Performance of Grain Sorghum Hybrids in Louisiana, 2008

H.J. "Rick"Mascagni, Jr., Robert Bell, Kelly Arceneaux, Millie Deloach, Rob Ferguson, Donald Groth, Dustin Harrell, Jim Hayes, Steve Harrison, Clayton Hollier, David Lanclos, Roger Leonard, James Leonards, Steve Moore, Boyd Padgett, Chris Roider, Ron Regan and Glen Schexnayder

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 2008 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 Macon Ridge Research Station, Winnsboro.

PROCEDURES

In 2008, 26 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

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H.J. "Rick" Mascagni, Jr., Professor and Coordinator, and Robert Bell, Research Associate, Northeast Research Station, St. Joseph, LA 71366; Kelly Arceneaux, Steve Harrison, and Glen Schexnayder, Research Associate, Professor, and Research Associate, Plant, Environmental, and Soil Sciences Department, Baton Rouge, LA 70803; Clayton Hollier, Professor, Department of Plant Pathology and Crop Physiology, Baton Rouge, LA 70803; Chris Roider, Farm Manager of Central Research Station, Baton Rouge, LA 70803; Donald Groth, Dustin Harrell, James Leonards and Ron Regan, Professor, Assistant Professor, and Research Associates, Rice Research Station, Crowley, LA 70527; Jim Hayes, Research Associate, Red River Research Station, Bossier City, LA 71113; Roger Leonard and Boyd Padgett, Professors, Macon Ridge Research Station, Winnsboro, LA 71295; and Robert Ferguson, Steve Moore, David Lanclos, and Millie Deloach, Extension Associate, Professor, Assistant Professor/Specialist, and Research Associate, Dean Lee Research Station, Alexandria, LA 71302.

differences among hybrids existed at the 90% confidence level. If differences were significant, an LSD at the 10% probability level was calculated. 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. 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.

The highest-yielding hybrids are listed in bold print in the "2008 Yield' column in each table. The highest-yielding hybrids for both 2007 and 2008 are also listed in bold print and are marked with an asterisk in the "2-Yr avg" column in each table. These hybrids were determined using the LSD (0.10) values.

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

Trait	**Abbreviation**	**Description**
Yield	Yield	Grain yield, lb/a
Grain moisture	Grain moist	Grain moisture at harvest, %
Test weight	Test wt	Volume weight of grain, lb/bu
Heading date	Head date	Date of head emergence in 50% of plants, days after planting (DAP)
Plant height	Plant ht	Plant height from ground to top of head, inches
Head exertion	Head exert	Distance between flag leaf and base of head, inches
Head type	Head type	Head type is a measure of head architecture, with ratings of 1-5; 1-compact, 3-intermediate, and 5-open
Foliar diseases	Dis	Rating of symptoms on foliage and stems; where a '0' indicates none and a '9' indicates severe symptoms.
Bird damage	Bird	Average percent (%) of head damaged

RESULTS

Yield data and other agronomic data for each location are presented in Tables 2-6. A location summary, soil type, cultural practices and weather information are listed prior to data tables for each location. Yield summary across Louisiana for 2008 is presented in Table 7 and participating seed companies are listed in Table 8. Data from the trials at the Dean Lee Research Station at Alexandria and the Macon Ridge Research Station at Winnsboro were not

reported due to inclement weather conditions during the growing season. Only two of four replications were harvested in the non-irrigated and irrigated trials on the Sharkey silty clay at St. Joseph due to the extremely wet conditions in August and early September.

For additional information on grain sorghum hybrid performance trials, please contact Dr. Rick Mascagni, Northeast Research Station, P.0. 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. Jim Hayes, Red River Research Station, Bossier City; Ph: 318-741-7430, Fax 318-741-7433, e:mail: jhayes@agcenter.lsu.edu; Dr. Steve Harrison, Central Station, Baton Rouge; Ph:225-578-1308, Fax 225-578-1403, e:mail:sharrison@agcenter.lsu.edu)