CHARACTER, FIELD PERFORMANCE, AND COMMERCIAL PRODUCTION OF WAXY CORN

T. A. Kieselbach

Waxy corn in the form of hybrids and an open-pollinated variety has been tested for field performance in Nebraska during the 3 years, 1941-43, in comparison with standard non-waxy hybrids and an open-pollinated variety. The Agronomy Department has produced quantities of the variety known as Nebraska Waxy for use in poultry and hog feeding tests conducted by the Departments of Poultry Husbandry and Animal Husbandry, respectively. This waxy variety has been grown 2 years, under contract, by Nebraska farmers for the experimental industrial use of the National Starch Products Company. It is the chief purpose of this paper to report the outcome of these field-performance tests, although a number of related points of special interest also will be considered.

INDUSTRIAL INTEREST

With the restriction of ocean-shipping facilities caused by the war, an active interest developed in the possible use of the starch from so-called waxy cereals as a replacement for that portion of the imported tapioca (cassava) starch which is in special industrial demand because of its peculiar properties. Prior to current emergency restrictions about 350 million pounds of tapioca starch were imported annually into the United States, largely from the Dutch East Indies. Much of this was sold in direct competition with ordinary cornstarch, but it appears that 50 to 75 million pounds have gone into uses for which it is better suited than cornstarch. The properties which make tapioca and waxy cereal starches superior for certain uses are their lack of tendency to gel in solution, their greater tackiness and adhesive strength, and their greater clarity.

Hixon and Sprague (6) have reported that the results of industrial laboratory tests indicate that waxy cornstarch can be substituted satisfactorily for tapioca in the manufacture of adhesives, gums, paper sizes, and puddings. These findings are confirmed by those of Schopmeyer, Felton, and Ford (13) who also report the comparative analyses of products obtained in the wet milling of waxy and common corn, and present data concerning the characteristics of waxy and non-waxy cornstarch.

1Contribution from the Agronomy Department, Nebraska Agricultural Experiment Station, Lincoln, Nebr. Authorized for publication by the Director as Journal Article No. 353 of the Nebraska Agricultural Experiment Station. Acknowledgment for assistance with the out-state tests is made to L. M. Camp for 1941 and 1942; and to J. H. Lonnquist for 1943. W. E. Lyness assisted with growing the seed of Nebraska Waxy for commercial planting and grew the crop for the feeding experiments. G. F. Sprague and N. P. Neal of the Iowa and Wisconsin Agricultural Experiment Stations furnished the seed of Iowax I and Wisconsin Double Cross Waxy, respectively. A waxy corn breeding program involving the development of high-combining inbred lines and looking forward to superior hybrid combinations is under way, supported in part by a grant from the National Starch Products Inc. Received for publication March 13, 1944.

2Agronomist.

2Figures in parenthesis refer to “Literature Cited”, p. 681.