

GRAIN SORGHUM

Tifton, Georgia: Early-Planted Grain Sorghum Hybrid Performance, 2011 Nonirrigated

Company or Brand Name	Hybrid	2-Year Average		Test Wt. lb/bu	50% Bloom ² days	Plant Ht. in	Lodging %	Bird Damage ³ %
		Yield ¹ bu/acre	Yield bu/acre					
SS	SS800	71.9	78.2	37.2	.	38	0	41
SS	SS650	54.3	62.5	42.8	.	41	0	40
Advanta	AG3101	49.4	.	40.2	.	45	0	40
DeKalb	DKS53-67	47.5	71.1	38.4	.	43	0	43
Alta Seeds	AG3201	46.8	55.4	41.8	.	39	0	40
Pioneer	84P80	43.6	.	41.0	.	41	0	43
Dyna-Gro	772B	43.3	.	41.9	.	39	0	40
Pioneer	83P17	42.6	65.5	34.1	.	45	0	43
Southern States	SS560	29.4	48.6	40.7	.	37	0	38
Average		47.6 ⁴	63.6	39.8	.	41	0	41
LSD at 10% Level		12.0	N.S. ⁶	3.0		3	-	N.S.
Std. Err. of Entry Mean		4.9	3.7	1.2		1	-	4

1. Yields calculated at 14% moisture.

2. Days from planting to 50% bloom.

3. Percent of grain head damaged.

4. CV = 20.7% and df for EMS = 24.

5. The F-test indicated no statistical differences at the alpha = .10 probability level; therefore, a LSD value was not calculated.

Bolding indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: April 15, 2011.

Harvested: September 16, 2011.

Seeding Rate: 100,000 seed/acre in 30" rows.

Soil Type: Tift loamy sand.

Soil Test: P = Medium, K = Medium, and pH = 5.8.

Fertilization: Preplant: 50 lb N, 80 lb P₂O₅, and 90 lb K₂O/acre. Sidedress: 113 lb N/acre.

Previous Crop: Peanuts.

Management: Disked, subsoiled and bedded, and rototilled; Atrazine 4L used for weed control; Lorsban used for insect control.

Test conducted by A. Coy, R. Brooke and D. Dunn.

Tifton, Georgia:
Late-Planted Grain Sorghum Hybrid Performance, 2011
Nonirrigated

Company or Brand Name	Hybrid	2-Year Average		Test Wt. lb/bu	50% Bloom ² days	Plant Ht. in	Lodging %	Disease ³ rating	Bird Damage ⁴ %
		Yield ¹ bu/acre	Yield bu/acre						
Pioneer	84P80	119.5	.	50.7	62	52	0	1.8	23
Dyna-Gro	772B	93.3	.	50.8	65	54	0	2.0	22
Alta Seeds	AG3201	87.2	72.3	48.2	59	51	0	1.8	24
DeKalb	DKS53-67	82.2	81.1	51.7	62	48	0	2.0	27
SS	SS800	78.6	74.5	46.6	61	45	0	1.9	20
Pioneer	83P17	73.3	91.6	49.6	64	50	0	1.1	16
SS	SS650	57.9	50.5	48.2	59	52	0	2.2	47
Advanta	AG3101	52.7	.	47.2	57	57	0	2.3	35
Southern States	SS560	37.0	43.9	41.4	54	48	0	2.3	40
Average		75.8 ⁵	69.0	48.3	60	51	0	1.9	28
LSD at 10% Level		16.2	N.S. ⁶	1.7	3	4	-	0.5	13
Std. Err. of Entry Mean		6.5	4.1	0.7	1	2	-	0.2	5

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. Percent of grain head damaged.
5. CV = 17.7% and df for EMS = 24.
6. The F-test indicated no statistical differences at the alpha = .10 probability level; therefore, a LSD value was not calculated.

