

## EARLY SEASON COTTON VARIETY TRIALS AT HOLLY SPRINGS PLANTED ON NO-TILL SEEDBED

J. R. Johnson<sup>1</sup>, J. R. Saunders<sup>1</sup>, and T. P. Wallace<sup>2</sup>

<sup>1</sup>North Mississippi Branch Experiment Station, North Mississippi Research and Extension Center, Mississippi State University; Holly Springs, MS 38635

<sup>2</sup>Plant and Soil Science Department, Mississippi State University, Mississippi State, MS 39762

**ABSTRACT:** The 2004 growing season had adequate moisture early and mid season with a drought at the end of the season. DD 60'S were below 2000 for Holly Springs during the growing season. Yield ranged from a high of 1445 lb lint/ac for OAX 303 to a low of 1100 lb lint/ac for DP 424BGII/RR. Average yield of the test was 1287 lb lint/ac. Six varieties, (OAX 303, ST 4892BR, ST 5599BR, ST 4686R, DP 444BG/RR, and DP 333) had yields significantly higher than 1287 lb lint/ac. Four varieties (OAX 303, ST 4892BR, ST 5599BR, and DP 333) had gin turnout significantly higher than the test mean of 41.38. OAX 303, ST 4575BR, ST 4793R, DP 432RR, BCG 28R, had significant higher micronaire reading than the test mean of 4.79.

**CITATION:** Johnson, J. R., J. R. Saunders, and T. P. Wallace. 2005. Early Season Cotton Variety Trials at Holly Springs. Annual Report 2004 of the North Mississippi Research and Extension Center, Mississippi Agricultural & Forestry Experiment Station Information Bulletin 419:113-115.

**KEYWORDS:** Cotton, Variety Trial, Early Season Varieties

**MATERIALS AND METHODS:** Thirty-two early season cotton varieties were evaluated for lint yield, lint turnout, boll size, staple length, strength, and micronaire in 2004. Test site was located on a Grenada silt loam soil. Cultural practices were for a no-till seedbed. Experimental design was a randomized complete block with 6 replications. Plot size was two 38-inch rows, 50 ft long.

Plot area was sprayed with Roundup (glyphosate) at 1.0 lb ai/ac in late March 2004. Fertilizer (N, P, and K) was broadcast over the plot area according to soil test recommendations in late April. Cottonseeds were planted using a plot planter adapted for no-till planting. Plots were planted the last week of April at the rate of 4 live seed per ft/ row based on laboratory seed germination test for each variety. Terrachlor Super X 18.8G (pentachlornitrobenzene) 1.5 lb ai/ac plus Temik 15G (aldicarb) 0.75 lb ai/ac were applied in furrow at planting. Plots were broadcast sprayed with Gramoxone (paraquat) 0.75 lb ai/ac + Cotoran (fluometuron) 0.5 lb ai/ac + Staple (pyrithiobac) 0.06 oz ai/ac after planting. Cotoran 1.0 lb ai/ac + Staple 1.2 oz ai/ac were directed sprayed on the plots the first week of June. A layby treatment of MSMA at 1.0 lb ai/ac + Caparol 4L (prometryn) at 1.0 lb ai/ac was sprayed as a directed sprayed in late June. Cotton was defoliated in mid-September using Superboll (ethephon) 1.5 lb. ai/ac + Def 6 (tribufos) 1.5 lb. ai/ac. Harvest was completed the last week of October. Statistical analyses of the collected data were analyzed using analysis of variance procedures. Mean separation was accomplished by least significant difference (LSD) at the 10% significance level

**RESULTS AND DISCUSSION:** The growing season for 2004 at Holly Springs was marginal. Temperatures were moderate rarely exceeding 90 degrees, and moisture was adequate during the early and mid season with a drought near the end of the growing season. DD 60'S were less than 2000 for the entire growing season.

Yield ranged from a high of 1445 lb lint/ac for OAX 303 to a low of 1100 lb lint/ac for DP424BGII/RR. Average yield was 1287 lb lint/ac. Six varieties (OAX 303, ST 4892BR, ST 5599BR, ST 4686R, DP 444BG/RR, and DP 333) had yields significantly higher than 1287 lb lint/ac. Four varieties, (OAX 303, ST 4892BR, ST 5599BR, and DP 333) had gin turnout significantly higher than the test mean of 41.38. OAX 303, ST 4575BR, ST 4793R, DP 432RR, BCG 28R, had significant higher micronaire reading than the test mean of 4.79. Data for test is shown in Table 1.

