2015 Evaluation of Non-Irrigated Mid- to Full-Season Maturing Cotton Varieties, Jay, Florida

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This report includes the summary of the 2015 mid- to full-season cotton replicated variety trial at West Florida Research and Education Center, Jay, Florida. It shows the performance of 22 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. Americot NexGen NG5007 B2XF
2. Deltapine DP 1538 B2XF
3. Deltapine DP 1553 B2XF
4. Deltapine DP 1555 B2XF
5. Deltapine DP 1558NR B2RF
6. Deltapine DP 1454NR B2RF
7. Deltapine DP 1252 B2RF
8. Deltapine DP 1639 B2XF
9. Deltapine DP 1646 B2XF
10. Bayer Stoneville ST 4747GLB2
11. Bayer Stoneville ST 4946GLB2
12. Bayer Stoneville ST 5115GLT
13. Bayer Stoneville ST 6182GLT
14. Bayer Stoneville ST 6448GLB2
15. Phytogen PHY552WRF
16. Phytogen PHY575WRF
17. Phytogen PHY333WRF
18. Phytogen PHY444WRF
19. Phytogen PHY487WRF
20. Phytogen PHY495W3RF
21. Phytogen PHY499WRF
22. Croplan 3885B2XF

2015 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 2014. Nitrogen fertilizer was applied 15 June (115 lb/A ESN slow release N + 115 lb/A urea + 50 lb/A ammonium sulfate + 0.0 lb/A B + 0.2 lb/A Cu). Each cotton variety was planted on 5 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 H_2O 1.8 pt/A + Roundup 22 oz/A + Direx 1 qt/A were applied on 7 May for burndown and preemergence weed control. Roundup at 22 oz/A was applied 20 May, 22 June

and 14 July for postemergence weed control. Sherpa insecticide was applied at 3.8 oz/A 2 July. Twinline fungicide was applied at 8 oz/A 27 July. The plant growth regulator Potenza was applied at 12 oz/A on 2 July and 1 pt/A on 13 and 27 July. Cotton was harvested with a conventional spindle picker on 6 October and samples were sent to a commercial lab for fiber analysis.

Rainfall in May, June, August and September was 1.85, 3.10, 2.16 and 2.02 in. below normal, respectively; rainfall in July was 1.11 in. above normal. Rainfall during the cotton growing season totaled 24.69 in., which was 8.02 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 55 years of records (Table 1).

Table 1. Weather conditions during 2015 cotton trial.

Month	Total Rainfall (in)	Average minimum air temperature (°F)	Average maximum air temperature (°F)
May	2.65 (1.85 below normal)	49.6	90.7
June	4.30 (3.10 below normal)	67.2	98.0
July	9.16 (1.11 above normal)	66.5	98.2
August	4.36 (2.16 below normal)	62.1	96.4
September	4.22 (2.02 below normal)	53.0	97.1

Summary

Stand count for all varieties ranged from 2.9 to 3.6 plants/ft (42,400 to 52,000 plants/A) (Table 2). All varieties except NG 5007 and PHY495 had plant populations higher than 44,000 plants/A.

Gin turnout ranged from 36.3 to 41.4% with most varieties having GTO above 38% (Table 3). Lint yields ranged from 1354 to 1736 lb lint/A (Table 3). The three mid- to full-season varieties that yielded more than 1700 lb lint/A (highest to lowest) were DP 1646, DP 1252 and Croplan 3885. The six highest lint value/A (which included premiums and discounts for fiber quality) were (highest to lowest) DP 1252, DP 1558, DP 1553, DP 1555, DP 1646 and DP1639 (Table 4).

Table 2. Effect of cotton variety on plant population.

Variety	Plants/ft[1] (8 June)	Plants/A[1] (8 June)
NG5007 B2XF	2.9 f	42471 f
DP 1538 B2XF	3.3 a-e	47553 a-e
DP 1553 B2XF	3.6 a	51909 a
DP 1555 B2XF	3.2 b-f	47045 b-f
DP 1558NR B2RF	3.0 ef	44213 ef
DP 1454NR B2RF	3.3 a-e	47408 a-e
DP 1252 B2RF	3.2 b-f	46900 b-f
DP 1639 B2XF	3.1 def	44794 def
DP 1646 B2XF	3.2 c-f	45883 c-f
ST 4747GLB2	3.1 c-f	45302 c-f
ST 4946GLB2	3.3 a-e	48061 a-e
ST 5115GLT	3.4 abc	49949 abc
ST 6182GLT	3.1 def	44576 def
ST 6448GLB2	3.4 a-d	49150 a-d
PHY552WRF	3.3 a-e	47771 a-e
PHY575WRF	3.2 b-f	46682 b-f
PHY333WRF	3.3 a-e	48206 a-e
PHY444WRF	3.2 b-f	46391 b-f
PHY487WRF	3.5 ab	51038 ab
PHY495W3RF	2.9 f	42544 f
PHY499WRF	3.1 c-f	45448 c-f
3885B2XF	3.2 c-f	46246 c-f
LSD	*0.32*	*4689*
CV	*7.09*	*7.1*
P(F)	*0.0012*	*0.0113*

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

Table 3. Effect of cotton variety on gin turnout and yield.

