

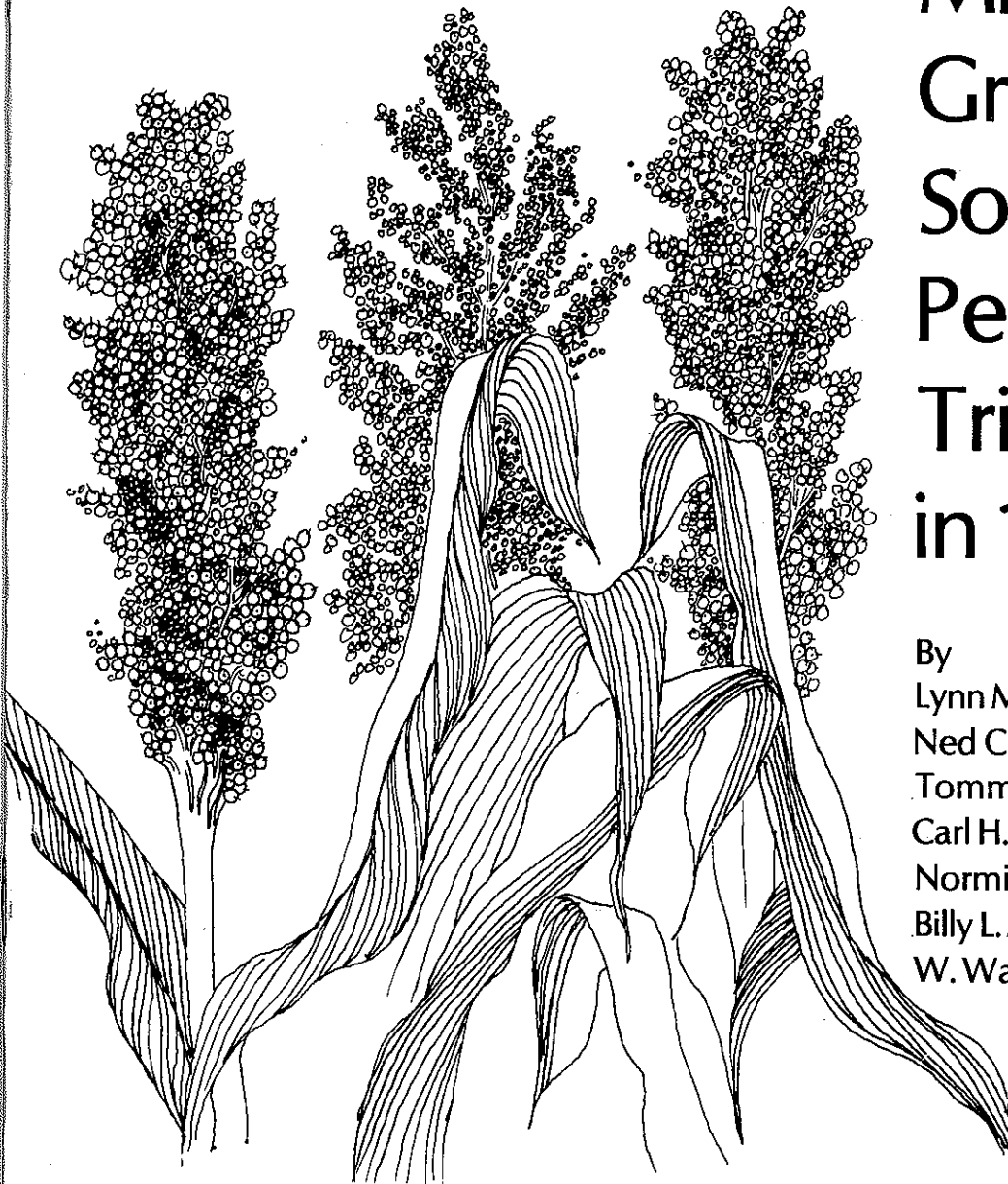
File Copy

April 1980

Bulletin 885

Mississippi Grain Sorghum Performance Trials in 1979

By
Lynn M. Gourley
Ned C. Edwards
Tommy G. Sanders
Carl H. Hovermale
Normie W. Buehring
Billy L. Arnold
W. Wade Stewart III



