

Results and Discussion

Performance of Wheat Varieties Across South Louisiana

South Region Means

The performance of wheat varieties tested across south Louisiana in 2007 is shown in Table 1. Bold print in all tables indicates that the entry is a released variety and normal print indicates that the entry is a breeding line that is not commercially available. Terral LA 482 (90.2 bu/acre), Pioneer 26R87 (84.3 bu/acre) and AGS2060 (84.2 bu/acre) were the highest-yielding released varieties. Three breeding lines, GA951231-4E25 (87.3 bu/acre), LA 99005UC-31-3-C (85.8 bu/acre), and LA 98133D-160-3-C (84.6 bu/acre) rounded out the top four for south Louisiana. The yield average for 49 entries was 71.6 bu/acre with an average test weight of 56.1 lbs/bu.

Leaf rust pressure was relatively light in the spring of 2007, with only two entries having 10% or greater rust. Stem rust developed at two of three locations and was moderately heavy, with significant differences among varieties. Ratings (0-9 scale) ranged from 0 (none) to 5.4.

Across south Louisiana, two released varieties, Terral LA482 (85.2 bu/acre), and AGS 2000 (83.7 bu/acre) led in two year mean yields (Table 2). AGS 2060 (82.0 bu/acre), Pioneer 26R87 (80.6 bu/acre) and Terral LA841 (79.9 bu/acre) round out the top five in yield. The 21 entries tested for two years at three locations had a yield average of 69.6 bu/acre and a test weight average of 56.9 lbs/bu. The average heading date was 83 (day of year) and the six lowest-yielding entries had later-than-average heading dates. Significant differences occurred among entries for septoria, leaf rust, and stem rust incidence.

Of the 13 entries tested over three years in South Louisiana, Terral LA482 (85.4 bu/acre), AGS 2000 (80.6 bu/acre), and Terral LA 841 (80.3 bu/acre) had the three highest yields (Table 3). One other released variety, Delta King GR9108 had a yield above 77.0 bu/acre. The test weight average was 57.5 bu/acre. Over 3 years, the top four performers received low Septoria, leaf, and stem rust ratings.

Baton Rouge

The varieties Terral LA 841 (80.4bu/acre), Terral LA482 (78.2 bu/acre) and two LA breeding lines were the highest-yielding entries at Baton Rouge in 2007 (Table 4). The average for 49 entries was 69.0 bu/acre for yield and 68.6 lbs/bu for test weight. Twenty nine entries had yields above 70.0 bu/acre. Despite heavy rains in January, which restricted tillering, yields were good. Test weights were excellent due in part to the dry spring. Average heading occurred at day 89. Later-heading entries generally had low test weights and yields. Mid February through April were dry, resulting in low disease pressure. Leaf rust pressure was low, with ratings from 0 to 8%. Septoria ranged from 1 to 7 on a 0-9 scale.

Twenty varieties were planted in a late date (December 12) of the trial at Baton Rouge (Table 4b). The Most of the entries yielded well, with six entries yielding less than at the normal (November 13) data and 14 varieties yielding more when planted late. Only one entry, USG 3477 yielded 10+ bushels less when planted late. As expected, earlier-heading varieties generally outperformed later-heading varieties when planted late.

Crowley

In Crowley, a released variety, Pioneer 26R87 (94.3 bu/acre) and a breeding line GA 951231-4E25 (92.7 bu/acre) led 49 entries in yield for 2007 (Table 5). Two more varieties, Terral LA 482 and AGS 2060 and the breeding line LA 99005UC-31-3-C round out the top five, all with yields above 88 bu/acre. Averages for this location include 74.0 bu/acre for yield and 56.1 lbs/bu for test weight. Leaf rust ratings ranged from 0 to 80% with mean of only 4%. Stem rust pressure was also moderate, with a mean rating of 0.9 and a range of 0 – 6.0 on a 0-9 scale. The average heading date was 79 days.

