendFlex™ cotton varieties designed to help maximize weed control through effective and sustainable weed management options, pending regulatory approval.

The cotton variety DP 1518 B2XF is an early to mid maturing cotton variety with high yield potential especially in high-yield environments that has excellent fiber quality when compared to competitor products. Fiber quality ratings include fiber length of 1.14 inches, 4.2 micronaire, 29.5 g/tex fiber strength, and 82.7% uniformity index. DP 1518 B2XF has light hairy leaf pubescence and provides resistance to bacterial blight.

DP 1522 B2XF is an early to mid maturing cotton variety with semi-smooth leaf pubescence and is widely adapted to different growing environments. Fiber quality ratings include fiber length of 1.13 inches, 4.5 micronaire, 31.0 g/tex fiber strength, and 82.9% uniformity index. This variety has shown to have aggressive vegetative growth that may require timely PGR management.

Introduction

Deltapine® brand has two early to mid maturing cotton varieties, DP 1518 B2XF and DP 1522 B2XF, both with Bollgard II® XtendFlex™ Cotton technology. The characteristics describing DP 1518 B2XF and DP 1522 B2XF are summarized in Table 1. The highlights of DP 1518 B2XF are outstanding yield potential, fiber quality, and resistance to bacterial blight. DP 1522 B2XF also has an excellent combination of yield potential and fiber quality for early to mid maturity markets.

Table 1. DP 1518 B2XF and DP 1522 B2XF Characteristics and Fiber Quality.

Trait	DP 1518 B2XF	DP 1522 B2XF
Maturity	Early-Mid	Early-Mid
Leaf Pubescence	Light Hairy	Semi-Smooth
Micronaire	4.2	4.5
Length	1.14 inches	1.13 inches
Strength	29.5 g/tex	31.0 g/tex
Uniformity	82.7%	82.9%
Growth/PGR Management	Average	Aggressive
Bacterial Blight	Resistant	Susceptible
Rating and measurements from 2014 Monsanto Trials under permit		

Materials and Methods

The data describing DP 1518 B2XF and DP 1522 B2XF (along with internal and competitive check varieties) was obtained from the following sources: Monsanto breeder trials, Monsanto on-farm trials, and University trials. 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.

Results and Discussion

DP 1518 B2XF and DP 1522 B2XF Plant Mapping Comparisons

The growth and fruiting characteristics of DP 1518 B2XF and DP 1522 B2XF, as measured by end-of-season plant mapping, are summarized in Table 2. The growth and fruiting variables of DP 1518 B2XF and DP 1522 B2XF are similar to DP 0912 B2RF in data trials. DP 1518 B2XF requires 18 more heat units and DP 1522 B2XF requires 27 more heat units to achieve 100% open boll when compared to the similar early maturing cotton product DP 0912 B2RF. DP 1518 B2XF and DP 1522 B2XF are characterized as early-mid maturing varieties, with slightly taller plant heights than DP 0912 B2RF. In data trials, when compared to DP 0912 B2RF, DP 1518 B2XF and DP 1522 B2XF had 0.9 and 1.1 more fruiting nodes, respectively.

Table 2. Plant mapping comparison of DP 1518 B2XF and DP 1522 B2XF in Monsanto Trials (2014) in in-season data trials.

	DP 1518 B2XF	DP 1522 B2XF	DP 0912 B2RF
Plant Height (inches)	35.5	36.7	34.5
Total Nodes	18.6	18.8	17.7
Number of Fruiting Nodes	10.1	9.6	9.3
% Est Open	62%	59%	63%
Node of First Fruiting Branch	5.8	6.0	5.9
HU Difference to 100% open	+18	+27	0
Fall Out Rating	2.4	2.7	2.7
String Out Rating	3.4	4.1	4.6
Data source: 2014 Monsanto PCM4 trials in data trials under permit Fall Out and String Out Rating: 1=Tight, Storm-Proof boll; 9=Loose boll			

DP 1518 B2XF Yield, Fiber Quality, and Value Comparisons

DP 1518 B2XF was compared to DP 0912 B2RF in testing conducted in the Northern Tier and West Texas regions. DP 1518 B2XF showed improvements over DP 0912 B2RF in lint % (increase of 0.7%), fiber length (increase of 0.05 inches), and uniformity index (increase of 0.49) (Table 3).

