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PERFORMANCE TESTS OF SORGHUM HYBRIDS AND VARIETIES, 1957

By Frank F. Davies
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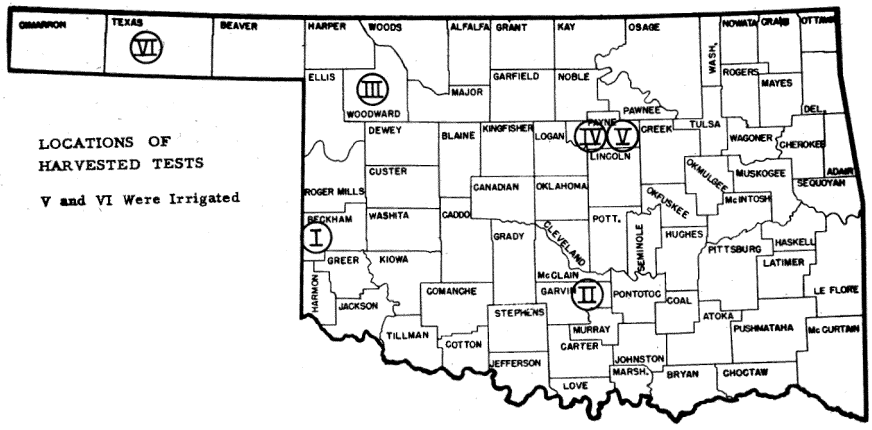

OKLAHOMA STATE UNIVERSITY
INSTRUCTION RESEARCH EXTENSION
SCIENCE SERVING AGRICULTURE
... 1891 ...
EXPERIMENT STATION

PERFORMANCE TESTS OF SORGHUM HYBRIDS AND VARIETIES, 1957

By Frank F. Davies
Department of Agronomy

The 1957 Oklahoma Sorghum Performance Tests included 30 entries. Sixteen hybrids were entered by seed-producing or -distributing companies. Seven experiment station hybrids were entered; three are of regional origin and four are Texas releases. The seven combine grain varieties (Redlan, Kafir 44-14, Darset, Wheatland, Westland, Plainsman and Martin) recommended for Oklahoma were entered by the Oklahoma Station as standards for comparison.

1957 Testing Procedure and Conditions

The tests were planted at the following locations:

Sam Holmberg Farm, Beckham Co., Erick, (Dry land).
Oklahoma Peanut Research Station, Garvin Co., Stratford (Dry land)
U.S. Southern Great Plains Field Station, Woodward Co., Woodward (Dry land)
Sandy Land Research Station Greer Co., Mangum (Dry land)
Oklahoma Experimental Farm, Payne Co., Perkins (Supplementary irrigation)
Oklahoma Experimental Farm, Payne Co., Stillwater (Irrigation)
Oklahoma Panhandle Experiment Station, Texas Co., Goodwell (Irrigation and dry land)

All entries were included at each location and were planted in a randomized block design, using either 3 or 4 replications. The planting date ranged from June 7 to June 27, depending on the location. Single-row plots 40 feet long with either 40- or 42-inch row-width spacing were used at Perkins, Stillwater, Stratford, Mangum and Erick. Guard rows were included at Woodward and Goodwell. At Goodwell on the irrigated test the row width was 28 inches and 40 pounds per acre of anhydrous ammonia was applied prior to planting.

The stands obtained were average or above at all locations except Mangum. Here the plant distribution was so variable that the test was abandoned.

The season prior to planting was extremely wet at most of the test locations; however, dry conditions prevailed from late June through July and August. The dry land tests at Erick and Goodwell showed the effects of dry weather stress.

The irrigated plots at Stillwater and Goodwell received 4 applications of water of approximately 3 surface inches per application during the growing and maturing period. The Perkins test was supplementary watered one time, the last week in July.

The plot size harvested was 1/500 acre per replication at all locations. The heads from lodged plants were considered as non-harvestable grain and were not included in the plot yield. The grain in the dry land plots at Goodwell was severely damaged by birds and the test was not harvested.

Grain yields and other data for the 6 locations harvested are given in Tables I to VI. Yields are reported on the basis of bushels weighing 56 pounds, and at 12.5 percent moisture.

Due to the limited time (1956-1957) that hybrid sorghums have been tested in Oklahoma, and because a number of the hybrids have shown a tendency to lodge, the Oklahoma Experiment Station is not recommending them for general field planting in 1958.