Jeanerette

Terral LA482 was the highest-yield variety at Crowley (100.3 bu/acre). Seven breeding lines and USG 3209 also yielded greater than 90 bu/acre. The yield mean of 49 entries was 71.5 bu/acre. Test weight data were not collected at this location. Despite heavy stem rust pressure, the stem rust rating mean was 0.3 on a 0-9 scale. Most entries exhibited high levels of resistance. The heading date mean was 99 days. Despite some vernalization problems in late entries and non-uniform disease infection, the test at this location was excellent overall.

Performance of Wheat Varieties Across North Louisiana

North Region Means:

Yields were excellent across north Louisiana in 2007 (Table 7). AgriPro Coker Magnolia had the highest yield (81.9 bu/acre) of 52 entries, followed by two breeding lines, GA 951231-4E25 and GA 951231-4E26 and the varieties Terral LA 841 and USG 3592, also with yields over 80.0 bu/acre. Averages for the north region include 73.0 bu/acre for yield and 57.9 lbs/bu for test weight. With a dry spring, there was minimal disease pressure. Only two out of fifty two entries received a leaf rust rating above 5%.

In two years across North Louisiana, AgriPro Coker Magnolia led with a yield of 88.0 bu/acre (Table 8). The varieties Terral LA841, Delta King 9577, and Terral TV8558 ranked second, third, and fourth, respectively, all with yields above 81.0 bu/acre. The two year averages included 78.3 bu/acre for yield and 57.4 lbs/bu for test weight. Leaf rust ratings and stripe rust ratings were generally low. Average heading date was 90 days (day of year)

Terral LA 841 has the highest average yield (79.5 bu/acre) across north Louisiana for three years (Table 9). AgriPro Coker 9553 (83.5 bu/acre) and Delta King GR9108 (81.6 bu/acre) ranked second and third with a breeding line, LA 95171CA58-3-2 (81.5 bu/acre) and the variety Ragan & Massey LA 95135 (81.4 bu/acre) rounding out the top five. Three year averages include 79.5 bu/acre for yield and 58.4 lbs/bu for test weight. Low levels of leaf rust ($\leq 2\%$) and stripe rust ($\leq 6\%$) were seen in the top five entries.

Alexandria

GA 951231-4E25, a breeding line, ranked first in yield at Alexandria in 2007 (Table 10). Three released varieties, Jamestown (85.3 bu/acre), AGS 2031 (82.1 bu/acre) and USG 3209 (81.3 bu/acre) and a second breeding line, LA98214D-14-1-2-B (82.0 bu/acre) round out the top five. Averages for this location include 70.1 bu/acre for yield and 55.9 lbs/bu for test weight. AGS2060 and GA96693-4E16 had test weights ≥ 60 lbs/bu. Disease ratings were extremely low at this location. Only one of 52 entries had a leaf rust rating above 0%. Stripe rust ratings were also very low with only 5 entries registering any symptoms.

St. Joseph

The breeding line GA 951231-4E25 led the St. Joseph test with a yield of 84.7 bu/acre (Table 11). Three varieties, Terral TV8558 (82.4 bu/acre), USG 3592 (81.3 bu/acre), and DK9577 (79.8 bu/acre) ranked second, third and fourth, respectively. A second breeding line, GA 951231-4E26 rounded out the top five producing entries with a yield of 78.4 bu/acre. Jamestown and Pioneer 26R87 had test weights of 61.7 and 61.9 lbs/bu, while the average test weight was 59.1 lbs/bu. There was very low disease pressure and no lodging at this location.

Winnsboro

The breeding line LA 978UC-101-1-1-1-C (95.6 bu/acre) had the highest yield of 52 entries at this location in 2007 (Table 12). Three other breeding lines, LA 99005UC-31-3-C (94.1 bu/acre), LA 978UC-36-1-1-B (92.9 bu/acre) and LA 98214D-14-1-2-B (92.8 bu/acre) ranked in the top five. One released variety, AGS 2000 (94.4 bu/acre) ranked in the top five. With a moderately dry spring, low disease pressure and no lodging occurred at this location. Test weights were good, with an average of 58.6 lbs/bu and a high of 61.4 lbs/bu (Jamestown). Leaf rust ratings ranged from 0 to 23% with a mean of 2%.