MAFES MISSISSIPPI AGRICULTURAL & FORESTRY EXPERIMENT STATION
R. RODNEY FOIL, DIRECTOR MISSISSIPPI STATE, MS 39762

Mississippi State University

James D. McComas, President

Louis N. Wise, Vice President



File Copy

Mississippi Grain Sorghum Performance Trials 1979

by

Lynn M. Gourley, associate agronomist, MAFES Department of Agronomy, Mississippi State

Ned C. Edwards, associate agronomist, MAFES Brown Loam Branch, Raymond

Tommy G. Sanders, associate agronomist, MAFES Coastal Plain Branch, Newton

Carl H. Hovermale, assistant agronomist, Mississippi State University, Agricultural Research and Extension Center, Poplarville

Billy L. Arnold, superintendent, MAFES North Mississippi Branch, Holly Springs

W. Wade Stewart, III, research assistant, MAFES Black Belt Branch, Brooksville

Mississippi Agricultural and Forestry Experiment Station
Mississippi State University

April 1980

Mississippi Grain Sorghum Performance Trials in 1979

Trials are conducted annually in Mississippi to provide farmers, seedsmen, county agents, and other interested persons with information on performance of commercially available grain sorghum hybrids. Results are particularly helpful to grain sorghum producers in selecting hybrids suited to their area.

We tested 44 commercial and experimental hybrids at six locations in Mississippi in 1979. A good test of performance cannot be made if damaging populations of insects are present; therefore, insecticides were applied as needed. See MAFES Bulletins 817 and 836 for methods of control of insects on grain sorghum.

Resistance to diseases is important in selecting a hybrid for areas where diseases are a problem. Also, planting at the recommended time helps reduce damage caused by diseases and insects.

Table 1. Planting dates, fertilizer rates (lbs/A) and insecticides applied, Hybrid Grain Sorghum Performance Trials, by location of trials, Mississippi, 1979.

Location	Planting date	Fertilizer rates ¹	Insecticides applied ²
Mississippi State	May 8	25-25-85PP 100-0-OSD	2-diazinon
Brooksville	June 18	40-40-40PP 150-0-OSD	None
Newton	May 21	65-65-65PP 100-0-OSD	None
McNeil	May 11	160-0-0PP	2-diazinon
Holly Springs	June 12	60-70-70PP	2-sevin
Raymond	May 18	0-60-60PP 100-0-OSD	None

¹SD = Sidedressed, PP = Preplant.

²Insecticides applied as labeled.

Testing Procedures

A randomized complete block design with three replications was used at all locations. Each plot consisted of two rows 38 or 40 inches wide and 20 ft long. All trials were planted at the rate of 7

lbs of seed per acre. Heads from 13 ft of each plot were hand-harvested, dried and threshed, and grain yield was adjusted to 14% moisture. Data reported have not been adjusted for bird damage, but

trials severely damaged by birds were not harvested. Location of tests, planting dates, fertilizer rates and insecticides applied are presented in Table 1.

Table 2. Performance of 36 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location, 1979.

