Sorghum Midge Resistance in 16 Grain Sorghum Hybrids-2008

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Grain sorghum is a good dryland rotation crop in the southern Coastal Plain region, where it is impacted by a variety of insects and pathogens from the seedling stage through maturity. Diseases were of minimal importance in 2008. Ten insect pests of sorghum were recorded in southern Georgia in 2008. They were, in order of importance: sorghum midge, fall armyworm, corn earworm, aphids (corn leaf aphid and greenbug), stink bugs (southern green and brown stink bugs), leaf-footed bug, chinch bug, and sorghum webworm.

Sixteen hybrids were evaluated for resistance to sorghum midge in 2008. The hybrids were planted with 4 replications on June 16, 2008. The flowering date (or days to anthesis) was recorded during August and early September. Because damage from other insect pests and grain molds was minimal, only sorghum midge damage was assessed in 2008. Sorghum midge damage was rated on September 15, 2008. Midge damage was rated according to the visual estimates of grain loss. Grain loss caused by midge infestation can be separated from other factors using the whitish-cast skins hanging at the tip of glumes during pre-harvest examination. Sorghum midge damage was assessed according to the following rating scale: Very Good = 0-15% of empty glumes on any of the sorghum panicles in an experimental plot; Good = a few empty glumes (16-30%) observed on a panicle; Fair = 31-75% of empty glumes on a sorghum panicle; and Poor = majority of sorghum panicles with more than three quarters (> 75%) of empty glumes.

The sorghum midge is a cyclic pest in grain sorghum production in the southern Coastal Plain region. The overall damage caused by sorghum midge was extremely high on late flowering hybrids this year, which is probably caused by the late planting of the 2008 trial. Please refer to the table on next page for details. Various levels of sorghum midge resistance were observed in most of the 16 hybrids, except two late flowering hybrids, FGS-06BK13 and PSC 407. A few plants were still at flowering at the evaluation time in September, although most of the plants of these two hybrids were at post-pollination stage with empty glumes. The adult midge population was very high at the evaluation time on the flowering panicles of these two hybrids. Bird damage was also assessed in addition to sorghum midge damage. The five hybrids with the most bird damage were A571, 82G10, 83G66, SS800, and SS560.

It is highly recommended that growers use available insect and disease-resistant hybrids, which is one of the most economical pest management strategies for sorghum production in our region. For further integrated insect management information, please consult with your local county agent and/or extension entomologists.

This test was maintained and data were collected by Bob Brooke from Crop and Soil Sciences, and Charles Mullis of the Crop Genetics and Breeding Research Unit, USDA-ARS, Coastal Plain Experiment Station, UGA-Tifton, Georgia.