

2016 Evaluation of Non-Irrigated Mid- to Full-Season Maturing Cotton Varieties, Jay, Florida

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This report includes the summary of the 2016 mid- to full-season cotton replicated variety trial at West Florida Research and Education Center, Jay, Florida. It shows the performance of 28 mid- to full season maturing cotton varieties (Table 2). This data represents only one year, results should be considered over several locations and years before conclusions are valid. A multiple year summary is included at the end of this report.

2016 Growing Conditions and Experimental Design:

The study area soil type was a Red Bay sandy loam with 2% organic matter and pH 6.5 and a history of corn production during 2015. Cotton varieties were planted on 6 May 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. Prowl H₂O 1.8 pt/A + Roundup 22 oz/A + Cotoran 3 pt/A were applied on 7 May for burndown and preemergence weed control. Roundup at 22 oz/A was applied 3 June and 22 June for postemergence weed control. Sherpa insecticide was applied at 4 oz/A 3 June and Wrangler insecticide at 2 oz/A on 14 July. Priaxor fungicide was applied at 4 oz/A 14 July. The plant growth regulator Stance was applied at 2 oz/A on 14 July and Mepiquat at 1 pt/A on 28 July. Cotton was harvested with a conventional spindle picker on 19 October and samples were sent to a commercial lab for fiber analysis.

Rainfall was below average for all months except September. Rainfall during the cotton growing season totaled 26.48 in., which was 10.02 in. below average. Weather data was obtained from Florida Automated Weather Network (FAWN) station located on Jay research farm and average represents the mean for the past 55 years of records (Table 1).

Table 1. Weather Conditions During 2016 Cotton Trial.

Month	Total Rainfall (in)	Average minimum air temperature (°F)	Average maximum air temperature (°F)
May	2.93 (1.57 below average)	49.6	90.7
June	5.47 (1.93 below average)	67.2	98.0
July	7.56 (0.49 below average)	66.5	98.2
August	3.83 (2.69 below average)	62.1	96.4
September	6.69 (0.45 above average)	53.0	97.1

Table 2. Mid- to Full-Season Cotton Brand/Varieties Evaluated:

Entry	Brand	Variety
1	Deltapine	DP 1646 B2XF
2	Deltapine	DP 1639 B2XF
3	Deltapine	DP 1538 B2XF
4	Deltapine	DP 1553 B2XF
5	Deltapine	DP 1555 B2XF
6	Deltapine	DP 1558 B/R B2RF
7	Deltapine	MON 15R535 B2XF
8	Deltapine	MON 16R247NR B2XF
9	Deltapine	MON 16R251NR B2XF
10	Bayer Stoneville	ST 5115GLT
11	Bayer Stoneville	ST 6182GLT
12	Bayer Stoneville	BX 1739GLT
13	Bayer Stoneville	ST 4747GLB2
14	Bayer Stoneville	ST 4946GLB2
15	Bayer Stoneville	ST 4848GLT
16	Bayer Stoneville	ST 4949GLT
17	Phytogen	PHY333WRF
18	Phytogen	PHY444WRF
19	Phytogen	PHY487WRF
20	Phytogen	PHY495W3RF
21	Phytogen	PHY499WRF
22	Phytogen	PHY552WRF
23	Phytogen	PHY575WRF
24	Dyna-Gro	DG 3757B2XF
25	Dyna-Gro	CPS16654
26	Croplan	3885 B2XF
27	Americot NexGen	NG5007 B2XF
28	Americot NexGen	AMX1601B2XF

Summary

Stand count for all varieties ranged from 2.8 to 3.6 plants/ft (41,200 to 52,000 plants/A) (Table 3). All varieties except MON 15R525, ST6182, ST 4949, DG 3757 and AMX1601 had plant populations higher than 44,000 plants/A.

Gin turnout ranged from 35.5 to 41.1% with most varieties having GTO above 37% (Table 3). Lint yields ranged from 752 to 1162 lb lint/A (Table 3). The five mid- to full-season varieties that yielded more than 1000 lb lint/A (highest to lowest) were DP 1646, ST 4747, PHY552, NG5007 and PHY495. The six highest lint value/A (which included premiums and discounts for fiber quality) were (highest to lowest) DP 1646, NG5007, PHY552, ST 4747, PHY444 and ST 4848 (Table 4).

