Some Factors Affecting the Absorption of Chlorine by Tobacco

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An observation of two adjacent fields of tobacco, one on recently cleared land in which the tobacco was the first crop and the other on land which had been under cultivation for a period of years, served as the origin of this investigation. The tobacco growing on the newly cleared land showed severe chlorine injury whereas no chlorine injury was observable on the other. Both fields, located in Harnett County, N. C., had been fertilized at the rate of 1,600 pounds per acre of 3-9-6 which supplied approximately 50 pounds of chlorine. Ordinarily, this quantity of chlorine is not reflected in abnormal growth. Analyses of leaf samples revealed a variation in chlorine content from 10 to 11% for the injured plants and from 4 to 5% for the plants.

Subsequent inquiry among tobacco growers in the community disclosed the rather common occurrence of this phenomenon. Tobacco as the first or second crop on newly cleared land frequently exhibits symptoms of chlorine injury. In severe cases the green leaf becomes thick and brittle and growth is markedly restricted. When cured, the leaf becomes thin, soggy, dull in color, and possesses undesirable combustion properties.

The objective of this investigation was to study the factors affecting chlorine supply and uptake in an attempt to explain the high absorption of this element from recently cleared land.