

Performance of Grain Sorghum Hybrids in Louisiana, 2006

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Performance of grain sorghum hybrids is annually evaluated by Louisiana Agricultural Experiment Station (LAES) researchers. The purpose of these trials is to provide to Louisiana growers, seedsmen, county agents of the Louisiana Cooperative Extension Service (LCES) and other interested individuals and organizations with unbiased performance data for commercial grain sorghum hybrids submitted for evaluation by private agencies. Results from these trials are used by the LCES for recommending hybrids.

The cooperating LAES units in 2006 were: Dean Lee Research Station, Alexandria; Central Research Station, Baton Rouge; Red River Research Station, Bossier City; Rice Research Station, Crowley; Northeast Research Station, St. Joseph; and Northeast Research Station-Macon Ridge Branch, Winnsboro. Data from the trial at the Red River Research Station in Bossier City was dropped because of glyphosate drift resulting in large variability among treatments.

Procedures

In 2006, 22 grain sorghum hybrids were entered in the LAES yield trials. Soil type, cultural practices, location summaries and weather graphs are listed prior to data tables for each location. In weather graphs, maximum and minimum temperatures are weekly averages and rainfall weekly totals. Trials were not irrigated, except at St. Joseph, where both irrigated and non-irrigated trials were conducted. Seed were treated with Concept and Gaucho and recommended LSU AgCenter cultural practices were followed at each location.

The experimental design at each location was a randomized complete block design with four replications. Traits measured and rating scales are listed in Table 1. Analysis of variance and least significant differences (LSD) were computed using SAS (Statistical Analysis System). We used the protected F-test, which means LSD's were calculated only if differences among hybrids existed at the 90% confidence level. If differences were

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significant, an LSD at the 10% probability level was calculated. For example, if the LSD (0.10) for yield in a trial is 400 lb/acre, there is a 10% chance that two hybrids with a reported yield difference of 400 lb/acre are genetically equal and a 90% probability they have differences in genetic potential in that particular environment. LSD values are influenced by how well soil fertility, stand establishment, plot length, harvest efficiency and other variables are controlled and by number of replications for each hybrid or treatment. The letters NS are used in the text and tables to indicate lack of significance (**not significantly different**) at the 10% probability level. The coefficient of variation (CV) reflects the magnitude of experimental error (random variation not accounted for by hybrids and replications) in relation to the trial mean. A high CV means that relative differences among hybrids were not consistent among replications, which reduces the precision of a test.

Table 1. Traits and rating scales for LAES grain sorghum performance trials.

Trait	Abbreviation	Description
Yield	Yield	Grain yield, lb/acre
Grain moisture	Gr mo	Grain moisture at harvest, %
Test weight	Test wt	Volume weight of grain, lb/bu
Heading date	Mid-head	Date of head emergence in 50% of plants, days after planting (DAP)
Plant height	Pl ht	Plant height from ground to top of head, inches (in)
Head exertion	Head exer	Distance between flag leaf and base of head, inches (in)
Head type	Head type	Head type is a measure of head architecture, with ratings of 1-5; 1-compact, 3-intermediate, and 5-open
Lodging	Lo	Lodging is an estimate of plants lodged that could not be harvested, %
Anthracnose Blight	Anth. Blight	Rating of anthracnose symptoms on foliage and stems; where a '0' indicates none and a '9' indicates severe symptoms.
Head Blight	Head Blight	Rating of Fusarium Head Blight symptoms; where '0' indicates no disease and a '9' indicates severe symptoms.
Foliar diseases	Foliar dis	Anthracnose and Aerial Blight disease ratings were percent (%) of leaf coverage.
Midge damage	Midge	Average percent (%) of head damaged.
Borer damage	Borer	Borer damage was the percent (%) of fallen heads (not harvestable).

Results

Yield data and other agronomic data for each location are presented in Tables 2-7. A location summary, soil type, cultural practices and weather information are listed prior to data tables for each location. Yield summary across Louisiana for 2006 is presented in Table 8 and participating seed companies are listed in Table 9.

For additional information on grain sorghum trials, please contact Dr. Rick Mascagni, Northeast Research Station, P.O. Box 438, St. Joseph, LA 71366 (Ph: 318-766-3769; Fax: 318-766-4278; e-mail: hmascagni@agcenter.lsu.edu); or the coordinator at a specific location (Dr. Dustin Harrell, Rice Research Station, Crowley, Ph: 337-788-7531, Fax: 337-788-7553, e:mail: dharrell@agcenter.lsu.edu; Dr. Steve Moore, Dean Lee Research Station, Alexandria; Ph: 318-473-6524, Fax: 318-473-6535, e:mail: smoore@agcenter.lsu.edu; Mr. David Caldwell, Red River Research Station, Bossier City; Ph: 318-741-7430, Fax 318-741-7433, e:mail: wcaldwell@agcenter.lsu.edu ; Dr. Steve Harrison, Central Station, Baton Rouge; Ph:225-578-1308, Fax 225-578-1403, e:mail:sharrison@agcenter.lsu.edu)