

**Results of the KENTUCKY  
GRAIN and SIRUP SORGHUM  
PERFORMANCE TESTS  
1954-1956**

**By J.F. Shane, H.R. Richards, and L.A. Link**

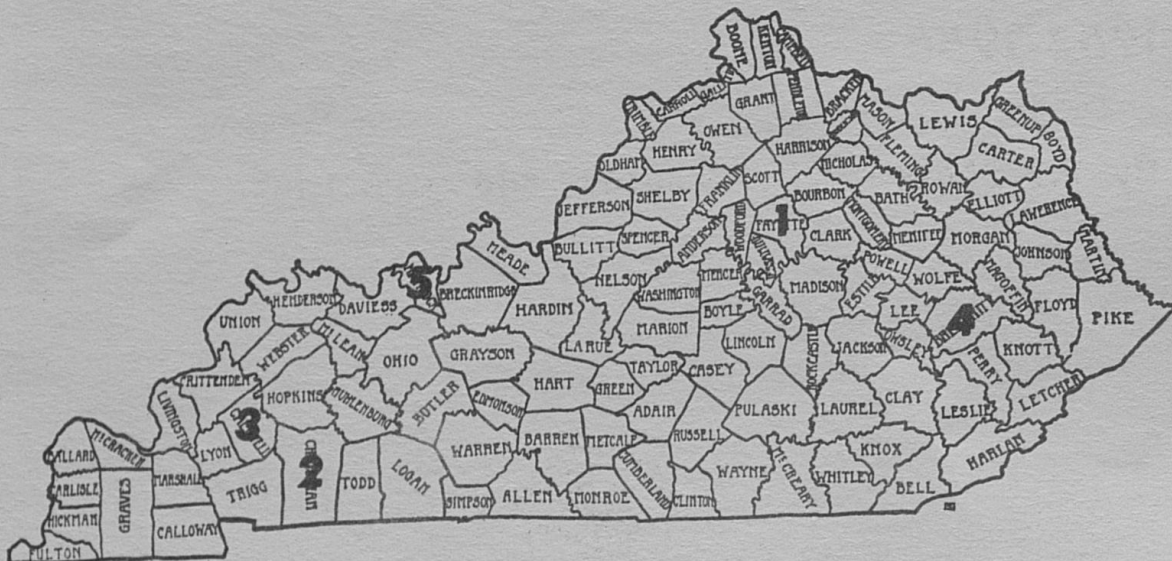


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LOCATIONS OF THE 1954-1956 GRAIN  
AND SIRUP SORGHUM PERFORMANCE TESTS



	<u>Location</u>	<u>Crop</u>	<u>Cooperator</u>
1.	Lexington	Grain Sorghum	Ky. Agr. Exp. Sta.
2.	Hopkinsville	Grain Sorghum	Pennyrile Grain Imp. Ass'n. W. G. Duncan, III
3.	Princeton	Grain Sorghum	Western Ky. Substation
4.	Quicksand	Sirup Sorghum	Robinson Agr. Exp. Sub- station
5.	Hawesville	Sirup Sorghum	Hawesville Sorghum Growers Ass'n. Jack Wile



## RESULTS OF THE KENTUCKY GRAIN AND SIRUP SORGHUM PERFORMANCE TESTS -1954-1956

J. F. Shane, H. R. Richards and Leo A. Link

This publication reports the performance of grain and sirup sorghum varieties in replicated experiments conducted at different locations in Kentucky in 1956. The average performance for the period 1954-56 is also included. Tests at Princeton and Hawesville were conducted two of the three years only.

In 1955 and 1956 grain sorghums were planted on two dates at Lexington and Hopkinsville. The first planting was made in late May or early June and the second about July 1.

### EXPERIMENTAL PROCEDURE

Row Spacing was 42 inches in the grain sorghum tests except at Princeton where the yields were compared in 42- and 14-inch spacings in 1956 and in 42- and 21-inch spacings in 1955. At Quick-sand sirup sorghums were compared in 36-inch rows with 3 plants per hill spaced 24 inches apart in the row. In the Hawesville test they were compared in drilled plots with a row spacing of 42 inches.

