DELTAPINE® CLASS OF '19 COTTON VARIETIES

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Abstract

DP 1948 B3XF, DP 1908 B3XF, and DP 1916 B3XF, are Bollgard® 3 XtendFlex® cotton varieties and DP 1909 XF is a XtendFlex® cotton variety, all of which were released for the Deltapine® Class of '19. These cotton varieties are described for plant characteristics, disease tolerance, fiber quality, yield potential, management recommendations and regional fit.

Introduction

For the 2019 growing season, Deltapine® brand is introducing four new cotton varieties ranging from mid-full maturing cotton varieties ideal for Texas regions to very early to early maturing cotton varieties ideal for Northern High Plains/Panhandle Texas even Kansas and Oklahoma. These cotton varieties all offer high yield potential and excellent fiber quality. Several of the newly introduced varieties offer bacterial blight resistance.

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Materials and Methods

The data describing Deltapine cotton varieties (along with internal and competitive check varieties) was obtained from the following sources: Bayer breeder trials, Bayer on-farm trials, and University trials. Plant growth, fruiting, and maturity comparisons were made by plant mapping a subset of the Bayer on-farm trials when approximately 50% of the bolls were open. All available yield, fiber quality, and plant mapping data were queried in December 2018 to develop each data table for these analyses. The rating for plant mapping data (vigor score, fall out and string out rating): 1=Excellent; 9 = Poor.

Results and Discussion

DP 1948 B3XF

DP 1948 B3XF is a mid-full-maturing cotton variety with high yield potential. This variety is a best fit for dryland and limited irrigation acres. 1948 B3XF has semi-smooth leaf pubescence that is a best fit adopted to the Southern and Central Texas, Rolling Plains and the Southern High Plains.

DP 1948 B3XF vs. DP 1646 B2XF Plant Mapping Comparisons

The growth and fruiting characteristics of DP 1948 B3XF, as measured by end-of-season plant mapping, are summarized in Table 1. The growth and fruiting variables of DP 1948 B3XF are similar to DP 1646 B2XF in Texas data trials. DP 1949 B3XF matures slightly later when compared to DP 1646 B2XF. DP 1948 B3XF has a tighter string out rating and fall out rating than compared to DP 1646 B2XF. The vigor rating of DP 1948 B3XF is similar to slightly better than compare to DP 1646 B2XF.

Table 1. Plant mapping comparison of DP 1948 B3XF vs. DP 1646 B2XF in Bayer Trials (2017 -2018) in Texas only PCM4 sites.

	N=	DP 1948 B3XF	DP 1646 B2XF
Vigor Rating	55	3.5	3.6
Plant Height (inches)	55	31.8	32.5
Total Nodes	55	20.7	20.1
Fruiting Nodes	55	10.5	10.7
% Est Open	55	55.7	62.0
Node of First Fruiting Branch	55	7.1	6.6
DD60 to 100% open	55	237.8	198.5
Fall Out Rating	30	2.5	3.2
String Out Rating	30	3.0	4.1

DP 1948 B3XF Yield and Fiber Quality

DP 1948 B3XF was compared to DP 1646 B2XF in testing conducted in the South and East Texas, Rolling Plains, Southern High Plains and Tran-Pecos region. DP 1948 B3XF showed improvements over DP 1646 B2XF in length (increase of 0.01 inches), fiber strength (increase of 1.67 g/tex), and uniformity index (increase of 0.65) (Table 2).

Table 2. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1948 B3XF and DP 1646 B2XF in the South and East Texas, Rolling Plains, Southern High Plains and Tran-Pecos region, 2016-2018.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1948 B3XF	1,426	40.0	1.22	4.15	31.2	82.51
DP 1646 B2XF	1,450	41.2	1.21	4.27	29.5	81.86
Significance	+	**	**	**	**	**
Observations	160	180	158	159	155	157
Years	3	3	3	3	3	3
% Wins	41	23	79	67	90	77

Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels.
Data Source: South and East Texas, Rolling Plains, Southern High Plains and Tran-Pecos region 2016-2018 – all data sources: TechDev and Breeding PCM4, NPE, and University.

