Results of the KENTUCKY GRAIN and SIRUP SORGHUM PERFORMANCE TESTS 1958

By J. F. Shane and Randolph Richards

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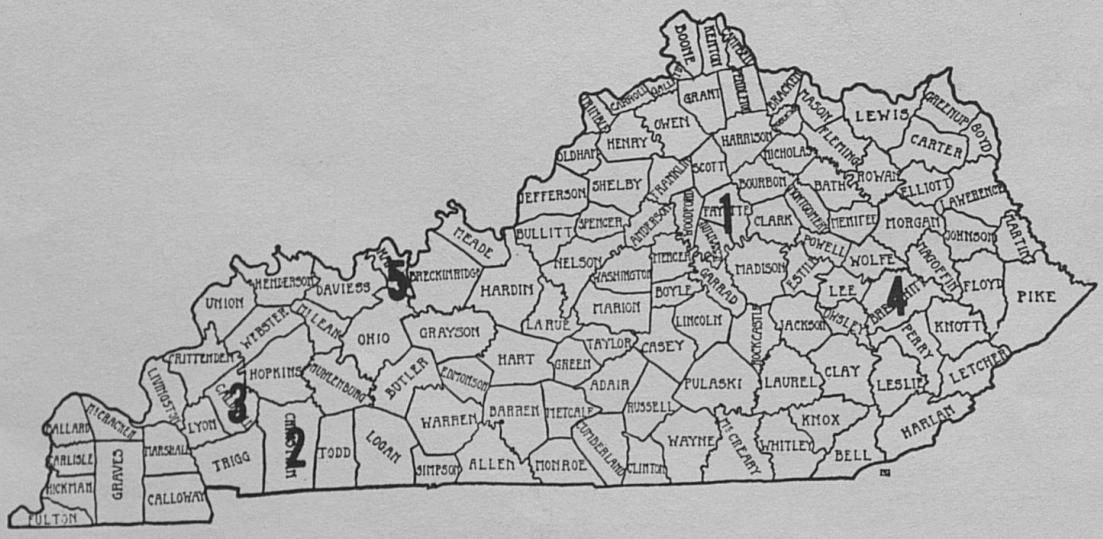

Location	Crop	Cooperator
1. Lexington	Grain Sorghum	Ky. Agr. Exp. Sta.
2. Herndon	Grain Sorghum	H. M. Young, Jr.
3. Princeton	Grain Sorghum	Western Ky. Substation
4. Quicksand	Sirup Sorghum	Robinson Agr. Exp. Substation
5. Hawesville	Sirup Sorghum	Hawesville Sorghum Growers Ass'n. Griffin Swihart, Cletus Morris

RESULTS OF THE KENTUCKY GRAIN AND SIRUP SORGHUM PERFORMANCE TESTS - 1957

J. F. Shane and Randolph Richards

This report presents data obtained from grain and sirup sorghum plantings made at different locations in the state.

The Kentucky Agricultural Experiment Station recommends the combine type grain sorghum varieties: Midland, Early Hegari, Martin, and Plainsman. The sirup sorghums recommended are: Sugar Drip, Williams and Tracy.

Hybrid grain sorghums show great promise of replacing the standard varieties, but not enough testing has been done to justify any specific recommendations. The hybrids R.S.610 and Texas 620 were produced in Kentucky for interstate certification in 1957. It is suggested that growers plant one or more of the more promising hybrids and compare them with standard varieties grown under comparable conditions. Whenever possible, the grower should use certified seed; otherwise, use seed from a reliable source.

Although the variety Early Hegari is high-yielding, under favorable moisture conditions and on soil of high fertility it may grow too tall for combining.

No data was recorded for the 1957 Lexington grain sorghum test because of extensive bird damage. The 1957 sirup sorghum test at Hawesville was not harvested. Late spring rains resulted in delayed planting and the environment favored invasion of downy mildew.

Data for the grain and sirup sorghum tests at Lexington and Hawesville for previous years are presented in this report.

TERMS USED IN THIS REPORT

1. Brix. A measure of the total soluble solid content (most of which is sugar) of the juice of sweet sorghum.

2. Date Headed. The date when 50 percent of the heads have emerged from the leaf sheath.

3. Juice Extraction. A percentage figure indicating the amount of juice obtained by milling 100 pounds of sweet sorghum stalks after the leaves and heads have been removed.

4. Head Exsertion. The distance between the top leaf and the base of the head. This characteristic is reported as G-good F-fair, and P-poor. Varieties with poor head exsertion are likely to mold when the base of the head is enclosed in the leaf sheath.