Yields of grain sorghum are recorded as bushels of shelled grain per acre at 13.0 percent moisture. The yield of the sirup sorghum varieties is given in gallons of sirup of uniform density per acre and per ton of stripped stalks. Corrections were made for major differences in stand, but not for minor differences.

Moisture. Heads from some tests were artificially dried prior to threshing, as indicated by footnotes.

Plant height is measured and reported in inches, which is an important factor in reference to combining. The shorter plants with good head exertion are desirable for combining.

Lodging has been negligible in all grain sorghum tests except in the 1954 test at Lexington. Plants in the sweet sorghum-sorgo-variety test at Hawesville were completely blown down in 1954; therefore, no lodging is included in the data for the two years.

## INTERPRETATION OF DATA

The difference necessary to assure reasonably that a significant difference in yield exists between varieties has been calculated and is given at the foot of each table as the least significant difference (L. S. D.). Unless the yields of two varieties being compared differ by as much as or more than the L. S. D. , little confidence can be placed in the superiority of one variety over the other in that particular test.

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



Table 1. 1956 - Lexington, Normal Planting Date.

Variety	Acre	Moisture	Date	Plant	Test
	Yield		Flowered	ht.	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	Date	Height to		Test	Lodging
			Flag	Top of		
	Yield	Flowered	leaf	Plant	wt.	%
	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. 1956 - Hopkinsville, Normal Planting Date, Planted May 28.

Variety	Acre Yield Bu.	Moisture %	Lodging %	Plant ht. ins.
Combine 60	54.8	12.1		46
Darset	47.2	11.8		42
Early Combine Hegari	73.5	11.7	Tr	54
Early Hegari	54.0	11.5	Tr	57
Martin	51.3	11.7	2	49
Midland	59.4	11.8		51
R. S. 590	57.5	11.3	3	52
R. S. 650	61.1	12.3	1	46
R. S. 501	68.7	11.8	1	62
R. S. 610	72.3	11.4	Tr	56
Norghum	42.6	11.0		49
Plainsman	58.8	11.1		43
Redbine 56	53.5	11.4	9	47
" 60	54.9	11.2	5	49
Westland	51.8	11.5		43
Ky 106 (corn)	43.1	15.8	8	48
Means	56.5	11.8	2	50
L. S. D.	13.8 bushel			

Table 4. 1954 - 1956 - Hopkinsville, Planted May 29 (Average).

Variety	Acre Yield bu.	Moisture %	Date <sup>1/</sup> Headed Date	Plant ht. ins	Test <sup>1/</sup> wt. lbs/bu.
Early Combine Hegari	65.2	12.5	7-31	53	56.9
Early Hegari	56.3	13.8	7-26	52	55.3
Martin	57.4	13.3	8-2	43	57.5
Midland	61.0	13.4	8-2	49	52.6
Plainsman	65.5	14.5	8-8	43	54.0
Redbine 56	69.5	13.5	7-31	44	57.0
Westland	59.4	13.5	8-4	43	56.1
Means					

<sup>1/</sup> Data for only one year.



Table 5. 1956 - Lexington, Planted June 30.

Variety	Acre	Moisture	Plant	Test
	Yield		ht.	wt.
	bu.	%	ins.	lbs/bu.
Combine 60	87.9	33.5	52	58.7
Darset	105.3	25.0	51	56.6
Early Hegari	100.6	16.0	62	57.8
Early Kalo	103.0	25.0	55	59.1
Martin	90.0	29.5	52	59.7
Midland	88.2	21.0	51	56.9
R. S. 590	125.7	28.5	62	58.9
R. S. 650	102.1	30.5	54	58.3
R. S. 501	92.3	19.5	61	57.8
R. S. 610	120.1	27.5	59	58.3
Norghum	61.7	18.0	48	56.8
Plainsman	102.7	31.5	50	58.3
Redbine 56	102.4	27.0	52	58.4
Redbine 60	97.4	32.5	57	57.7
Reliance	40.4	15.5	49	56.3
Westland	93.8	34.0	46	58.0
Means	94.6	25.9		
L. S. D.	14.4 bushels			

Table 6. 1955 - 1956 - Lexington, Planted July 1.

