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Bulletin 867

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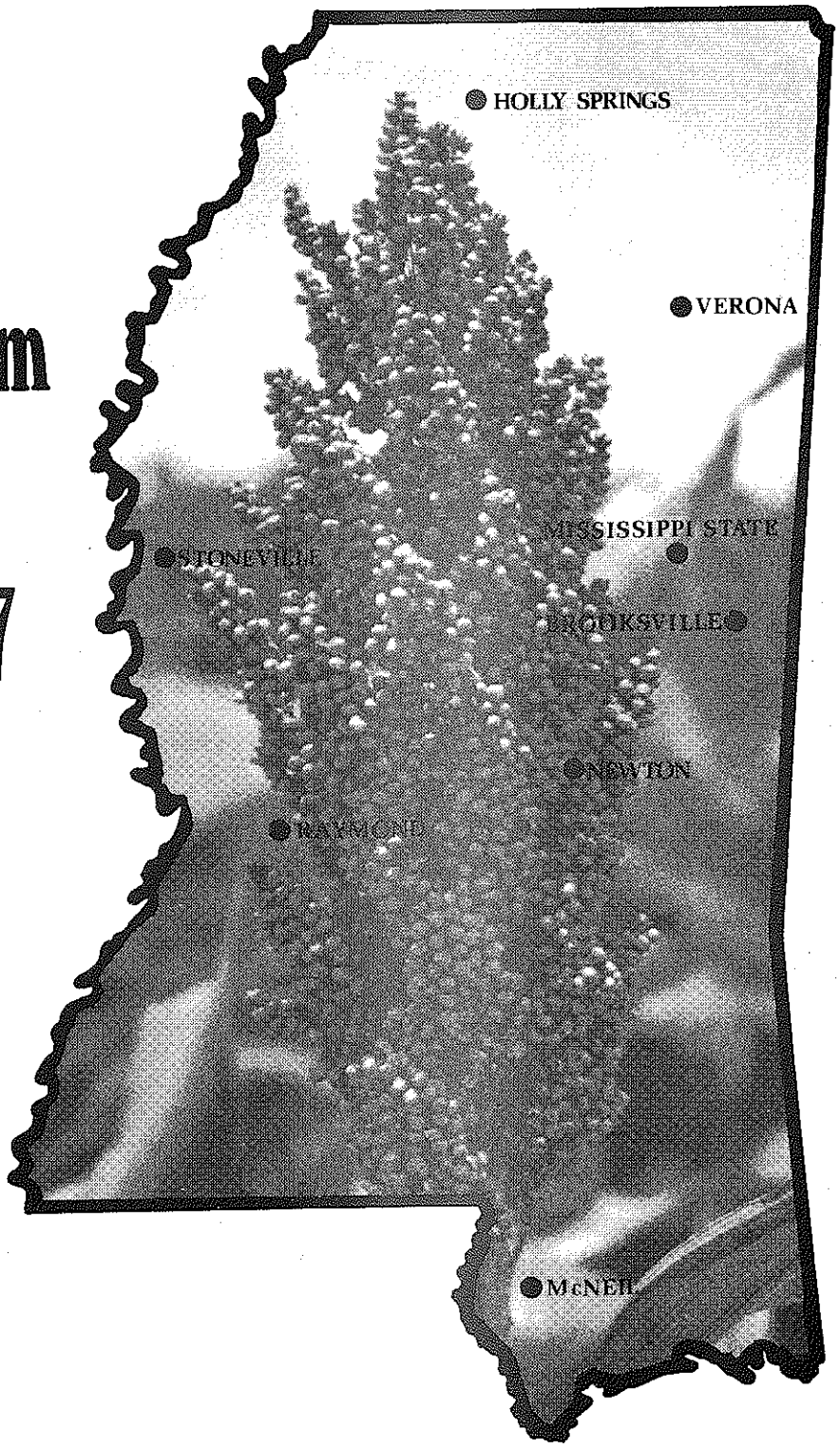

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Mississippi Grain Sorghum Performance Trials in 1977

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March 1978

Mississippi Grain Sorghum Performance Trials in 1977

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 seven locations in Mississippi in 1977 (Table 1). Because a true test of performance cannot be made without control of insects, insecticides were applied as needed (two applications of a recommended insecticide usually are sufficient).[1]

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

Quantity of harvested good-quality grain (or silage) is the best guide to the desirability of sorghum hybrids. Performance data for any one year may be misleading. Therefore, performance of each hybrid tested in 1977 is presented in this report along with two-and three-year averages of performance of hybrids that have been tested for this long.