TABLE I - BECKHAM COUNTY (Upland)

Sam Holmberg Farm; Erick, 3 Miles East
Planted June 20, Harvested October 25

Rank	Entry Designation	Acre Yield	Plant Height	Lodging at Harvest Date	Threshing
		bu.	in.	pct.	pct.
1	Amak R 10	50.9	35	0.9	77.3
2	Garst & Thomas 705	47.3	34	0.0	72.6
3	RS - 610	45.5	38	1.0	76.2
4	DeKalb D50a	45.5	42	8.5	74.1
5	Amak R 12	44.6	38	2.8	73.3
6	P.A.G. 2012	42.9	33	3.5	75.1
7	Garst & Thomas 778	42.9	36	2.0	72.3
8	P.A.G. 2005	42.0	38	1.1	75.1
9	DeKalb E56a	42.0	38	2.4	72.5
10	DeKalb F62a	42.0	37	2.6	73.0
11	Darset	41.1	32	0.0	68.7
12	RS - 590	41.1	39	0.8	72.2
13	Garst & Thomas 707	41.1	39	7.9	70.7
14	Wheatland	40.2	28	0.0	72.6
15	P.A.G. 2015	40.2	36	3.1	72.5
16	Frontier 400	40.2	36	0.0	71.7
17	Frontier 410	40.2	34	2.1	70.9
18	Texas 611	38.4	37	0.0	72.5
19	P.A.G. 2010	38.4	36	0.8	72.8
20	DeKalb C44a	38.4	37	6.0	72.2
21	RS - 650	36.6	33	0.7	71.0
22	Texas 660	36.6	35	2.1	69.1
23	Garst & Thomas 706	35.7	36	0.0	70.5
24	Redlan	35.7	35	0.0	74.1
25	Texas 620	34.8	38	10.0	69.0
26	Texas 601	33.9	37	2.9	70.0
27	Westland	33.9	30	6.1	72.5
28	Martin	33.9	32	0.0	74.4
29	Kafir 44-14	33.0	37	24.0	63.2
30	Plainsman	32.1	32	12.1	69.1
	Average	39.7	36	3.4	72.0

Significant Difference: A difference of less than 9.8 bushels per acre between any two entries should not be considered significant in this test.

TABLE II - GARVIN COUNTY (Upland)

Oklahoma Peanut Research Station; Stratford
2 1/2 Miles North
Planted June 12, Harvested October 18

Rank	Entry Designation	Acre Yield	Plant Height	Lodging at Harvest Date	Threshing
		bu.	in.	pct.	pct.
1	Garst & Thomas 707	55.4	42	0.0	81.3
2	P.A.G. 2010	54.5	41	0.0	84.3
3	P.A.G. 2015	54.5	37	0.0	82.2
4	Texas 620	53.6	40	0.0	81.5
5	Texas 601	52.7	37	0.0	82.2
6	DeKalb C44a	52.7	40	0.0	81.0
7	Dekalb D50a	51.8	44	4.1	80.4
8	Garst & Thomas 706	50.9	38	0.0	81.4
9	RS - 590	50.0	40	0.0	82.5
10	RS - 610	50.0	39	0.0	80.6
11	P.A.G. 2012	50.0	37	0.0	82.4
12	Frontier 400	49.1	38	0.0	81.2
13	DeKalb F62a	49.1	39	0.8	80.0
14	Garst & Thomas 778	48.2	38	0.0	76.7
15	Amak R 10	48.2	36	0.0	81.4
16	Amak R 12	48.2	37	0.0	81.5
17	Garst & Thomas 705	47.3	38	0.0	76.4
18	DeKalb E56a	47.3	38	0.0	76.5
19	Texas 611	46.4	41	0.0	82.6
20	Redlan	45.5	36	0.0	84.6
21	Kafir 44-14	44.6	39	0.0	72.7
22	Texas 660	43.8	40	0.0	83.4
23	P.A.G. 2005	43.8	37	0.0	82.7
24	Frontier 410	43.8	37	0.0	84.2
25	RS - 650	42.9	35	0.0	79.8
26	Wheatland	42.9	29	0.0	82.1
27	Plainsman	41.1	32	0.0	78.7
28	Westland	41.1	32	0.0	81.9
29	Martin	36.6	36	0.0	85.9
30	Darset	35.7	32	0.0	81.4
	Average	47.4	38	0.2	81.1

Significant Difference: A difference of less than 8.8 bushels per acre between any two entries should not be considered significant in this test.

