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2013 COTTON VARIETY DEMO, JAY, FLORIDA

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This report includes a summary of the 2013 cotton variety demo in Jay, Florida. It shows the performance of twenty cotton varieties. This data represents only one year and is not replicated, results should be considered over several locations and years before conclusions are valid.

Varieties that were evaluated (Maturity E=early, M=mid, F=full):

1. PHY 339 WRF -E
2. DP 1321 B2RF -E-M
3. FM 1944 GLB2 -E
4. DPLX 12R224 B2R2 -E-M
5. PHY 375 WRF -E
6. ST 4946 GLB2 -E-M
7. NG 1511 B2RF -M
8. DPLX 12R242 B2R2 -M-F
9. CROPLAN 3787 B2RF -M-F
10. DP 1034 B2RF -M
11. DP 1137 B2RF -M
12. PHY 499 WRF -M
13. PHY 565 WRF -M-F
14. DP 1048 B2RF -M-F
15. DP 1050 B2RF -F
16. DP 1252 B2RF -F
17. PHY 575 WRF -F
18. ST 6448 GLB2 -F
19. DP 1359 B2RF -F
20. NG 5315 B2RF -F

2013 Growing Conditions and Experimental Design

The soil type was a Red Bay sandy loam that has a history of cotton production. The field was planted in a rotation of peanut 2012 and 2011 and sod 2008-2010. Each cotton variety was plated on 9 May under conventional tillage. Plots were eight, 800-ft rows with 36-in. row spacing. Standard practices for non-irrigated cotton production were followed throughout the season. Stealth 1 qt/A was applied on 8 May for pre-plant weed control, and Roundup 22 oz/A was applied 20 Jun and 31 Jul for post-emergence weed control. Bidrin 8 3.2 oz/A was applied on 31 May and Tombstone 3.2 oz/A on 7 Aug were applied for insect control. Headline 9 oz/A was applied on 17 Jul for disease control. Miller's hot sauce 4 oz/a applied on 30 May and 20 Jun to deter deer grazing. Growth regulator Potenza was applied 10 oz/A on 2 Jul, 12 oz/A on 17 Jul and 31 Jul, and 16 oz/A on 7 Aug. Takedown 2.0 oz/A, Display 0.5 oz/a were applied on 14 Oct. Cotton was picked on 4 Nov and samples were sent for fiber analysis.

Rainfall in May, June and Oct was 7.1, 0.74, 4.21 in. below normal, respectively; rainfall in Jul, Aug, and Sep was 5.23, 1.37, and 3.65 in. above normal, respectively. Rainfall during the period totaled 33.23 in., which was 1.61 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 2013 in Jay, FL.

Month	Total rainfall (in.)	Average minimum air temperature (°F)	Average maximum air temperature (°F)
May	0.7 (7.1 below normal)	43.0	91.8
June	5.8 (0.7 below normal)	65.5	93.8
July	11.8 (5.2 above normal)	67.6	92.9
August	5.5 (1.4 above normal)	67.5	95.2
September	8.0 (3.7 above normal)	58.6	93.7
October	1.7 (4.2 below normal)	38.0	88.1

Summary

Stand counts ranged from 1.68 plants/ft (24,382 plants/A) to 2.27 plants/ft (32,912 plants/A) (Table 2). On 28 May thrips damaged detected in Delta Pine varieties. Total yields (lint+seed) ranged from DP 1359 B2RF 2416 lb/A to DPLX 12R224 B2R2 3924 lb/A. Gin turn out (GTO) ranged from 33% to 36 % lint, with resulting yields of 817 lb lint/A to 1423 lb lint/A (1.70 to 2.96 bales/A). DPLX 12R224 B2R2 was the highest yielding early- mid variety and DP 1050 B2RF was the highest late maturing variety.

Table 2. Effect of variety on emergence and yield in cotton.

Yield rank	Variety	Plants/ ft[v] (28 May)	Plant population/A (28 May)	Yield			
				lb/A[w]	GTO[x]	Lint/A[y]	Bales/A[z]
1	DPLX 12R224 B2R2	2.13	30,976	3934	36.2	1423	2.96
2	PHY 339 WRF	2.09	30,311	3476	35.6	1237	2.58
3	PHY 375 WRF	1.81	26,318	3399	35.3	1199	2.50
4	CROPLAN 3787 B2RF	1.95	28,314	3177	37.7	1198	2.50
5	DP 1048 B2RF	1.90	27,588	3404	34.5	1174	2.44
6	DP 1050 B2RF	1.70	24,684	3272	35.7	1169	2.44
7	DP 1034 B2RF	1.98	28,738	3286	35.3	1160	2.42
8	DP 1252 B2RF	2.00	29,101	3172	36.4	1155	2.41
9	DP 1137 B2RF	1.88	27,225	3251	34.9	1136	2.37
10	ST 6448 GLB2	1.96	28,435	3313	34.1	1129	2.35
11	PHY 575 WRF	2.27	32,912	3301	32.9	1087	2.26
12	NG 5315 B2RF	1.90	27,588	3074	34.9	1074	2.24
13	DP 1321 B2RF	2.09	30,311	3052	34.1	1040	2.17
14	DPLX 12R242 B2R2	2.25	32,731	3050	33.2	1011	2.11
15	PHY 565 WRF	1.81	26,318	2836	35.3	1000	2.08
16	PHY 499 WRF	2.01	29,222	2662	37.5	999	2.08
17	FM 1944 GLB2.....	1.68	24,382	2916	33.5	977	2.04
18	NG 1511 B2RF	1.95	28,314	2759	34.9	963	2.01
19	ST 4946 GLB2	1.99	28,919	2684	33.0	886	1.85
20	DP 1359 B2RF	2.24	32,549	2416	33.8	817	1.70
	Mean.....	**1.98**	**28,747**	**3122**	**34.9**	**1092**	**2.28**

