EFFECT OF ARTIFICIAL DRYING UPON THE GERMINATION OF SEED CORN

T. A. KIESSELBACH

The artificial drying of ear corn with heated air under forced draft is coming into rather common usage by extensive growers of hybrid seed. Under good management, this practice may remove the hazards of freezing injury, and it facilitates early harvest, storage, and processing. There are no indications that hybrid seed is in more need of artificial drying than is seed from open-pollinated varieties, but its greater value has made growers more cautious. For recent evidence of widespread, serious freezing injury to seed corn one need but recall the year 1935 when the crop in most of the corn belt was subjected to late maturity and severe early frost. As shown in an earlier paper, there is a very definite inverse relationship between the moisture content of the seed and the degree and duration of freezing temperature that it will withstand without loss of viability.

Because of the comparative newness of the practice and the inexperience of operators in commercial production, seed injury sometimes results during the drying process because of faulty manipulation. Questions frequently arise regarding suitable temperatures, length of drying, moisture relations, and reaction of different hybrids. It is the chief object of this paper to report the results of a number of tests made at the Nebraska Agricultural Experiment Station in 1937 and 1938 which bear on these problems.

DRYING EQUIPMENT

The procedure was fairly similar to that reported by Harrison and Wright of the Wisconsin Experiment Station. A series of four 4 x 6 x 9 feet drying bins, installed in the Agronomy Laboratory Building, have been used with satisfaction during the past six years. With some modifications, these are patterned after those described by Wright and Duffee and operate according to the same principles. The bins have a temperature range of 100° to 220° F and may be kept constant within 3° variation by thermostatic control.

The air is heated by blowing over a high-pressure steam radiator by means of a fan driven by a variable speed 3-horse electric motor which delivers 2,840 cubic