

# Assessment of 25 Grain Sorghum Hybrids for Resistance to Insect and Bird Damage at Three Planting Dates in 2013

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Twenty-five grain sorghum hybrids were evaluated for resistance to insect and bird damage with three planting dates in 2013 at the Belflower Research Farm near Tifton, Ga. Although the damage was relatively low in 2013, five insect pests were observed on the grain sorghum hybrids. In order of importance they include: headworm complex (i.e., corn earworm and sorghum webworm), leaf-footed bug, stink bugs (southern green stink bug and brown stink bug), sorghum midge, and fall armyworm. Generally speaking, insect infestation and disease infection rates were low in the experimental plots of these hybrids in 2013.

Hybrids were planted with four replications each on May 21, May 29, and June 6, 2013, respectively, and maintained with irrigation. The flowering date (or days to anthesis) was recorded throughout July and August. Flowering time (50% plants with flowering panicles) of the 25 hybrids ranged from 51 to 67 days after planting (as shown on the following table). The whorl damage by natural fall armyworm population was minimal, and therefore not assessed.

Sorghum midge and bird damage were rated 14 weeks after planting (on August 27, September 3, and September 10, 2013, respectively). The sorghum midge damage was rated according to the visual estimates of grain loss. Grain loss caused by the midge infestation can be separated from other factors using the whitish-cast skins hanging at the tip of glumes during pre-harvest examination. The sorghum midge damage was assessed according to the following rating scale: Very Good (VG) = 0-15%; Good (G) = 16-30%; Fair (F) = 31-75%; and Poor (P) =  $\geq$  76% empty glumes per sorghum panicle. In addition, the assessment of bird damage on developing kernels was based on the following scale: Very Good (VG) = less than 10% loss; Good (G) = 11-25% loss; Fair (F) = 26-50% loss; and Poor (P) =  $\geq$  51% loss of grains per panicle.

The sorghum midge is a cyclic insect pest in grain sorghum production in the southern Coastal Plain region. Overall damage caused by sorghum midge is generally greater on late-flowering hybrids, or late-planted hybrids. The midge damage was very low in these 25 hybrids in 2013 across planting dates. Of the three planting dates in 2013, no midge damage was observed in the May 21 planting; the majority of observed damage occurred only in a few hybrids planted on June 6. Average midge damage was rated as Very Good (< 15% grain loss) in 11 of the 25 hybrids evaluated. In addition, all entries showed relatively high levels of bird damage when compared with the previous year. The midge and bird damage was evaluated 98 days after planting and approximately one month after flowering. The bird damage ratings in 2013 were relatively high ( $\geq$  26% or  $\frac{1}{4}$ ) in comparison with the previous years. Only two hybrids 'NK8828' and 'NK8831' exhibited low bird damage ratings ( $\leq$  25%). Of the three planting dates in 2013, experimental plots from the first planting showed more bird damage than either of the two late plantings. Managers should be aware that bird damage could be reduced by timely harvest as well.

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 the southern Coastal Plain region. The information on both insect and bird damage might vary based on planting dates, with later plantings tending to have increased insect pest pressure. For further integrated insect management information, please consult with your local county agent and/or Extension entomologists.

This test was maintained and flowering-date data were collected by Penny Tapp, Jonathan Roberts, and Austin Overton from the Crop Genetics and Breeding Research Unit, USDA-ARS, University of Georgia, Tifton, Georgia, with assistance from Xing Wei at the Department of Entomology, University of Georgia at Tifton, Georgia.

## Evaluation of Grain Sorghum Hybrids for Resistance to Insect and Bird Damage in 2013 at Tifton, Georgia<sup>1</sup>

Brand	Hybrid	Days to Anthesis <sup>2</sup>	Midge Resistance <sup>3</sup>		Bird-feeding resistance <sup>4</sup>	
			2013	2+ years	2013	2+ years
Southern States	SS560	54	VG	VG	P	F
SS	SS800	59	VG	VG	F	G-
DeKalb	DKS53-67	61	VG	VG	F	G
Gayland Ward	GW 9417	61	VG		F	
Dyna-Gro	M75GB39	61	VG		F	
Dyna-Gro	M77GB52	60	VG		F	
Sorghum Partners	NK6638	59	VG		F	
Sorghum Partners	X742	61	VG		F	
Sorghum Partners	NK8831	66	VG		G	
Sorghum Partners	K35-Y5	52	VG		F	
Sorghum Partners	NK266	57	VG		P	
SS	SS650	60	G	VG	F	G
Sorghum Partners	NK8416	63	G		F	
Sorghum Partners	NK7633	61	G		F	
Pioneer	83P17	62	G	G+	F	G
Pioneer	84P80	61	G	VG-	F	G
Dyna-Gro	GX13661	63	G		F	
Sorghum Partners	SP7868	63	G		F	
Sorghum Partners	X840	65	G		F	
Sorghum Partners	KS310	51	G		P	
Sorghum Partners	SP3425	56	G		P	
Sorghum Partners	X445	63	G		F	
Sorghum Partners	NK8828	67	F		VG	
Sorghum Partners	NK8817	63	F		F	
Sorghum Partners	NK7829	67	F		F	

1. The test plots were planted on May 21 and 29, and June 6, 2013, respectively, and maintained with irrigation. The midge and bird damage were assessed on August 27, and September 3 and 10, 2013, respectively.
2. Days from planting to 50% bloom.
3. For sorghum midge resistance: Very Good (VG) = 0-15%, Good (G) = 16-30%, Fair (F) = 31-75%, and Poor (P) = ≥ 76% glumes are without grains on a panicle.
4. Bird-feeding resistance: Very Good (VG) = less than 10% loss, Good (G) = 11-25% loss, Fair (F) = 26-50% loss, and Poor (P) = ≥ 51% loss.