THE RATE OF UTILIZATION OF NITROGEN AS AMMONIUM SULFATE BY CORN IN HILL FERTILIZATION STUDIES WITH 2-12-2 FERTILIZER

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The amount of nitrogen which is usually applied in mixed fertilizers used in the hill fertilization of corn is only a small part of the total nitrogen necessary to produce a crop, hence a question arises regarding the necessity of adding any nitrogen. More experimental data must be secured before an answer can be given, but some information may be obtained in regard to the value of mixed fertilizers by determining whether the increased rate of growth of the tops of young plants which have been hill fertilized is due merely to the fertilizer applied or whether a larger root system has been produced. If the latter has occurred, the plant will obtain more food from the soil, and the growth and maturity of the crop will be hastened.

EXPERIMENTAL

In the following investigation, an attempt was made to determine the rate at which the nitrogen in ammonium sulfate, applied in the hill with acid phosphate and potassium chloride, was utilized by the corn plant, and also to determine whether or not the corn plant in its early development was feeding mainly on the nitrogen applied or whether the root system was actually gathering more nitrogen from the surrounding soil than was true in the case of the unfertilized plants. In all cases the fertilizer was mixed thoroughly with a layer of soil about 3 inches wide, 12 inches long, and 1 inch deep.

A screen made of four-mesh black wire was placed at a depth of 3 inches from the surface of the soil, a layer of soil mixed with fertilizer placed upon it, four kernels of corn planted in the middle of the area, and another screen placed on top. Two inches of soil were

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