BORDER EFFECT STUDIES OF RED CLOVER AND ALFALFA

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The errors involved in border effect and their importance have been given little consideration in the technic of harvesting experimental plats of forage crops in the humid eastern states. Although investigators working with cereal plats have published widely, only meager information on the effect of borders on the yields of forage plats is available. In the Great Plains states, where moisture is the principal limiting factor for maximum forage production, border effect on forage plats is usually so pronounced that the error is apparent and the border surrounding the plat is discarded before results are secured. In Canada, McRostie and Hamilton have shown that yields of broadcast seeded plats, with 1-foot borders included, may contain errors which are not constant as between varieties for the year reported. These results were secured from plats surrounded by a 2-foot alley, however the plat size was not mentioned.

In the development of a technic to minimize experimental error, border effect is a source of error that may be of importance in the accuracy of plat yields, and in addition influences the amount of space and time needed in handling the experimental plat. Furthermore, the question arises as to the number of rows in drilled plats that should be removed to increase the accuracy if border effect is a source of error.

PROCEDURE

This experiment was conducted at the Northwestern Ohio Agricultural Experiment Station, Holgate, Ohio, during the seasons 1930 to 1932, inclusive. The soil of this experiment station is a Brookston clay loam, heavy phase, and is apparently very homogeneous for field soils as is evident from the yields of check plats of this and other experiments. In the years 1929, 1930, and 1931, solid seedings of Ohio red clover No. 15808 and Grimm alfalfa No. 15936, Ohio red clover No. 16031 and Grimm alfalfa No. 15993, and Ohio red clover No. 16031 and Grimm alfalfa No. 19135, respectively, were made. These seedings were 10-drill widths and 100 feet in length and were made with a drill having 20 delivery tubes 4 inches apart. Calibration tests were made on the amount of seed delivered by each individual spout of the drill to determine the variability and accuracy of the machine. The seedings were made in the spring of each of the respective years, except the 1929 alfalfa seeding which was made in the fall. The plants of this 1929 fall seeding were badly heaved and killed during the winter, and results were not secured for that plant.

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