

A New Leaf-Spot-Resistant Variety

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Leaf spot is an important factor influencing sugar production in our producing areas in the Arkansas valley of Colorado. A variety highly resistant to this disease is necessary to insure continued production in this area. The following report details the history and performance record of our new leaf-spot-resistant variety, M.W. 131, developed for this area.

History

A planting of 35 leaf-spot-resistant breeding numbers was made at Miles City, Montana, in 1945. All of these numbers had been selected for leaf-spot resistance at various locations in previous seasons. There were at least 20 varieties involved in the pedigrees of the 35 numbers planted in 1945. A moderate leaf-spot infection occurred naturally in this planting in the late fall of 1945, and a total of 228 roots which appeared to be free, or nearly free, of leaf spot were selected and sent to Sheridan for storage and thermal induction. This group of roots produced seed in 1946 under the number of 601-00.

In tests in the Arkansas valley in 1947, 601-00 was outstanding in leaf spot resistance and showed a considerable increase in both sucrose and tonnage over U. S. 215 x 216, the commercial variety in use at that time. Accordingly, a selection of 52 roots, again free or nearly free from leaf spot, was selected and sent to Sheridan for storage and seed production. These roots produced seed under the number 8124-0 and this variety was first tested in 1949.

Performance Record

The performance data on these two varieties and the commercial check being used at that time are summarized in Table 1.

Table 1.—Production Data from the Arkansas Valley Area on Two New Varieties and Commercial Check for Years 1947-1951.

	% Sucrose	Tons/Acre	Gross Sugar	L.S.R. Index 0-10 ⁴
U. S. 215 x 216 ¹	100	100	100	5.2 ^a
601-00 ²	102	110	113	2.8 ^a
8124-0 ³	101	119	121	1.9 ¹

¹ One year's data.

² Average of five year's tests.

³ Average of three year's tests.

⁴ 0: immune; 10: susceptible.

It is readily apparent that the variety 601-00, on the basis of five years' data, is a better producer than the commercial check by about 13 percent. Also, the variety performed consistently the same in each of the five years. Leaf-spot readings were available in three years of the five and nearly identical observations were made in each of the three years. This new variety is being issued to growers in 1952 under the number M.W. 111.

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It is also clear that the newer selection, 8124-0, on the basis of three years' data, can be expected to further increase our production in this area. A total increase in sugar per acre of 21 percent is shown for the three-year period. Improvement in resistance to leaf-spot can also be noted. This new selection is being increased at the present time and will be released to our growers in 1954 as M.W. 131.

Summary

Two new leaf-spot-resistant varieties have been produced and tested in the Arkansas River valley for growers of the Holly Sugar Corporation. The first new variety, M.W. 111, shows an increased production of 13 percent over the commercial check for the five-year period, 1947-1951. The latest selection, M.W. 131, shows a 21 percent increase in production based on the three-year period, 1949-1951. Each successive selection also shows superior leaf-spot resistance.