Hybrid	Brand	50% ¹ Bloom (days)	Plant ² Height (in)	Disease ³		Bird Damage		Test ² Weight (lbs/bu)	Miss. State	Newton	McNeil lbs/A	Holly Springs	Mean
				Fusarium rating	Bacterial stripe	Miss. State (%)	Holly Springs (%)						
1. M565	Pfizer	67	47	2	3	4	13	59.4	4680	7744	5164	2938	5132
2. Dinero	T-E	68	46	2	3	4	20	58.7	4731	7484	5028	2685	4982
3. R-1090	Acco	68	47	1	1	2	25	57.9	5023	6754	5233	2887	4974
4. 7737	Coker	68	47	2	2	5	17	59.0	5264	7355	4638	2127	4846
5. Two 70-D	T.T.	68	50	2	2	5	23	60.4	4748	6380	6226	1798	4788
6. 1290	G.S.A.	67	42	2	3	6	32	59.1	4800	6486	5973	1849	4777
7. ML135	G.S.A.	66	44	0	4	3	20	58.3	4542	6863	4083	3368	4714
8. 7675	Coker	68	44	0	4	5	30	58.3	4877	6129	5340	2507	4713
9. W-839DR	Warner	68	44	2	3	7	23	58.5	4937	5918	5691	2279	4707
10. Y101-D	T-E	67	45	0	4	4	27	60.5	4723	6372	5164	2279	4635
11. G-522DR	Funk's	67	44	2	3	3	27	58.4	4517	7655	4092	2127	4598
12. DR-1085	Acco	69	45	2	3	7	17	59.6	4465	6681	5340	1646	4533
13. 6658	P-A-G	66	48	3	2	2	23	60.1	4869	5520	5164	2482	4509
14. Y101-R	T-E	68	42	2	3	3	23	58.0	4147	6380	5505	2001	4508
15. 1225	Wilstar	67	45	2	3	4	25	57.7	4534	5707	5047	2710	4500
16. 8311	Pioneer	69	44	2	2	5	20	58.4	3761	5804	5466	2685	4429
17. 5504	P-A-G	67	44	2	2	5	28	58.8	4602	5276	5505	2229	4403
18. DK-64	DeKalb	67	47	2	2	7	47	60.0	4800	5301	6051	1292	4361
19. G-522	Funk's	68	43	3	4	4	22	58.5	4371	7038	3635	2355	4350
20. 1425	Wilstar	69	47	2	4	4	23	56.5	4250	5439	4648	2836	4293
21. 5514	P-A-G	68	44	1	2	4	20	57.7	4173	5057	5408	2355	4248
22. 2778	N.K.	67	43	2	3	15	13	59.0	4001	5520	5525	1849	4424
23. W-851DR	Warner	68	45	0	2	7	27	59.5	4645	5447	4930	1722	4186
24. G-622	Funk's	68	45	2	3	2	32	58.3	4250	6161	4278	2051	4185
25. M568G	Pfizer	68	43	3	3	3	17	58.3	3529	5479	5310	2254	4143
26. 733GB	R.A.	68	43	2	2	18	18	58.0	4027	4700	4930	2786	4111
27. 7638	Coker	67	42	2	3	2	15	58.1	3744	6167	4092	2406	4102
28. 2884	N.K.	69	47	0	2	15	45	59.0	4130	4895	5759	1418	4051
29. 2779	N.K.	69	43	0	4	6	20	58.1	3684	4984	5310	2077	4014
30. DR-1035	Acco	68	46	0	1	10	15	58.1	4414	5033	4258	2254	3990
31. 1330	Wilstar	68	49	1	3	18	52	57.8	3984	4927	4336	1596	3711
32. Exp3256	McNair	67	46	2	3	2	28	59.9	4577	4700	4356	1849	3871
33. E-57	DeKalb	68	47	1	4	1	67	56.2	5075	3470	5768	912	3806
34. M58G	Pfizer	66	44	2	4	3	27	57.2	3701	4367	4550	1899	3629
35. 807	R.A.	68	46	2	2	1	27	58.2	3924	4043	4375	1545	3472
36. X9140	T.T.	68	43	3	2	25	38	57.9	3649	2809	3708	1596	2941
Mean		66	45	1.6	2.8	6	27	58.5	4393	5724	4999	2157	4323
L.S.D.(.05)									573	1438	1386	862	---
C.V.									8.1%	15.5%	17.2%	24.7%	---

¹ Average of Mississippi State, Newton, and Holly Springs, MS.

² Average of Mississippi State and Newton, MS.

³ Rated at Meridian, MS. Rating of 0 = no disease symptoms, 4 = disease killed plants.

Table 3. Performance of eight bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location, 1979.

Hybrid	Brand	50% ¹ Bloom (days)	Plant ² Height (in)	Disease ³		Test ⁴ Weight (lbs/bu)	Miss. State	Yield					Mean
				Fusarium rating	Bacterial Stripe			Raymond	Brooks- ville	McNeil (lbs/A)	Holly Springs	Newton	
1. Savanna 5	N.K.	67	57	0	2	56.5	4156	3029	3039	4112	3647	7874	4310
2. B815	Pioneer	67	53	1	3	57.4	3838	3219	2907	3069	2431	6186	3608
3. G-516 BR	Funk's	68	48	1	3	56.1	3795	2869	2228	2660	3647	5723	3487
4. 7681 BR	Coker	68	48	0	3	56.5	4207	2694	2854	3128	2381	5496	3460
5. W-744 DR	Warner	67	50	1	4	56.9	4173	2316	2700	3089	2887	5074	3373
6. BR-45+	DeKalb	65	41	0	4	58.3	4199	2886	2201	2436	2760	4757	3207
7. 1334 BR	G.S.A.	69	47	1	3	54.7	3589	2364	1825	2348	3064	5301	3082
8. Two 75 BRG	T.T.	68	44	1	3	55.2	3134	1538	2435	2592	1671	3783	2526
MEAN		67	48	.6	3	56.4	3887	2614	2523	2929	2811	5524	3382
L.S.D.(.05)							630	855	768	675	517	1407	---
C.V.							9.2%	18.7%	17.4%	13.2%	10.5%	14.5%	---