TABLE III - WOODWARD COUNTY (Upland)

U. S. Southern Great Plains Field Station Farm
Woodward, 1 Mile West, 1/2 South
Planted June 27, Harvested October 17 to November 7

Rank	Entry Designation	Acre Yield	Bloom Date	Plant Height	Lodging at Harvest Date	Threshing
		bu.	av.	in.	pct.*	pct.
1	Texas 660	48.0	8/24	38		79.3
2	Kafir 44-14	43.6	8/27	36		78.0
3	Amak R 12	41.9	8/23	36		77.3
4	Texas 611	42.7	8/23	38		78.0
5	RS - 610	40.9	8/20	39		77.7
6	DeKalb D50a	40.9	8/19	43		75.7
7	P.A.G. 2010	40.0	8/23	40		79.3
8	DeKalb E56a	40.0	8/23	37		76.0
9	RS - 650	39.1	8/22	35		77.0
10	Frontier 410	37.3	8/22	35		76.7
11	Texas 620	36.4	8/23	40		76.0
12	Texas 601	35.6	8/23	37		76.0
13	Frontier 400	35.6	8/22	38		75.0
14	Amak R 10	35.6	8/20	37		79.7
15	Garst & Thomas 706	34.7	8/22	38		77.3
16	Darset	34.7	8/22	28		77.7
17	P.A.G. 2015	33.8	8/23	39		75.7
18	Garst & Thomas 778	33.8	8/21	37		79.0
19	Redlan	33.8	8/30	35		79.0
20	RS - 590	32.9	8/23	38		77.7
21	P.A.G. 2005	32.9	8/20	38		74.0
22	Garst & Thomas 705	32.9	8/24	33		79.3
23	Garst & Thomas 707	32.9	8/22	41		77.3
24	Martin	32.9	8/22	34		77.7
25	P.A.G. 2012	32.0	8/19	36		75.3
26	DeKalb F62a	32.0	8/20	37		75.7
27	Plainsman	31.1	8/26	32		77.0
28	Wheatland	30.2	8/23	28		78.0
29	Westland	30.2	8/21	30		75.3
30	DeKalb C44a	23.1	8/23	36		74.7
	Average	35.7		36		77.1

Significant Difference: A difference of less than 8.8 bushels per acre between any two entries should not be considered significant in this test.

* No lodging occurred in this test.

TABLE IV - PAYNE COUNTY (Upland)

Oklahoma Agricultural Experiment Station Farm
Perkins, 1 Mile North, 1 West
Planted June 7, Harvested September 27

Rank	Entry Designations	Acre Yield	Bloom Date	Plant Height	Lodging at Harvest Date	Threshing
		bu.	av.	in.	pct.	pct.
1	Texas 620	59.8	8/4	44	0.0	75.6
2	P.A.G. 2015	59.8	8/7	42	0.0	76.3
3	Frontier 400	59.8	8/7	45	0.0	75.5
4	Texas 601	58.9	8/8	42	0.0	76.2
5	Garst & Thomas 778	58.9	8/6	42	0.0	74.6
6	Garst & Thomas 707	58.0	8/5	44	0.0	73.6
7	RS - 610	57.1	8/7	42	0.0	75.1
8	P.A.G. 2010	57.1	8/8	45	0.0	76.5
9	Texas 660	56.3	8/9	40	0.0	74.3
10	Plainsman	55.4	8/8	38	0.0	74.2
11	Garst & Thomas 705	55.4	8/4	40	0.0	72.6
12	RS - 650	54.5	8/7	38	0.0	73.3
13	Texas 611	54.5	8/10	45	0.0	75.6
14	DeKalb E56a	54.5	8/8	45	0.0	75.0
15	Frontier 410	53.6	8/7	40	0.0	74.1
16	Redlan	52.7	8/14	41	0.0	76.8
17	Garst & Thomas 706	52.7	8/7	45	0.0	73.1
18	RS - 590	51.8	8/5	42	0.0	71.7
19	DeKalb D50a	51.8	8/9	51	7.1	74.4
20	P.A.G. 2005	50.9	8/4	41	0.0	71.2
21	P.A.G. 2012	50.9	8/6	41	1.6	71.7
22	DeKalb C44a	50.0	8/5	42	7.7	72.5
23	Amak R 10	49.1	8/5	40	2.4	75.3
24	DeKalb F62a	46.4	8/5	42	7.8	72.1
25	Wheatland	45.5	8/6	31	0.0	73.6
26	Amak R 12	42.0	8/10	42	0.0	71.6
27	Darset	42.0	8/3	32	0.0	66.5
28	Kafir 44-14	35.7	8/16	45	0.0	54.1
29	Martin	35.7	8/8	40	0.0	71.5
30	Westland	34.8	8/6	31	1.5	67.0
	Average	51.5		41	0.9	72.9

Significant Difference: A difference of less than 7.6 bushels per acre between any two entries should not be considered significant in this test.

