2006 COTTON VARIETY TRIALS

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Introduction

The 2006 University of Georgia Cotton Variety Trials (OVT) were conducted at five locations across Georgia, spanning the cotton belt from southwest to northeast Georgia. Irrigated trials were conducted on-farm in Decatur county and at University research stations and/or education centers in Midville, Plains, and Tifton. Dryland trials were conducted on University research stations and/or education centers in Athens, Midville, Plains, and Tifton. Performance data in these tables, combined with data from previous years should assist growers in variety selection, one of the most important if not most important decisions in an economically viable cotton production plan. Data collected from the University of Georgia Variety Testing Cotton Program can be found at the Statewide Variety Testing Website: www.commodities.caes.uga.edu/swvt. Also, the data is published in the UGA Agricultural Experiment Station Research Report Number 709, January 2007.

Materials and Methods

The University of Georgia conducts Official Cotton Variety and Strain trials across Georgia to provide growers and county agents with performance data to help in selecting varieties. Data from the OVT also helps the private seed companies assess the fit of their products in Georgia. The University of Georgia cotton OVT is conducted by J. LaDon Day, Program Coordinator Cotton OVT, Griffin, GA. along with Mr. Larry Thompson, Research Professional I, Tifton, GA. The OVT is split into variety and strain trials with placement of varieties or strains into the particular trial chosen by its owner. Trials are separated by maturity. Irrigated OVT trials are conducted at Bainbridge, Midville, Plains, and Tifton, while dryland OVTs are conducted at Athens, Midville, Plains, and Tifton, thus varieties placed into the OVT are included in eight trials per year, giving a fair size data set with which to evaluate variety performance. The strains trials are irrigated and conducted at Midville, Plains, and Tifton. Trials consist of 4-replicate, randomized complete block designs. An accepted, common, management system is employed at each location for agronomic and pest management, but transgenic cultivars are not produced according to their intended pest management system(s). A random quality sample was taken on the picker during harvest and ginned to measure lint fraction on all plots including the irrigated late maturing trial at Tifton, but a portion of the seed cotton from the later maturity plots was bagged and sent to the Micro Gin at Tifton for processing. All fiber samples were submitted to Starlab, Knoxville, TN for HVI analyses. All trials were harvested with a state-of-the-art harvest system composed of a International IH 1822 picker fitted with weigh baskets and suspended from load sells.

This system allows one person to harvest yield trials where the established bag-and-weigh approach required eight people or more. The electronic weigh system allowed for timely harvest of yield trials. Data from all trials and combined analyses over locations and years are reported as soon as fiber data are available from the test lab in Adobe pdf and Excel formats on the UGA CottonTeam Website maintained at http://www.griffin.uga.edu/caes/cotton/varities/. Also, the data is available at the Statewide Variety Testing Website: www.commodities.caes.uga.edu/swvt.

Results and Discussion

2006 row crop season in Georgia can best be described as dry and hot. The first week of April was cool. Spotty rainfall during April and May resulted in drought conditions over much of the state. Early and mid May was cool but late May and early June were hot and dry. By mid June less than half of the crops were rated as good. Much of the non-irrigated crops were severely damaged by drought unless they caught a timely rain. Hot late June and July conditions and short water supply made it difficult for irrigation systems to keep up. Late July and August rains were often too late to improve the crops.

During 2006, Cotton producers planted 1.4 million acres of cotton. This number of acres planted was an increase of 15% over 2005. Throughout the growing season the Georgia cotton farmer was on the brink of disaster due to the hot dry weather, many acres of the crop were disked in during July. Even with acres being destroyed, 160,000 more acres(13% more) were harvested than during 2005. Yield per acre was down eight percent less than 2005 but coupled with increased acres harvested, production increased 4.2% during 2006. The overall rebound that the 2006 cotton crop made can not be fully explained but was a welcome relief.

Among varieties in the Dryland Earlier Maturity Trials, ten varieties stand out as varieties with high yield and relative yield stability in the dryland trials (Table 1). There were 12 other varieties that performed above average(Table 1). When summarized over two years, DP 454 BG/RR, PHY370WR, and DP 445BG/RR were top yielders (Table 2).

Among the best performing earlier maturing varieties produced under irrigation, DP 454 BG/RR, FM960BR, ST4427B2RF, and PHY370WR were the highest averaged over locations (Table 3). Eighteen other varieties performed above average(Table 3). DP 454 BG/RR and DP455BG/RR were the highest in yield when averaged over two years and locations in the Irrigated Early Maturity Trials conducted at Bainbridge, Midville, Plains, and Tifton; however, 11 other varieties yielded above average(Table 4).