Table 3. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1518 B2XF and DP 0912 B2RF in the Northern Tier and West Texas regions, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1518 B2XF	1437	38.7	1.15	4.04	29.36	82.94
DP 0912 B2RF	1434	38.0	1.10	4.59	29.83	82.45
Significance		*	**	**	*	*
Observations	39	39	12	12	12	12
Years	1	1	1	1	1	1
% Wins	54	82	100	100	33	83
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1518 B2XF was compared to ST 4946GLB2 in testing conducted in the Northern Tier and West Texas regions. DP 1518 B2XF showed improvements over ST 4946GLB2 in lint % (increase of 0.4%) and fiber length (increase of 0.03 inches) (Table 4).

Table 4. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1518 B2XF and ST 4946GLB2 in the Northern Tier and West Texas regions, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1518 B2XF	1456	39.8	1.15	4.04	29.36	82.94
ST 4946GLB2	1514	39.4	1.12	4.40	31.17	82.99
Significance			**	**	**	
Observations	23	23	12	12	12	12
Years	1	1	1	1	1	1
% Wins	35	61	92	92	8	50
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1518 B2XF was compared to PHY 499 WRF in testing conducted in the Northern Tier and West Texas regions. DP 1518 B2XF showed improvements over PHY 499 WRF in lint % (increase of 0.7%) and fiber length (increase of 0.02 inches) (Table 5).

Table 5. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1518 B2XF and PHY 499 WRF in the Northern Tier and West Texas regions, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1518 B2XF	1429	40.7	1.15	4.04	29.36	82.94
PHY 499 WRF	1412	40.0	1.13	4.45	31.89	83.33
Significance			**	**	**	+
Observations	20	20	12	12	12	12
Years	1	1	1	1	1	1
% Wins	50	45	82	92	0	25
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1522 B2XF was compared to DP 0912 B2RF in testing conducted across the beltwide region. DP 1522 B2XF showed improvements over DP 0912 B2RF in lint % (increase of 1.31%), fiber length (increase of 0.04 inches), fiber strength (increase of 1.18 g/tex) and uniformity index (increase of 0.61) (Table 6).

Table 6. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1522 B2XF and DP 0912 B2RF across all testing Beltwide, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1522 B2XF	1380	39.2	1.13	4.48	31.0	82.9
DP 0912 B2RF	1373	37.9	1.09	4.62	29.9	82.3
Significance		**	**	**	**	**
Observations	67	67	35	35	35	35
Years	1	1	1	1	1	1
% Wins	54	88	91	79	89	89
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1522 B2XF was compared to DP 1044 B2RF in testing conducted across the Western (Texas, Oklahoma, Arizona) region. DP 1522 B2XF showed improvements over DP 1044 B2RF in lint % (increase of 1.0%), fiber length (increase of 0.01 inches), fiber strength (increase of 0.5g/tex) and uniformity index (increase of 0.3) (Table 7).

Table 7. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1522 B2XF and DP 1044 B2RF across all testing Texas, Oklahoma, Arizona, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1522 B2XF	1351	37.6	1.12	4.36	31.6	82.5
DP 1044 B2RF	1372	36.6	1.11	4.23	31.1	82.2
Significance		**				
Observations	32	32	11	11	11	11
Years	1	1	1	1	1	1
% Wins	55	90	73	18	73	55
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1522 B2XF was compared to ST 4946GLB2 in testing conducted across the Beltwide region. DP 1522 B2XF showed improvements over ST 4946GLB2 in lint % (increase of 0.8%), and fiber length (increase of 0.01 inches) (Table 8).

