

# Cotton Variety Trials

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## **2008 Variety Yield Results**

The 2008 Official Cotton Variety Performance trial included 42 varieties at the Tidewater Agricultural Research and Extension Center in Suffolk. The varieties evaluated consisted of 34 transgenic varieties (25 Bollgard, [23 Roundup Ready Flex, 1 Roundup Ready, and 1 Liberty Link], 8 Roundup Ready Flex, and 1 Roundup Ready), 1 conventional variety, and 7 experimental varieties.

The variety trial located at Tidewater was planted on May 5 and harvested October 16.

The Virginia Cotton Variety Performance County Strip trials are conducted annually to provide an unbiased comparison of commercially available varieties, utilizing uniform cultural practices within each location. Variety performance in these trials was evaluated using standard production practices for non-transgenic varieties. Lint yield was obtained at all four locations.

Trials in various locations in the production area make it possible to evaluate variety performance under the wide range of soil and climatic conditions existing in Virginia. The additional strip trials were conducted at four locations and data pooled and analyzed to evaluate six transgenic varieties.

## **Summary of Yield and Performance**

In 2008, yields ranged from 2063.7 to 1346.4 pounds of lint per acre. Table 1 summarizes the performance of all the entries at TAREC. Table 2 presents the two-year average for all varieties and Table 3 presents the three year averages. Tables 4 and 5 present the specifics and results of the county strip trials.

## **Variety Selection**

There are numerous factors to consider when selecting varieties including yield, maturity, herbicide and/ or insect tolerance traits, quality, and stability. Data from these variety trials are used to identify promising varieties based on performance. Despite the small region in southeastern Virginia where cotton is produced, performance may vary on individual farms due to soil type, environment, and other factors. Virginia producers should select varieties based on their performance at the location most representative of their farm. This should include examination of NCSU University Variety Trials conducted in nearby Lewiston, North Carolina. For more information on varieties and how they might perform under various conditions, please contact Virginia Cooperative Extension.

## HVI Classing

Fiber property values were determined using the High Volume Instrumentation (HVI) classing system. Producers are encouraged to consider these fiber properties when selecting varieties for 2009. The HVI system includes measurements for fiber strength, micronaire, length, and uniformity. Fiber strength is expressed as grams per tex. A tex unit is equal to the weight in grams of 1000 meters of fiber. Therefore, the strength reported is the force in grams required to break a bundle of fibers one tex unit in size. Strength values 25.5 through 29.4 will not receive a premium or discount. Values below 25.5 will be discounted, and values above 29.4 will carry a premium on the loan chart. The fiber length is the average length of the longest one-half of the fibers (upper half means length or UHM) measured and is expressed in 100<sup>ths</sup> of an inch. Discounts for length are determined on a sliding scale and dependent on color and leaf grade. The length uniformity is the ratio between the mean length and upper mean length (UHM) of fibers and is expressed as a percentage. Uniformity index is becoming increasingly important as we are increasing the percentage of cotton exported. Values below 79.5 are discounted while values above 82.5 receive a premium based on the loan chart. Micronaire is a measurement of the lint surface area and thus an indirect measure of fineness and maturity. Measurements above 4.9 or below 3.5 will result in a discount and measurements between 3.7 and 4.2 will result in a premium based on the USDA loan chart.

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Table 1. Yield, fiber quality, and performance of ALL cotton varieties, 2008.