Table 1. Planting dates, fertilizer rates, and insecticides applied, Hybrid Grain Sorghum Performance Trials, by location of trials, Mississippi, 1977.

Location	Planting date	Fertilizer rates[1]	Insecticides applied[2]
McNeil[3]	May 9	13-13-13 PP 68-0-0 SD	3-diazinon
Raymond	May 31	65-65-65 PP 100-0-0 SD	None
Newton	May 18	65-65-65 PP 72-0-0 SD	None
Mississippi State[4]	April 28	52-52-52 PP 125-0-0 SD	3-diazinon
Stoneville[5]	June 20	120-0-0 PP	2-sevin
Verona[6]	April 28	168-0-0 SD	None
Holly Springs	May 12	60-60-60 PP	1-sevin

[1]SD = Sidedressed, PP = Preplant.
[2]Insecticides applied as labeled.
[3]Irrigated twice (approx. ¾ " water/irrigation).
[4]Irrigated three times (furrow irrigation).
[5]Irrigated once (furrow irrigation).
[6]Split nitrogen application - 68# 5/6/77, 100# 6/1/77.

Testing Procedures

A randomized complete block experimental design with four replications was used at all locations. Each plot consisted of two rows 36, 38 or 40 inches wide and 20 feet long. All trials were planted at the rate of seven pounds of seed per acre. Areas of 1/1000 of an acre were hand-harvested from each replication, heads were dried and threshed, and grain yield was adjusted to 14% moisture. The total plot of each replication was combine harvested at the Stoneville location. Trials with average bird damage of more than 25% were not harvested. Data reported have not been adjusted for bird damage. Planting dates, fertilizer rates and insecticides applied are presented in Table 1.

[1]*See MAFES Bulletins 817 and 836 for methods of control of grain sorghum insects.*

Results

Hybrids were separated into two trials at each location, 30 non-bird-resistant hybrids in one trial (Table 2) and 14 bird-resistant hybrids in the other (Table 3). Bird damage was negligible at all locations except Mississippi State and Verona. This probably was due to the early planting date at these two locations. Bird damage to the non-bird-resistant hybrids ranged from 6 to 31% at Mississippi State, from 3 to 48% at Verona. Bird damage at both locations averaged 12%.

Lodging was significant only at Verona where it ranged from 0 to 28% and averaged 8%. The tests at Stoneville were planted near fields of cotton and sustained methyl-parathion burn due to drift from aerial spraying. Damage ratings are reported in Tables 2 and 3.

Grain yield of the 30 non-bird-resistant hybrids in the 1977 trials ranged from 1911 pounds per acre for Warner W-866 in the Stoneville trials to 5725 for Funk's G522DR in the Verona trials. Yield of the 30 hybrids averaged 3577 pounds per acre for the seven test locations (Table 2).

Grain yield of the 14 bird-resistant hybrids in the 1977 trials ranged from 1862 pounds per acre for N.K. Savanna 3 in the Stoneville trial to 6398 for Pioneer brand B815 in the Verona trial. Yield of the 14 hybrids averaged 3780 pounds per acre for the seven test locations (Table 3). Yields of all hybrids in the southern ¾ of the state were reduced due to prolonged drought.

Three-year average yields of non-bird-resistant and bird-resistant hybrids are reported in Tables 4 and 5, respectively. Two-year average yields of both classes of hybrids are reported in Tables 6 and 7, respectively.

Table 2. Performance of 30 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, average of seven locations (McNeil, Raymond, Newton, Mississippi State, Stoneville, Verona and Holly Springs), 1977.