5. Head Type. Heads are classed as O-open, Sc-semi-compact, or C-compact. Open type heads are more desirable since they will dry more readily and are less likely to mold and harbor insects. A variety with an open head will probably be ready to combine earlier than a compact-headed variety of about the same maturity.

6. Height. The distance from the base of the plant to the top leaf and to the top of the plant is reported in inches. Shorter plants are more easily combined.

7. Moisture. Samples for moisture determinations were taken from the bulked grain of four replications.

8. Yield. Yields of grain sorghum are reported as bushels per acre of threshed grain at 13.0 percent moisture and 56 pounds per bushel. Yields of sirup sorghums are reported as gallons of sirup per ton and per acre at a density of 76 degrees Brix.

9. Test Weight. Test weight or weight per bushel is one of the quality factors used in determining the grade that is assigned in commercial marketing of grain. The higher the test weight, the higher the market value unless the grain is down-graded by another factor.

10. L.S.D. The abbreviation "L.S.D". means least significant difference. Two varieties differing in yield by less than the L.S.D. cannot be said to differ in yield in that particular test if one wishes to be correct at least 95 percent of the time.

Agronomic data other than yield have not been subjected to statistical analysis and small differences between varieties should not be considered strongly indicative of a true difference.

In the grain sorghum tests at Princeton each variety was seeded in rows 42 inches apart and in rows 14 inches apart. The 42-inch spacing was cultivated twice during the season. The 14-inch spacing received no cultivation. There were practically no weeds in either of the spacings. The seeding rates in 1957 were six pounds per acre for the 42-inch spacing and eighteen pounds per acre for the 14-inch spacing. In 1956 the rates for 14-inch and 42-inch spacings were the same number of pounds per acre. In 1956 no significant yield differences were noted between spacings except for three varieties. The 42-inch spacing yielded significantly more in 1957 than did the 14-inch spacing; this difference may be a reflection of the high seeding rate used in the 14-inch spacing.

Pedigrees of Experiment Station and Regional grain sorghum hybrids tested in 1957:

R.S.501	(ms Combine Kafir - 60 X Norghum)
R.S.590	(" X Redbine 60)
R.S.610	(" X SA 7078)
R.S.650	(" X Plainsman)
Texas 601	(" X Tx. 04)
Texas 611	(" X Tx. 74)
Texas 620	(" X Tx. 07)
Texas 660	(" X Caprock)

Privately-controlled hybrids tested:

DeKalb	C-44A	Frontier	390	AMAK R-10
DeKalb	D-50A	Frontier	400	AMAK R-12
DeKalb	E-56A	Frontier	410	
DeKalb	F-62A			

Table 1. 1956 - Lexington, Planted June 5

Variety	Acre Yield	Moisture	Date Flowered	Plant ht.	Test wt.
	bu.	%	Date	ins.	lbs/bu.
Combine 60	62.2	16.9	8-14	57	56.7
Darset	78.6	14.9	8-10	47	53.5
Early Combine Hegari	89.8	13.5	8-12	58	56.8
Early Hegari	75.6	13.4	8-11	60	57.1
Martin	69.7	14.5	8-12	54	59.2
Midland	66.7	14.3	8-11	57	57.5
R.S.590	93.2	14.5	8-7	59	58.4
R.S.650	96.5	14.9	8-11	57	56.5
R.S.501	81.7	14.3	8-2	59	57.2
R.S.610	98.1	15.1	8-9	56	56.1
Norghum	46.8	12.8	7-31	49	53.6
Plainsman	81.1	14.9	8-12	49	55.7
Redbine 56	78.7	13.3	8-4	50	56.0
" 60	92.5	14.6	8-8	56	56.0
Westland	78.1	15.8	8-12	45	56.0
Ky. 106 (corn)	76.5	18.0	--	48	--
Means	79.1	14.7	8-9	53	56.4
L.S.D.	11.6	bushel			

Table 2. 1954-1956 - Lexington, Normal Planting Date

Variety	Acre Yield	Date Flowered	Height to Flag leaf	Height to Top of Plant	Test wt.	Lodging
	BU.	Date	ins.	ins.	lbs/bu	%
Early Combine Hegari	89.8	8-12	46	58	56.4	9
Early Hegari	63.3	8-11	47	58	56.7	1
Martin	59.1	8-11	39	52	58.7	1
Midland	61.6	8-11	44	56	56.5	0
Plainsman	65.2	8-12	36	49	56.2	Tr.
Redbine 56	64.4	8-4	39	54	57.2	1
Westland	63.9	8-12	33	46	57.6	Tr.
Means	66.8	8-12	41	53	57.0	2

Table 3. 1957 - Grain Sorghum, Herndon and Hopkinsville.

