STUDIES ON THE TECHNIC OF CONTROL HARDINESS
TESTS WITH WINTER WHEAT

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In view of the growing practice of testing crop plants for cold endurance under controlled conditions, the following studies with winter wheat at the Nebraska Agricultural Experiment Station may be of interest in connection with the technic of such investigation. These data were secured in connection with a wheat breeding project which has been reported elsewhere. The control equipment described by Peltier was available for the freezing of these plants. In part these tests correspond with those reported for alfalfa by Peltier and Tysdal.

USE OF FIELD-HARDENED PLANTS

Field-hardened plants were used in these cold endurance tests and the experience with them suggests that controlled hardening is unnecessary in such studies. The plants involved were grown in soil-filled wooden boxes 17 x 19 x 5 inches. The seed was sown at half-inch intervals in rows 2½ inches apart and in seven rows per box. At the time of planting, October 17, 1929, the boxes were placed side by side in a shallow excavation in the wheat field with their tops level with the soil surface. They were retained in this exposure until removed, a few at a time, to the freezing chamber at various intervals throughout the winter. The soil in the boxes was kept well watered until it became frozen in November. Following a thaw in late December, the soil was again watered in order to maintain favorable moisture conditions. A field count of the plants on November 12 indicated good and comparatively uniform stands in all boxes with an average of 35 plants per row. In order to limit the growth somewhat, planting was delayed until the latter part of the normal planting season.

VARIETIES INCLUDED IN TECHNIC STUDIES

In connection with a cold endurance test of new selections, three varieties of known hardiness were included in each box to serve as controls. These three varieties were, in the order of ascending hardiness, Blackhull, Nebraska 60, and Minturki. In order to study place effect in the box, additional plantings of these varieties were made in such a manner that Blackhull and Minturki were each represented in both an interior and marginal row in each box, and in addition

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