Hybrid	50% Bloom[1]	Plant height[2]	Methyl-Para-thion rating[3]	Bird damage[4]	Lodg.[5]	Test weight[6]	Yield							
							McNeil	Raymond	Newton	Miss. State	Stone-ville	Verona	Holly Springs	Mean
	(days)	(in.)	(1-5)	(%)	(%)	(lbs/bu)	(lbs/A)							
ACCO R 1090	62	47	.5	7	6	57.5	2895	3919	2820	4896	5088	5387	5332	4334
Funk's G522DR	63	49	2.2	9	4	57.9	3364	3860	2832	4828	4451	5725	3724	4112
McNair 650	61	45	1.8	8	4	59.0	3991	3706	2932	5008	4189	5324	2508	3951
Funk's G522	64	45	2.0	8	5	58.6	3096	3692	2669	4771	3986	4858	4384	3922
GSA ML-135	62	46	1.5	6	4	57.1	3537	3794	2637	4817	4002	3853	4723	3909
ACCO R 109-A	62	44	1.8	8	4	55.5	3191	3794	2279	4608	4500	4442	4529	3906
Wilstar 1425	66	48	2.5	8	9	55.9	2733	3945	2752	4676	3855	5022	4268	3893
Funk's G662	64	47	3.0	8	3	58.6	2543	3420	2730	5554	3920	5372	3419	3851
ACCO R 1029-A	61	48	0	12	8	56.4	3399	3492	2659	4134	4369	4133	4727	3845
Warner W-839DR	64	47	1.8	7	2	59.0	4144	3664	2552	4869	3929	4201	3176	3791
Pioneer brand 8311	66	46	4.2	7	2	60.0	3213	3459	2479	3960	3790	4802	4412	3731
Wilstar 1225	63	45	1.5	6	2	58.5	2414	3497	2557	4352	4238	4966	4051	3725
Trojan M56G	62	46	2.8	10	4	58.2	2824	3554	2428	4151	3512	4554	4782	3686
Funk's G622 GBR	63	46	3.0	10	4	57.1	2809	3734	2893	3982	3675	4491	4150	3676
Pioneer brand 8272	63	47	2.8	8	4	58.0	2643	3730	2438	4026	3218	4656	4890	3657
T.T. Two 62yG	64	45	1.8	4	0	56.4	2392	2709	2830	4461	3667	4939	3844	3549
T-E Y101-R	63	45	2.5	10	5	55.9	3090	3323	2774	4205	3512	4274	3753	3562
Trojan M59	65	48	4.5	11	21	56.2	3021	3451	2343	3900	3169	4021	4303	3458
N.K. brand 2779	62	45	2.2	9	1	58.4	2392	3233	2335	4216	3813	4739	3320	3435
R.A. 808Gb	64	47	3.8	8	3	51.8	2651	3620	2888	4300	2817	3974	3717	3424
ACCO DR1085	63	47	2.8	10	2	58.9	2902	3176	2871	4725	2956	4021	3139	3399
DeKalb C-42y+	61	52	1.2	20	14	55.2	3148	4060	2555	3683	3594	3210	3546	3399
N.K. brand 2778	63	48	2.2	13	23	58.0	2722	2993	2633	4736	3259	3938	3185	3352
Funk's G642 GBR	66	49	3.2	11	18	55.4	2578	3431	2426	4608	2524	4274	3482	3332
Wilstar 1330	63	52	2.5	20	18	56.6	2759	4165	2538	4390	3332	2798	3149	3304
Warner W-832	63	46	5.0	16	2	56.9	2658	3462	3000	2598	2213	3465	5062	3208
Pioneer brand 8225	65	52	4.5	30	24	58.5	2755	3433	3142	2502	2614	2944	4610	3143
Warner W-866	62	50	5.0	26	28	58.4	2837	3521	2767	2105	1911	3741	4484	3052
DeKalb E-57b+	64	50	2.8	15	19	56.4	2707	2921	2679	4197	2924	3322	2400	3021
Funk's G-399	61	43	1.2	36	4	55.4	2038	2786	2669	2981	2777	2070	3347	2667
Mean	63	47	2.6	12	8	57.2	2919	3519	2669	4208	3527	4250	3947	3577
L.S.D. (.05)							974	961	777	647	956	1054	1427	---
C.V.							20.9%	19.7%	21.0%	11.1%	19.6%	17.9%	26.1%	---

[1]Recorded at Raymond, Newton, Mississippi State, Stoneville, Verona, and Holly Springs, MS.
[2]Recorded at all locations.
[3]Recorded at Stoneville, MS. 1 = little or no leaf burn, 5 = most leaves with large burned areas.
[4]Recorded at Mississippi State and Verona, MS.
[5]Recorded at Verona, MS.
[6]Recorded at Newton, Mississippi State, and Verona, MS.