Two- and three-year lint yield averages are listed in Table 6. Nineteen varieties were evaluated over two years and 7 were evaluated over three years. ST 4747, PHY333, PHY444, and PHY495 averaged more than 1450 lb/A lint over three years.

Table 3. Mid- to Full-Season Cotton Variety Plant Population.

	Variety	Plants/ft ¹ (8 June)	Plants/A ¹ (8 June)
1	DP 1646 B2XF	3.3	47335
2	DP 1639 B2XF	3.2	47045
3	DP 1538 B2XF	3.1	44504
4	DP 1553 B2XF	3.2	46609
5	DP 1555 B2XF	3.1	44649
6	DP 1558 B/R B2RF	3.4	48860
7	MON 15R535 B2XF	2.9	42689
8	MON 16R247NR B2XF	3.2	45738
9	MON 16R251NR B2XF	3.2	47117
10	ST 5115GLT	3.4	49949
11	ST 6182GLT	3.0	42834
12	BX 1739GLT	3.2	47117
13	ST 4747GLB2	3.5	50457
14	ST 4946GLB2	3.3	47480
15	ST 4848GLT	3.4	49731
16	ST 4949GLT	2.7	39567
17	PHY333WRF	3.4	49949
18	PHY444WRF	3.4	49150
18	PHY487WRF	3.7	53434
20	PHY495W3RF	3.3	48279
21	PHY499WRF	3.6	51619
22	PHY552WRF	3.5	50893
23	PHY575WRF	3.5	51473
24	DG 3757B2XF	3.0	43124
25	CPS16654	3.3	47843
26	3885 B2XF	3.3	48424
27	NG5007 B2XF	3.3	47335
28	AMX1601B2XF	2.8	41164
	<i>LSD</i>	0.3	4870
	<i>CV</i>	7.3%	7.3%

¹Determined from counts of two, 25-ft rows per plot. Planted 4 seed/row ft = 58,000 seed/A.

Table 4. Mid- to Full-Season Cotton Variety Gin Turnout and Yield.

	Variety	Yield			
		Seed Cotton ^w (lb/A)	Gin Turnout ^x (%)	Lint (lb/A)	Bales/A ^z
1	DP 1646 B2XF	3020	38.5	1162	2.4
2	DP 1639 B2XF	2526	38.2	964	2.0
3	DP 1538 B2XF	2512	38.6	973	2.0
4	DP 1553 B2XF	2163	38.0	825	1.7
5	DP 1555 B2XF	2207	39.0	865	1.8
6	DP 1558 B/R B2RF	1888	36.2	685	1.4
7	MON 15R535 B2XF	2047	39.4	806	1.7
8	MON 16R247NR B2XF	1975	38.2	756	1.6
9	MON 16R251NR B2XF	2628	37.0	973	2.0
10	ST 5115GLT	2526	36.7	926	1.9
11	ST 6182GLT	1946	40.8	793	1.7
12	BX 1739GLT	1931	39.0	752	1.6
13	ST 4747GLB2	2940	36.3	1068	2.2
14	ST 4946GLB2	2410	37.3	900	1.9
15	ST 4848GLT	2396	39.7	952	2.0
16	ST 4949GLT	2251	41.1	924	1.9
17	PHY333WRF	2592	37.9	984	2.1
18	PHY444WRF	2519	38.6	974	2.0
19	PHY487WRF	2439	36.3	886	1.8
20	PHY495W3RF	2683	38.2	1029	2.1
21	PHY499WRF	2425	38.1	931	1.9
22	PHY552WRF	2817	37.7	1062	2.2
23	PHY575WRF	2149	35.5	764	1.6
24	DG 3757B2XF	2232	38.5	866	1.8
25	CPS16654	2454	36.9	909	1.9
26	3885 B2XF	2323	38.9	904	1.9
27	NG5007 B2XF	2730	37.7	1028	2.1
28	AMX1601B2XF	2354	38.5	917	1.9
	<i>LSD</i>	<i>446</i>	<i>1.7</i>	<i>180</i>	<i>0.4</i>
	<i>CV</i>	<i>13.2%</i>	<i>3.1%</i>	<i>14%</i>	<i>14%</i>

^w Weight (lb/A) includes lint + seed.

^x Gin Turnout = lint/seed cotton.

^y Bales/A are weight of lint only at 480 lb/bale
Plots were harvested on 6 October.