Variety	Acre Yield - bu. 1957	1956-57	1955-57	Lodging %	Test wt. lbs/bu.
Early Hegari	89.5	71.8	67.3	Tr	51.8
Midland	61.5	60.5	61.1		51.4
Martin	73.3	62.3	62.3	1	55.5
Plainsman	86.8	72.8	69.8		51.7
Redbine 56	63.8	58.7	64.2	4.5	52.4
Texas 620	79.6				55.0
Redbine 66	73.9				54.2
Westland	68.4	60.1	59.6		54.8
Darset	62.4	54.8	54.9		48.1
Norghum	50.0	46.3	47.5		50.3
Combine Kafir 60	55.5	55.2			53.4
Early Kalo	73.6				56.3
R.S. 610	95.7	84.0		Tr	53.4
D.D. Hegari	83.3				52.5
Caprock	89.5				53.0
DeKalb E-56 A	89.4				54.4
R.S. 590	83.6	70.6		1.5	53.9
Frontier 410	69.0				54.8
Combine 7078	81.9				49.6
DeKalb D-50 A	104.6				54.5
Dw. Kafir 44-14	60.4				57.7
Coes	51.4				48.3
R. S. 501	73.0	70.9		0.5	54.1
Frontier 390	71.9				53.5
DeKalb C-44A	92.3				52.1
Bonita	74.4				48.1
Reliance	46.8				48.0
R.S. 650	81.6	71.4		0.5	52.2
Frontier 400	90.2				52.5
Combine Kafir(Fulk sel)	55.5				53.0
Redlan	72.7				52.4
DeKalb F-62 A	86.5				54.5
AMAK R-10	79.9				54.3
AMAK R-12	50.3				49.0
D. D. Schrock Kafir	67.0				48.0
Dw. Sagrain	72.4				50.4
Means	73.9	64.6	60.8	0.2	52.4
L.S.D.	10.6				

Table 4. 1957 - Grain Sorghum, Princeton - Planted June 10.

Variety	Acre Yield - bu			Height in ins. to		Head Exsertion	Head Type	Date Headed
	Ave.	42 in	14 in	Top of Plant	Top Leaf			Aug.
Westland	60.0	66.5	53.4	50	38	G	SC	11
Texas 611	58.0	64.7	51.3	60	44	G	C	6
R.S. 610	66.9	71.7	62.2	56	42	G	C	8
Texas 660	62.4	69.3	55.5	57	42	G	C	7
R.S. 590	51.0	60.7	41.3	55	41	G	C	6
Texas 601	59.5	68.0	50.9	56	41	G	SC	9
R.S 650	59.5	62.3	56.7	54	40	G	C	8
Texas 620	53.5	50.7	56.3	56	40	G	SC	6
Midland	37.9	47.0	28.8	56	43	F	C	10
DeKalb F-62A	41.0	49.0	33.0	54	40	G	O	10
DeKalb D-50A	56.0	64.0	48.0	66	49	G	O	6
Plainsman	67.6	68.3	66.8	46	32	G	C	11
Early Hegari	76.1	74.2	78.0	72	60	F	C	14
Martin	55.3	58.5	52.1	55	39	G	SC	9
Redbine 58	54.4	58.3	50.5	56	44	G	SC	6
AMAK R - 10	64.9	61.0	68.9	54	40	G	SC	6
Frontier 390	37.9	41.5	34.2	61	44	G	C	6
Frontier 400	66.9	72.5	61.3	58	44	G	C	6
Frontier 410	65.9	71.7	60.1	54	40	G	C	9
Means	57.6	62.1	53.1	57	42			8
L.S.D.		10.9						

Table 5. 1956-1957 average - Princeton, 42 inch spacing

Variety	Acre Yield bu.	Moist. %	Height in ins. to Top leaf	Height in ins. to Top of Plant	Test wt. lbs/bu.	Head Type	Head Exsertion	Days to Heading
Westland	63.8	16.2	33	45	55.8	SC	G	62
R.S. 610	71.5	16.5	37	52	53.9	SC	G	58
Texas 620	54.7	17.0	38	52	54.4	SC	G	58
Midland	44.8	15.0	38	49	53.4	C	F	61
DeKalb F-62A	60.3	18.5	36	49	56.4	O	G	62
DeKalb D-50A	68.3	18.0	42	58	55.3	O	G	58
Plainsman	70.3	18.5	30	43	55.8	C	G	63
Early Hegari	74.3	16.0	49	61	56.1	C	P	63
Martin	56.6	16.0	36	49	56.4	SC	G	62
Redbine 58	52.2	14.2	37	50	54.6	SC	G	59
Means	61.7	16.6	38	51	55.2	--	--	61

Table 6. 1956-1957 average - Princeton and Hopkinsville (or Herndon).

