NOTE

THE EFFECT OF A SOIL CONDITIONER ON UPTAKE OF SUPERPHOSPHATE BY GREENHOUSE WHEAT

Organic anions, such as the citrate ion, are effective in releasing phosphorus from the soil. Some soil conditioners, such as the sodium salt of hydrolyzed polyacrylonitrile, are organic polyanions. Would such a material be effective in releasing soil phosphorus?

A greenhouse experiment was designed to test the effect of an application of this soil conditioner on crop yield, phosphorus content and recovery of fertilizer phosphorus. The soil, tentatively identified as Pearman silt loam, was of poor physical condition and low in available phosphorus. A completely randomized design was used with three replications. The treatments were a $2^2$ factorial with 0 and 2,000 pounds per acre of the sodium salt of hydrolyzed polyacrylonitrile and 0 and 20 pounds of $P_2O_5$ applied as $P_3^{32}O_5$ phosphate. The experiment was conducted and again in 1953.

One-gallon glazed pots served as containers for 3,000 grams of soil in which Vigo wheat was grown. Electric lights were provided morning and evening to make a 16 hour day. The moisture content was maintained at 20% and the temperature about 70° Fahrenheit. Nitrogen and potash were applied in quantities sufficient to prevent a lack of these elements. After a three months growing season the above ground portion of the wheat was harvested for analysis.

Total phosphorus was determined by the molybdenum-phosphoric acid method and $P_3^{32}$ was measured by counting precipitated ammonium magnesium phosphate.

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