[v] Determined from counts of eight, 30-ft sections per plot.
[w] Weight (lb/A) includes lint + seed.
[x] GTO = gin turn out % lint/seed cotton.
[y] Weight of lint (lb/A).
[z] Bales/A are weight of lint only at 480 lb/bale. Plots were harvested on 4 Nov.

Fiber quality was classed at the USDA Classing Office in Memphis, TN. Micronaire (Mic), a measure of fiber fitness and maturity, ranged from 4.4 (PHY 575 WRF) to 5.4 (NG 1511 B2RF) for the varieties evaluated (Table 3). Fiber length averaged 1.5 inches and strength 30.1 g/tex. Uniformity, the ratio between mean length and upper-half mean length of fibers, ranged from 80.2 to 84.0% with an average of 82.2%. HVI color grades included 31-1, 31-3, 31-4, 32-2, 41-1, 41-3, 41-4, and 42-1 while leaf grades averaged 4.0. Net loan price which was calculated based on $0.52/lb +/- premiums and discounts and ranged from 47.30 ¢/lb (ST 4946 GLB2) to 56.50 ¢/lb (CG 3787 B2RF and ST 6448 GLB2). Overall lint value per acre ranged from $419 to $736, with an average of $586/A.

Table 3. Effect of variety on lint yield and fiber quality.

Variety	Gin turnout[s] (%)	Lint yield[t] (lb/A)	Mic[u]	Fiber length[v] (in.)	Fiber strength[w] (g/tex)	Uniformity[x] (%)	HVI color[y]	Leaf grade[z]	Net loan price (¢/lb)	Lint value ($/A)
DPLX 12R224 B2R2	36.2	1423	4.5	1.19	31.9	84	41-1	5	51.75	736
CG 3787 B2RF	37.7	1198	4.8	1.16	29.2	83	31-4	3	56.5	677
PHY 339 WRF	35.6	1237	4.6	1.16	30	81.9	41-1	4	53.6	663
DP 1048 B2RF	34.5	1174	4.7	1.14	28.6	82.3	31-1	3	56.3	661
DP 1252 B2RF	36.4	1155	4.8	1.17	29.8	83.7	31-4	3	56.5	653
ST 6448 GLB2	34.1	1129	4.7	1.15	30.1	80.2	31-3	3	56.5	638
DP 1034 B2RF	35.3	1160	5	1.15	29.4	83	31-3	2	54.75	635
PHY 375 WRF	35.3	1199	4.7	1.07	29.1	80.7	41-1	3	52.6	631
DP 1137 B2RF	34.9	1136	4.7	1.14	29.2	83.6	41-3	3	54.25	616
DP 1050 B2RF	35.7	1169	4.7	1.09	29	79.4	42-1	3	50.65	592
PHY 575 WRF	32.9	1087	4.4	1.2	29.8	81.6	41-1	3	54.05	588
NG 5315 B2RF	34.9	1074	4.7	1.17	30.2	83.4	41-3	4	53.8	578
PHY 565 WRF	35.3	1000	4.7	1.17	32.3	83.1	41-3	4	53.9	539
FM 1944 GLB2	33.5	977	4.9	1.2	32.7	82.2	41-1	4	53.8	526
DPLX 12R242 B2R2	33.2	1011	5.1	1.11	27.8	81.4	41-3	3	51.6	522
DP 1321 B2RF	34.1	1040	5.2	1.13	30	81.8	32-2	4	50.1	521
PHY 499 WRF	37.5	999	5	1.13	31.2	83.6	41-4	5	49.35	493
NG 1511 B2RF	34.9	963	5.4	1.13	29.6	82.9	41-4	5	47.85	461
DP 1359 B2RF	33.8	817	4.7	1.14	31.1	80.3	32-2	3	53.25	435
ST 4946 GLB2	33	886	5	1.12	31.4	82	42-1	5	47.3	419
Mean.....	**34.9**	**1092**	**4.8**	**1.15**	**30.1**	**82.2**		**4**	**53.70**	**586**

Determined from counts of eight, 30-ft sections per plot.

[s] Gin turnout= weight of lint as a percent of seed cotton weight, which is composed of lint, seed, trash, and excess moisture.

[t] Weight of lint (lb/A).

[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] 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).

[z] 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 value in $/Acre based on $0.52/lb +/- premium/discounts. Samples ginned at the University of Tennessee's West TN Research and Education Center and classed at the USDA Classing Office in Memphis, TN.

REFERENCES CITED

USDA. 1999. The Classification of Cotton. Agricultural Marketing Service, Agric. Handbook 566. Rev.1/99. Washington, DC. 23 pp.