Table 5. Mid- to Full-Season Cotton Variety Fiber Quality and Value.

	Variety	Mic ^u	Fiber length ^v (in.)	Fiber strength ^w (g/tex)	Uniform ^x (%)	Lint (lb/A)	Net loan price ^y (¢/lb)	Lint value ^y (\$/A)
1	DP 1646 B2XF	4.4	1.20	29.2	80.9	1162	54.75	553
2	DP 1639 B2XF	4.7	1.10	30.3	81.6	964	53.20	449
3	DP 1538 B2XF	4.8	1.07	27.4	81.3	973	52.25	439
4	DP 1553 B2XF	4.6	1.14	29.2	80.9	825	52.85	392
5	DP 1555 B2XF	4.6	1.13	31.4	80.9	865	53.05	398
6	DP 1558 B/R B2RF	4.9	1.13	32.0	81.7	685	52.30	304
7	MON 15R535 B2XF	4.6	1.13	29.8	81.4	806	56.00	369
8	MON 16R247NR B2XF	4.7	1.11	30.9	81.2	756	54.65	346
9	MON 16R251NR B2XF	4.5	1.17	30.9	80.7	973	55.25	435
10	ST 5115GLT	4.5	1.13	29.1	81.6	926	54.45	448
11	ST 6182GLT	4.8	1.12	29.0	80.5	793	53.10	380
12	BX 1739GLT	4.4	1.19	33.2	81.6	752	56.20	361
13	ST 4747GLB2	4.7	1.16	30.0	80.2	1068	54.90	499
14	ST 4946GLB2	4.9	1.13	30.8	82.1	900	52.90	411
15	ST 4848GLT	4.7	1.12	30.1	81.0	952	56.95	468
16	ST 4949GLT	4.7	1.10	28.5	80.9	924	53.75	445
17	PHY333WRF	4.6	1.12	29.9	82.4	984	51.80	448
18	PHY444WRF	4.0	1.23	31.6	83.2	974	52.45	484
19	PHY487WRF	4.9	1.08	29.1	81.5	886	54.75	408
20	PHY495W3RF	4.7	1.07	31.8	80.9	908	55.20	404
21	PHY499WRF	4.8	1.10	31.5	81.6	931	52.35	420
22	PHY552WRF	4.1	1.14	30.9	83.1	1062	56.50	503
23	PHY575WRF	4.2	1.19	30.2	81.6	764	55.20	361
24	DG 3757B2XF	4.7	1.10	28.6	80.5	784	56.40	353
25	CPS16654	4.4	1.21	30.7	81.7	909	56.35	445
26	3885 B2XF	4.7	1.10	27.8	81.6	904	54.75	435
27	NG5007 B2XF	4.5	1.12	28.0	80.5	1028	53.20	504
28	AMX1601B2XF	4.6	1.13	31.9	81.0	807	52.25	396
	<i>LSD</i>	<i>0.2</i>	<i>0.03</i>	<i>1.3</i>	<i>1.7</i>	<i>180</i>		
	<i>CV</i>	<i>3.6%</i>	<i>2.0%</i>	<i>3.1%</i>	<i>1.5%</i>	<i>14%</i>		

^u 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.

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

^w 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.

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

^y Entries are listed according to lint value in \$/Acre based on \$0.52/lb +/- premium/discounts. Samples ginned at University of Tennessee and classed at the USDA Classing Office in Memphis, TN.

Table 6. Mid- to Full-Season Two and Three Year Lint/A Yield Averages

	2016	2-year Average	3-year Average
DP 1646 B2XF	1162	1449	
DP 1639 B2XF	964	1297	
DP 1538 B2XF	973	1292	
DP 1553 B2XF	825	1238	
DP 1555 B2XF	865	1262	
DP 1558 B/R B2RF	685	1186	
ST 5115GLT	926	1157	
ST 6182GLT	793	1167	
ST 4747GLB2	1068	1344	1552
ST 4946GLB2	900	1183	1349
PHY333WRF	984	1330	1475
PHY444WRF	974	1223	1465
PHY487WRF	886	1203	
PHY495W3RF	1029	1320	1498
PHY499WRF	931	1198	1437
PHY552WRF	1062	1220	
PHY575WRF	764	1146	1340
3885 B2XF	904	1303	
NG5007 B2XF	1028	1256	