GRAIN SORGHUM PRODUCTION IN SOUTH-CENTRAL ARIZONA. III: DOUBLE CROP, RAINFED. 1984

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Summary

Eighty-eight commercial hybrid grain sorghums were grown for grain in a late planted simulated double-crop after barley or wheat harvest. The test was grown on the University of Arizona Marana Agricultural Center. The test was preirrigated to assure emergence and then left as rainfed only for moisture. The grain yields ranged from a high of 6378 lbs/acre down to 3659 lbs/acre. The ten highest yielding entries produced an average of 216.2 pounds of grain per acre-inch of water received through preirrigation and rainfall combined.

Materials and Methods

Eighty-eight commercial hybrid grain sorghums were evaluated for field grain production and other agronomic characteristics in a late-planted simulated double-crop after barley or wheat harvest. The test was grown on the University of Arizona Marana Agricultural Center in 1984. The seed bed was preirrigated to assure emergence and then left as rainfed only for moisture. The test was planted in moisture on July 11, 1984, in single row plots 20 feet long on 40-inch beds and replicated three times. Sixty-four lbs/acre of N and 80 lbs/acre of P was applied preplant in 400 lbs/acre of 16-20-0. Atrazine was applied, post emergence, at 1 & 1/2 lbs/acre of active ingredient for weed control. The test received 18 acre-inches of preplant irrigation water and 9.29 acre-inches of rainfall for a total moisture application of 27.29 acre-inches. The test was combine-harvested on November 14-15, 1984.

Results

The results are presented in Table 1 ranked in descending order of grain yield. The grain yields shown have been corrected for the bird damage amounts indicated. The yields of entries that experienced from 0% to 20% or 25% bird damage may be considered to be quite accurate. Yields of entries with 25% to 40% or 50% bird damage may be considered rather questionable. Entry yields with bird damages of 50% to 60% and higher may be considered highly questionable as to accuracy of yield.

A statistical analysis of variance of the yield data gave a "least significant difference" of 905 lbs/acre at a 5% level of probability. Any two yields that differ by more than 905 lbs/acre can be considered to be different by a probability of 95% or not different by a probability of only 5%.

The ten highest yielding entries had an average of 55 days to 50% bloom, produced an average of 216 lbs/acre of grain per acre inch of water received, and produced an average of 69.6 lbs of grain per acre per day of growth (measured as days to 50% bloom plus 30 days for maturity).

Table 1. Grain yield and other agronomic data from a commercial hybrid grain sorghum yield test grown double-crop after small grain under rainfed conditions at the Marana Agricultural Center, University of Arizona, 1984.

RANK	VARIETY[1/6/]	DAYS TO 50% BLOOM	HT.[2/] (IN.)	HEAD[3/] TYPE	% LODGED	BIRD[4/] DAMAGE %	TEST WT. (LB/BU)	YIELD[5/] (LB/A)
1	CAL 4 74H29	56	61	2	1	1	59.62	6378
2	CAL 4 79H12	56	54	3	0	3	58.32	6150
3	DK DK64	59	54	2	2	1	61.84	6143
4	DK DK38	51	48	3	1	2	59.94	6008
5	PIONR 8493	54	44	3	0	2	59.47	5928
6	W,G WX83134	57	47	2	0	0	60.83	5761
7	ST WAC651DR	53	54	2	1	4	59.82	5707
8	CAL 4 80H40	52	57	2	1	1	57.65	5681
9	NC+ 174	55	49	1	6	1	60.32	5646
10	PIONR XS226	55	49	3	2	2	61.28	5603
11	PIONR 8333	54	43	3	1	1	60.10	5505
12	NK X8223	55	48	2	0	1	60.50	5464
13	PIONR 8300	55	47	3	4	2	59.82	5446
14	PAYM 1022	55	43	2	0	0	60.61	5420
15	GSA 1290	54	44	2	0	0	60.08	5419
16	ASG TOPAZ	54	46	3	4	0	60.58	5341
17	PIONR 851	54	48	2	5	3	60.83	5228
18	W,G W561A	53	47	2	1	1	60.05	5210
19	ST WAC686	55	47	2	6	0	59.65	5184
20	CNL TPHND2	54	45	3	7	0	60.48	5173
21	ASG COLT	56	44	3	3	0	60.82	5106
22	NC+ 178	55	46	1	2	0	60.66	5096
23	GSA 1180	50	47	3	0	3	60.32	5091
24	GSA 1212	50	46	3	1	3	61.12	5063
25	CARG 40	53	40	3	1	0	59.97	5053
26	ASG OPAL	55	44	3	1	0	58.53	5042
27	ASG H8108	56	48	3	3	0	60.59	5031
28	ASG CHAPRL	53	45	3	1	1	61.30	5020
29	RS 626 (CK)	54	48	2	3	1	58.65	5011
30	PAG 4432	53	45	2	0	2	59.68	4998
31	ASG H768	54	49	2	3	6	61.20	4984
32	NK 265	53	49	3	1	2	59.81	4970
33	ST WAC692R	55	46	2	0	0	60.18	4966
34	W,G W655T	52	49	2	6	3	59.42	4958
35	CARG 30	51	47	3	0	1	59.14	4944

