RESULTS OF THE

KENTUCKY SORGO PERFORMANCE TEST

1968

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The objective of the Kentucky Sorgo Performance Test is to provide sorgo sirup producers with an estimate of the relative performance of sorgo varieties. Varieties in the test include those being grown in the Southeastern Region of the United States and several of the more promising experimental lines developed by the U. S. Department of Agriculture at Meridian, Miss. The 1968 test included eight varieties grown in a randomized block design of five replications.

Stalk samples of all varieties tested in the Southeastern Region are sent to Meridian, Miss., or to Cairo, Ga., for milling, juice analysis and sirup processing.

The sugar content of the juice and the amount that can be extracted are two important characteristics of sorgo varieties. The percentage of total soluble solids in the juice, most of which are sugar, is determined by using a sugar hydrometer. Juice extraction at Meridian and Cairo is considerably higher than that obtained by small mills.

Sirup of high quality should reach a finishing temperature of 108°C (226°F) at usual altitudes in Kentucky. A standard finishing temperature at 110°C (230°F) is used in processing sirup at Meridian. Difficulty in producing an acceptable sirup might be encountered if this temperature cannot be reached. The sirup is taken off when the foam begins to roll and the temperature is more or less static. Raising the temperature higher would tend to scorch the sirup and produce a darker color.

Several varieties in the test were lightly infected with mosaic, a virus disease similar to the maize dwarf mosaic that has been reported in corn. Williams, Sugar Drip, and three of the experimental lines exhibited some stunting, probably associated with the disease.

In addition to the varieties in the Kentucky Sorgo Performance Test, 26 experimental strains were evaluated for mosaic as well as other agronomic

Sorgo Variety Test, Robinson Substation, Quicksand, Ky., 1968

Variety	Sirup Per*		Stalk Weight		°Brix*	Extraction*	Lodging	Plant Height
	Ton Gal	Acre Gal	Total Tons	Stripped Tons		%	%	In.
Wiley	15.9	318	23.9	20.0	18.0	52.6	2	135
Sugar Drip	10.7	165	20.8	15.5	13.3	52.2	0	100
Williams	12.4	184	20.0	14.9	14.1	50.4	61	90
Brandes	12.3	171	18.0	13.9	16.2	47.6	0	93
Mer 64-4	9.6	82	12.4	8.5	16.5	43.2	0	76
Mer 64-12	14.6	249	21.6	17.0	19.8	46.8	0	105
Mer 65-1	8.0	73	11.5	9.2	11.5	49.8	0	85
Mer 66-14	14.0	248	21.8	17.7	18.8	48.6	0	110
LSD (0.05)			13.1	11.4	1.3	4.6		

*See text for explanation

Sorgo Variety Test, Robinson Substation, Quicksand, Ky., 1966-68

Variety	Sirup Per*		Stalk Weight		°Brix*	Extraction*	Plant Height
	Ton Gal	Acre Gal	Total Tons	Stripped Tons		%	In.
Wiley	16.0	323	25.3	20.6	19.3	52.1	129
Sugar Drip	12.6 1/	160 1/	16.4	12.3	15.2	54.5	112
Williams 2/	14.3 1/	186 1/	18.2	13.5	15.8	53.3	107
Brandes	14.2	229	21.5	16.0	16.3	52.1	94
Mer 64-12	16.1	287	22.2	17.9	19.4	51.6	111

*See text for explanation.

1/ Two-year average for sirup. Did not boil down to proper density in 1966.

2/ Williams lodged badly - 58% average for 3 years.

characteristics. Forty plant introductions, selections, or experimental strains were evaluated at Frankfort for resistance to mosaic.

Entries were classified by plots on the basis of the percentage of the plants exhibiting mosaic and the severity of stunting. The entries ranged from 3 to 100 percent plants infected and in severity of infection from no stunting to very severe stunting.

Brix - Percentage of total soluble solids, mostly sugars, in the juice.

Sirup - Based on 76 percent sugar and 11.57 pounds of sirup per gallon.

Extraction - The percentage of juice that was extracted from the stripped stalks.

Data for the Sorgo Performance Tests for 1968 and for 1966-68 are presented in the table on the preceding page. Differences of less than the figure given as the L.S.D. are not significant.

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