2006 Louisiana Corn Hybrid Performance Trial Summary

Steven H. Moore, Henry J. Mascagni Jr., William D. Caldwell, Mildred E. Deloach, Robert L. Bell and James A. Hayes.

Steven H. Moore
Professor and Statewide Coordinator
Louisiana Corn Hybrid Performance Test
Site Coordinator for Dean Lee Research Station, Alexandria
Mildred E Deloach, Research Associate

Henry "Rick" J. Mascagni Jr., Professor
Site Coordinator for Macon Ridge Branch Station, Winnsboro and
Northeast Research Station, St. Joseph
Robert L. Bell, Research Associate

David W. Caldwell
Professor and Site Coordinator
Red River Research Station, Bossier City
James A. Hayes, Research Associate

Cooperating

David Y. Lanclos, Corn Specialist
Robert E. Ferguson, Research Associate
Louisiana Cooperative Extension Service

2006 Louisiana Corn Hybrid Performance Tests

Performance of commercial corn hybrids are evaluated each year by Louisiana Agricultural Experiment Station (LAES) researchers. The purpose of the trials is to provide Louisiana growers and seedsmen with scientific unbiased results on the performance of commercial corn hybrids submitted for evaluation by private companies or agencies. The data generated in these trials are used by the Louisiana Cooperative Extension Service for recommending hybrids.

The Louisiana Agricultural Experiment Station units cooperating in 2006 were the Dean Lee Research Station at Alexandria, the Red River Research Station at Bossier City, the Macon Ridge Branch of the Northeast Research Station at Winnsboro, and the Northeast Research Station at St. Joseph. Seventy-seven corn hybrids were tested in 2006. Although there was a range of maturity among hybrids, all entries were combined in one test at each location. Entries were evaluated at all locations in randomized complete block designs. In each test, hybrids were replicated at least four times. Companies which entered the test had the prerogative to choose the seeding rate for each hybrid they entered. The default targeted seeding rate was 30,000 kernels per acre.

Agronomic data reported were generally measured according to the following guidelines;

Yield - Bushels of corn per acre calculated from plot weights.
Moisture - Moisture of grain when measuring plot weight.
Test Weight - Pounds per bushel of corn grain.
Mid-Silk - Date at which 50% of silks were visibly protruding from ear shoots.
Plant Height - Height in inches to collar of the uppermost leaf.
Ear Height - Height in inches to point of ear attachment to main stem.
Shuck Coverage - Numerical rating of 1 to 3 corresponding to 1=good, 2=average, and 3=poor.
Good coverage is when husks reach well beyond ear tip and fit tightly.
Average is when husks reach the tip of the ear or fit loosely.
Poor is when ears are open to the weather.
Plant Population – Plants counted from equal sections of the middle two harvest rows.

Stem and Root lodging are reported when they occur and are measured.

Yield and agronomic data were analyzed using statistical procedures from ‘ARM'. The coefficient of variation (CV) measures the amount of experimental error in a test compared to the test mean on a percentage basis. Experimental error is uncontrolled variability that is not due to hybrids or replications. Uncontrolled variability is caused by a lack of uniform test conditions, including soil, fertility, stands, disease, insects, weeds, plot length, harvest efficiency, and other variables. A CV of 15% or less for yield in a hybrid performance trial it is usually considered acceptable. Least significant differences (LSD) were computed using a probability level of 0.05. For example, if the LSD (0.05) for yield in a trial is 7.0 bushels or more per acre, there is a 5% chance that two hybrids are genetically equal and a 95% probability they have true genetic differences in that particular environment. The LSD is affected by experimental error and the number of replications in a test.

Station Tests in 2006

Dean Lee Research Station (see table 1) – The test was planted March 16 on a Norwood silt loam soil in 38-inch row spacing. The test had six replications. Pesticides applied on an acre basis included Aztec in the furrow, 48 ounces of Guardsman Max, 2 pints of Atrazine and 0.66 ounces of Accent. Two-hundred pounds of nitrogen was applied on April 7. The test was harvested August 15-17. Hybrids averaged 188 bushels per acre, the highest yield in the commercial hybrid test at the Dean lee Research Station in at least recent history. The coefficient of variation was relatively low at 7 per cent.

Northeast Research Station Loam (see table 2) - The test was planted March 15 on a Commerce silt loam soil in 40-inch row spacing. The test had five replications. Pesticides applied on an acre basis included 1 quart of glyphosate (before planting and emergence) 1 quart of Atrazine, 1 pint of Dual, 0.12 pounds (ai) of Aztec, and 10 ounces of Baythroid. The test was fertilized with 200 pounds of nitrogen. Stands were reduced due to heavy rainfall that occurred after planting and before emergence. Hybrids averaged 154 bushels per acre. The coefficient of variation was relatively moderate at 13 per cent.

Northeast Research Station Clay (see table 3) - The test was planted March 15 on a Sharkey clay soil in 40-inch row spacing. The test had four replications. Pesticides applied on an acre basis included 40 ounces of Atrazine, 1.5 pints of Dual, and 0.12 pounds (ai) of Aztec. The test was fertilized with 220 pounds of nitrogen. Hybrids averaged a relatively low 83 bushels per acre due to the dry season. The coefficient of variation was moderately high at 18 per cent.

Macon Ridge Branch Station - The test was planted March 14 on a Gigger silt loam soil in 40-inch row spacing. The test had four replications. Pesticides applied on an acre basis included 1.5 quarts of Harness Extra, 1 pint of Atrazine, and 0.12 pounds (ai) of Aztec. High rainfall occurred after planting and stands were significantly reduced. Later in the season the test was abandoned due to low stands and was not harvested.

Red River Research Station - The test was planted April 23 on a Norwood silt loam in 38-inch row spacing. The test had four replications. Pesticides applied on an acre basis included Counter, Atrazine 4L, Prowl and Clarity. The test was fertilized with 200 pounds of nitrogen per acre. Crop growth was interfered with by a number of factors including wild pigs and perhaps pesticide injury. The test was harvested but the coefficient of variation was very high and the data is not reported.

Performance data from these field experiments were used to make recommendations to growers by the Louisiana Cooperative Extension Service. In order to be recommended at a particular location, a hybrid must yield within 10% of the average of the top three yielding hybrids at that location over the past two seasons.