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## Planting Considerations and Variety Performance for Virginia Cotton Producers

Hunter Frame, Field Crops Agronomist, TAREC

### Planting Considerations

The 2012 growing season was a record for Virginia cotton growers with a statewide lint yield average greater than 1,129 lbs per acre (USDA NASS, 2013). This average placed Virginia first among predominately non-irrigated states and third overall for upland cotton in the U.S. This above average growing season was marked by consistent and timely rainfall for the majority of the cotton growing area. Many of the top performing varieties from years past were again at the top in the 2012 official cotton variety trials (OVT), while a few newcomers also performed well. As preparations are being made for the 2013 growing season, there are a few considerations producers should take into account when selecting varieties.



### Yield Goal

The most important consideration for most cotton growers is the yield goal they wish to achieve. Every field will have conditions which may limit yields so yield goals should be set on a field to field basis. Changes in soil type, weed pressure, soil fertility, and disease pressure can adversely impact yield for any given field. An example of this would be a field heavily infested with glyphosate resistant Palmer amaranth (pigweed) (*Amaranthus palmeri*). A glyphosate based herbicide program may not be the best course of action for a yield goal of 960 lbs lint per acre. Selecting a high yielding variety with resistance to Liberty® (glufosinate) could be a better option. If nematodes are present in a field then selecting a variety that has resistance to the specific nematode species present will help achieve the yield goal. Knowing the yield history of a field is also very useful in establishing reasonable yield goals for the future.

### Planting Date

Virginia is at the northern most region of the cotton belt and producers need to take the cool early season climate into consideration when planting. Soil temperatures need to be at least 65 °F by 10 AM at 3 in. and temperatures should not fall below 50 °F for 5-7 days following planting (Faircloth, 2013). Planting later maturing varieties first will allow for these varieties to accumulate the maximum number of growing degree days (DD60). However, cotton planted later will receive more heat units resulting in more aggressive growth. The growing season in Virginia is conducive to early or early-to-mid maturing varieties, however full season varieties can perform well with early planting dates, adequate heat unit accumulation, and ample rainfall. When selecting varieties consider the planting dates and stagger maturity classes to adequately space out pesticide applications, fertilizer applications, defoliation, and harvest.

## Fiber Quality

An often overlooked factor in variety selection is lint fiber quality. Fiber quality should not be overlooked when selecting a variety as it will increase the marketability and spinning qualities of cotton. Producers will receive a discount for the lint if the fiber analysis falls below certain criteria. Historically, this discounted price could be overcome by a modest increase in yield. Thus, yield remains the dominant variety selection criteria for cotton. However, a high yielding variety with good fiber quality will be more profitable and easily marketable. In Virginia, cotton tends to have higher micronaire, a fiber maturity measurement, than other growing regions of the U.S. This is due primarily to the shorter growing season which results in a higher percentage of immature fibers. So it is especially important to select cotton varieties with micronaire characteristics that fit this growing environment (Tables 1-3). Micronaire from 3.5 to 4.9 will not be discounted. Staple length refers to the average length of the longest half of fibers in the sample and is commonly reported in 32<sup>nds</sup> of an inch. Staple length is determined in the first 3 weeks of the bloom period and variety is a major determining factor (Tables 1-3).

## Variety Performance

The OVTs are conducted at the Virginia Tech Tidewater Research and Extension Center in Suffolk, VA each year and include commercially available and experimental varieties. Testing each year allows us to evaluate varieties over varying environmental conditions. Relative yields for 2010-2012 are reported in Tables 1 and 2. Three year relative yield averages are found in Table 1 and two year relative yield averages are found in Table 2. It is important to use yield data from multiple years and environments when selecting varieties. **Please note that Tables 1 and 2 do not present performance data for all available varieties!** Varieties do change frequently and multi-year/environmental stability data may not always be available. Please see the 2013 Virginia Cotton Production Guide (<http://pubs.ext.vt.edu/AREC/AREC-33/AREC-33.html>) for a complete list of varieties evaluated for performance and fiber quality in 2012. Table 3 lists varieties that will be introduced into the market for the 2013 growing season. Please use caution with varieties list in Table 3, as only one year of data for Virginia are available.

