

# 2014 Evaluation of Non-Irrigated Mid- to Full-Season Maturing Cotton Varieties, Jay, Florida

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This report includes the summary of the 2014 mid- to full-season cotton replicated variety trial at West Florida Research and Education Center, Jay, Florida. It shows the performance of 27 mid- to full season maturing cotton varieties. This data represents only one year, results should be considered over several locations and years before conclusions are valid.

## Varieties that were evaluated:

1. NexGen NG 1511 B2RF
2. NexGen NG 5315 B2RF
3. CROPLAN 3787 B2RF
4. Deltapine DP 1252 B2RF
5. Deltapine DP 1137 B2RF
6. Deltapine DP 1050 B2RF
7. MON 13R352 B2R2
8. Deltapine DP 1454 NR B2RF
9. Phytogen PHY499 WRF
10. Phytogen PHY333 WRF
11. Phytogen PX4444-13WRF
12. Phytogen PX3003-10WRF
13. Phytogen PX3122b-51 WRF
14. Phytogen PHY575 WRF
15. Phytogen PX5540-10 WRF
16. Phytogen PX5540-57 WRF
17. Phytogen PX5540-63 WRF
18. Phytogen PHY495 WRF
19. Dyna-Gro CT13464
20. Dyna-Gro 2610 B2RF
21. Stoneville ST 4747 GLB2
22. Stoneville ST 4946 GLB2
23. Stoneville ST 6448 GLB2
24. Stoneville ST 5298 GLT
25. Stoneville ST 5032 GLT
26. BX 1535 GLT
27. BX 1536 GLT

## 2014 Growing Conditions and Experimental Design:

The study area soil type was a Dothan sandy loam with 2% organic matter and pH 6.5 and a history of corn production during 2013. Fertilizer was applied according to soil test results (350 lb/A 18.8-3.6-14.5 with 8.6% S applied 7 July). Each cotton variety was planted on 6 June under strip tillage. Plots were four, 25-ft rows with 36-in. row spacing and replicated in four randomized complete blocks. Standard production practices for non-irrigated cotton production were followed throughout the season.

Pendimethalin (Stealth, Loveland Products) 1.8 pt/A + Roundup 26 oz/A was applied on 6 June for burndown and preemergence weed control. Dual at 1.3 pt/A + Roundup at 26 oz/A were applied 27 June. Sherpa insecticide was applied at 8 oz/A 30 July and 11 August. Headline fungicide was applied at 9 oz/A 31 July. Growth regulator Potenza was applied 1 pt/A on 30 July and on 11 August. Cotton was harvested with a conventional spindle picker on 3 November and samples were sent to a commercial lab for fiber analysis.

Rainfall in June, August October and November was 2.13, 1.58, 0.15 and 2.31 in. below normal, respectively; rainfall in July and September was 0.65 and 0.32 in. above normal, respectively. Rainfall during the cotton growing season totaled 28.96 in., which was 7.24 in. below normal. Weather data was obtained from Florida Automated Weather Network (FAWN) station located on Jay research farm and normal represents the mean for the past 54 years of records (Table 1).

**Table 1. Weather conditions during 2014 cotton trial.**

Month	Total Rainfall (in)	Average minimum air temperature (°F)	Average maximum air temperature (°F)
June	5.27 (2.13 below normal)	66.6	94.4
July	8.70 (0.65 above normal)	62.1	94.9
August	4.94 (1.58 below normal)	66.9	96.0
September	4.11 (0.32 above normal)	57.4	92.5
October	4.05 (0.15 below normal)	42.6	87.9
November	1.89 (2.31 below normal)	22.3	78.9

## Summary

Stand count for all varieties ranged from 2.4 to 3.8 plants/ft (35,000 to 55,600 plants/A) (Table 2). All varieties except NG 5315, PHY339, MON13R352 and BX 15335 had plant populations higher than 40,000 plants/A.

Cotton plant height on 25 August ranged from 37 to 46 inches with PHY499 the tallest and ST 5032 the shortest (Table 2). There were only small differences in flower number among varieties when evaluated on 25 August and values ranged from 1.3 to 2.3 flowers/plant (Table 2). The number of open bolls on 9 September ranged from 1 for MON13R352, DP 1454 and BX 1535 to 25 for BX 1536 and 26 for NG 1511 and PHY333 with most varieties ranging from 5 to 15 open bolls (Table 3). Gin turnout ranged from 42 to 47.5% with most varieties having GTO above 45% (Table 3). Yields ranged from 1636 to 2062 lb lint/A (Table 3). The six mid- to full-season varieties that yielded more than 1900 lb lint/A (highest to lowest) were PX5540-63, ST 4747, PX5540-57, PX4444-13, MON13R352, and PHY499. The six highest lint value/A (which included premiums and discounts for fiber quality) were (highest to lowest) MON13R352, PX4444-13, ST 4747, PX5540-63, DP 1050, and PHY499 (Table 4).