DP 1908 B3XF

DP 1908 B3XF is a very early to early maturing cotton variety with excellent yield potential that is adopted to the Northern High Plains and Panhandle of Texas. DP 1908 B3XF has smooth leaf pubescence with an open boll type. DP 1908 B3XF has above-average emergence. DP 1908 B3XF has excellent fiber length and good fiber strength with resistance to bacterial blight.

DP 1908 B3XF vs. DP 1612 B2XF Plant Mapping Comparisons

The growth and fruiting characteristics of DP 1908 B3XF, as measured by end-of-season plant mapping, are summarized in Table 3. The growth and fruiting variables of DP 1908 B3XF are similar to DP 1612 B2XF in Texas data trials. DP 1908 B3XF requires slightly more heat units to achieve 100% open boll when compared to DP 1612 B2XF. DP 1908 B3XF has a taller plant height and increased total node and increase of nodes of first fruiting branch when compared to DP 1612 B2XF. DP 1908 B3XF has improved string out and fall out rating when compared to DP 1612 B2XF.

Table 3. Plant mapping comparison of DP 1908 B3XF vs. DP 1612 B2XF in Bayer Trials (2017-2018) 2-year summary, Texas only PCM4 sites.

	N=	DP 1908 B3XF	DP 1612 B2XF
Vigor Rating	55	4.0	2.6
Plant Height (inches)	55	30.4	28.8
Total Nodes	55	20.6	18.8
NUHB	55	16.5	15.3
% Est Open	55	72.0	75.0
Node of First Fruiting Branch	55	6.7	6.1
DD60 to 100% open	55	160	143
Fall Out Rating	30	2.7	3.2
String Out Rating	30	3.3	4.1

DP 1908 B3XF Yield and Fiber Quality

DP 1908 B3XF was compared to DP 1612 B2XF in testing conducted in Texas Northern High Plains, Texas Panhandle, Oklahoma, and Kansas. DP 1908 B3XF showed improvements over DP 1612 B2XF in lint yield (increase of 5 lbs. lint/acre), lint % (increase of 0.77), fiber length (increase of 0.03 inches), fiber strength (increase of 1 g/tex), and uniformity (increase of 0.24) (Table 4).

Table 4. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1908 B3XF and DP 1612 B2XF in Texas Northern High Plains, Texas Panhandle, Oklahoma and Kansas 2016-2018.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1908 B3XF	1,162	36.6	1.20	3.42	31.6	82.58
DP 1612 B2XF	1,157	35.9	1.17	3.45	30.6	82.34
Significance		+	**		*	
Observations	20	20	16	16	16	16
Years	3	3	2	2	2	2
% Wins	40	63	94	53	81	57

Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels.
Data Source: Texas Northern High Plains, Texas Panhandle, Oklahoma and Kansas 2016-2018 – all data sources: TechDev and Breeding PCM4, NPE, and University.

DP 1909 XF

DP 1909 XF is a very early to early maturing cotton variety with excellent yield potential that is adopted to the Northern High Plains, Panhandle of Texas, Oklahoma and Kansas. DP 1909 XF has smooth leaf pubescence with an open boll type. 1909 XF has excellent fiber quality, good seed size, and is also resistant to bacterial blight.

DP 1909 XF and DP 1612 B2XF Plant Mapping Comparisons

The growth and fruiting characteristics of DP 1909 XF, as measured by end-of-season plant mapping, are summarized in Table 5. The growth and fruiting variables of DP 1909 XF are similar to DP 1612 B2XF in Texas data trials. DP 1909 XF requires slightly more heat units to achieve 100% open boll when compared to DP 1612 B2XF. DP 1909 XF has taller plant height and increased total node when compared to DP 1612 B2XF. DP 1909 XF has a lower fall out rating when compared to DP 1612 B2XF.

Table 5. Plant mapping comparison of DP 1909 XF vs. DP 1612 B2XF in Bayer Trials (2017-2018) 2-year summary, Texas only PCM4 sites.

