THE EFFECT OF WHEAT VARIETY UPON MALTOSE VALUES

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WHEAT is the raw material used in the manufacture of flour. One of the important factors which influences the characteristics of this basic raw material is the variety or varieties of wheat entering the trade. It may be expected that as the percentage of a given variety increases in a producing area the characteristics of the wheat from this area will take on the qualities of this particular variety. The miller is primarily interested in producing a uniform product. Therefore, a knowledge of the characteristics of the varieties entering into his mill mix is important as they may be expected to affect the quality of his finished product.

Many flours are sold on the basis of uniform diastatic properties frequently expressed as a certain "maltose value." Such uniformity is important to the baker. The present study was undertaken to find out how variety of hard red winter wheat might be expected to influence the maltose values of the flour milled from these wheats.

MATERIALS AND METHODS

The samples used in this study originated from plots located in various parts of Kansas. At each location three varieties, Turkey, Blackhall, and Tenmarq, were grown under uniform conditions. In addition to these three, Nebred and Chiefkan were grown at Manhattan and locations west of the Experiment Station. These various locations will be referred to as "hard wheat locations." Eastern Kansas produces some soft red winter wheat. Therefore, at Thayer and Columbus in eastern Kansas the varieties Clarkan and Kawvale replaced Nebred and Chiefkan. Both hard and soft varieties were produced at Manhattan.

It is well known that visible sprout damaged kernels affect the diastatic properties materially. Care was taken to see that no samples showing such damage were included in this study which covers the three years 1941, 1942, and 1943. All flour samples were milled on an Allis experimental mill.

The maltose values were determined according to the Blish-Sandstedt procedure as described in "Cereal Laboratory Methods." Replicate determinations were made on different days.

EXPERIMENTAL AND DISCUSSION

The data accumulated over the 3-year period show very wide differences due to environment as well as to variety. Annual differences are also large. In order to permit the reader full opportunity to examine the performance of the various varieties, it appears advisable to consider each year separately even though this entails presenting more detailed information than if averages alone were presented. The three years are not comparable in that the same locations are not present in all years. In a few cases a sample was lost or not grown.

1Contribution No. 119, Department of Milling Industry, Kansas Agricultural Experiment Station, Manhattan, Kans. Received for publication February 16, 1946.

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