**Table 2. Effect of variety on emergence, growth and flower number in cotton.**

Variety	Plants/ft <sup>1</sup> (26 June)	Plants/A <sup>1</sup> (26 June)	Height <sup>3</sup> (in) (25 August)	Flowers/ plant <sup>3</sup> (25 August)
NG 1511 B2RF	2.8 fgh	40583 fgh	40.5 c-f	2.0 a-d
NG 5315 B2RF	2.4 h	34848 h	39.9 def	1.9 a-d
CROPLAN 3787 B2RF	3.4 a-d	49441 a-d	41.7 b-e	1.6 b-f
DP 1252 B2RF	3.2 b-f	46609 b-f	40.5 c-f	1.6 b-f
DP 1137 B2RF	3.5 abc	50457 abc	44.4 ab	1.5 def
DP 1050 B2RF	3.4 a-d	49441 a-d	40.9 b-f	1.6 b-f
MON 13R352B2R2	2.7 gh	39349 gh	39.1 ef	2.1 ab
DP 1454 NR B2RF	3.3 b-e	47916 b-e	42.8 a-e	1.4 ef
PHY499WRF	3.5 abc	50675 abc	45.8 a	1.4 ef
PHY333WRF	3.1 b-g	45157 b-g	43.4 a-d	2.3 a
PX4444-13WRF	3.5 abc	50965 abc	39.9 def	1.7 b-f
PX3003-10WRF	3.3 a-e	48569 a-e	42.5 a-e	2.1 ab
PX3122b-51WRF	3.5 ab	51256 ab	43.8 abc	1.7 b-f
PHY575WRF	3.6 ab	51619 ab	42.4 a-e	1.7 b-f
PX5540-10WRF	2.8 gh	39930 gh	44.5 ab	1.8 b-f
PX5540-57WRF	3.3 b-e	47553 b-e	41.7 b-e	2.1 ab
PX5540-63WRF	2.9 efg	42326 efg	40.3 e-f	2.0 abc
PHY495WRF	3.4 a-d	49876 a-d	42.6 a-e	1.6 b-f
Dyna-Gro CT13464	3.3 b-e	47408 b-e	40.5 c-f	1.8 b-f
Dyna-Gro 2610 B2RF	3.4 a-d	49295 a-d	40.2 c-f	1.3 ef
ST 4747GLB2	3.4 a-d	49658 a-d	39.3 ef	1.5 def
ST 4946GLB2	3.4 a-d	49586 a-d	39.8 def	1.3 ef
ST 6448GLB2	3.0 d-g	43342 d-g	41.1 b-f	2.1 ab
ST 5289GLT	3.1 c-g	44431 c-g	40.0 c-f	1.8 b-f
ST 5032GLT	3.4 a-d	49295 a-d	37.3 f	1.9 a-d
BX 1535GLT	3.8 a	54958 a	40.7 b-f	1.8 b-f
BX 1536GLT	2.9 efg	42035 efg	41.4b-e	2.1 ab
<i>Mean</i>	<i>3.2</i>	<i>46910</i>	<i>41.4</i>	<i>1.75</i>
<i>LSD</i>	<i>0.5</i>	<i>6628</i>	<i>3.8</i>	<i>0.5</i>
<i>CV</i>	<i>10.0</i>	<i>10.0</i>	<i>6.6</i>	<i>19.5</i>
<i>P(F)</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.001</i>	<i>0.001</i>

<sup>1</sup> Determined from counts of two, 25-ft rows per plot. Final count taken on 27 Jul after replant from deer damage.

<sup>2</sup> Deer damage caused dead plants that were observed on 28 May.

<sup>3</sup> Height and flower number determined by averaging measurements from ten plants per plot.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD ( $P=0.05$ ), except for height means separated at  $\alpha=0.10$ .

