EFFECT OF SOURCE, QUALITY, AND CONDITION OF SEED UPON THE COLD RESISTANCE OF WINTER WHEATS

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THE technic for the determination of comparative hardiness in winter wheats by controlled freezing is still in the formative stage. In the literature hardening responses form the major interest. The writers (6) have already shown, however, that the stage of plant development may greatly affect the relative hardiness of winter wheat varieties. Likewise, observations over a period of years have indicated that source and quality factors in seed might modify winter hardiness comparisons. There is a sufficient body of literature contrasting individual plant development, growth, and disease reactions to suggest an investigation of the effect of these factors. Thus, citing only a few typical references, Kiesselbach and Helm (2) have shown a 17% yield difference between individual progeny of large and small wheat seeds; and Koehler, Dungan, and Burlison (3), working with five seedling diseases in corn, found that each fungus caused the greatest stand loss when applied to the most immature of several seed lots harvested at different stages of maturity. The work of Holbert (1) in pointing out an association between high soil fertility and plant hardiness also deserves consideration.

METHODS

In general, the technic employed was the same as that reported earlier (5, 6). Both field and greenhouse plants were used. In only a few instances were plants

1Based on cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, and the Departments of Agronomy and Plant Pathology, Nebraska Agricultural Experiment Station, Lincoln, Nebr. Journal series paper No. 178 of the Nebraska Agricultural Experiment Station. Received for publication June 15, 1936.

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3Numbers in parenthesis refer to “Literature Cited”, p. 692.