	N=	DP 1909 XF	DP 1612 B2XF
Vigor Rating	55	3.5	2.6
Plant Height (inches)	55	31.5	28.8
Total Nodes	55	20.6	18.8
NUHB	55	13.1	12.5
% Est Open	55	67	67
Node of First Fruiting Branch	55	6.6	6.1
DD60 to 100% open	55	146	143
Fall Out Rating	30	3.1	3.2
String Out Rating	30	4.4	4.1

DP 1909 XF was compared to DP 1612 B2XF in testing conducted in Texas Northern High Plains, Texas Panhandle, Oklahoma, and Kansas. DP 1909 XF showed improvements over DP 1612 B2XF in lint yield (increase of 32 lbs. lint/acre), lint % (increase of 1.43) fiber length (increase of 0.02 inches), micronaire (increase of 0.12), fiber strength (increase of 0.73 g/tex), and uniformity (increase of 0.53) (Table 6).

Table 6. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1909 XF and DP 1612 B2XF in Texas Northern High Plains, Texas Panhandle, Oklahoma, and Kansas, 2016-2018.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1909 XF	1,224	37.2	1.20	3.62	31.5	82.95
DP 1612 B2XF	1,193	35.8	1.18	3.50	30.8	82.41
Significance		*	*	+		*
Observations	17	17	14	14	14	14
Years	2	2	2	2	2	2
% Wins	41	81	79	36	57	71

Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels.
Data Source: Texas Northern High Plains, Texas Panhandle, Oklahoma, and Kansas 2017 – all data sources: TechDev and Breeding PCM4, NPE, and University.

DP 1916 B3XF

DP 1916 B3XF is an early maturing cotton variety with good vigor, seed size, and yield potential. DP 1916 B3XF has smooth leaf pubescence with an open boll type. DP 1916 B3XF is best fit for the Upper Midsouth and the Upper Southeast markets.

DP 1916 B3XF, DP 1518 B2XF, and DP 1820 B3XF Plant Mapping Comparisons

The growth and fruiting characteristics of DP 1916 B3XF compared to DP 1518 B2XF and DP 1820 B3XF, as measured by end-of-season plant mapping, are summarized in Table 7. The growth and fruiting variables of DP 1916 B3XF are similar to DP 1518 B2XF and DP 1820 B3XF in Midsouth and Southeast data trials. DP 1916 B3XF requires fewer heat units to 100% open boll and has a slightly shorter plant height than DP 1518 B2XF and DP 1820 B3XF.

Table 7. Plant mapping comparison of DP 1916 B3XF vs. DP 1518 B2XF and DP 1820 B3XF in Bayer Trials (2017-2018) in Midsouth and Southeast PCM4 sites.

	N=	DP 1916 B3XF	DP 1518 B2XF	DP 1820 B2XF
Vigor Rating	61	4.2	3.3	3.6
Plant Height (inches)	61	37.4	41.1	39.6
Total Nodes	61	18.7	20.5	21.2
Number of Fruiting Nodes	61	9.9	11.8	11.2
% Est Open	61	62.2	59.8	64.3
Node of First Fruiting Branch	61	5.6	6.0	6.8
DD60 to 100% open	61	201.7	245.3	214.6
Fall Out Rating	33	2.3	2.1	1.7
String Out Rating	33	2.8	2.9	2.3

DP 1916 B3XF was compared to DP 1518 B2XF in testing conducted across the Midsouth and Upper Southeast (Carolina) regions, 2016-2018. DP 1916 B3XF showed improvements over DP 1518 B2XF in lint yield (increase of 63 lbs lint/acre), lint percent (increase of 2.65), fiber strength (increase of 2.78 g/tex), and uniformity index (increase of 0.33) (Table 8).

Table 8. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1916 B3XF and DP 1518 B2XF across the Midsouth and Upper Southeast regions 2016-2018.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1916 B3XF	1,387	41.8	1.19	4.50	32.5	83.45
DP 1518 B2XF	1,324	39.1	1.19	4.06	29.7	83.12
Significance	*	**		**	**	*
Observations	65	68	40	45	47	47
Years	3	3	3	3	3	3
% Wins	62	99	50	9	100	53

Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels.
Data Source: Midsouth and Upper Southeast (Carolina) regions 2016-2018 – all data sources: Tech Dev and Breeding PCM4, NPE, and University.