¹ Average of Mississippi State, Brooksville, and Newton, MS.

² Average of Mississippi State, Brooksville, Holly Springs, and Newton, MS.

³ Rated at Meridian, MS. Rating of 0 = no disease symptoms - 4 = disease killed plants.

⁴ Average of Mississippi State and Newton, MS.

Results

Hybrids were separated into two trials at each location, 36 non-bird-resistant hybrids in one trial (Table 2) and eight bird-resistant hybrids in the other (Table 3). Bird damage to the non-bird-resistant hybrids was recorded only at Mississippi State and Holly Springs. Bird damage of the non-bird-resistant hybrids ranged from 1 to 25% at Mississippi State, from 13 to 67% at Holly Springs and averaged 6% at Mississippi State and 27% at Holly Springs.

Lodging was negligible at all

locations.

Grain yield of the 36 non-bird-resistant hybrids in the 1979 trials ranged from 912 lbs per acre for DeKalb E-57 in the Holly Springs trial to 7744 for Pfizer M565 in the Newton trial. Yields of the 36 hybrids averaged 4323 lbs per acre for the four test locations (Table 2).

Grain yield of the eight bird-resistant hybrids in the 1979 trials ranged from 1538 lbs per acre for Texas Triumph Two 75 BRG in the Raymond trial to 7874 lbs for N.K. Savanna 5 in the Newton trial.

Yield of the eight hybrids averaged 3382 lbs per acre for the six test locations (Table 3).

Quantity of harvested good-quality grain (or silage) is the best guide to the desirability of sorghum hybrids; however, performance data for any one year may be misleading. Therefore, the two- and three-year average yields of hybrids that have been evaluated for these periods of time also are presented (Tables 4-7).

Table 4. Yield of 20 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for two years, 1978-79.

Hybrid	Brand	Yields			MEAN
		Mississippi State	Newton	Holly Springs	
		-----lbs/A-----			
1. R-1090	Acco	5710	4593	3960	4754
2. Dinero	T-E	5522	4535	4065	4707
3. 7675	Coker	5750	4126	4214	4697
4. G522DR	Funk's	5359	4639	4040	4679
5. G522	Funk's	5266	4384	3947	4533
6. ML 135	G.S.A.	5320	4146	4090	4519
7. DR-1085	Acco	5349	4299	3830	4493
8. 7638	Coker	5196	4211	3973	4460
9. W-839DR	Warner	5749	3759	3798	4436
10. Two 70-D	T.T.	5395	4219	3432	4349
11. 1425	Wilstar	5404	3374	4267	4348
12. 8311	Pioneer	4593	3989	4445	4342
13. Y-101-D	T-E	5185	4181	3308	4225
14. 1225	Wilstar	4854	3759	4046	4220
15. G622	Funk's	5050	4137	3258	4148
16. DR-1035	Acco	4887	3627	3755	4090
17. Y-101-R	T-E	4520	4252	3407	4060
18. 2779	N.K.	4509	3652	3112	3758
19. 2884	N.K.	4696	3318	2830	3615
20. 1330	Wilstar	4121	3141	3457	3573
	Mean	5122	4017	3762	4300

Table 5. Yield of eight bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for two years, 1978-79.

