



2014 Regulated XtendFlex™ Germplasm Trials

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Two regulated XtendFlex™ germplasm evaluation trials were conducted in 2014. These included XtendFlex technology (which includes Monsanto's dicamba tolerance trait) germplasm lines from Monsanto/Deltapine and Americot/NexGen. Monsanto's XtendFlex™ cotton trait imparts tolerance to dicamba, glyphosate and glufosinate herbicides. The DGT trait was only just recently deregulated. It is assumed that several varieties will be available for sale to producers in 2015. The objective of this study was to evaluate the performance of several germplasm lines containing the XtendFlex™ trait compared to current standard entries. **In 2014, two separate regulated trials (Monsanto/Deltapine and Americot/NexGen) were established under center pivot irrigation at the Caddo Research Station near Fort Cobb.** The site is classified as a Binger fine sandy loam, 1 to 3 percent slopes. Four replicates of entries were used in both trials. Plot size was two 36-inch rows by 30 ft in length. **Both trials were managed in a Roundup Ready Flex® herbicide system, thus no dicamba was applied.** Harvested area was two rows by plot length and harvesting was accomplished using a modified John Deere 482 plot stripper. At harvest, samples were taken from each plot. These samples were used to determine lint turnout for each plot and were used to convert plot bur cotton weights to lint per acre. Lint from these samples was submitted to the Texas Tech University Fiber and Biopolymer Research Institute to obtain HVI data. Loan value was determined using the Cotton Incorporated 2014 Upland Cotton Loan Valuation Model.

Site information and cultural practices for XtendFlex Trials at the Caddo Research Station, Fort Cobb, OK, 2014.

Month	Precipitation	Irrigation	Total
	----- Inches -----		
May	5.38	—	5.38
June	5.43	0.75	6.18
July	2.22	3.00	5.22
August	1.61	4.00	5.61
September	1.30	3.00	4.30
Total	15.94	10.75	26.69

20-May	Applied 500 lb/acre of 32-10-10 = 160-50-50 lb nutrients/acre
2-Jun	Planted no-till into standing terminated wheat cover @ 4 seed/row-ft in 36 inch rows = 58,080 seed/acre using JD MaxEmerge planter with Kincaid cone units
4-Jun	Prowl H2O @ 1qt/acre + Roundup PowerMax @ 1 qt/acre
19-Jun	Roundup PowerMax @ 1 qt/acre
8-Jul	Mepiquat chloride @ 8 oz/acre + Vydate @ 6oz/acre + Roundup PowerMax @ 1 qt/acre
21-Jul	Mepiquat chloride @ 8 oz/acre + Vydate @ 6oz/acre + Roundup PowerMax @ 1qt/acre
7-Aug	Mepiquat chloride @ 8 oz/acre + Roundup PowerMax @ 1qt/acre
15-Oct	Plant observation data collected
24-Oct	Ginstar @ 12 oz/acre + Bollbuster @ 42 oz/acre
24-Nov	Harvested using JD 482 plot stripper

Monsanto/Deltapine trial results (Table 1) indicate that when comparing lint yield and fiber properties, the B2XF entries were very competitive with standard entries. For lint yield, 4 of the 6 entries in the upper statistical tier of significance were B2XF types. One Monsanto B2XF entry (DP 1518B2XF) produced higher yields than standard types such as DP 1044B2RF and FM 1944GLB2.

Americot/NexGen results (Table 2) show that 3 of 4 entries in the first statistical tier of significance were B2XF germplasm. The NG 1511B2RF entry has exhibited excellent yield stability for several years in our area and 3 entries statistically produced the same yield at this site. Fiber quality results for indicate that the XtendFlex germplasm lines are very competitive or superior to current Bollgard II Roundup Read Flex varieties.

Results from these trials conducted simultaneously at one site indicate that at first glance, the B2XF and XF entries evaluated are highly competitive with currently planted standard entries. In 2015, as XtendFlex™ technology gets planted widely better information will become available. Additional multi-site and multi-year research is needed to evaluate the new varieties across a series of environments.

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Table 1. Harvest results from the irrigated Monsanto/Deltapine XtendFlex Germplasm Trial, Fort Cobb, OK, 2014.

