EARLY MATURING DELTAPINE® CLASS OF '16 BOLLGARD II® XTENDFLEX® COTTON VARIETIES

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Abstract

DP 1614 B2XF is a Bollgard II® XtendFlex® cotton variety designed to help maximize weed control through effective and sustainable weed management options, pending regulatory approval.

DP 1614 B2XF is an early maturing cotton variety with semi-smooth leaf pubescence and is widely adapted to different growing environments. Fiber quality ratings include fiber length of 1.16 inches, 4.7 micronaire, 29.0 to 30.0 g/tex fiber strength, and 82.5% uniformity index. This variety is ideal for early-season markets and high-yielding environments.

Introduction

Deltapine® brand has a new early maturing cotton variety, DP 1614 B2XF, with Bollgard II® XtendFlex® cotton technology. The characteristics describing DP 1614 B2XF are summarized in Table 1. Highlights of DP 1614 B2XF include an excellent combination of yield potential and fiber quality ideal for early maturity markets.

Table 1. DP 1614 B2XF Characteristics and Fiber Quality.

Characteristics	DP 1614 B2XF
Maturity	Early
Leaf Pubescence	Semi-Smooth
Micronaire	4.7
Length	1.16 inches
Strength	29.0 to 30.0 g/tex
Uniformity	82.5%
Bacterial Blight	Susceptible

Materials and Methods

The data describing DP 1614 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 1614 B2XF Plant Mapping Comparisons

The growth and fruiting characteristics of DP 1614 B2XF, as measured by end-of-season plant mapping, are summarized in Table 2. The growth and fruiting variables of DP 1614 B2XF is similar to DP 1522 B2XF in mid-full data trials. DP 1614 B2XF requires 24 less heat units to achieve 100% open boll when compared to the similar early maturing cotton product. DP 1614 B2XF is characterized as an early maturing variety, with a slightly shorter plant height than DP 1522 B2XF. When compared to DP 1522 B2XF, DP 1614 B2XF had a higher vigor rating by 1.1 in data trials.

Table 2. Plant mapping comparison of DP 1614 B2XF and DP 1522 B2XF in Monsanto Trials (2015) in in-season mid-full set data trials.

	DP 1614 B2XF	DP 1522 B2XF
Vigor Rating	4.0	2.9
Plant Height (inches)	34.1	35.8
Total Nodes	18.4	19.4
Number of Fruiting Nodes	9.7	10.5
% Est Open	52.8	52.1
Node of First Fruiting Branch	5.5	6.0
HU Difference to 100% open	-24	0
Fall Out Rating	2.4	2.1
String Out Rating	3.3	3.4

DP 1614 B2XF Yield, Fiber Quality, and Value Comparisons

DP 1614 B2XF was compared to DP 1518 B2RF in testing conducted across the Beltwide region. DP 1614 B2XF showed improvements over DP 1518 B2RF in lint yield (increase of 23 lbs lint/acre), lint % (increase of 2.22%), fiber length (increase of 0.02 inches), fiber strength (increase of 0.81g/tex), and uniformity index (increase of 0.88) (Table 3).

Table 3. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and DP 1518 B2RF across the Beltwide region.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,249	40.73	1.18	4.67	29.81	83.44
DP 1518 B2RF	1,226	38.51	1.16	4.22	29.00	82.56
Significance		**	**	**	**	**
Observations	112	115	81	81	81	81
Years	1	1	1	1	1	1
% Wins	54	90	82	8	72	75
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Beltwide region.						

DP 1614 B2XF was compared to DP 1522 B2RF in testing conducted across the Beltwide region. DP 1614 B2XF showed improvements over DP 1522 B2RF in lint % (increase of 1.52%), fiber length (increase of 0.03 inches), and uniformity index (increase of 0.37) (Table 4).

Table 4. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and DP 1522 B2XF across the Beltwide region.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,187	39.98	1.17	4.68	29.36	82.91
DP 1522 B2XF	1,185	38.46	1.14	4.50	29.69	82.54
Significance		**	**	**	*	**
Observations	163	175	126	126	126	126
Years	1	1	1	1	1	1
% Wins	49	86	85	24	42	62
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Beltwide region.						

DP 1614 B2XF was compared to DP 1518 B2XF in testing conducted across the Northern Tier region. DP 1614 B2XF showed improvements over DP 1518 B2XF in lint yield (increase of 56 lbs lint/acre), lint % (increase of 2.42%), fiber length (increase of 0.03 inches), fiber strength (increase of 0.68), and uniformity index (increase of 0.85) (Table 5).

Table 5. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and DP 1518 B2RF across the Northern Tier region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,210	41.22	1.20	4.79	29.07	83.73
DP 1518 B2RF	1,154	38.80	1.17	4.26	28.39	82.88
Significance	*	**	**	**	**	**
Observations	63	63	39	39	39	39
Years	1	1	1	1	1	1
% Wins	63	94	87	5	79	79
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Northern Tier region.						

DP 1614 B2XF was compared to DP 1522 B2RF in testing conducted across the Northern Tier region. DP 1614 B2XF showed improvements over DP 1522 B2RF in lint yield (increase of 23 lbs lint/acre), lint % (increase of 2.11%), fiber length (increase of 0.03 inches), fiber strength (increase of 0.35 g/tex), and uniformity index (increase of 0.45) (Table 6).

Table 6. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and DP 1522 B2XF across the Northern Tier region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,219	41.33	1.19	4.81	28.89	83.65
DP 1522 B2XF	1,196	39.22	1.16	4.65	28.54	83.20
Significance		**	**	**		*
Observations	68	67	41	41	41	41
Years	1	1	1	1	1	1
% Wins	53	95	92	32	54	60
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Northern Tier region.						