Over two years, five released varieties, AgriPro Coker Magnolia (97.6 bu/acre), Terral LA 482 (95.6 bu/acre), Terral LA 841 (91.9 bu/acre), Croplan 8302 (91.1 bu/acre), and DKGR9108 (78.3 bu/acre) took the first five rankings at Winnsboro.

Statewide Performance of Wheat Varieties

The average performance of 49 entries across six locations in 2007 is given in Table 13. In Table 14, yield data are separated into locations and ranked according to statewide

mean yield. The experimental line GA951231-4E25 ranked 1st statewide with a yield of 84.3 bu/acre. The only released variety in the top five, AgriPro Coker Magnolia ranked 2nd with a yield of 81.3 bu/acre. The experimental line LA 978UC-36-1-1-B, with a yield of 80.8 bu/acre rounded out the top five entries.

The statewide test weight mean was 57.4 lbs/bu. Two varieties, AGS 2060 and Pioneer 26R87 shared the top ranking for test weight (59.7 lbs/bu). Leaf and stem rust levels were very low with means of 1% and 1.5 (0-9), respectively. The top five yielding entries all had leaf rust ratings of 0 and the top four had stem rust ratings below the mean.

Nineteen entries were tested across Louisiana for two years. Data was obtained from four locations in 2006 and six locations in 2007 (Table 15). The varieties AgriPro Coker Magnolia (82.6 bu/acre) and Terral LA 841 (81.1 bu/acre) ranked 1st and 2nd, well above the mean yield of 72.7 bu/acre. An LA breeding line, LA 95171CA58-32 also had above average yield.

Eleven entries were tested across Louisiana over the 2005-2007 seasons. Five locations reported in 2005, four in 2006, and six locations in 2007. Two Terral varieties, LA 841 (83.8 bu/acre) and LA 482 (83.1 bu/acre) ranked 1st and 2nd with yields high above the test mean of 76.6 bu/acre. Over three years, the LA breeding line LA 95171CA58-3-2 had a yield above the mean.

OTHER WHEAT TRIALS

Thirty nine entries were tested in the 2006 USDA Uniform Southern Soft Red Winter Wheat Nursery at Baton Rouge and Winnsboro (Tables 16 and 17). The leading entry at Baton Rouge, the breeding line GA 981621-5E34, had a yield of 83.2 bu/acre compared to a test mean yield of 63.1 bu/acre. At Winnsboro, the variety USG 3209 was the leading entry with a yield of 84.5 bu/acre compared to a test mean yield of 68.0 bu/acre.

Wheat Preliminary Yield Trial A (WPA) was planted at Baton Rouge and Winnsboro in 2007 and contained 34 entries (30 experimental lines and 4 checks). The leading entry at Baton Rouge had a yield of 89.2 bu/acre compared to the test mean of 73.6 bu/acre. One check yielded below the test mean (Table 18). Across Baton Rouge and Winnsboro, the test mean yield was 74.5 bu/acre with the leading entry having a yield of 87.5 bu/acre.

Wheat Preliminary Yield Trial B (WPB) consisted of 36 entries (Tables 20, 21, 22). This test was planted at Baton Rouge and Winnsboro. At Baton Rouge, an LA breeding line, LA01138D-52 (83.6 bu/acre) outperformed all 6 released variety checks and led the test in yield at this location. The average yield for this location was 67.3 bu/acre. At Winnsboro, a second LA breeding line, LA 01139D-116 (92.4 bu/acre) outperformed 6 released variety checks and yielded above the test mean yield of 78.9 bu/acre.