Entry designation	Stand	Lint yield	Lint loan value	Final plant height	Node of first fruiting branch	Total mainstem nodes	Nodes above cracked boll	Micronaire	Length	Staple	Strength	Uniformity
	1,000 plants/acre	lb/acre	\$/lb	inches	-----	number	-----	units	inches	32nds inch	g/tex	%
DP 1518B2XF*	44.3	2041	0.5440	35.0	6.6	20.2	5.1	3.9	1.18	37.9	31.8	82.9
DP 1522B2XF*	47.0	1980	0.5453	33.4	6.5	19.4	5.2	4.1	1.19	38.0	34.2	83.3
DP 0912B2RF	44.3	1960	0.5434	30.9	6.8	18.2	4.4	4.5	1.14	36.3	33.1	83.5
ST 4946GLB2	45.3	1935	0.5458	33.7	7.0	18.7	4.3	4.1	1.18	37.5	33.9	84.0
14R935B2XF	42.0	1914	0.5406	32.8	6.3	17.2	4.3	4.5	1.12	35.9	33.9	82.6
DP 1549B2XF*	43.8	1907	0.5444	35.1	6.7	19.8	4.9	3.9	1.18	37.8	34.2	82.9
DP 1553B2XF*	37.5	1884	0.5444	34.4	6.0	17.9	3.7	4.1	1.20	38.4	33.8	83.4
DP 1044B2RF	42.8	1840	0.5435	30.8	6.5	18.2	4.4	3.9	1.16	37.0	34.3	83.3
14R960B2XF	37.5	1738	0.5403	36.0	6.3	18.9	6.3	3.7	1.21	38.5	35.4	83.4
14R934B2XF	44.8	1666	0.5451	33.4	6.4	17.7	5.3	4.2	1.18	37.7	34.6	83.6
FM 1944GLB2	43.5	1649	0.5443	31.2	7.2	18.1	3.6	4.2	1.19	38.0	33.6	83.2
Test average	43.0	1865	0.5437	33.3	6.5	18.5	4.7	4.1	1.17	37.5	33.9	83.3
CV, %	8.9	5.6	0.6	4.3	6.7	5.6	23.6	5.3	1.6	1.6	4.4	0.8
OSL	0.0289	<0.0001	0.3703	<0.0001	0.0410	0.0064	0.0677	<0.0001	<0.0001	<0.0001	0.1759	0.3214
LSD	5.5	151	NS	2.0	0.6	1.5	1.3 [†]	0.3	0.03	0.9	NS	NS

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, [†] indicates significance at the 0.10 level, NS - not significant.

Color grades set to 41, leaf grades set to 4 for entire trial.

* - indicates potential 2015 release.

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Table 2. Harvest results from the irrigated Americot/NexGen XtendFlex Germplasm Trial, Fort Cobb, OK, 2014.

Entry designation	Stand	Lint yield	Lint loan value	Final plant height	Node of first fruiting branch	Total mainstem nodes	Nodes above cracked boll	Micronaire	Length	Staple	Strength	Uniformity
	1,000 plants/acre	lb/acre	\$/lb	inches	-----	number	-----	units	inches	32nds inch	g/tex	%
NG 1511B2RF	39.4	2090	0.5094	34.2	6.5	18.9	3.4	5.3	1.18	37.9	34.5	84.1
NG 3405B2XF*	48.9	2062	0.5328	32.1	6.3	17.5	4.9	4.7	1.14	36.4	29.5	83.2
NG 3406B2XF*	46.0	1972	0.5198	29.5	6.3	17.5	3.9	5.1	1.17	37.4	32.4	83.9
NG 5007B2XF*	48.2	1971	0.5341	33.6	6.3	17.1	4.0	4.9	1.17	37.5	29.9	83.3
AMDG 3 XF	46.9	1913	0.5221	36.3	6.6	21.3	4.5	5.1	1.13	36.2	34.4	83.8
AMDG 2 B2XF	53.1	1908	0.5189	35.6	7.1	20.2	3.6	5.0	1.13	36.0	34.1	83.9
NG 5315B2RF	37.9	1882	0.5375	33.7	5.9	17.8	3.7	4.8	1.19	37.9	32.1	84.4
AMX 4350B2RF	41.3	1828	0.5231	32.2	6.6	18.7	3.5	5.0	1.15	36.7	30.3	83.0
AMDG 1 B2XF	56.3	1727	0.5254	34.9	6.8	19.8	3.0	5.0	1.17	37.4	33.0	82.6
AMDG 4 B2XF	45.7	1716	0.5358	33.5	6.7	18.7	3.2	4.7	1.16	37.2	31.2	83.4
NG 4111RF	38.3	1669	0.5356	33.8	6.6	20.2	2.1	4.8	1.13	36.2	34.0	83.2
NG 4010B2RF	36.4	1640	0.5151	34.0	6.7	20.1	3.1	5.1	1.17	37.3	35.0	83.9
NG 4012B2RF	37.7	1593	0.5270	34.5	7.0	20.2	4.3	4.8	1.17	37.5	34.1	83.8
NG 3348B2RF	39.4	1474	0.5360	30.4	6.5	18.5	2.6	4.8	1.14	36.6	32.9	83.4
Test average	44.0	1817	0.5266	33.4	6.5	19.0	3.5	4.9	1.16	37.0	32.6	83.5
CV, %	8.2	6.7	2.7	5.2	6.4	5.3	30.0	5.2	1.7	1.7	3.6	1.2
OSL	<0.0001	<0.0001	0.1501	<0.0001	0.0283	<0.0001	0.0472	0.0945	0.0002	0.0002	<0.0001	0.5087
LSD	5.2	174	NS	2.5	0.1	1.5	1.5	0.3 [†]	0.03	0.9	1.7	NS

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