Bolding indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: June 20, 2011.
Harvested: October 17, 2011.
Seeding Rate: 100,000 seed/acre in 30" rows.
Soil Type: Tift loamy sand.
Soil Test: P = Medium, K = Medium, and pH = 5.8.
Fertilization: Preplant: 50 lb N, 80 lb P₂O₅, and 90 lb K₂O/acre. Sidedress: 113 lb N/acre.
Previous Crop: Peanuts.
Management: Disked, subsoiled and bedded, and rototilled; 24-D Amine and Atrazine used for weed control; Lorsban used for insect control.

Test conducted by A. Coy, R. Brooke and D. Dunn.

**Plains, Georgia:
Early-Planted Grain Sorghum Hybrid Performance, 2011
Nonirrigated**

Company or Brand Name	Hybrid	2-Year Average		Test Wt. lb/bu	50% Bloom ² days	Plant Ht. in	Lodging %	Bird Damage ³ %
		Yield ¹ bu/acre	Yield bu/acre					
Pioneer	83P17	63.0	75.2	53.7	.	41	1	23
DeKalb	DKS53-67	57.0	79.4	52.9	.	38	2	35
Alta Seeds	AG3201	45.3	70.3	51.9	.	34	2	30
Pioneer	84P80	42.9	.	54.1	.	37	2	23
Southern States	SS560	37.4	59.4	51.2	.	33	1	40
Dyna-Gro	772B	35.1	.	49.3	.	31	2	38
Advanta	AG3101	32.7	.	52.7	.	36	2	30
SS	SS650	31.0	61.0	49.9	.	31	1	45
SS	SS800	22.1	51.5	52.1	.	31	2	20
Average		40.7 ⁴	66.1	52.0	.	35	2	31
LSD at 10% Level		6.8	14.9	1.3		4	-	12
Std. Err. of Entry Mean		2.8	6.2	0.5		2	-	5

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Percent of grain head damaged.
4. CV = 13.9% and df for EMS = 24.

Bolding indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: April 20, 2011.
Harvested: September 19, 2011.
Seeding Rate: 100,000 seed/acre in 30" rows.
Soil Type: Greenville sandy loam.
Soil Test: P = High, K = Very High, and pH = 5.9.
Fertilization: Preplant: 28 lb N, 80 lb P₂O₅, and 80 lb K₂O/acre. Sidedress: 50 lb N/acre.
Previous Crop: Cotton.
Management: Disked, subsoiled and bedded, and rototilled; Atrazine and Permit used for weed control.

Test conducted by A. Coy, R. Brooke, D. Dunn and R. Pines.

**Plains, Georgia:
Late-Planted Grain Sorghum Hybrid Performance, 2011
Nonirrigated**

Company or Brand Name	Hybrid	2-Year Average		Test Wt. lb/bu	50% Bloom ² days	Plant Ht. in	Lodging %	Disease ³ rating	Bird Damage ⁴ %
		Yield ¹ bu/acre	Yield bu/acre						
Advanta	AG3101	61.7	.	56.0	66	43	1	2.0	1
Dyna-Gro	772B	61.2	.	54.5	64	44	3	1.5	0
Pioneer	84P80	59.0	.	55.4	66	42	4	2.0	4
DeKalb	DKS53-67	58.3	37.9	56.0	66	43	3	1.8	1
SS	SS650	56.3	43.4	55.8	63	42	1	2.0	10
Pioneer	83P17	55.2	42.6	51.1	67	43	1	2.0	1
Alta Seeds	AG3201	54.6	39.9	55.7	62	44	1	2.0	8
SS	SS800	54.5	42.5	54.0	60	40	0	2.0	3
Southern States	SS560	40.6	37.0	56.2	54	33	0	2.0	8
Average		55.7 ⁵	40.5	55.0	63	41	2	1.9	4
LSD at 10% Level		6.8	N.S. ⁶	1.1	2	3	N.S.	0.3	5
Std. Err. of Entry Mean		2.8	5.4	0.5	1	1	1	0.1	2

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. Percent of grain head damaged.
5. CV = 36.8% and df for EMS = 25.
6. The F-test indicated no statistical differences at the alpha = .10 probability level; therefore, a LSD value was not calculated.

