DISEASE INFECTION AND FIELD PERFORMANCE OF BIN- AND HANGER-DRIED SEED CORN

Benjamin Koehler and George H. Dungan

One of the changes in the preparation of seed corn that took place on a wide scale when the production of hybrid seed corn developed as a specialized business, was the employment of hot-air-drying bins in place of ear-corn hangers for drying the seed. This change has resulted in a considerable economy of space and labor. The investigation herein reported was intended to determine whether this change has also resulted in an improvement in the quality of the seed. Two independent sets of experiments were conducted.

EARS BIN-DRIED BY PRODUCERS

At seed-corn harvesting time in 1936, 1937, and 1938, 20-ear samples of a number of different hybrids and varieties were collected from several producers and dried in Martin hangers located on the third floor of the Agronomy Building, University of Illinois South Farm, Urbana, Ill. Two such hangers are shown in the chamber in Fig. 2. Adequate ventilation was provided to facilitate the drying of the ears, and steam heat was supplied on very cold days. Conditions during the entire period of storage were believed to be favorable for seed corn. Seed cured and stored in this manner has been designated in this report as "hanger-dried" corn.

Seed of the same hybrids and varieties which had been cured in heated bins in the usual way and had been shelled, graded, and treated for disease control was furnished the next spring by the producers. The grade "medium flat" was used. This seed has been designated as "bin-dried" corn. Part of a small commercial processing plant is shown in Fig. 1.

Field tests of the performance of the two lots of seed corn from the respective collections were made in 1937, 1938, and 1939, on the Agronomy South Farm. Plots were 10 hills long and two rows wide. Ten plots of each entry were planted each year. The hanger-dried seed was treated with a fungicide to correspond with that used by the commercial producers. The hanger-dried corn was planted adjoining the bin-dried corn in all cases, so the trials may be said to be paired experiments. Three kernels were planted by hand in each hill. The field stand represents the percentage of kernels planted that produced plants in the field.

The results of the three years' test involving 19 different kinds of corn and 12 different bin driers show (Table 1) that the hanger-dried corn produced an average field stand of 93.9% compared with 92.1% for the bin-dried corn. In yield of grain the hanger-dried corn produced an average of 96.9 bushels an acre and the bin-dried corn, 93.7 bushels. The difference of 3.2 bushels an acre, though not large, was

1 Contribution from the Department of Agronomy, Illinois Agricultural Experiment Station, Urbana, Ill. Published with the approval of the Director. Received for publication July 26, 1940.
2 Chief in Crop Pathology and Chief in Crop Production, respectively.