**Table 3. Effect of variety on yield of cotton.**

Variety	Open bolls <sup>y</sup> (23 September)	Yield			
		lb/A <sup>w</sup>	GTO <sup>x</sup>	Lint/A <sup>y</sup>	Bales/A <sup>z</sup>
NG 1511 B2RF	26 a	3748 def	45.6 cde	1711 d-i	3.56 d-i
NG 5315 B2RF	5 d-h	3774 def	45.2 def	1706 e-i	3.55 e-i
CROPLAN 3787 B2RF	10 c-h	3772 def	46.0 bcd	1734 b-i	3.61 b-i
DP 1252 B2RF	4 fgh	3692 def	46.9 ab	1726 c-i	3.60 c-i
DP 1137 B2RF	9 c-h	4140 a-e	44.5 efg	1842 a-g	3.84 a-g
DP 1050 B2RF	6 d-h	3966 b-f	46.4 abc	1841 a-g	3.84 a-g
MON 13R352B2R2	1 h	4094 a-e	47.5 a	1944 a-e	4.05 a-e
DP 1454 NR B2RF	1 h	3557 f	45.9 bcd	1636 ghi	3.41 ghi
PHY499WRF	11 c-f	4157 a-d	46.1 bcd	1916 a-f	3.99 a-f
PHY333WRF	26 a	4074 a-f	43.4 ghi	1767 b-i	3.68 b-i
PX4444-13WRF	3 fgh	4221 a-d	46.2 bcd	1951 a-d	4.06 a-d
PX3003-10WRF	10 c-h	4151 a-d	45.3 c-f	1877 a-f	3.91 a-f
PX3122b-51WRF	15 bcd	4008 a-f	45.1 def	1810 b-h	3.77 b-h
PHY575WRF	6 c-h	4066 a-f	42.5 g	1729 b-i	3.60 b-i
PX5540-10WRF	13 b-e	3731 def	46.4 abc	1730 b-i	3.60 b-i
PX5540-57WRF	9 c-h	4339 abc	45.2 def	1960 abc	4.08 abc
PX5540-63WRF	10 c-h	4393 ab	46.9 ab	2062 a	4.30 a
PHY495WRF	16 bc	4014 a-f	46.2 bcd	1854 a-g	3.86 a-g
Dyna-Gro CT13464	12 b-f	3927 b-f	42.9 g	1683 f-i	3.51 f-i
Dyna-Gro 2610 B2RF	12 b-f	3876 b-f	45.4 cde	1762 b-i	3.67 b-i
ST 4747GLB2	7 c-h	4512 a	43.7 ghi	1969 ab	4.10 ab
ST 4946GLB2	10 c-h	3903 b-f	43.1 hij	1683 f-i	3.51 f-i
ST 6448GLB2	5 e-h	3876 b-f	43.7 ghi	1691 f-i	3.52 f-i
ST 5289GLT	21 ab	3961 b-f	44.4 efg	1760 b-i	3.67 b-i
ST 5032GLT	5 d-h	3731 def	42.1 j	1568 i	3.27 i
BX 1535GLT	1 h	3818 c-f	42.8 g	1636 ghi	3.41 ghi
BX 1536GLT	25 a	3607 ef	44.2 fgh	1593 hi	3.32 hi
<i>Mean</i>	<i>10.1</i>	<i>3967</i>	<i>45.0</i>	<i>1783</i>	<i>3.71</i>
<i>LSD</i>	<i>9.7</i>	<i>536</i>	<i>1.2</i>	<i>241</i>	<i>0.50</i>
<i>CV</i>	<i>67</i>	<i>9.6</i>	<i>1.9</i>	<i>9.6</i>	<i>9.6</i>
<i>P(F)</i>	<i>0.0001</i>	<i>0.067</i>	<i>0.0001</i>	<i>0.0045</i>	<i>0.0045</i>

<sup>y</sup> Determined from counts in a 5-ft section of each row per plot.

<sup>w</sup> Weight (lb/A) includes lint + seed.

<sup>x</sup> GTO = gin turn out lint/seed cotton.

<sup>y</sup> Weight of lint (lb/A).

<sup>z</sup> Bales/A are weight of lint only at 480 lb/bale

Plots were harvested on 4 Nov. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD ( $P=0.05$ ).