Later maturity trials produced without irrigation also revealed the consistent performance of DP454BG/RR, DP555BR/RR, GA2003118, DP515BG/RR, DP488BG/RR, and DP493. (Table 5). Averaged over locations and years, DP454BG/RR was the front runner But also yielding above average were varieties from Monsanto and Georgia(Table 6).

Under irrigation, DP555 BG/RR led the standard later maturing trials averaged over locations (Table 7), while 11 other varieties were above average in lint yield. Averaged over years and locations, DP555BG/RR was the best performer (Table 8) with another six varieties yielding above average, Stoneville's 5599BR (Table 8), a variety released in 2003, continues to show promise to help growers with root knot nematodes as it possesses some resistance to root knot.
The Earlier Maturity and Later Maturity Strains Trials portend improved varieties for crop seasons 2007 and beyond (Tables 9). Varieties from Bayer Cropscience FiberMax, Georgia, and Syngenta were the higher yielding performer among standard earlier maturing entries in the strains trial. In the Later Maturity group three lines from Georgia were at the top, but lines from Bayer Cropscience FiberMax yielded above average.

Presented in Table 10 is the Tifton, Georgia, 2006 Later Maturity cotton variety performance, irrigated, data comparing small gin seed/lint with samples processed through the Micro-gin(MG) on the Tifton Campus. The seed cotton from the Later Maturity experiment was sub-sampled, ginned and sent to Star Lab in Knoxville, Tn., for HVI analysis. The remaining seed cotton was sent to the Micro-gin, Tifton Campus for processing and also sent to Star Lab for HVI analysis.

In summary, several new varieties described herein portend potentially higher yields and improved fiber packages available to Georgia growers.