DP 1614 B2XF was compared to PHY 333 WRF in testing conducted across the Northern Tier region. DP 1614 B2XF showed improvements over PHY 333 WRF in lint % (increase of 1.28%), fiber length (increase of 0.01 inches), and uniformity index (increase of 0.22) (Table 7).

Table 7. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and PHY 333 WRF across the Northern Tier region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,171	41.12	1.19	4.83	28.87	83.64
PHY 333 WRF	1,181	39.84	1.18	4.42	29.07	83.42
Significance		**	**	**		+
Observations	51	51	32	32	32	32
Years	1	1	1	1	1	1
% Wins	49	86	84	6	47	74
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Northern Tier region.						

DP 1614 B2XF was compared to ST 4946GLB2 in testing conducted across the Northern Tier region. DP 1614 B2XF showed improvements over ST 4946GLB2 in lint yield (increase of 52 lbs lint/acre), lint % (increase of 3.45%), and fiber length (increase of 0.02 inches) (Table 8).

Table 8. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and ST 4946GLB2 across the Northern Tier region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,259	40.46	1.21	4.74	29.67	83.96
ST 4946GLB2	1,207	37.01	1.19	4.66	31.85	84.27
Significance	+	**	**		**	+
Observations	49	51	31	31	31	31
Years	1	1	1	1	1	1
% Wins	59	98	87	28	6	37
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Northern Tier region.						

DP 1614 B2XF was compared to ST 4946GLB2 in testing conducted across the Midsouth region. DP 1614 B2XF showed improvements over ST 4946GLB2 in lint yield (increase of 50 lbs lint/acre), lint % (increase of 3.06%), and fiber length (increase of 0.02 inches) (Table 9).

Table 9. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and ST 4946GLB2 across the Midsouth region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,302	40.55	1.21	4.81	30.57	84.38
ST 4946GLB2	1,252	37.49	1.19	4.66	32.83	84.42
Significance	+	**	**	**	**	
Observations	55	57	36	36	36	36
Years	1	1	1	1	1	1
% Wins	56	96	92	24	8	54
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Midsouth region.						

DP 1614 B2XF was compared to PHY 333 WRF in testing conducted across the Midsouth region. DP 1614 B2XF showed improvements over PHY 333 WRF in lint % (increase of 0.81%), fiber length (increase of 0.02 inches), strength (increase of 0.02), and uniformity index (increase of 0.32) (Table 10).

Table 10. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and PHY 333 WRF across the Midsouth region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,283	40.50	1.22	4.79	31.11	84.49
PHY 333 WRF	1,328	39.69	1.20	4.31	31.09	84.17
Significance		**	*	**		
Observations	43	43	24	24	24	24
Years	1	1	1	1	1	1
% Wins	37	81	74	4	45	74
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the Midsouth region.						

DP 1614 B2XF was compared to DP 1522 B2XF in testing conducted across the West Texas region. DP 1614 B2XF showed improvements over DP 1522 B2XF in lint yield (increase of 9 lbs lint/acre), lint % (increase of 1.04%), fiber length (increase of 0.02 inches), and uniformity index (increase of 0.23) (Table 11).

Table 11. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1614 B2XF and DP 1522 B2XF across the West Texas region, 2015.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1614 B2XF	1,134	38.91	1.14	4.54	29.04	82.08
DP 1522 B2XF	1,126	37.87	1.12	4.33	30.00	81.85
Significance		**	**	**	**	*
Observations	69	84	83	83	83	83
Years	1	1	1	1	1	1
% Wins	51	77	77	25	28	60
Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels. Data Source: All Monsanto (Breeding, Tech Development) and University trials available for 2015 in the West Texas region.						

Summary

DP 1614 B2XF is an early maturing variety that fits management practices of early-season, high-yielding environments. DP 1614 B2XF was found to have similar yield potential as DP 1518 B2XF and DP 1522 B2XF with improved fiber properties. DP 1614 B2XF offers Bollgard II® XtendFlex® cotton technology and is widely adapted across the northern tier of the Cotton Belt.

B.t. products may not yet be registered in all states. Check with your Monsanto representative for the registration status in your state.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Bollgard II® XtendFlex® cotton and XtendFlex® cotton contains genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides, dicamba, the active ingredient in M1691, and glufosinate, the active ingredient in Liberty® brand herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your Monsanto dealer or refer to Monsanto's Technology Use Guide for recommended Roundup Ready® Xtend Crop System weed control programs. Bollgard II®, Respect the Refuge and Cotton Design®, Roundup Ready® and Roundup® are trademarks of Monsanto Technology LLC. Deltapine® is a registered trademark of Monsanto Company. LibertyLink® and the Water Droplet Design® is a registered trademark of Bayer. All other trademarks are the property of their respective owners. Bollgard II® and Bollgard II® XtendFlex® cotton and XtendFlex® cotton and Design ©2015 Monsanto Company.

DO NOT APPLY DICAMBA HERBICIDE IN-CROP TO Bollgard II XtendFlex Cotton in 2016 unless a dicamba herbicide product is approved that is specifically labeled for that use in the location where you intend to make the application. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Bollgard II XtendFlex Cotton.

IT IS A VIOLATION OF FEDERAL AND STATE LAW TO MAKE AN IN-CROP APPLICATION OF ANY DICAMBA HERBICIDE PRODUCT ON BOLLGARD II XTENDFLEX COTTON UNLESS THE PRODUCT LABELING SPECIFICALLY AUTHORIZES THAT USE.

Legals as of January 1, 2016