Table 8. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1522 B2XF and ST 4946GLB2 across all testing Beltwide, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1522 B2XF	1441	39.8	1.13	4.48	31.0	82.9
ST 4946GLB2	1474	39.0	1.12	4.40	31.8	83.0
Significance		**		*	**	
Observations	51	51	35	35	35	35
Years	1	1	1	1	1	1
% Wins	45	82	51	29	23	42
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1522 B2XF was compared to PHY 499 WRF in testing conducted across the Beltwide region. DP 1522 B2XF showed improvements over PHY 499 WRF in lint % (increase of 0.21%) and fiber length (increase of 0.01 inches) (Table 9).

Table 9. Lint Yield, Lint %, Fiber Length, Micronaire, Fiber Strength, and Uniformity Index comparisons of DP 1522 B2XF and PHY 499 WRF across all testing Beltwide, 2014.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1522 B2XF	1409	40.06	1.13	4.48	31.1	82.9
PHY 499 WRF	1403	39.85	1.12	4.50	32.3	83.2
Significance			*		**	*
Observations	49	49	35	35	35	35
Years	1	1	1	1	1	1
% Wins	57	50	69	54	6	34
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and public trials available for the year and geography listed under permit						

DP 1518 B2XF and DP 0912 B2RF were compared by region for % win based on lint yield.
DP 1518 B2XF won 56% and 60% of the trials when comparing lint yield to DP 0912 B2RF in Upper Southeast and Upper Midsouth regions, respectively. (Table 10).

Table 10. Lint Yield Observations and % Wins of DP 1518 B2XF and DP 0912 B2RF in the Upper Southeast, Upper Midsouth, and West Texas regions, 2014.

Region	Lint Yield # Obs.	Lint Yield Wins %	DP 1518 B2XF	DP 0912 B2RF	Lint Yield Difference	p-Val	Significance
Upper Southeast	9	56	1488	1448	41	0.46	ns
Upper Midsouth	10	60	1244	1253	-9	0.83	ns
West Texas	20	50	1379	1386	-7	0.80	ns

DP 1522 B2XF and DP 0912 B2RF were compared by region for % win based on lint yield.
DP 1522 B2XF won 62% and 73% of the trials when comparing lint yield to DP 0912 B2RF in the Southern Tier and East Texas regions, respectively. (Table 11).

Table 11. Lint Yield Observations and % Wins of DP 1522 B2XF and DP 0912 B2RF in the Northern Tier, Southern Tier, East Texas, and West Texas regions, 2014.

Region	Lint Yield # Obs.	Lint Yield Wins %	DP 1522 B2XF	DP 0912 B2RF	Lint Yield Difference	p-Val	Significance
Northern Tier	19	47	1344	1345	-1	0.97	ns
Southern Tier	16	62	1481	1438	43	0.26	ns
East Texas	11	73	1269	1261	8	0.80	ns
West Texas	20	40	1369	1386	-17	0.51	ns

Summary

DP 1518 B2XF and DP 1522 B2XF are two cotton varieties with Bollgard II® XtendFlex™ Cotton technology.

DP 1518 B2XF is an early to mid maturing variety with high yield potential in short-season environments, especially in Upper Southeast and Mid to Upper Midsouth regions and on irrigated acres in Texas. DP 1518 B2XF was found to have similar yield performance when compared to DP 0912 B2RF and similar fiber quality compared to ST 4946GLB2.

DP 1522 B2XF is an early to mid maturing variety that is widely adapted across the Beltwide region. DP 1522 B2XF was found to have similar yield potential as DP 0912 B2RF and the competitor product ST 4946GLB2 and similar fiber quality compared to ST 4946GLB2.

As of October 1, 2014, Bollgard II® XtendFlex™ cotton has been approved for import in Australia, Mexico and Canada. Growers should refer to http://www.biotradestatus.com/ for any updated information on import country approvals.

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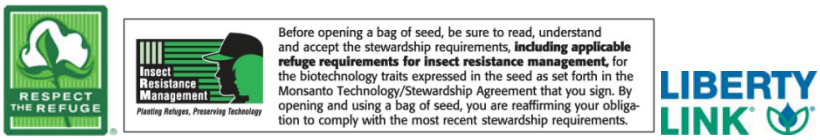
Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.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