EFFECTS OF SUPERPHOSPHATES UPON THE
GERMINATION OF CORN

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When, during planting operations, too much soluble commercial fertilizer is allowed to come into contact with the seed, germination is inhibited or completely prevented. The extent of damage depends upon the kind and amount of fertilizer used and upon the manner in which it is applied. A number of studies of the effect upon germination of different amounts of fertilizers and varying methods of placement in relation to the seed have been reported and are listed in a recent bibliography by Truog. In these the effect of 16% superphosphate has received considerable attention, but of the more concentrated forms of superphosphate the only report is one by Millar and Mitchell who, in greenhouse trials with white beans, compared a concentrated superphosphate with both 16% superphosphate and a complete fertilizer. They found the concentrated superphosphate to be much more toxic than the 16% material when placed either in direct contact with the seed or above it.

In Minnesota the use of concentrated superphosphates has become general so that their effect upon the germination of corn is of great interest. In the present paper are reported data on the subject secured in the seasons of 1928 and 1929.

EXPERIMENTAL

In the present study two methods of placement of the fertilizers were employed, in the one they were spread over an area 6 by 10 inches and mixed with the soil to a depth of 3 inches, and in the other they were applied with a fertilizer attachment to the corn planter. In 1928, 16% and 46% superphosphate were compared on three fields, one on Hempstead silt loam, one on Merrimac loamy sand, and the other on high-lime peat. They were also compared in the plant house using pots filled with Hempstead silt loam. In 1929, the experiments were confined to the second method used in the field on Hempstead silt loam.

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