Table 1. Yield Summary for Dryland Earlier Maturity Cotton Varieties, 2006

Entry	Lint Yield[a] Athens	Midville	Plains	Tifton	4-Loc. Average	Lint	Unif. Index	Length	Strength	Mic.
	---------- lb/acre ----------					%	%	in	g/tex	units
DP 454 BG/RR	**1347** [1]	**762** [1]	**1625** [2]	1540 [9]	**1318** [1]	45.9	82.7	1.05	29.2	4.5
PHY370WR	**1263** [3]	**605** [8]	**1619** [3T]	**1599** [4]	**1272** [2]	43.7	83.0	1.06	30.1	4.6
PHY480WR	**1251** [5]	**610** [7]	1599 [4]	1481 [13]	**1235** [3]	41.5	83.7	1.12	30.7	4.8
GA2003156	**1314** [2]	494 [24]	1409 [28]	**1633** [3]	**1212** [4]	43.9	82.9	1.12	33.0	5.0
PHY470WR	**1246** [6]	560 [12]	1484 [18]	1482 [12]	**1193** [5]	42.3	83.5	1.08	29.5	4.6
PHY310R	**1229** [8T]	**624** [4]	1541 [9]	1358 [24]	**1188** [6]	43.7	82.5	1.05	30.2	4.8
DP 445 BG/RR	1138 [17]	**589** [10]	1401 [29T]	**1594** [6T]	**1180** [7T]	42.8	83.2	1.11	29.2	4.5
DP 455 BG/RR	**1229** [8T]	507 [20]	1584 [6]	1398 [21]	**1180** [7T]	43.2	81.9	1.08	30.7	4.3
DP 143 B2RF	**1213** [9]	577 [11]	1258 [45]	**1668** [2]	**1179** [8]	40.8	82.1	1.17	28.9	4.3
PHY425RF	**1192** [10]	**615** [6]	1496 [16]	1390 [22]	**1173** [9]	43.0	83.2	1.10	30.5	4.9
PHY485WRF	1069 [24]	439 [32]	**1804** [1]	1372 [23]	1171 [11]	43.1	83.1	1.11	30.7	4.8
DP 117 B2RF	1129 [18]	508 [19]	1489 [17]	1542 [8]	1167 [11]	42.5	82.7	1.12	31.8	4.6
ST 5242BR	**1257** [4]	428 [34]	1435 [24]	1494 [10]	1153 [12]	43.2	83.1	1.08	28.3	4.4
GA2002209	1092 [21]	**599** [9]	1361 [35]	**1553** [7]	1151 [13]	43.8	82.9	1.11	31.0	5.0
FM966LL	1149 [13]	381 [40]	1267 [44]	**1797** [1]	1148 [14T]	42.2	83.2	1.11	34.9	4.6
GA2002212	1085 [23]	468 [27]	1549 [8]	1492 [11]	1148 [14T]	44.2	82.6	1.12	32.5	5.0
FM960B2R	1155 [12]	324 [46]	**1619** [3T]	1403 [20]	1125 [15]	41.6	82.1	1.11	32.5	4.7
DP 432 RR	908 [41]	412 [36]	1507 [13]	**1594** [6T]	1105 [16]	41.2	83.0	1.08	28.9	4.5
FM9063B2F	1140 [15]	433 [33]	1389 [31]	1426 [17]	1097 [17]	41.5	83.1	1.17	31.6	4.3
DX25105N	1126 [19]	521 [15]	1413 [26]	1314 [26]	1094 [18]	43.1	82.9	1.12	29.6	4.8
DP 110 RF	1147 [14]	517 [16]	1432 [25]	1260 [32]	1089 [19]	41.8	83.3	1.13	34.1	4.7
ST 4575BR	1039 [30]	541 [13]	1587 [5]	1179 [39T]	1087 [20]	42.3	82.1	1.05	28.7	4.8
DynaGro 060642B2/RF	1068 [25]	449 [30]	1531 [10]	1279 [30]	1082 [21]	40.1	82.3	1.07	26.6	3.8
GA2002167	910 [40]	514 [17]	1300 [42]	**1598** [5]	1080 [22]	43.4	82.4	1.09	31.4	4.7
FM960BR	1051 [27]	286 [47]	1499 [15]	1480 [14]	1079 [23]	42.1	82.6	1.09	32.2	4.7
FM965LLB2	929 [38]	485 [26T]	1460 [20]	1432 [16]	1076 [24]	40.5	82.7	1.12	33.3	4.5
ST4427B2RF	1139 [16]	394 [38]	1378 [33]	1357 [25]	1067 [25]	41.8	82.7	1.09	30.1	4.6
DPLX06W650F	**1232** [7]	503 [21]	1231 [47]	1296 [28]	1066 [26]	42.6	82.6	1.10	29.7	4.6
FM9060F	**1168** [11]	329 [44]	1324 [38]	1435 [15]	1064 [27]	42.9	82.6	1.16	29.0	4.3
DP 121 RF	950 [35]	501 [22]	1562 [7]	1222 [36]	1059 [28T]	43.2	82.9	1.09	30.3	4.9
DP 393	984 [33]	**739** [2]	1310 [39]	1201 [38]	1059 [28T]	41.9	82.9	1.08	30.2	4.8
DP 147 RF	1105 [20T]	391 [39]	1306 [41]	1423 [19]	1056 [29]	42.0	82.7	1.16	30.1	4.4
ST 4554B2RF	1049 [28]	509 [18]	1350 [36]	1301 [27]	1052 [30]	41.9	82.4	1.09	30.2	4.7
DynaGro 2520B2/RF	1087 [22]	454 [29]	1459 [21]	1179 [39T]	1045 [31]	40.8	82.5	1.11	27.7	4.4
FM9068F	1105 [20T]	368 [41]	1281 [43]	1424 [18]	1044 [32]	41.5	83.1	1.15	31.4	4.5
DP 444 BG/RR	1003 [32]	**616** [5]	1254 [46]	1295 [29]	1042 [33]	42.9	82.6	1.06	28.8	4.2
ST 4357B2RF	1060 [26]	539 [14]	1383 [32]	1166 [41]	1037 [34]	40.9	83.0	1.11	27.9	4.4
CG3520B2RF	962 [34]	**681** [3]	1392 [30]	1067 [45]	1026 [35]	41.4	82.5	1.09	26.3	4.3
ST 4664RF	1027 [31]	491 [25]	1411 [27]	1155 [42]	1021 [36]	41.7	82.8	1.08	29.3	4.7
BW-8391B2F	881 [43]	442 [31]	1463 [19]	1269 [31]	1014 [37T]	39.5	82.9	1.13	29.1	4.2

Yield Summary for Dryland Earlier Maturity Cotton Varieties, 2006 (Continued)

Entry	Lint Yield[a] Athens	Midville	Plains	Tifton	4-Loc. Average	Lint	Unif. Index	Length	Strength	Mic.
	---------- lb/acre ----------					%	%	in	g/tex	units