

2023 Evaluation of Cotton Varieties at the Jay Research Facility

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This report summarizes the 2023 cotton large plot demonstration trial at West Florida Research and Education Center, Jay, Florida. It shows the yields of 18 varieties in the nonreplicated demonstration trial. This data represents only one year, and results should be considered over several locations and years before conclusions are valid.

2023 Growing Conditions and Demonstration Design

On 26 May 2023, cotton varieties were planted under conventional tillage. The demonstration plots were planted over an area of Red Bay sandy loam and Orangeburg sandy loam soils that was planted in peanuts in the summer of 2022. Prior to planting, any vegetation present was killed by conventional tillage. Prowl H2O (1qt/A) was applied on 25 May 2023. On 8 June, the plots were irrigated (1 in). Glyphosate (32 oz/A) was applied on 14 June 2023 and 17 July. On 22 July, Pix (16 oz/A) and Borosol 10 (16 oz/A) were applied. The fungicide, Priaxor (6 oz/A), was applied on 14 August along with the insecticide, Grizzly Too (2 oz/A). Pix (16 oz/A) and Borosol 10 (16 oz/A) were also applied that day. Another 1 inch of irrigation was applied on 22 August. The plots were defoliated on 3 October and harvested on 31 October. The nonreplicated plots were 4 rows spaced 36 in. apart (12 ft wide) by 350 ft long. Yield data was collected from 4 rows of each demonstration plot. The plots were fertilized in 2 split applications. On 29 June, the plot received 54.5lbs of Nitrogen, 45lbs of Phosphorus, 59lbs of Potassium, 17lbs of Sulfur, and 0.75lbs of Boron. On 21 July, they received 51.75lbs of Nitrogen, 65.25lbs of Potassium, 11lbs of Magnesium, and 21lbs of Sulfur.

Rainfall in Jay, FL for June was above average, and July, August, September, and October were below average. The total rainfall for the growing period was 19.63 in, which was well below the average.

Table 1. Weather conditions during the 2023 cotton demonstration.

Month	Total Rainfall (Average)	Minimum air temperature (°F)	Maximum air temperature (°F)
May 26-31	0	56.19	86.68
June	9.28 (7.35 in)	63.99	95.68
July	3.3 in (7.71 in)	69.37	95.97

August	1.64 in (7.18 in)	66.81	100.99
September	4.23 in (6.11 in)	32	95.36
October	1.18 in (4.09 in)	42.23	87.12
Total	19.63 in (32.44 in)		

2023 Demonstration Summary

Cotton yields in the demonstration plots ranged from 830lb/A to 1452lb/A seed cotton with DP2012B3FX ST5091B3FX being the top yielding varieties. The gin turnout ranged from 43-48% (Table 2). Yields were lower due to drought conditions that lead to potassium deficiency in all varieties. Potassium deficiency directly impacts lint yield and quality. Table 3 shows the lint quality for these varieties.

Table 2. 2023 cotton demonstration plot yields at the Jay Research Facility.

Company	Variety	Seed Cotton ^w (lb/A)	Gin Turnout ^x (%)	Lint Yield (lb/A)	Bales/A ^y
NexGen	NG5150B3XF	1141	44	502	1.05
NexGen	NG4190B3XF	1348	46	620	1.29
NexGen	NG3195B3FX	1348	45	606	1.26
Deltapine	DP1840B3FX	1245	43	535	1.11
Deltapine	DP2141NRB3FX	1037	44	456	0.95
Deltapine	DP2020B3FX	1348	44	593	1.24
Deltapine	DP2115B3FX	1348	46	620	1.29
Deltapine	DP2239B3FX	1037	48	498	1.04
Deltapine	DP2012B3FX	1452	44	639	1.33
Deltapine	DP2127B3FX	1348	47	634	1.32
Deltapine	DP2038B3FX	830	48	398	0.83
Stoneville	ST4595B3FX	1245	46	573	1.19
Stoneville	ST5091B3FX	1452	46	668	1.39
PhytoGen	PHY400W3FE	1245	46	573	1.19
PhytoGen	PHY443W3FE	1141	46	525	1.09
PhytoGen	PHY545W3FE	1141	48	548	1.14
PhytoGen	PHY411W3FE	933	47	439	0.91
PhytoGen	PHY1150B437-04	1348	45	607	1.26

^wWeight (lb/A) includes lint plus seed

^xGin Turnout = lint/seed cotton

^yBales/A are weight of lint only at 480lb/bale

Table 3. 2023 cotton variety fiber quality at the Jay Research Facility.

Company	Variety	Mic ^u	Fiber Length ^v	Uniform ^w	Fiber Strength ^x
NexGen	NG5150B3XF	5.31	1.09	81.6	29.50
NexGen	NG4190B3XF	5.12	1.11	83.0	30.10
NexGen	NG3195B3FX	4.96	1.08	84.1	32.30
Deltapine	DP1840B3FX	5.05	1.11	82.5	30.10
Deltapine	DP2141NRB3FX	5.88	1.08	82.5	32.80
Deltapine	DP2020B3FX	4.94	1.12	82.6	30.50
Deltapine	DP2115B3FX	5.27	1.05	82.0	29.40
Deltapine	DP2239B3FX	5.35	1.15	84.6	32.00
Deltapine	DP2012B3FX	5.02	1.11	83.3	30.60
Deltapine	DP2127B3FX	5.61	1.06	83.3	30.40
Deltapine	DP2038B3FX	5.27	1.05	81.8	29.20
Stoneville	ST4595B3FX	5.31	1.11	83.7	31.10
Stoneville	ST5091B3FX	4.92	1.06	82.1	28.40
PhytoGen	PHY400W3FE	4.54	1.07	81.7	30.30
PhytoGen	PHY443W3FE	5.10	1.03	82.3	30.40
PhytoGen	PHY545W3FE	5.19	1.03	83.4	28.70
PhytoGen	PHY411W3FE	5.40	1.01	82.2	32.50
PhytoGen	PHY1150B437-04	5.61	1.05	82.2	31.70

^uMic (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.

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

^wFiber 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.

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