All Varieties - Tidewater AREC, Suffolk		Fiber Properties					
Seed Company	Variety	Lint Yield lb/A	Lint %	Mic.	Len. (in.)	Str. (g/tex)	Uni. (%)
Monsanto	DP 555 BG/RR	2063.7	48.8	4.1	1.13	30.5	82.0
PhytoGen	PHY 370 WR	2050.5	47.1	4.2	1.11	30.1	82.8
PhytoGen	PHY 425 RF	1977.7	45.8	4.5	1.15	30.5	84.3
Bayer CropScience	BCSX 0187LLB2	1923.2	46.5	4.2	1.12	30.5	82.2
Monsanto	DP 174 RF	1921.2	48.8	4.2	1.17	29.9	83.4
Winfield Solutions	CG 3035RF	1899.8	47.1	4.0	1.14	30.4	82.6
Bayer CropScience	ST 4427B2RF	1871.1	44.4	3.6	1.12	30.5	81.8
Bayer CropScience	BCSX 0727B2F	1864.8	47.3	4.5	1.14	29.3	82.5
Monsanto	DP 121 RF	1860.8	47.4	4.2	1.14	30.9	82.9
PhytoGen	PHY 375 WRF	1859.4	47.9	4.0	1.14	29.8	82.8
Monsanto	DP 117 B2RF	1837.9	45.6	4.0	1.16	33.8	83.0
PhytoGen	PHY 485 WRF	1836.8	46.1	4.4	1.12	29.8	83.7
Americot	NG 4370 B2RF	1836.1	46.9	4.4	1.12	30.8	83.7
Americot	NG 3331 B2RF	1825.6	46.6	4.4	1.13	31.0	83.5
Monsanto	DP 141 B2RF	1777.7	44.6	4.0	1.19	31.0	82.5
PhytoGen	PHY 315 RF	1769.7	45.3	4.0	1.12	29.4	82.6
Winfield Solutions	CG 3220B2RF	1763.9	44.4	3.9	1.14	30.2	82.6
Bayer CropScience	BCSX 0704B2F	1758.0	44.6	4.6	1.17	30.1	82.7
Bayer CropScience	ST 5327B2RF	1754.3	46.5	3.9	1.15	30.9	82.9
Bayer CropScience	FM 1740B2F	1741.7	46.9	4.1	1.12	30.8	83.1
Americot	NG 4377 B2RF	1729.7	45.9	4.2	1.12	30.3	83.1
Bayer CropScience	ST 4554B2RF	1716.6	45.9	4.0	1.13	30.0	82.8
Monsanto	DP 143 B2RF	1709.3	44.0	3.6	1.18	30.3	81.5
Monsanto	DP 07W901 DF	1694.5	45.3	4.2	1.12	29.7	82.9
Bayer CropScience	BCSX 0721B2F	1693.9	47.0	4.4	1.17	29.9	82.9
Americot	AM 1550 B2RF	1691.5	44.8	3.9	1.13	29.3	82.6
Monsanto	DP 07X440 DF	1673.1	49.6	4.2	1.11	27.5	82.5
Bayer CropScience	FM 9063B2F	1642.4	44.5	3.9	1.17	31.1	82.9
Americot	AM 1532 B2RF	1631.9	45.4	3.9	1.16	29.1	82.3
Bayer CropScience	ST 5458B2RF	1622.8	46.4	4.2	1.13	30.7	82.0
Monsanto	DP 0935 B2RF	1620.6	46.9	4.3	1.13	30.0	82.1
PhytoGen	PHY 72	1616.5	44.9	3.9	1.16	33.1	83.1
Monsanto	DP 164 B2RF	1606.2	44.0	4.0	1.15	30.0	81.7
Monsanto	DP 0924 B2RF	1576.0	45.4	4.2	1.12	30.1	82.8

Table 1. Yield, fiber quality, and performance of ALL cotton varieties, 2008. (cont.)

All Varieties - Tidewater AREC, Suffolk		Fiber Properties					
Seed Company	Variety	Lint Yield lb/A	Lint %	Mic.	Len. (in.)	Str. (g/tex)	Uni. (%)
Bayer CropScience	FM 9058F	1569.4	45.8	3.9	1.18	30.9	81.7
Monsanto	DP 161 B2RF	1561.8	43.6	4.0	1.16	31.4	82.7
Bayer CropScience	ST 4498B2RF	1520.1	44.5	3.5	1.13	31.1	82.8
Bayer CropScience	FM 1735LLB2	1475.3	43.8	3.9	1.12	31.8	82.6
Winfield Solutions	CG 3520B2RF	1430.8	43.4	3.7	1.13	28.7	82.0
Winfield Solutions	CG 3020B2RF	1412.2	43.1	3.8	1.13	29.2	82.1
Winfield Solutions	CG 4020B2RF	1404.8	45.3	4.0	1.17	29.6	83.3
Bayer CropScience	BCSX 0888LLB2	1346.4	44.8	4.4	1.14	32.4	83.3
	<b>Mean</b>	1717.6	45.8	4.1	1.14	30.4	82.7
	<b>LSD</b>	245.54	1.55	0.30	0.027	1.40	1.08

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Table 2. Two-year average of yield, fiber quality, and performance of all cotton varieties.