## References:

- Fairecloth, J. 2011. Planting. *In*. Herbert et al., editors, Virginia cotton production guide. College of Agriculture and Life Science, Virginia Tech, Blacksburg, VA. pp. 6.
- USDA-NASS.2013.Statistics by State: Virginia. United States Department of Agriculture; National Agricultural Statistics Service. Retrieved: 1-31-13 From: [http://www.nass.usda.gov/Quick\\_Stats/Lite/result.php?D0C6365F-5D79-3142-9BC7-70B4AE3927EC](http://www.nass.usda.gov/Quick_Stats/Lite/result.php?D0C6365F-5D79-3142-9BC7-70B4AE3927EC)

**Table 1:** 3-Year OVT relative yields data varieties entered each year at TAREC (2010-2012)

Variety	Relative Yield <sup>†</sup>	Maturity <sup>‡</sup>	Micronaire	Staple Length in.
PHY 499 WRF	0.99	mid	4.9	1.15
DG 2570 B2RF	0.92	early-mid	4.9	1.14
DP 1137 B2RF	0.91	mid	4.8	1.14
DP 1028 B2RF	0.90	early-mid	4.9	1.14
PHY 565 WRF	0.86	mid-full	4.5	1.16
AM 1550 B2RF	0.86	early-mid	4.9	1.12
PHY 375 WRF	0.84	early	4.8	1.14
DP 1034 B2RF	0.83	mid	4.7	1.16
PHY 367 WRF	0.80	early	4.7	1.14
DP 0912 B2RF	0.80	early	5.1	1.11
SSG HQ 210 CT	0.79	early-mid	4.8	1.12
DP 0920 B2RF	0.78	early-mid	5.1	1.12
SSG HQ 110 CT	0.76	early	4.9	1.13

<sup>†</sup> Relative yield was calculated by dividing individual plot yields by the highest average yield for that site-year

<sup>‡</sup> Data retrieved from the 2013 Seed Variety Selection Guide by Cotton Farming



**Table 2:** 2-Year OVT relative yields data varieties entered each year at TAREC (2011-2012)

Variety	Relative Yield	Maturity <sup>‡</sup>	Micronaire	Staple Length
				in.
PHY 499 WRF	0.97	mid	4.8	1.19
DG 2570 B2RF	0.92	early-mid	4.9	1.14
DP 1137 B2RF	0.90	mid	4.7	1.14
NG 1511 B2RF	0.87	mid	4.4	1.21
DP 1028 B2RF	0.86	early-mid	4.8	1.16
PHY 565 WRF	0.86	mid-full	4.2	1.18
AM 1550 B2RF	0.80	early-mid	4.7	1.15
PHY 375 WRF	0.80	early	4.5	1.16
DP 0920 B2RF	0.79	early-mid	4.8	1.15
DP 0912 B2RF	0.78	early	4.8	1.14
DP 1034 B2RF	0.78	mid	4.6	1.19
PHY 367 WRF	0.77	early	4.4	1.18
SSG HQ 210 CT	0.75	early-mid	4.4	1.13
DP 1219 B2RF	0.75	early	4.3	1.21
SSG HQ 110 CT	0.74	early	4.8	1.16
DP 1212 B2RF	0.72	early	4.7	1.20

<sup>†</sup> Relative yield was calculated by dividing individual plot yields by the highest average yield for that site-year

<sup>‡</sup> Data retrieved from the 2013 Seed Variety Selection Guide by Cotton Farming

**Table 3:** New varieties that show promise for 2013

Company	Variety	Lint Yield <sup>†</sup>	Maturity <sup>‡</sup>	Micronaire	Staple Length
		lb/A			in.
Monsanto	DP 1321 B2RF	1773	early-mid	4.5	1.21
CPS Dyna-Gro	DG 2530 B2RF	1749	mid	4.7	1.23
Bayer CropScience <sup>¶</sup>	ST 4946 GLB2	1730	early-mid	4.7	1.18
Dow Agro Sciences	PHY 575 WRF	1714	full	3.9	1.25
Dow Agro Sciences	PHY 339 WRF	1666	early	3.9	1.25
CPS Dyna-Gro	DG 2285 B2RF	1656	early	4.2	1.22
Croplan Genetics	CG 3428 B2RF	1574	early-mid	4.3	1.23
Monsanto	DP 1311 B2RF	1541	early	3.9	1.22

<sup>†</sup> Average Yield for 2012 OVT was 1602 lbs lint per acre with a LSD of 151.8 lbs lint per acre

<sup>‡</sup> Data retrieved from the 2013 Seed Variety Selection Guide by Cotton Farming

<sup>¶</sup> This variety has stacked traits for resistance to glufosinate and glyphosate (Glytol® variety)