Variety	Acre	<sup>1/</sup>	Plant	Test
	Yield	Moisture	ht.	wt.
	bu.	%	ins.	lbs/bu.
Early Hegari	78.6		60	55.3
Early Kalo	82.1		55	59.1
Martin	80.4		51	58.6
Midland	70.5		52	56.1
Norghum	64.4		51	57.1
Plainsman	77.5		48	56.6
Redbine 56	86.2		52	57.4
Reliance	53.0		57	57.0
Westland	80.5		47	58.1.

<sup>1/</sup> Air Dried in 1955.

Table 7. 1956 - Hopkinsville, Planted June 29.

Variety	Acre Yield bu.	<sup>1/</sup> Moisture %	Plant ht. ins.	Test wt. lbs/bu.
Combine 60	36.8		43	44.8
Darset	23.4		37	38.3
Early Hegari	31.3		44	42.6
Early Kalo	39.2		44	46.7
Martin	33.2		38	44.3
Midland	23.2		41	44.7
R. S. 590	37.4		39	36.9
R. S. 650	45.3		39	45.4
R. S. 501	40.0		46	44.3
R. S. 610	47.1		42	44.0
Norghum	32.6		42	49.0
Plainsman	55.4		38	49.4
Redbine 56	21.8		34	42.2
Redbine 60	22.7		40	38.3
Reliance	27.8		43	44.9
Westland	43.7		40	48.5
Means	35.0			
L. S. D.	14.7 bushels			

<sup>1/</sup> Artificially Dried.

Table 8. 1955-1956 - Hopkinsville, Planted June 29, (Average).

Variety	Acre Yield bu.	1955 Moisture	Plant ht. ins.	Test wt. lbs/bu.
Early Hegari	34.3	15.2	49	47.3
Early Kalo	43.3	14.9	47	51.0
Martin	40.4	13.9	40	49.6
Midland	32.2	14.4	43	49.4
Norghum	31.1	12.5	44	52.3
Plainsman	54.1	15.0	39	51.5
Redbine 56	31.8	14.0	38	48.6
Reliance	29.0	13.8	47	49.2
Westland	32.2	14.8	42	52.5



Table 9. 1956 - Princeton, Planted June 22.

Variety	Acre Yield bu.	Mois- ture %	Date Headed	Height to		Test wt. lbs/bu.	Head Exser- tion	Head Type
				Top Leaf ins.	Top of Plant ins.			
Midland	44.6	15.0	8-20	33	43	53.4	Fair	Compact
Early Hegari	68.6	16.0	8-20	40	51	56.0	Poor	Compact
Martin	54.6	16.1	8-23	30	40	56.6	Good	Semi-cmp.
DeKalb F-62	63.8 <sup>1/2</sup>	18.0	8-24	30	43	55.9 <sup>1/2</sup>	Fair	Loose
Plainsman	65.2 <sup>1/2</sup>	17.8	8-25	29	39	54.9 <sup>1/2</sup>	Good	Compact
Texas 620	59.0	16.6	8-19	33	46	54.7	Good	Semi-cmp.
Westland	57.2	16.5	8-22	28	39	55.5	Fair	Semi-cmp.
DeKalb D-50	69.8	17.9	8-19	35	48	55.0	Fair	Loose
Redbine 58	54.2 <sup>1/2</sup>	15.4	8-22	30	42	54.6	Good	Compact
Texas 610	71.3	16.4	8-18	32	45	54.6	Good	Semi-cmp.
Means	60.8	16.6	8-21	32	44	55.1		
L. S. D.	10.0							

<sup>1/2</sup> Significant differences in yield and test weight existed between row spacings at the 5% level.

