

CORN/SORGHUM BOARD PROGRESS SUMMARY

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Title: Management of Grain Sorghum Diseases in Arkansas

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Progress Summary:

To determine the impact of disease on sorghum yield and quality in different areas of the state.

Fungicide trials were established in 4 counties in eastern Arkansas in cooperation with county agents, consultants and crop protection industry personnel. However, 2 sites were lost to flooding and only 2 were successfully harvested (Crittenden County). Fungicide impact was not measurable and yields were low overall due to anthracnose disease. The remaining two sites in Lonoke County were not harvested due to time pressure on the cooperator.

To gather preliminary information on the factors influencing charcoal rot of grain sorghum in Arkansas.

Lodged areas were assessed in 8 fields in eastern Arkansas with anthracnose, Gibberella and other stalk rotting diseases prevalent. Charcoal rot was absent in plants examined. Soil and tissue sample results were inconsistent in these fields, but potassium did not appear to be a factor.

To determine the benefit of foliar fungicides on sorghum yield and grain quality.

We conducted four small plot replicated fungicide trials in four counties and six replicated large scale strip trials in four counties as mentioned above. This year, it appeared that the tested fungicides and rates were not as effective as previous research suggested. In most cases, anthracnose disease overwhelmed the fungicides under 2009 rainy conditions. Applications made earlier than flowering were visually better, although control of disease was still unacceptable. More work is needed on rates under wet conditions. Grain quality and mycotoxin levels were still being assessed at the time of this report.

To establish a sorghum disease nursery under overhead irrigation and assess the reaction of sorghum hybrids to various diseases.

A collection of 23 popular sorghum hybrids were assessed under pivot irrigation at the Kibler and Newport experiment stations, and under furrow irrigated conditions at Stuttgart, Marianna and Rohwer. Diseases were moderately severe at Kibler, Newport and Stuttgart; extremely severe at Marianna, and at low levels at Rohwer. Based on Marianna results, the best overall sorghum hybrids for Arkansas in a rainy year like 2009 were Pioneer 83G66, Dekalb DKS54-00, Dekalb DKS53-67 and Terral TV94S91. These hybrids resisted anthracnose better earlier, and had the highest yields as a result. The worst hybrids included Garst 5556, Terral TV96H81, and Dyna-Gro 778B. Many hybrids were severely damaged by anthracnose at the Marianna site, and sorghum breeders need to be working harder on disease resistance in hybrids for Arkansas. Top photo shows highly susceptible hybrid, bottom shows a resistant one.

