

Sorghum Midge Resistance in Grain Sorghum Hybrids

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Although grain sorghum is a good rotation crop, the plants are impacted by a variety of insects and pathogens from the seedling stage through maturity in the Coastal Plain region. Nine insect pests of sorghum in southern Georgia were detected in 2006. They were, in order of importance: sorghum midge, greenbug, fall armyworm, corn earworm, leaf footed bug, chinch bug, sorghum webworm, and stink bugs (southern green and brown stink bugs).

The midge-infested heads can be separated from seed losses by other factors using the whitish-cast skins hanging at the tip of glumes during pre-harvest examination. The sorghum midge is a cyclic pest in grain sorghum production in Tifton and the Coastal Plain region. The overall damage caused by the sorghum midge was relatively low in comparison with data from the previous years, which is probably caused by the drought conditions during the 2006 growing season.

Seventeen hybrids were evaluated for resistance to sorghum midge in 2006. Plots were planted in a RDCB design with 4 replications on May 17, 2006. The flowering (anthesis) date was recorded in July. Sorghum midge damage was rated on August 28, 2006. The midge damage given in the following table is expressed according to the visual rating of grain loss based on four replications. Sorghum midge damage was rated in the plots according to the following rating scale: Very Good = no empty glumes on any of the sorghum heads in an experimental plot; Good = a few empty glumes (<10%) observed on a head; Fair = 10-25% of empty glumes on a sorghum head observed; and Poor = majority of sorghum heads with more than a quarter (25%) of empty glumes. Sorghum midge resistance was observed in 15 of the 17 cultivars tested. It is intriguing that the two early flowering hybrids had the most empty glumes. This could be the result of the flowering time of the two early hybrids coinciding with drought condition or being most attractive to ovipositing females.

The grain sorghum crop was much better this year in comparison with the crop of 2005. Although grain mold and other insect pests were observed, the damage was minimal, and was not evaluated in 2006. It is highly recommended that growers use available resistant hybrids, which is one of the most economical strategies available for midge control. For further integrated insect management information, please consult with your local county agent and/or extension entomologists.

This test was maintained and data were compiled by J. C. Mullis, T. Miller, H. Hilton, and M. McDaniel of the Crop Genetics and Breeding Research Unit, USDA-ARS, Georgia Coastal Plain Experiment Station, Tifton, Georgia.

**Evaluations of Grain Sorghum Hybrids for
Resistance to the Sorghum Midge,
2006, Tifton, Georgia**

Brand	Hybrid	Days to Anthesis ²	Midge Resistance ³
Pioneer	83G66	56	VG
FL	FL 2816/R7	58	VG
Monsanto	MSC432	56	VG
Moss	M1024DPW	58	VG
Plantation Seeds	GS401	59	G
Pioneer	82G10	57	G
DeKalb	DKS54-00	55	G
SS	SS800	56	G
SS	SS-650	56	G
Asgrow	A 571	56	G
Moss	M929MB	52	G
Plantation Seeds	GS408	58	G
Monsanto	MSD472	53	G
FL	FL 603/R4	59	F
NC+	NC+7B51	54	F
Monsanto	MSD477	52	P
Moss	M927ER	52	P

1. The test plots were irrigated four times (each with an inch of water), and fertilized using 25 lb N, 50 lb P, and 75 lb K/acre, as well as sidedress of 100 lb N/acre.
2. Days from planting to 50% bloom.
3. For sorghum midge resistance, VG = very good, G = good, F = fair, and P = poor.