SURVIVAL OF OATS GROWN IN WINTERHARDINESS NURSERIES, 1937 TO 1941

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RESULTS from the uniform winterhardiness oat nurseries for the first 10 years, 1927 to 1936, have been published (1, 2). The present paper reports data obtained in 135 of the 164 tests in which differential killing occurred in the five years since 1936.

These experiments were conducted as in previous years, except that two rows of each variety or strain were seeded, 50 seeds per row, instead of 100 seeds in a single row. Also, they include a somewhat larger proportion of new varieties and hybrids. Table I gives the location of each nursery, the number of years grown, and the names of the cooperators. The general area represented by these nurseries is about the same as for the earlier tests, except for the addition of several stations in the Pacific Northwest.

Winterkilling was not unusually severe in any of the five seasons. Temperatures during the winter of 1939-40 were exceptionally low, but survival was about average, due probably to snow covering much of the winter oat area during the low temperature period. Averages only are given in the present report. It is possible, as suggested earlier (2), that varieties may respond differently at different stations; but, if so, more critical studies, or studies for a longer period than those reported herein, will be necessary to prove it.

EXPERIMENTAL RESULTS

A total of 58 varieties and selections was tested during the period. The average survival of the varieties grown in all tests in which differential killing was recorded is listed by years in Table 2. Of the 58 varieties, 24 ordinarily are classified on a morphological basis as belonging to Avena sativa and 34 to A. byzantina. Varieties classed as A. sativa are subdivided into the groups Black Winter, Culberson, Lee, and Winter Turf. Those classified as A. byzantina are subdivided into Fulghum, Red Rustproof, and miscellaneous strains. The latter group includes a few varieties believed to be heterozygous.

It will be noted that 10 of the Avena sativa and 10 of the A. byzantina varieties or strains appear to be as hardy as or more hardy than Winter Turf (C. I. 3296), here used as the standard of comparison, during the entire period that they were tested.

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1 Contribution from the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture. Received for publication March 23, 1942.
2 Agronomist, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture. Acknowledgement is hereby made to T. R. Stanton for assistance in selecting the varieties tested, to S. C. Salmon and J. H. Martin for assistance in preparing the presentation of the data, and to all the cooperators listed in Table I who prepared data on the hardiness nurseries grown on their respective stations.
3 Numbers in parenthesis refer to "Literature Cited", p. 658.
4 C. I. number refers to accession number of the Division of Cereal Crops and Diseases.