Bolding indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: July 20, 2011.
 Harvested: December 1, 2011.
 Seeding Rate: 100,000 seed/acre in 30" rows.
 Soil Type: Greenville sandy loam.
 Soil Test: P = High, K = Very High, and pH = 5.9.
 Fertilization: Preplant: 28 lb N, 80 lb P₂O₅, and 80 lb K₂O/acre. Sidedress: 100 lb N/acre.
 Previous Crop: Cotton.
 Management: Disked, subsoiled and bedded, and rototilled; Atrazine used for weed control; Mustang Max used for insect control.

Test conducted by A. Coy, R. Brooke, D. Dunn and R. Pines.

**Griffin, Georgia:
Early-Planted Grain Sorghum Hybrid Performance, 2011
Nonirrigated**

Company or Brand Name	Hybrid	2-Year Average		Test Wt. lb/bu	50% Bloom ² days	Plant Ht. in	Lodging %	Bird Damage ³ %
		Yield ¹ bu/acre	Yield bu/acre					
DeKalb	DKS53-67	86.9	70.5	59.0	59	53	31	0
Pioneer	83P17	80.8	65.4	56.9	60	58	5	0
Advanta	AG3101	75.5	.	57.1	60	58	99	0
Pioneer	84P80	73.7	.	55.4	59	54	88	0
Alta Seeds	AG3201	72.3	57.1	53.5	58	53	94	0
Southern States	SS560	69.2	50.3	56.2	53	43	19	14
SS	SS650	68.8	50.5	54.1	58	56	99	0
SS	SS800	67.0	47.4	53.6	58	52	89	0
Dyna-Gro	772B	62.0	.	54.4	61	54	86	0
Average		72.9 ⁴	56.9	55.6	58	53	68	2
LSD at 10% Level		N.S. ⁵	13.7	1.0	2	2	17	-
Std. Err. of Entry Mean		6.2	5.7	0.4	1	1	7	-

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Percent of grain head damaged.
4. CV = 16.9% and df for EMS = 24.
5. The F-test indicated no statistical differences at the alpha = .10 probability level; therefore, a LSD value was not calculated.

Bolding indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: May 24, 2011.
 Harvested: September 9, 2011.
 Seeding Rate: 100,000 seed/acre in 30" rows.
 Soil Type: Cecil sandy loam.
 Soil Test: P = Medium, K = High, and pH = 5.5.
 Fertilization: Preplant: 30 lb N, 60 lb P₂O₅, and 90 lb K₂O/acre. Sidedress: 100 lb N/acre.
 Previous Crop: Wheat.
 Management: Moldboard plowed, disked and rototilled; Dual Magnum used for weed control.

Test conducted by J. Gassett and G. Ware.

**Griffin, Georgia:
Late-Planted Grain Sorghum Hybrid Performance, 2011
Nonirrigated**

Company or Brand Name	Hybrid	2-Year		Test Wt. lb/bu	50% Bloom ² days	Plant Ht. in	Lodging %	Disease ³ rating	Bird Damage ⁴ %
		Yield ¹ bu/acre	Average Yield bu/acre						
Pioneer	84P80	70.6	.	54.1	63	41	0	.	7
Southern States	SS560	60.7	58.5	57.4	51	35	0	.	20
DeKalb	DKS53-67	58.3	76.8	52.6	67	41	0	.	3
SS	SS650	58.3	65.7	55.8	55	41	0	.	18
Pioneer	83P17	57.0	74.8	51.7	66	40	0	.	5
Alta Seeds	AG3201	55.4	66.4	54.9	58	37	0	.	13
SS	SS800	53.7	66.2	55.6	55	39	0	.	7
Advanta	AG3101	49.4	.	55.7	62	37	0	.	6
Dyna-Gro	772B	47.5	.	53.1	66	39	0	.	2
Average		56.8 ⁵	68.1	54.6	60	39	0	.	9
LSD at 10% Level		N.S. ⁶	N.S.	1.2	3	N.S.	-		10
Std. Err. of Entry Mean		4.5	5.0	0.4	1	1	-		4

1. Yields calculated at 14% moisture.
2. Days from planting to 50% bloom.
3. Rated 1 = resistant to 5 = susceptible to foliar diseases.
4. Percent of grain head damaged.
5. CV = 16.0% and df for EMS = 16.
6. The F-test indicated no statistical differences at the alpha = .10 probability level; therefore, a LSD value was not calculated.

