

RESULTS OF THE
KENTUCKY SORGO PERFORMANCE TEST

1967

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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 1967 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 of 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.

Varieties in the test were heavily 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 considerable stunting, probably associated with the disease. Symptoms of the disease were found in all varieties tested.

In addition to the varieties in the Kentucky Sorgo Performance Test, 36 experimental strains were evaluated for mosaic as well as other agronomic characteristics.

Sorgo Variety Test, Robinson Substation, Quicksand, Ky., 1967.

Variety	Sirup Per ¹ / ₂		Stalk Weight		°Brix ² / ₂	Extrac- tion ³ / ₃	Plant Height
	Ton	Acres	Total	Stripped			
	Gal	Gal	Tons	Tons			
Wiley	17.8	270	20.1	15.2	22.2	51.2	96
Sugar Drip	14.5	155	14.6	10.7	17.0	53.7	96
Williams	16.1	188	16.4	11.7	17.6	55.8	90
Mer 59-1	15.1	177	17.1	11.7	18.3	52.5	80
Mer 64-6	12.4	90	10.8	7.3	20.3	47.0	80
Mer 64-12	17.4	240	17.4	13.8	21.1	53.0	96
Mer 65-12	16.3	176	14.1	10.8	16.7	57.4	90
Mer 65-13	13.5	158	15.1	11.7	14.9	53.3	90
L.S.D. (.05)			3.4	2.4	1.2	3.0	

- ¹/A gallon of sirup at 76° Brix weighs 11.57 pounds.
²/Percentage of total soluble solids, mostly sugars, in the juice.
³/Percentage of juice extracted from the stripped stalks.

One hundred eighty-five plant introductions, selections or experimental strains were evaluated at Quicksand and 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 4 to 100 percent plants infected and in severity of infection from no stunting to very severe stunting.

Data for the 1967 Sorgho Performance Test are presented in the table on the preceding page. Differences of less than the figure given as the L.S.D. are not significant.