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RANK	VARIETY[1/6/]	DAYS TO 50% BLOOM	HT.[2/] (IN.)	HEAD[3/] TYPE	% LODGED	BIRD[4/] DAMAGE %	TEST WT. (LB/BU)	YIELD[5/] (LB/A)
36	ASG H8204	52	46	3	3	1	60.15	4894
37	ASG SIERRA	51	44	3	0	2	61.12	4871
38	PAG 3385	55	44	2	4	0	58.81	4868
39	CNL PRONTO	51	47	2	2	7	59.26	4850
40	TRM TW060-D	54	47	2	0	1	60.43	4850
41	GSA 1310A	51	41	2	2	1	59.82	4846
42	RCH SPRINT	50	48	2	3	0	58.14	4846
43	W,G W839A	51	42	3	5	1	59.55	4835
44	CAL 4 78H8	52	51	3	1	0	57.81	4812
45	TE Y-45-G	51	49	2	2	10	60.27	4795
46	W,G WX83104	60	48	1	0	0	59.84	4792
47	ASG 8206	57	45	2	2	0	60.15	4766
48	TE 8163	51	46	2	2	4	60.32	4764
49	ASG CORRAL	50	47	3	4	9	59.60	4762
50	TRM TW070-D	53	47	3	8	0	60.37	4732
51	RS 610 (CK)	52	48	2	4	3	60.10	4723
52	PAYM 930	51	43	3	0	4	59.32	4719
53	CAL 4 78H6	52	50	2	1	0	57.60	4704
54	GSA 1210B	53	47	2	4	3	58.81	4659
55	PIONR 8657	52	42	3	2	1	60.35	4654
56	ASG 8210	52	41	2	0	0	60.82	4639
57	TRM TW062Y	56	43	3	2	0	57.14	4630
58	FNK G522DR	56	45	2	5	0	58.81	4614
59	CNL TPHNDTA	56	54	2	24	2	59.81	4613
60	FNK G660	53	41	3	0	0	59.07	4613
61	FNK G550	57	46	1	4	0	59.81	4605
62	GSA 1188	55	46	1	0	1	60.16	4589
63	Y,RC OROPTO	55	48	2	1	1	58.15	4576
64	Y,RC E.OROG	56	48	3	1	0	69.65	4522
65	DK DK42Y	55	45	2	0	0	60.83	4498
66	ST WAC652G	50	49	2	5	6	60.16	4443
67	TRM TW080-D	56	46	1	10	0	60.16	4393
68	W,G W684DR	55	48	1	33	1	59.15	4380
69	W,G W839T	55	43	3	2	0	57.57	4356
70	CARG 22	50	45	3	1	0	59.57	4258
71	FNK HW2308	53	42	3	6	0	57.98	4225
72	TRM TW054YG	54	44	3	4	2	59.65	4182
73	TE Y-44-R	49	44	3	0	2	58.66	4074
74	TRM TW064YG	51	42	3	6	2	58.97	4069
75	RCH Y110A	53	42	2	3	0	59.18	3986

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RANK	VARIETY[1/6/]	DAYS TO 50% BLOOM	HT.[2/] (IN.)	HEAD[3/] TYPE	% LODGED	BIRD[4/] DAMAGE %	TEST WT. (LB/BU)	YIELD[5/] (LB/A)
76	TRM TW048YG	52	37	3	1	1	59.34	3981
77	NK 1580	53	43	3	0	4	59.06	3934
78	ST WAC 1002	50	40	3	0	1	59.33	3928
79	W,G W564T	53	46	3	13	1	59.15	3927
80	TRM TW050YG	54	41	2	4	1	58.98	3914
81	DK A25a	49	37	3	0	0	56.98	3900
82	RCH Y100A	51	36	3	0	1	59.81	3882
83	PAYM R980	53	39	3	0	0	59.65	3852
84	Y,RC OROREC	52	45	3	1	0	57.87	3836
85	CNL RAWIDE	55	42	3	1	0	57.38	3826
86	RCH Y1041A	51	42	2	3	3	59.60	3792
87	PAG 2250	50	41	3	0	1	58.98	3762
88	DK DK39	54	40	3	0	0	59.14	3659

1/ Test entries replicated three times in single row plots 20 feet long on 40-inch beds in moisture on July 11, 1984.
2/ Average height to the top of the head.
3/ "1" = compact head, "2" = semi-compact head, "3" = semi-open head, "4" = open head (quite lax panicle).
4/ Average percent bird damage across all three replications of each entry. Grain yields are corrected for this damage.
5/ LSD .05 = 905 LB, C.V. = 12%.
6/ Commercial company names have been abbreviated as follows:

Asgrow - ASG
California - CAL
Cargill - CARG
Cargill PAG - PAG
Conlee - CNL
DeKalb - DK
Funk Seeds - FNK
GrowAgri - GSA
NC+ - NC+
Northrup King - NK
Paymaster - PAYM
Pioneer - PIONR
R.C. Young - Y,RC
Richardson - RCH
Seedtec - ST
Stauffer - STFR
Taylor Evans - TE
Triumph - TRM
Warner, G. - W,G