TABLE V - PAYNE COUNTY (Bottom land - Irrigated)

Oklahoma Agricultural Experiment Station Farm
Stillwater, 1 Mile West
Planted June 14, Harvested October 5

Rank	Entry Designation	Acre Yields	Bloom Date	Plant Height	Lodging at Harvest Date	Threshing
		bu.	av.	in.	pct.	pct.
1	Frontier 400	82.1	8/8	49	1.2	77.5
2	Texas 620	80.4	8/7	52	4.0	74.4
3	Texas 611	79.5	8/9	52	1.8	77.4
4	DeKalb D50a	79.5	8/8	58	6.3	80.8
5	P.A.G. 2015	78.6	8/10	49	3.2	76.0
6	RS - 590	76.8	8/7	50	2.2	73.2
7	RS - 610	76.8	8/7	50	1.1	74.0
8	Redlan	76.8	8/15	49	0.0	77.1
9	Texas 601	75.9	8/9	51	5.7	75.9
10	P.A.G. 2010	75.9	8/9	52	4.1	76.4
11	Wheatland	75.0	8/11	38	0.0	76.0
12	RS - 650	74.1	8/9	45	3.6	76.6
13	Garst & Thomas 706	74.1	8/8	50	3.0	73.6
14	Garst & Thomas 707	74.1	8/8	53	13.2	77.7
15	DeKalb C44a	74.1	8/7	51	4.0	76.0
16	P.A.G. 2012	73.2	8/8	48	0.8	76.9
17	P.A.G. 2005	71.4	8/7	49	4.4	77.0
18	Garst & Thomas 705	71 4	8/7	45	1.0	75.7
19	Frontier 410	71.4	8/9	47	3.0	77.2
20	Texas 660	69.6	8/9	49	6.3	74.4
21	Garst & Thomas 778	69.6	8/8	48	2.6	71.4
22	Westland	69.6	8/10	43	4.1	75.9
23	DeKalb F62a	67.0	8/10	50	9.5	70.8
24	DeKalb E56a	65.2	8/10	49	6.0	73.3
25	Amak R 10	64.3	8/7	46	2.7	76.1
26	Martin	64.3	8/8	45	2.4	78.1
27	Plainsman	63.4	8/10	42	3.0	68.4
28	Amak R 12	58.9	8/12	48	4.6	71.0
29	Darset	58.0	8/6	39	0.0	74.8
30	Kafir 44-14	45.5	8/13	49	4.8	58.9
	Average	71.2		48	3.6	74.8

Significant Difference: A difference of less than 9.3 bushels per acre between any two entries should not be considered significant in this test.

TABLE VI - TEXAS COUNTY (Upland - Irrigated)

Oklahoma Panhandle Agricultural Experiment Station Farm
Goodwell, 1 Mile East
Planted June 14, Harvested 4th Week November

Rank	Entry Designation	Acre Yield	Bloom Date	Plant Height	Lodging at Harvest Date	Threshing
		bu.	full	in.	pct.	pct.*
1	DeKalb E56a	99.1	8/16	46	1.8	
2	Redlan	96.4	8/28	43	3.2	
3	Texas 620	95.5	8/16	48	6.2	
4	Wheatland	92.9	8/22	37	3.5	
5	Texas 660	92.9	8/17	45	13.6	
6	Frontier 410	92.0	8/16	43	12.1	
7	DeKalb F62a	92.0	8/17	46	6.8	
8	Texas 601	90.2	8/15	45	10.3	
9	Garst & Thomas 705	90.2	8/17	44	5.0	
10	DeKalb D50a	90.2	8/14	53	10.0	
11	RS - 590	90.2	8/16	47	3.7	
12	Garst & Thomas 706	89.3	8/13	47	0.0	
13	Amak R 12	89.3	8/24	43	8.8	
14	Garst & Thomas 707	87.5	8/17	49	12.5	
15	Plainsman	84.8	8/23	39	26.7	
16	Darset	84.8	8/20	37	1.7	
17	P.A.G. 2010	83.9	8/22	48	22.0	
18	Martin	83.0	8/19	43	1.0	
19	RS - 650	82.0	8/16	43	13.6	
20	P.A.G. 2015	80.4	8/21	45	22.3	
21	DeKalb C44a	80.4	8/7	42	1.4	
22	Amak R 10	79.5	8/13	43	5.3	
23	Westland	78.6	8/20	39	5.0	
24	Texas 611	77.7	8/17	47	13.6	
25	P.A.G. 2005	77.7	8/17	45	8.5	
26	Kafir 44-14	75.0	8/22	42	13.0	
27	RS 610	71.4	8/16	46	13.6	
28	P.A.G. 2012	71.4	8/15	43	20.2	
29	Garst & Thomas 778	71.4	8/15	42	9.7	
30	Frontier 400	71.4	8/13	47	18.1	
	Average	84.7		44.2	9.8	

Significant Difference: A difference of less than 19.3 bushels per acre between any two entries should not be considered significant in this test.

* Head weight not recorded.