DP 1916 B3XF was compared to DP 1725 B2XF in testing conducted across the Midsouth and Upper Southeast regions 2016-2018. DP 1916 B3XF showed improvements over DP 1725 B2XF in fiber length (increase of 0.02 inches), micronaire (increase of 0.18), fiber strength (increase of 2.66 g/tex), and uniformity index (increase of 1.18) (Table 9).

Table 9. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1916 B3XF and DP 1725 B2XF across the Midsouth and Upper Southeast regions. 2016-2018.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1916 B3XF	1,331	41.6	1.19	4.45	32.1	83.22
DP 1725 B2XF	1,345	43.0	1.17	4.27	29.4	82.04
Significance		**	**	*	**	**
Observations	51	54	31	33	33	33
Years	2	2	2	2	2	2
% Wins	49	10	80	30	100	88

Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels.
Data Source: Midsouth and Upper Southeast (Carolina) regions 2016-2018 – all data sources: TechDev and Breeding PCM4, NPE, and University.

DP 1916 B3XF was compared to DP 1835 B3XF in testing conducted across the Midsouth and Upper Southeast regions 2016-2018. DP 1916 B3XF showed improvements over DP 1835 B3XF in lint yield (increase of 60 lbs lint/acre), micronaire (increase of 0.18), fiber strength (increase of 1.53 g/tex), and uniformity index (increase of 0.69) (Table 9).

Table 9. Lint yield, lint %, fiber length, micronaire, fiber strength, and uniformity index comparisons of DP 1916 B3XF and DP 1835 B3XF across the Midsouth and Upper Southeast regions 2016-2018.

Variety	Lint Yield (lb/acre)	Lint %	Fiber Length	Micronaire	Fiber Strength (g/tex)	Uniformity Index
DP 1916 B3XF	1,300	41.4	1.18	4.46	31.9	83.06
DP 1835 B3XF	1,239	43.0	1.19	4.28	30.4	82.36
Significance	+	**		*	**	**
Observations	46	47	25	27	27	27
Years	2	2	2	2	2	2
% Wins	61	9	44	33	85	74

Significance levels denoted by + = 0.1; * = 0.05; ** = 0.01 alpha error levels.
Data Source: Midsouth and Upper Southeast (Carolina) regions 2016-2018 – all data sources: TechDev and Breeding PCM4, NPE, and University.

Summary

DP 1948 B3XF, DP 1908 B3XF, and DP 1916 B3XF, are Bollgard XtendFlex cotton varieties and DP 1909 XF is a XtendFlex cotton variety all of which were released for the Deltapine Class of '19. These cotton varieties are described for plant characteristics, disease tolerance, fiber quality, yield potential, management recommendations and regional fit.

DP 1948 B3XF is a mid-full maturing cotton variety with high yield potential and good fiber quality on moderate to tough acres It has excellent fiber length and fiber strength potential. This variety provides moderate resistance to bacterial blight and is best fit to the to the Southern and Central Texas, Rolling Plains and the Southern High Plains. It is a Bollgard 3 XtendFlex companion product to DP 1646 B2XF.

DP 1908 B3XF is a very early to early maturing cotton variety with excellent yield potential that is adopted to the Northern High Plains and Panhandle of Texas, Oklahoma, and Kansas regions. It is a companion product option to DP 1612 B2XF. It has above-average emergence with an open boll type. DP 1908 B3XF has excellent fiber length and good fiber strength and is also resistant to bacterial blight and slightly improved verticillium wilt tolerance.

DP 1909 XF is a very early to early maturing cotton variety that is adopted to the Northern High Plains, Panhandle

of Texas, Oklahoma, and Kansas regions. 1909 XF has excellent fiber quality, good seed size, and is also resistant to bacterial blight. This product is an XtendFlex cotton variety option for limited to better water acres.

DP 1916 B3XF is an early maturing cotton variety with good vigor, seed size, and yield potential. This variety is an excellent companion product or can be used to replace early- or early-mid Genuity® Bollgard® II varieties. DP 1916 B3XF requires timely defoliation to manage micronaire ratings. DP 1916 B3XF is best fit for Upper Midsouth and Upper Southeast markets.