Variety	Acre Yield bu.	Moist. %	Height in ins. to Top Leaf	Height in ins. to Top of Plant	Test wt. lbs/bu.	Head Exsertion
Westland	62.0	13.9	33	45	52.7	G
R.S. 610	77.8	14.0	37	52	51.1	G
Midland	52.6	13.4	38	49	52.3	F
Plainsman	71.6	14.8	30	43	55.1	G
Early Hegari	73.1	13.8	49	61	53.3	P
Martin	59.5	13.9	36	49	55.5	G
Means	66.1	14.0	37	50	53.3	

Table 7. Sorgo Variety Test, Quicksand, Kentucky, 1957.

Variety	Stripped stalks tons/acre	Juice Extraction percent	Brix Degrees	Sirup per ton gal.	Sirup[1] per acre gal.	Lodging percent
Honey	11.4	50.9	10.7	12.4	141.4	0
Mer 53-15	11.9	47.3	14.6	15.7	186.8	0
Mer 54-2	13.1	39.2	17.0	15.2	199.1	0
Mer 55-14	14.0	38.3	13.4	11.7	163.8	14.3
Sart	13.9	39.9	15.7	14.2	197.4	0
Sugar Drip	10.0	43.1	12.3	12.1	121.0	0
Tracy	12.9	43.2	15.2	14.9	192.2	0
Wiley	12.7	49.0	13.5	15.0	190.5	0.3
Williams	10.7	44.1	13.6	13.6	145.5	8.3
Umbrella	12.0	44.6	15.8	15.6	187.2	0.5
Means	12.3	44.0	14.2	14.0	172.5	2.3

[1] No significant difference.

Table 8. Summary of Sorgo Variety Test, Quicksand, Ky. 1955-1957.

Variety	Stripped stalks	Juice Extraction	Brix	Sirup per ton	Sirup per acre	Lodging
	tons/acre	%		gal.	gal	%
Honey	9.4	42.1	13.6	12.6	122.8	28.3
Sart	12.3	31.1	16.3	11.4	163.5	4.0
Sugar Drip	9.9	39.0	13.8	12.5	134.6	13.7
Tracy	10.0	39.2	16.7	14.4	154.3	5.3
Wiley	11.1	38.5	15.9	13.4	153.1	31.4
Williams	8.8	40.2	15.8	14.0	126.3	32.8
Umbrella	10.4	43.8	15.2	14.6	155.9	26.5
Means	10.3	39.1	15.3	13.3	144.4	20.3

Table 9. Sorgo Variety Test - Hawesville, Kentucky, 1956.

Variety	Stripped stalks	Juice Extraction	Brix Degrees	Sirup per ton	Sirup per acre	Lodging
	Tons/Acre	%		Gal.	Gal.	%
Williams	12.3	48.1	18.1	19.3	237	57
Sart	15.6	49.3	16.1	17.6	275	7
Tracy	12.4	48.3	14.6	15.6	193	25
Wiley	13.6	47.2	16.6	17.4	237	22
Mer 53-6	17.3	48.7	15.6	16.8	291	23
Umbrella	12.8	49.9	16.1	17.8	228	38
Sugar Drip	14.0	50.4	15.6	17.4	244	14
Honey	15.6	51.8	12.6	14.5	226	25
Red Top	12.0	49.9	16.1	17.8	214	17
Honey Drip	14.3	49.1	16.1	17.5	250	22
Waconia	9.9	39.7	17.1	18.5	183	71
Means	13.6	48.4	15.9	17.3	234	29
L.S.D.	4.0					

Table 10. 1954 and 1956, Hawesville.

Variety	Sirup per Acre	Brix Degrees	Lodging 1/
	Gal.		%
Williams	238	17.3	
Sart	288	16.4	
Tracy	218	14.8	
Umbrella	231	15.7	
Sugar Drip	220	14.9	
Honey Drip	254	16.0	
Means	242	15.9	

1/ 1954 test was blown down during a wind and rain storm.

3.5M - 2-5