Row Spacing	DeKalb F-62	Redbine 58	Plainsman	
	Yield	Yield	Yield	Test Weight
14"	56.1	62.4	58.0	54.0
42"	71.6	46.0	72.3	55.8

Table 10. 1955 - Princeton, Planted May 31, 1955.

Variety	Acre Yield bu.	Mois- ture %	Date Headed	Height to		Test wt. lbs/bu.
				Top Leaf ins.	Top of Plant ins.	
Plansman	42.2	13.5	8-10	29	40	54.7
Darset	42.1	14.0	8-6	29	38	55.5
Midland	33.7	15.0	8-2	36	46	54.1
Norghum	32.2	13.0	7-25	34	43	53.9
Redlan	28.3	15.5	8-12	36	45	52.8
Westland	44.6	14.4	8-6	29	39	56.8
Early Combine Hegari	39.5	14.5	7-28	43	54	54.5
Means	37.5	14.2	8-4	34	44	54.6
L. S. D.	8.2					

Table 11. Sorgo Variety Test, Quicksand, Kentucky, 1956.

Variety	Stripped	Juice	Brix	Sirup	Sirup	Lodg-
	Stalks	Extraction	Degrees	per ton	per Acre	ing
	Tons/Acre	%		Gal.	Gal.	%
Williams	11.2	45.0	15.7	15.7	175.8	98
Sart	18.3	38.1	17.3	14.6	267.2	12
Tracy	12.0	49.2	16.7	18.2	218.4	16
Wiley	12.5	37.8	17.1	14.3	178.8	94
Mer 53-6	15.4	34.0	15.1	11.4	175.6	88
Umbrella	13.2	52.2	13.4	15.5	204.6	79
Sugar Drip	15.4	42.9	15.1	15.7	241.8	41
Honey	11.6	41.4	15.9	14.7	170.5	85
Red Top	11.7	46.2	14.7	15.3	179.0	39
Honey Drip	15.3	43.3	14.7	14.1	215.7	47
Waconia	8.6	47.8	16.2	17.2	147.9	42
Collier 706C	12.4	32.8	17.6	15.2	188.5	7
Wh. African	14.2	36.8	18.5	15.1	214.4	62
Mean	13.2	42.1	16.0	15.2	198.3	55
L. S. D.	3.0				48.0	

Table 12. 1954 - 1956, Quicksand.

Variety	Stripped	Juice	Brix	Sirup	Lodg-
	Stalks	Extraction	Degrees	per Acre	ing
	Tons/Acre	%		Gal.	%
Williams	9.9	38.1	15.6	127	58
Sart	12.9	29.2	16.2	154	4
Tracy	11.3	37.1	16.9	157	5
Wiley <sup>1/</sup>	10.4	33.3	17.2	135	47
Umbrella <sup>1/</sup>	9.6	43.4	14.9	141	40
Sugar Drip	11.9	36.3	13.7	141	18
Honey <sup>1/</sup>	8.4	37.8	15.1	114	43
Collier 706C	9.8	29.4	17.8	126	3
Wh. African	12.8	34.4	17.2	165	21

<sup>1/</sup> Data are averages for 1955 and 1956. Yields in 1955 were extremely low because of drought.



Table 13. Sorgo Variety Test - Hawesville, Kentucky, 1956.

Variety	Stripped Stalks Tons/Acre	Juice Extraction %	Brix Degrees	Sirup per ton Gal.	Sirup per acre Gal.	Lodg- ing %
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
Mean	13.6	48.4	15.9	17.3	234	29
L. S. D.	4.0					

Table 14. 1954 and 1956, Hawesville.

Variety	Sirup Per Acre Gal.	Brix Degrees	Lodging <sup>1/</sup> %
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	

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