NOTE

EFFECT OF POTASH ON CHLOROSIS OF SOYBEANS

Soybeans on certain soils of Delaware begin to develop a chlorotic appearance shortly after the flowering stage of growth. The plants become dwarfed in appearance and the leaves curl downward at the edges and develop gray or yellowish gray areas between the veins. Usually, there is very little further growth of the plant after this condition develops.

This condition has been quite pronounced on some of the soil fertility plats at the Experiment Station, particularly where lime alone has been applied for a period of 20 years. However, there has appeared to be less chlorosis of the plants grown on the plats where fertilizers were applied, either with or without lime.

Samples of a Sassafras silt loam soil upon which the soybean plants had been badly affected with chlorosis were placed in 5-gallon earthenware jars for experiment in the greenhouse.

Commercial fertilizer materials were used as sources of materials for applications of nitrogen, phosphorus, and potassium. All treatments were made in duplicate at the rate required for a 2,000-pound application of 5-8-5 fertilizer.

In a second series of pots chemically pure salts were used to supply the fertilizer elements. A third series of pots was used to test various treatments with soluble iron and soluble manganese. Artificial illumination was required to give a length of day sufficient for normal growth.

The untreated soils produced slender plants with small, slightly chlorotic leaves. Nitrogen and phosphorus in combination produced greater growth and larger leaves but the leaves were badly affected by chlorosis. Nitrogen, phosphorus, and potassium combined applied at the time of planting produced normal growth. Nitrogen, phosphorus, and potassium combined applied after chlorosis began to develop prevented further chlorosis.

The plants on the pots receiving nitrogen alone and phosphorus alone produced greater growth than those on the untreated soils but were also more chlorotic. The plants on the soil receiving potassium alone were larger than those on the untreated soil and did not develop chlorosis.

There was no apparent difference in effect upon chlorosis between chemically pure salts and commercial fertilizer salts. The treatments with soluble iron and soluble manganese did not give any correction of the chlorosis.