STUDIES ON THE BREAKING STRENGTH OF STRAW OF OAT VARIETIES AT ABERDEEN, IDAHO

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Reliable observations on straw strength in oats are very difficult to make under field conditions. The chief advantage of a satisfactory mechanical straw test would be to supplement field observations. However, some other advantages may be conceived for the mechanical straw-breaking test. The testing of oat hybrids for straw strength where the quantity of material is small may be very advantageous. Relative straw-breaking strength can be determined each season regardless of the conditions, as in certain localities and under certain conditions lodging in the field may be impossible to induce.

Only very meager results have been reported on the mechanical testing of relative straw strength in small grain varieties. Willis (6) has indicated that stiffness of straw is one of the important factors to be considered in varietal testing and breeding work with the small grains. He describes the apparatus and gives instructions for operating it, but he presents no results of straw-breaking studies on strains or varieties of oats or other small grains.

Helmick (1) describes an apparatus for determining the breaking strength of straw. He presents data on the frequency distribution for variation in the relative breaking strength of straw for Turkey and Red Wave wheats grown under the environment of Ithaca, N. Y. The results obtained show that the variability in breaking strength is about the same for the two varieties. However, a varietal difference with respect to strength of straw is indicated.

Results obtained from studies on the relative breaking strength of straw of oat varieties grown under irrigation at the Aberdeen Substation, Aberdeen, Idaho, in 1929 and 1930, are reported in this paper.

1Results of cooperative investigations conducted by the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, and the Idaho Agricultural Experiment Station. Received for publication August 4, 1931.
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3Reference by number is to “Literature Cited,” p. 300.