Bolding indicates entries yielding equal to highest yielding entry within a column based on Fisher's protected LSD (P = 0.10).

Planted: June 29, 2011.
 Harvested: October 18, 2011.
 Seeding Rate: 100,000 seed/acre in 30" rows.
 Soil Type: Cecil sandy loam.
 Soil Test: P = High, K = High, and pH = 5.6.
 Fertilization: Preplant: 30 lb N, 60 lb P₂O₅, and 90 lb K₂O/acre. Sidedress: 100 lb N/acre.
 Previous Crop: Wheat grain.
 Management: Moldboard plowed, disked and rototilled; Dual Magnum used for weed control.

Test conducted by J. Gassett and G. Ware.

Grain Sorghum Hybrid Resistance to Insect and Bird Damage-2011

Xinzhi Ni and G. David Buntin

Nine grain sorghum hybrids were evaluated for resistance to sorghum midge and bird damage in 2011. Although their damage was relatively low in general in 2011, nine insect pests were observed on sorghum in south Georgia. They could be listed in order of importance as follows: sorghum midge, leaf-footed bug, fall armyworm, corn leaf aphid, chinch bug, sorghum head worm complex (mainly sorghum webworm and corn earworm), and stink bugs (southern green and brown stink bugs). Diseases were of minimal importance in our experimental plots in 2011.

The hybrids were planted with 4 replications on April 26, 2011. The flowering date (or days to anthesis) was recorded in June. The flowering time (50% panicles are flowering) of the nine hybrids was between 51 and 63 days after planting. The fall armyworm and aphid damage was assessed in May and June. Because the foliar damage ratings were low in general, the data were not included in the table. Sorghum midge and bird damage was rated on July 27, 2011. 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. In addition, the assessment of bird damage on developing kernels was based on the following scale: Very Good (VG) = less than 10% grain loss; Good (G) = 11-25% loss; Fair (F) = 26-50% loss; and Poor (P) = over 50% loss of grains per panicle. The bird damage could be reduced by timely harvest of the crop in general.

The sorghum midge is a cyclic insect pest in grain sorghum production in the southern Coastal Plain region. The overall damage caused by sorghum midge is usually high on late flowering hybrids. Midge damage was very low (rated as < 30% grain loss) in general for 2011 with the April planting, which could also be the result of relatively dry weather conditions. For midge resistance, most of the hybrids (6 of the 9 entries) showed no damage and were rated as Very Good (VG). The three hybrids showed the most midge damage in 2011 were 84P80, 772B, and AG3101, although the damage ratings were not greater than 30%. In addition, all entries showed bird damage when it was evaluated on July 27, which was three months after planting and about one month after flowering. All bird damage ratings were also relatively low (\leq 25%). The hybrids AG3201, 84P80, and 772B showed less bird damage than the other six hybrids.

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. 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 from the Crop Genetics and Breeding Research Unit, USDA-ARS, Coastal Plain Experiment Station, UGA-Tifton, Georgia.

**Evaluation of Grain Sorghum Hybrids for
Resistance to Insect and Bird Damage, 2011,
Tifton, Georgia¹**

Brand	Hybrid	Days to Anthesis ²	Midge Resistance ³		Bird-feeding resistance ⁴	
			2011	2+ years	2011	2+ years
SS	SS 560	52	VG	VG-	G	G-
SS	SS 800	59	VG	VG	G	G-
SS	SS 650	61	VG	VG	G	VG
Dekalb	DKS53-67	61	VG	G+	G	G
Pioneer	83P17	64	VG	G	G	VG-
Alta Seeds	AG3201	61	VG	.	VG	.
Pioneer	84P80	59	VG	.	VG	.
Dyna-Gro	772B	57	VG	.	VG	.
Alta Seeds	AG3101	61	G	.	G	.

1. The test plots were maintained with irrigation.
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) = >75% 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) = over 50% loss.