	Yield			
Variety	Seed Cotton[w] (lb/A)	Gin Turnout[x] (%)	Lint (lb/A)	Bales/A[z]
NG5007 B2XF	3819 a-f	38.8 efg	1483 b-f	3.1 b-f
DP 1538 B2XF	3964 a-f	40.7 a-d	1610 a-e	3.4 a-e
DP 1553 B2XF	4022 a-e	41.1 abc	1651 a-d	3.4 a-d
DP 1555 B2XF	4240 abc	39.2 def	1658 a-d	3.5 a-d
DP 1558NR B2RF	4095 a-d	41.2 ab	1686 abc	3.5 abc
DP 1454NR B2RF	3427 f	39.5 b-e	1354 f	2.8 f
DP 1252 B2RF	4182 a-d	41.0 abc	1711 a	3.6 a
DP 1639 B2XF	4109 a-d	39.8 a-e	1630 a-d	3.4 a-d
DP 1646 B2XF	4240 abc	40.9 abc	1736 a	3.6 a
ST 4747GLB2	4312 ab	37.6 fgh	1619 a-d	3.4 a-d
ST 4946GLB2	3891 a-f	37.6 fgh	1465 c-f	3.1 c-f
ST 5115GLT	3717 c-f	37.3 gh	1387 ef	2.9 ef
ST 6182GLT	3717 c-f	41.4 a	1540 a-f	3.2 a-f
ST 6448GLB2	4008 a-e	36.3 h	1454 def	3.0 def
PHY552WRF	3499 ef	39.4 cde	1378 f	2.9 f
PHY575WRF	4182 a-d	36.5 h	1527 a-f	3.2 a-f
PHY333WRF	4211 abc	39.8 a-e	1675 a-d	3.5 a-d
PHY444WRF	3637 def	40.4 a-e	1471 c-f	3.1 c-f
PHY487WRF	4080 a-d	37.2 gh	1519 a-f	3.2 a-f
PHY495W3RF	4080 a-d	39.5 b-e	1610 a-e	3.4 a-e
PHY499WRF	3790 b-f	38.7 efg	1465 c-f	3.1 c-f
3885B2XF	4371 a	38.9 efg	1701 ab	3.5 ab
LSD	*562*	*1.7*	*227*	*0.47*
CV	*10.0*	*3.14*	*10.3*	*10.3*
P(F)	*0.048*	*0.0001*	*0.012*	*0.012*

[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 4. Effect of variety on cotton 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)
NG5007 B2XF	4.2 ef	1.20 b-e	30.6 ijk	83.2 d-h	1483 b-f	51.70	661
DP 1538 B2XF	4.7 a	1.13 h	29.6 k	83.8 c-g	1610 a-e	51.40	718
DP 1553 B2XF	4.5 a-d	1.21 bc	31.3 g-j	83.8 b-e	1651 a-d	55.20	800
DP 1555 B2XF	4.4 def	1.22 b	34.1 bc	83.9 bcd	1658 a-d	54.70	790
DP 1558NR B2RF	4.7 a	1.13 h	29.6 k	83.5 c-f	1686 abc	56.35	837
DP 1454NR B2RF	4.7 a	1.14 gh	32.0 e-h	83.3 c-g	1354 f	49.80	579
DP 1252 B2RF	4.7 a	1.17 ef	31.5 g-j	83.7 b-e	1711 a	56.80	856
DP 1639 B2XF	4.7 a	1.19 c-f	33.8 bcd	84.9 a	1630 a-d	54.80	779
DP 1646 B2XF	4.3 def	1.25 a	31.1 hij	83.4 c-g	1736 a	52.15	788
ST 4747GLB2	4.5 b-e	1.21 bc	32.9 c-f	82.6 gh	1619 a-d	52.05	722
ST 4946GLB2	4.5 b-e	1.16 fg	33.0 cde	84.1 abc	1465 c-f	49.95	622
ST 5115GLT	4.2 ef	1.16 fg	32.9 c-f	82.8 fgh	1387 ef	51.80	614
ST 6182GLT	4.4 def	1.18 def	31.8 f-j	83.7 b-e	1540 a-f	55.20	747
ST 6448GLB2	4.4 def	1.21 bc	32.7 def	82.4 h	1454 def	54.55	681
PHY552WRF	4.2 ef	1.20 b-e	35.6 a	84.4 ab	1378 f	49.95	591
PHY575WRF	4.3 def	1.22 b	31.8 f-i	84.4 ab	1527 a-f	54.75	718
PHY333WRF	4.2 ef	1.20 b-e	33.1 cde	83.0 e-h	1675 a-d	50.00	721
PHY444WRF	3.8 g	1.26 a	34.5 ab	84.0 a-d	1471 c-f	54.95	706
PHY487WRF	4.7 a	1.16 fg	32.4 efg	83.3 c-g	1519 a-f	51.75	671
PHY495W3RF	4.6 a-d	1.15 gh	34.8 ab	84.0 bcd	1610 a-e	54.70	768
PHY499WRF	4.4 def	1.16 fg	34.4 ab	84.0 bcd	1465 c-f	49.95	626
3885B2XF	4.5 a-d	1.17 ef	30.5 jk	84.3 ab	1701 ab	52.25	767
LSD	*0.26*	*0.025*	*1.21*	*0.85*	*227*		
CV	*4.18*	*1.50*	*2.65*	*0.72*	*10.3*		
P(F)	*0.0001*	*0.0001*	*0.0001*	*0.0001*	*0.012*		

[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.