Hybrid	Brand	Yield					MEAN
		Mississippi State	Brooksville	Newton	Holly Springs	Raymond	
1. Savanna 5	N.K.	4171	3723	5113	3771	4663	4288
2. G516BR	Funk's	3554	3117	4001	3866	4596	3827
3. B815	Pioneer	3494	3583	4317	3020	4558	3794
4. 7681BR	Coker	4057	3380	3968	3121	4401	3785
5. BR-45+	DeKalb	3853	2915	3758	3754	4064	3669
6. W-744DR	Warner	4058	3587	3508	2915	4068	3627
7. 1334BR	G.S.A.	3620	3099	3710	3337	4012	3555
8. Two 75BRG	T.T.	3445	3258	3024	2846	3903	3295
	Mean	3782	3333	3925	3329	4284	3730

Table 6. Yield of 12 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for three years, 1977-79.

Hybrid	Brand	Yield				Mean
		Mississippi State	Newton	Holly Springs		
1. R-1090	Acco	5439	4002	4418	4458	
2. G522DR	Funk's	5182	4037	3934	4384	
3. ML135	G.S.A.	5152	3642	4301	4365	
4. G522	Funk's	5101	3812	4093	4335	
5. 1425	Wilstar	5161	3167	4267	4198	
6. DR-1085	Acco	5141	3823	3600	4188	
7. W-839DR	Warner	5456	3360	3591	4135	
8. 8311	Pioneer	4382	3486	4434	4100	
9. 1225	Wilstar	4867	3358	4048	4091	
10. Y-101-R	T-E	4415	3760	3522	3890	
11. 2779	N.K.	4411	3213	3181	3602	
12. 1330	Wilstar	4211	2940	3354	3502	
	Mean	4910	3550	3895	4118	

Table 7. Yield of six bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for three years, 1977-79.

Hybrid	Brand	Mississippi State	Yield				MEAN
			Newton	Holly Springs	Raymond	lbs/A	
1. Savanna 5	N.K.	4235	4721	3792	4379	4282	
2. G516BR	Funk's	4065	3599	4039	3956	3915	
3. B815	Pioneer	3715	3971	3523	4068	3819	
4. 1334 BR	G.S.A.	4092	3465	3824	3739	3780	
5. Two 75BRG	T.T.	3765	2797	3130	3390	3771	
6. W-744DR	Warner	4136	3249	3529	3763	3669	
	Mean	4001	3633	3639	3883	3789	

Hybrids Designated for Entry in the 1979 Mississippi Sorghum Performance Trials, by Sponsors.

Hybrid	Brand	Company	Address
DR 1035 DR 1085 R 1090	ACCO ACCO ACCO	ACCO Seed Company	Plainview, TX
7638 7675 7681BR 7737	Coker Coker Coker Coker	Coker's Pedigreed Seed Co.	Lubbock, TX
BR-45+ DK-64 E-57	DeKalb DeKalb DeKalb	DeKalb Ag. Research, Inc.	Lubbock, TX
ML 135 1290 1334BR	GSA GSA GSA	Growers Seed Assoc.	Lubbock, TX
1225 1330 1425	Wilstar Wilstar Wilstar	Helena Chemical Co.	Memphis, TN
G-516BR G-522 G-522DR G-662	Funk's Funk's Funk's Funk's	Louisiana Seed Co.	Plainview, TX
Exp 3256	McNair	McNair Seed Co.	Laurinburg, NC
Savanna 5 2778 2779 2884	NK NK NK NK	Northrup King Co.	Richardson, TX
5504 5514 6658	P-A-G P-A-G P-A-G	P-A-G Seeds	Minneapolis, MN
M58G M565 M568G	Pfizer Pfizer Pfizer	Pfizer Genetics Inc.	Cleveland, MS
B815 8311	Pioneer Pioneer	Pioneer Hi-Bred Inter., Inc.	Tipton, IN
733GB 807	RA RA	Ring Around Products, Inc.	Plainview, TX
Dinero Y101-D Y101-R	T-E T-E T-E	Taylor-Evans Seed Co.	Tulia, TX
Two 70-D Two 75BRG X9140	TT TT TT	Texas Triumph Seed Co.	Ralls, TX
W-744DR W-839DR W-851DR	Warner Warner Warner	George Warner's Seed Co.	Hereford, TX

Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, age, or handicap.

In conformity with Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973, Dr. T. K. Martin, Vice President, 610 Allen Hall, P. O. Drawer J, Mississippi State, Mississippi 39762, office telephone number 325-3221, has been designated as the responsible employee to coordinate efforts to carry out responsibilities and make investigation of complaints relating to nondiscrimination.



Lithograph
Central Duplicating
Mississippi State University