Table 3. Performance of 14 bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, average of seven locations (McNeil, Raymond, Newton, Mississippi State, Stoneville, Verona and Holly Springs), 1977.

Hybrid	50% Bloom[1]	Plant height[2]	Methyl-Parathion rating[3]	Lodg.[4]	Test weight[5]	McNeil	Raymond	Newton	Miss. State	Stone-ville	Verona	Holly Springs	Mean
	(days)	(in.)	(1-5)	(%)	(lbs/bu)	(lbs/A)							
ACCO BR-Y93	62	48	.8	43	59.1	3824	2872	2060	5201	4565	5102	5368	4142
GSA 1334 BR	65	50	3.5	17	52.7	3347	3193	2974	5037	3520	5957	4800	4118
N.K. Savanna 5	64	60	5.0	28	59.7	4382	3809	3935	4363	2197	6290	3835	4116
Pioneer brand B815	64	57	4.5	35	54.7	3576	3088	3278	4156	3594	6398	4529	4088
Wilstar 1360-BR	64	49	3.5	20	54.3	3522	3327	2085	4619	3903	5048	4773	3897
Warner W-744	63	49	3.5	14	55.8	3388	3154	2730	4292	3218	5640	4755	3882
T-E Bird-A-Boo II	64	50	4.0	14	54.2	3518	3319	2406	5048	3234	4929	4583	3862
Funk's G516 BR	64	48	3.2	32	54.3	3671	2676	2793	5086	3512	4491	4385	3802
DeKalb BR-65+	65	53	2.0	3	56.4	3131	3376	2377	4164	3798	5840	3455	3734
DeKalb BR-64	65	55	3.6	22	56.5	3993	2122	3219	4967	3528	5993	2247	3724
DeKalb D-46	65	53	5.0	50	58.6	3619	2929	2574	4406	2547	4230	3672	3425
N.K. Savanna 3	62	49	5.0	11	50.9	3280	2698	3078	3571	1862	4983	4466	3420
T.T. Two 75BRG	64	49	4.3	17	55.9	2952	2366	2343	4404	2374	5652	3699	3399
R.A. Bird Go 68Gb	64	51	4.0	9	55.6	2668	3169	2036	4104	2614	5579	3004	3311
Mean	64	52	3.7	22	55.6	3490	3006	2706	4529	3197	5438	4112	3780
L.S.D. (.05)						678	1152	865	764	621	1398	1096	---
C.V.						14.0%	22.8%	23.0%	12.2%	14.0%	15.3%	19.2%	---

[1]Recorded at Raymond, Newton, Mississippi State, Stoneville, Verona, and Holly Springs, MS.
[2]Recorded at all locations.
[3]Recorded at Stoneville, MS. 1 = little or no leaf burn, 5 = most leaves with large burned areas.
[4]Recorded at Verona, MS.
[5]Recorded at Newton, Mississippi State, and Verona, MS.

Table 4. Yield of eight non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for three years, 1975-77.

Hybrid	Yield			
	McNeil	Raymond	Miss. State[1]	Mean
	lbs/A			
ACCO R 1090	3817	3789	3818	3808
Funk's G522	3935	3886	3579	3800
ACCO R 109-A	3672	3954	3758	3795
R.A. 808Gb	3866	3902	3568	3779
T-E Y101-R	3534	3654	3640	3609
ACCO R 1029-A	3872	3415	3501	3596
Warner W-832	3580	3690	2704	3325
Warner W-866	3613	3053	2472	3046
Mean	3736	3668	3380	3595

[1]Average for 1974, 1975, and 1977.

Table 5. Yield of six bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for three years, 1975-77.

