THE WHEAT MEAL FERMENTATION TIME TEST WITH
SPECIAL REFERENCE TO ITS RELIABILITY AS
A MEASURE OF QUALITY IN SOFT
WINTER WHEATS
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THE lack of a simple, quick, yet reliable test suitable for evaluating "quality" in small plant breeding samples has long handicapped the wheat breeder interested in developing new varieties of wheat of improved quality. In attempting to meet this problem, the wheat meal fermentation time test was developed by the writers in America (7, 8) and by Pelschenke (23, 24) in Germany.

This quick test has attracted a great deal of attention among wheat breeders, cereal chemists, millers, and others, and is now being used quite extensively in evaluating "quality" in wheat. Most investigators who have used this test are in agreement that it is capable of rendering results that correlate satisfactorily with other measures for "quality". In a recent paper, however, Swanson and Parker (29) point out that the fermentation time test meets the demands for simplicity, but that the "question of its reliability is yet open for discussion". The present paper reports a statistical study of a limited body of data with a view of appraising the reliability of the wheat meal fermentation time test as a measure of "quality" in wheat in comparison with other popular methods such as the protein content and baking tests.

The writers fully appreciate that the term "quality", though relative, includes many factors. Of these, however, it is pretty generally agreed that the most important is gluten strength, or baking strength as it is often referred to. It is in this sense only that the term "quality" is used in this paper. In making comparisons between the fermentation time test and the protein content and baking tests, the writers also wish to point out that there is no desire to imply that the fermentation time test is an alternative to either or both of the other tests, rather do they emphasize the fact that the data employed in these studies are comparable and thus lend themselves to an analysis of this kind.

REVIEW OF LITERATURE

Many reports have been published on the wheat meal fermentation time test during the last 6 years. The following give the present status of the test as used by various investigators.

In testing a large number of varieties of wheat of known quality, Albizzatti (1), Borasio (4), Breakwell (5), Cutler and Worzella (7), Edel (10), Frankel (11),

1 Contribution from the Department of Agronomy, Purdue University, Agr. Exp. Sta., Lafayette, Ind. Also presented at the annual meeting of the Society held in Washington, D. C., November 18 to 20, 1936. Received for publication November 30, 1936.

2 Assistant Chief and Professor of Agronomy and Assistant in Agronomy, respectively.

*Numbers in parenthesis refer to "Literature Cited", p. 225.