Table 1. Yield, lint percent, boll size, length, strength, and micronaire of early maturing cotton varieties at Holly Springs planted no-till on a Grenada Silt Loam soil.

| Variety          | Lint Yield  | Lint Percent | Boll Size   | Length      | Strength     | Micronaire  |
|------------------|-------------|--------------|-------------|-------------|--------------|-------------|
|                  | lbs.ac      | %            | gms         | inch        | g/tex        | mic         |
| OAX 303          | 1445        | 45.49        | 4.09        | 1.04        | 30.07        | 5.20        |
| ST 4892BR        | 1412        | 44.22        | 5.19        | 1.03        | 30.40        | 5.03        |
| ST 5599BR        | 1410        | 44.39        | 5.80        | 1.05        | 32.20        | 4.87        |
| ST 4686BR        | 1396        | 42.67        | 5.31        | 1.05        | 27.67        | 4.87        |
| DP 444BG/RR      | 1394        | 42.82        | 4.92        | 1.05        | 29.47        | 4.10        |
| DP 393           | 1378        | 43.80        | 4.85        | 1.10        | 30.83        | 4.73        |
| ST 5242BR        | 1351        | 43.17        | 6.32        | 1.02        | 26.90        | 4.77        |
| SG 747           | 1341        | 42.43        | 5.38        | 1.06        | 28.13        | 5.03        |
| DP 434RR         | 1327        | 43.02        | 4.70        | 1.08        | 28.50        | 4.67        |
| PM 1218BG/RR     | 1324        | 42.53        | 5.81        | 1.01        | 28.60        | 4.97        |
| DES 816          | 1321        | 41.50        | 5.74        | 1.05        | 32.07        | 4.67        |
| DP 455BG/RR      | 1313        | 42.87        | 4.90        | 1.09        | 31.13        | 4.20        |
| PSC 355          | 1311        | 40.51        | 4.78        | 1.06        | 31.57        | 5.07        |
| FM 960RR         | 1309        | 42.21        | 6.13        | 1.08        | 32.40        | 4.23        |
| ST 3636B2R       | 1292        | 41.71        | 5.26        | 1.05        | 28.80        | 4.97        |
| DP 455BG/RR      | 1291        | 42.44        | 5.21        | 1.08        | 29.00        | 4.57        |
| ST 4575BR        | 1281        | 41.41        | 6.03        | 1.05        | 29.67        | 5.10        |
| PHY 410R         | 1279        | 40.89        | 4.85        | 1.06        | 30.67        | 5.00        |
| FM 958LL         | 1279        | 41.75        | 5.52        | 1.11        | 32.13        | 4.63        |
| FM 966LL         | 1276        | 40.31        | 5.92        | 1.08        | 35.10        | 4.60        |
| ST 4793R         | 1275        | 41.5         | 5.04        | 1.00        | 29.77        | 5.23        |
| DP 449BG/RR      | 1271        | 40.62        | 4.94        | 1.05        | 32.93        | 4.70        |
| DP 432RR         | 1258        | 41.23        | 5.42        | 1.02        | 29.67        | 5.10        |
| BCG 28R          | 1252        | 39.53        | 5.46        | 1.04        | 29.27        | 5.13        |
| DES 810          | 1234        | 38.95        | 4.67        | 4.04        | 30.67        | 4.73        |
| FM 960BR         | 1228        | 41.11        | 5.99        | 1.05        | 35.47        | 4.60        |
| DP 451BG/RR      | 1216        | 38.36        | 5.63        | 1.07        | 28.17        | 4.80        |
| FM 960B2R        | 1181        | 39.22        | 5.58        | 1.10        | 31.87        | 4.80        |
| SG 521R          | 1157        | 40.65        | 5.60        | 1.04        | 29.33        | 4.57        |
| DP 436RR         | 1146        | 38.05        | 5.23        | 1.07        | 26.40        | 4.60        |
| ST 4646B2R       | 1146        | 39.41        | 5.56        | 1.01        | 28.87        | 4.93        |
| DP424BG11/RR     | 1100        | 35.26        | 5.41        | 1.04        | 28.47        | 4.70        |
| <b>Mean</b>      | <b>1287</b> | <b>41.38</b> | <b>5.35</b> | <b>1.05</b> | <b>30.21</b> | <b>4.79</b> |
| <b>LSD (.10)</b> | <b>79</b>   | <b>1.78</b>  | <b>0.63</b> | <b>0.02</b> | <b>1.57</b>  | <b>0.31</b> |
| <b>CV (%)</b>    | <b>6.41</b> | <b>3.16</b>  | <b>8.63</b> | <b>1.73</b> | <b>3.82</b>  | <b>4.80</b> |
| <b>R-Square</b>  | <b>0.60</b> | <b>0.79</b>  | <b>0.64</b> | <b>0.78</b> | <b>0.84</b>  | <b>0.73</b> |