2-year average yield		Fiber Properties					
Seed Company	Variety	Lint Yield lb/A	Lint %	Mic.	Len. (in.)	Str. (g/tex)	Uni. (%)
Winfield Solutions	CG 3035RF	1987.8	47.1	4.2	1.13	30.4	83.1
PhytoGen	PHY 370 WR	1979.3	47.6	4.6	1.10	30.4	83.0
PhytoGen	PHY 375 WRF	1972.9	48.0	4.2	1.13	29.9	83.5
Monsanto	DP 121 RF	1932.1	47.5	4.6	1.14	30.7	83.1
Monsanto	DP 555 BG/RR	1900.4	48.1	4.2	1.12	30.9	82.3
Bayer CropScience	ST 4554B2RF	1896.9	46.0	4.3	1.13	30.7	83.0
PhytoGen	PHY 425 RF	1893.0	45.8	4.7	1.14	31.2	84.1
Monsanto	DP 174 RF	1889.5	48.9	4.3	1.16	29.6	83.7
Monsanto	DP 117 B2RF	1877.9	45.8	4.2	1.15	33.5	83.2
PhytoGen	PHY 315 RF	1876.1	46.7	4.4	1.11	29.2	83.1
Bayer CropScience	ST 4427B2RF	1862.0	45.4	4.0	1.13	31.0	83.1
PhytoGen	PHY 485 WRF	1847.2	45.9	4.6	1.14	30.7	83.9
Bayer CropScience	ST 5327B2RF	1759.4	46.6	4.1	1.14	31.3	83.6
Monsanto	DP 143 B2RF	1759.0	44.7	3.9	1.18	30.4	81.9
Winfield Solutions	CG 3220B2RF	1740.5	45.1	4.3	1.15	30.4	83.3
Bayer CropScience	FM 1740B2F	1731.1	47.2	4.4	1.11	30.0	83.3
Monsanto	DP 141 B2RF	1729.7	44.1	3.9	1.19	31.2	82.9
PhytoGen	PHY 72	1729.0	45.3	4.2	1.17	32.7	83.0
Monsanto	DP 164 B2RF	1679.0	44.7	4.4	1.16	30.9	83.1
Monsanto	DP 161 B2RF	1667.0	44.8	4.2	1.17	32.0	83.3
Americot	AM 1532 B2RF	1660.7	45.8	4.2	1.16	29.0	82.9
Bayer CropScience	FM 1735LLB2	1555.1	44.1	4.2	1.12	32.0	83.2
Winfield Solutions	CG 3520B2RF	1548.9	44.5	4.1	1.14	28.6	83.0
Winfield Solutions	CG 4020B2RF	1518.9	45.4	4.2	1.16	29.7	83.8
Winfield Solutions	CG 3020B2RF	1495.2	43.8	4.0	1.12	29.1	83.0
	<b>Mean</b>	1779.5	46.0	4.3	1.14	30.6	83.2
	<b>LSD</b>	203.21	1.13	0.27	0.022	1.13	0.82

**Table 3. Three-year average of yield, fiber quality, and performance of all cotton varieties.**

3-year average yield		Fiber Properties					
Seed Company	Variety	Lint Yield lb/A	Lint %	Mic.	Len. (in.)	Str. (g/tex)	Uni. (%)
PhytoGen	PHY 370 WR	1743.7	46.4	4.5	1.11	30.1	83.3
Monsanto	DP 555 BG/RR	1697.6	47.0	4.2	1.13	30.2	82.6
Monsanto	DP 121 RF	1681.2	46.3	4.5	1.15	30.4	83.4
Bayer CropScience	ST 4554B2RF	1654.9	44.8	4.3	1.14	30.3	83.2
PhytoGen	PHY 425 RF	1646.3	44.2	4.6	1.15	30.8	84.4
PhytoGen	PHY 485 WRF	1613.4	44.7	4.5	1.14	30.4	84.2
Monsanto	DP 117 B2RF	1612.7	44.5	4.0	1.16	33.8	83.6
Bayer CropScience	ST 4427B2RF	1571.4	43.8	4.0	1.15	30.5	83.8
Monsanto	DP 143 B2RF	1568.0	43.5	3.9	1.20	30.2	82.5
PhytoGen	PHY 72	1530.0	44.4	4.1	1.19	32.9	83.6
Bayer CropScience	ST 5327B2RF	1519.7	45.7	4.2	1.15	31.5	83.8
Monsanto	DP 164 B2RF	1501.8	43.8	4.3	1.17	30.6	83.2
Winfield Solutions	CG 3520B2RF	1360.0	43.4	4.1	1.15	28.4	83.4
Winfield Solutions	CG 3020B2RF	1357.7	42.5	3.9	1.13	28.5	83.5
Winfield Solutions	CG 4020B2RF	1350.1	44.1	4.2	1.17	29.2	84.1
	<b>Mean</b>	1560.6	44.6	4.2	1.15	30.5	83.5
	<b>LSD</b>	153.69	0.80	0.21	0.017	0.98	0.67

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Table 4. Location, cooperator, and agent at all variety strip trials, 2008.

Location	Cooperator	Agent
City of Suffolk	Mike Griffin	Rex Cotton
Dinwiddie	Randy Everett	Mike Parrish
Sussex	Jared Webb	Kelvin Wells
Isle of Wight	Brian Carrol	Nathan O'Berry

Table 5. Combined yield, fiber quality, and performance of county variety strip trials (4 locations), 2008.

Seed Company	Variety	Fiber Properties					
		Lint Yield lb/A	Lint %	Mic.	Len. (in.)	Str. (g/tex)	Uni. (%)
PhytoGen	PHY 375 WRF	1397.9	47.9	4.7	1.11	28.5	82.8
Bayer CropScience	ST 4427B2RF	1329.7	45.8	4.6	1.12	29.7	82.4
Bayer CropScience	ST 4554B2RF	1307.1	46.5	4.7	1.13	29.8	82.7
PhytoGen	PHY 485 WRF	1286.0	45.9	4.8	1.12	30.6	83.3
Monsanto	DP 141 B2RF	1283.6	45.4	4.4	1.17	30.3	83.2
Monsanto	DP 143 B2RF	1272.0	46.1	4.4	1.18	29.7	83.1
	<b>Mean</b>	1312.7	46.3	4.6	1.14	9.8	82.9
	<b>LSD</b>	112.01	0.91	0.3	0.03	1.18	0.98