**Table 4. Effect of variety on cotton fiber quality and value.**

Variety	Mic <sup>u</sup>	Fiber length <sup>v</sup> (in.)	Fiber strength <sup>w</sup> (g/tex)	Uniformity <sup>x</sup> (%)	HVI color <sup>y</sup>	Leaf grade <sup>z</sup>	Net loan price (¢/lb)	Lint value (\$/A)
NG 1511 B2RF	4.8 ab	1.12 hi	30.8 e-i	83.1 def	51-1	5.8 a-e	50.80	870
NG 5315 B2RF	4.7 ab	1.16 d-g	31.0 d-i	84.0 a-f	41-1	5.0 c-h	54.95	936
CROPLAN 3787 B2RF	4.8 ab	1.17 c-f	29.9 hi	84.2 a-d	41-1	4.0 ghi	54.60	948
DP 1252 B2RF	4.8 ab	1.14 f-i	30.1 ghi	83.9 a-f	41-1	4.0 ghi	54.70	948
DP 1137 B2RF	4.7 abc	1.15 e-h	30.9 e-i	83.9 a-f	41-1	3.8 hi	54.70	1006
DP 1050 B2RF	4.7 abc	1.14 f-i	29.5 i	83.6 b-f	31-1	4.3 f-i	57.20	1056
MON 13R352B2R2	4.7 ab	1.18 b-e	32.8 bcd	83.6 b-f	21-2	4.0 hi	57.65	1128
DP 1454 NR B2RF	4.9 a	1.12 ghi	30.8 e-i	83.0 def	41-1	5.5 b-f	54.65	896
PHY499WRF	4.9 a	1.12 ghi	32.9 abc	83.5 b-f	41-2	6.0 a-d	54.85	1053
PHY333WRF	4.3 d-h	1.20 bc	32.3 b-f	83.9 a-f	41-1	5.3 b-g	55.00	967
PX4444-13WRF	4.2 f-i	1.21 b	32.7 bcd	84.7 ab	41-1	5.3 b-g	55.20	1080
PX3003-10WRF	4.8 ab	1.12 ghi	30.1 hi	82.9 def	51-1	6.0 a-d	50.70	952
PX3122b-51WRF	4.4 c-g	1.17 c-f	32.3 b-f	84.1 a-d	41-2	6.0 a-d	54.95	995
PHY575WRF	4.3 e-i	1.2 b	30.7 f-i	83.8 a-f	41-1	4.5 e-h	54.80	940
PX5540-10WRF	4.2 f-i	1.17 c-f	33.0 abc	84.1 a-e	51-1	6.3 abc	51.20	889
PX5540-57WRF	4.3 e-i	1.19 bcd	32.7 bcd	84.6 abc	51-1	6.5 ab	51.05	1001
PX5540-63WRF	4.3 d-i	1.18 b-e	31.8 c-g	85.1 a	51-1	6.4 ab	51.15	1060
PHY495WRF	4.7 abc	1.11 i	32.4 b-f	83.7 b-f	41-1	6.0 a-d	54.85	1020
Dyna-Gro CT13464	4.1 ghi	1.25 a	34.6 e	84.7 ab	51-1	7.0 a	51.20	855
Dyna-Gro 2610 B2RF	4.7 abc	1.16 c-f	29.7 i	84.5 abc	41-1	3.0 i	54.60	963
ST 4747GLB2	4.5 b-f	1.19 b-e	30.1 ghi	83.1 def	41-1	5.5 b-f	54.80	1074
ST 4946GLB2	4.6 a-d	1.16 c-f	32.5 b-e	84.5 abc	41-1	5.3 b-g	54.95	919
ST 6448GLB2	4.5 b-f	1.21 b	31.5 c-h	83.4 b-f	41-1	5.8 a-e	55.00	925
ST 5289GLT	4.6 b-e	1.14 f-i	31.0 d-i	82.8 ef	51-1	6.5 ab	50.90	893
ST 5032GLT	4.0 i	1.21 b	32.0 c-f	84.5 abc	41-1	6.3 abc	55.20	858
BX 1535GLT	4.3 d-h	1.17 b-f	34.1 ab	83.3 c-f	41-1	4.8 d-h	54.90	892
BX 1536GLT	4.0 hi	1.12 ghi	33.2 abc	82.7 f	51-1	5.0 c-h	51.05	811
<i>Mean</i>	<i>4.5</i>	<i>1.17</i>	<i>31.7</i>	<i>83.8</i>		<i>5.3</i>		
<i>LSD</i>	<i>0.33</i>	<i>0.04</i>	<i>0.04</i>	<i>1.33</i>		<i>1.28</i>		
<i>CV</i>	<i>5.2</i>	<i>2.50</i>	<i>4.0</i>	<i>1.1</i>		<i>17.1</i>		
<i>P(F)</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.014</i>		<i>0.0001</i>		

<sup>u</sup> Mic (micronaire)= a measure of fiber fineness or maturity. An airflow instrument measures the air permeability of a given mass of cotton lint compressed to a fixed volume. Low "mike" values indicate finer or less mature fibers.

<sup>v</sup> Fiber length= average fiber length of the longer one-half of the fibers sampled, in hundredths of an inch.

<sup>w</sup> Fiber strength = force required to break a bundle of fibers one tex unit in size. A tex is the weight in grams of 1,000 meters of fiber. HVI clamp jaw spacing is 1/8 inch.

<sup>x</sup> Uniformity = length uniformity is the ratio between the mean length and the upper-half mean length of the fibers, expressed as a percentage.

<sup>y</sup> HVI Color = color grade is a function of white reflectance (Rd) and yellowness (+b) of the lint sample. The HVI color code identifies the quadrant of the Nickerson-Hunter cotton colorimeter diagram in which Rd and +b values intersect (USDA, 1999).

<sup>z</sup> Leaf Grade = visual estimate of the amount of cotton plant leaf particles in a sample of lint. There are seven leaf grades represented by physical standards, plus a below grade designation.

Entries are listed according to lint value in \$/Acre based on \$0.52/lb +/- premium/discounts. Samples ginned at Auburn University and classed at the USDA Classing Office in Macon, GA.

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