Wheat Preliminary Yield Trial C (WPC) data from across Baton Rouge and Winnsboro are located in Table 23. A released variety, Terral LA 482 (74.5 bu/acre) led this test of 47 entries which had a mean yield of 64.6 bu/acre.

Performance of Oat Varieties

Performance of Oat Varieties Across Louisiana:

The oat variety performance trials were conducted at Baton Rouge and Winnsboro in 2007 (Table 24). This trial was composed of 29 entries, which included nine commercial varieties and 20 breeding lines. The top 5 yielding entries, all breeding lines, included two from Florida, two from Louisiana and one from Texas, all of which yielded above 128 bu/acre. The test means included 111.6 bu/acre for yield and 34.6 bu/acre for test weight. Crown and stem rust ratings were very low with test means of 3% and 1.3 (0-9), respectively. The top five entries all had crown rust ratings of 0 and stem rust ratings between 0.3 and 3.3.

Oat variety trial two and three year mean data are found in Table 25. An experimental Texas line TX02U7682 (133.4 bu/acre) had the highest two year mean yield. A commercial variety Horizon 270, two LA breeding lines and one Florida breeding line round out the top five entries, all with yields above 119 bu/acre. The two year means include 110.6 bu/acre for yield and 33.4 lbs/bu for test weight.

In the three year means, Horizon 270 led with a yield of 13.8 bu/acre compared to a test mean yield of 113.0 bu/acre.

Baton Rouge:

The breeding line LA 99016SBSB-98-S (127.3 bu/acre) had the highest yield at this location compared to a test mean of 105.4 bu/acre (Table 26). Two other LA breeding lines as well as two Florida breeding lines ranked in the top five, all with yields above 122 bu/acre. Test means included 105.4 bu/acre for yield and 33.7 lbs/bu for test weight. Crown rust pressure was low with a test mean of 3%, while stem rust pressure was moderate.

Winnsboro:

The Texas breeding line TX02U7682 (142.4 bu/acre) ranked 1st in yield at this location. Two Florida and two LA breeding lines also ranked in the top five, all with yields above 133 bu/acre (Table 27). The mean test yield was 118.3 bu/acre. Horizon 270 (132.3 bu/acre) was the highest yielding variety. A very dry spring resulted in no disease pressure at this location.

Preliminary Oat Yield Trial 'A' and 'B':

Oat Prelim-A data from Baton Rouge and Winnsboro can be found in Table 28. The breeding line FL99153FBS-45-1-B-S-B-S1-B-S1 ranked 1st with a yield of 120.6 bu/acre. The test mean yield was 106.6 bu/acre. Four LA breeding lines took the other top five rankings, all with yields above 114 bu/acre. Terral Secretariat LA 495 (112.1 bu/acre) was the highest yielding commercial variety entry in the test.

Oat Prelim-B precedes Prelim A in variety development and is only grown in Baton Rouge (Table 28). A Florida breeding line, FL 99065-D13-E4 (125.5 bu/acre) ranked 1st in yield. Three released varieties, Horizon 270, Secretariat LA 495, and LA9339 were ranked 2nd, 3rd, and 4th respectively. A second breeding line, FL 99175-P13 (108.1 bu/acre) rounded out the top five. Out of 30 entries, the variety LA 99016SBSB-98-S (36.6 lbs/bu) had the highest test weight. Test means included 88.5 bu/acre for yield and 33.2 lbs/bu for test weight, 2% for crown rust and 1.5 (0-9) for stem rust.

Uniform Oat Nursery at Baton Rouge:

The USDA regional Uniform Winter Oat Yield Nursery was grown at Baton Rouge (and other locations across the southern US). A Florida breeding line, FL 99201-D29-E1 (134.9 bu/acre) had the highest yield of 24 entries. An LA breeding line, LA 9911SBSBSB-45-B-S-B had the highest test weight. Test means included 108.7 bu/acre for yield, 32.3 lbs/bu for test weight, 1% for crown rust, and 2.2 (0-9) for stem rust.