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## The Effect of Lime on the Availability of Phosphate in Tama Silt Loam

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THE EFFECT OF LIME ON THE AVAILABILITY OF  
PHOSPHATE IN TAMA SILT LOAM

F. B. SMITH AND HAROLD L. DEAN

Calcium limestone and dolomitic limestone were applied to Tama silt loam in pots in the greenhouse. The soil had a lime requirement of 3 tons per acre and the pH was 5.30. Rock phosphate was applied at the rate of 250 pounds per acre alone and in combination with calcium limestone and with dolomitic limestone. Samples of the variously treated soils were taken after 4, 8, 12, and 18 weeks for the determination of pH and available phosphate.

The addition of limestone increased the pH, but there seemed to be no appreciable difference in the effect of the calcium and the dolomitic limestone. The additions of rock phosphate increased the amount of available phosphate, but all the phosphate added was not recovered. The availability of rock phosphate in Tama silt loam was not affected materially by either calcium or dolomitic limestone.

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VARIATIONS IN THE CHEMICAL COMPOSITION OF  
SOILS OF VARIOUS TYPES

G. B. KILLINGER AND F. B. SMITH

Nitrogen, phosphorus, potassium, silica, iron, alumina, and base exchange capacity were determined on nine Iowa soils and correlations made in an attempt to devise a system of soil mapping to be used when these constituents of the soil and soil extract were known.

The results secured indicate a definite relationship between these constituents in each of the soils studied. However, no apparent relationship existed between the variations and soil type. The  $P_2O_5$  content of all soils was found to vary directly with the base-exchange capacity of the soil.

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