Hybrid	Yield				
	McNeil	Raymond	Miss. State	Verona	Mean
	----------lbs/A----------				
N.K. Savanna 5	4349	4669	5208	5157	4846
ACCO BR-Y93	4273	4346	5399	4987	4751
Pioneer brand B815	4216	4386	4655	5152	5602
Funk's G516 BR	4269	3789	5297	4351	4426
DeKalb BR-64	4064	3663	5241	4727	4424
T-E Bird-A-Boo II	4020	4007	4919	4244	4298
Mean	4198	4143	5120	4770	4558

Table 6. Yield of 16 non-bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for two years, 1976-77.

Hybrid	Yield		
	McNeil	Raymond	Mean
	----------lbs/A----------		
GSA ML-135	4750	4311	4530
Wilstar 1425	4654	4340	4497
Pioneer brand 8311	4484	4236	4360
Funk's G522	4393	4193	4293
R.A. 808Gb	4293	4132	4212
Funk's G622 GBR	4324	3974	4149
Wilstar 1225	4258	3984	4121
ACCO R 109-A	3940	4294	4117
ACCO R 1029-A	4453	3636	4044
Warner W-832	3900	4131	4016
ACCO R 1090	4134	3847	3990
ACCO DR1085	4419	3376	3898
T.T. Two 62yG	4204	3392	3798
T-E Y101-R	3912	3637	3774
Wilstar 1330	4394	3128	3761
Warner W-866	4121	3161	3641
Mean	4290	3860	4075

Table 7. Yield of ten bird-resistant hybrids in Mississippi Grain Sorghum Performance Trials, by location of trials, average for two years, 1976-77.

Hybrid	Yield				
	McNeil	Raymond	Miss. State	Verona	Mean
	----------lbs/A----------				
GSA 1334 BR	5352	4206	6192	6327	5519
ACCO BR-Y93	5270	4148	6270	6279	5492
N.K. Savanna 5	5542	4592	5218	6532	5471
Pioneer brand B815	4866	4506	5346	6560	5320
Warner W-744 BR	4638	4126	6094	6148	5252
Wilstar 1360-BR	5030	4229	5988	5722	5242
Funk's G516 BR	5275	3885	6165	5582	5227
T-E Bird-A-Boo II	4934	4240	6004	5496	5168
DeKalb BR-64	5142	3306	5936	5929	5078
DeKalb BR-65+	4841	3898	5555	5980	5068
Mean	5089	4114	5876	6056	5284

Hybrids Designated for Entry in the 1977 Mississippi Grain Sorghum Performance Trials, by Sponsers.

Hybrid	Company	Address
ACCO R 109-A ACCO R 1090 ACCO R 1029-A ACCO DR1085 ACCO BR-Y93	ACCO Seed Company	Plainview, Texas
DeKalb C-42y+ DeKalb E-57B+ DeKalb BR-64 DeKalb BR-65+ DeKalb D-46	DeKalb AgResearch, Inc.	Lubbock, Texas
Funk's G399 Funk's G522 Funk's G516 BR Funk's G622 GBR Funk's G642 GBR Funk's G662 Funk's G522DR	Louisiana Seed Co., Inc.	Plainview, Texas
Growers ML-135 Growers GSA 1334 BR	Growers Seed Assn.	Lubbock, Texas
McNair 650	McNair Seed Co.	Laurinburg, North Carolina
N.K. Savanna 3 N.K. Savanna 5 N.K. brand 2778 N.K. brand 2779	Northrup, King & Co.	Richardson, Texas
Pioneer brand B815 Pioneer brand 8311 Pioneer brand B815 Pioneer brand 8272	Pioneer Hi-Bred, Inc.	Tipton, Indiana
Ring Around RA 808Gb Ring Around RA Bird Go 68Gb	Ring Around Products, Inc.	Plainview, Texas
T-E Bird-A-Boo II T-E Y101-R	Taylor-Evans Seed Co.	Tulia, Texas
Trojan M56G Trojan M59	Pfizer Genetics, Inc.	Elizabethtown, Kentucky
T.T. Two 75BRG T.T. Two 62yG	Texas Triumph Seed Co., Inc.	Ralls, Texas
Warner W-832 Warner W-744 BR Warner W-866 Warner W-839DR	Warner Seed Co., Inc.	Hereford, Texas
Wilstar 1225 Wilstar 1330 Wilstar 1360-BR Wilstar 1425	Helena Chemical Co.	West Helena, Arkansas

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