EFFECT OF STAGE OF SEEDLING DEVELOPMENT UPON THE COLD RESISTANCE OF WINTER WHEATS

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The relative cold resistance of winter wheat seedlings of various ages, especially in regard to varietal relationships, has been determined only in a few instances. Experiments were therefore conducted in which the comparative cold resistance of different age groups and varieties within these groups was determined when grown in the greenhouse and hardened in various ways.

In this study five varieties, viz., Blackhull, Kanred, Minturki, Nebr. 60, and Kawvale, were used, the primary purpose being to determine whether their relative cold resistance in the seedling stage depends in any way on the stage of development of the plant, the temperature of germination and growth, or conditions of hardening.

METHODS

The technic employed has been essentially the same as that previously reported (6). Briefly, the method consisted of starting plants in flats in a warm greenhouse, hardening them previous to a 24-hour exposure to freezing temperature, and finally determining the survival by actual counts, after a 2-weeks recovery period in the greenhouse. The plants were hardened and frozen through the use of the control equipment described by Peltier (2).

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. 146 of the Nebraska Agricultural Experiment Station. Received for publication February 9, 1934.

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