EFFECTIVENESS OF SPRAYING WITH FERTILIZERS FOR CONTROL OF WEEDS ON ARABLE LAND

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In a previous communication (5), a detailed study was made of the effectiveness of cultural treatments, such as varying the rate of seeding and the use of farmyard manure, on the control of weeds. In this paper are presented the results of experimentation on the relative efficiency of spraying with different fertilizer solutions in the control of annual weeds in cereal crops.

As a means of effective weed control, the value of fertilizers has been well recognized in recent years. Among the different fertilizers ammonium sulfate, sodium nitrate, calcium cyanamide, kainit, and a few others have received prominence in the direct suppression and control of annual weeds in cereal crops and grasslands.

The use of ammonium sulfate and of sodium nitrate applied in solution thus far appears to be limited to a few species only. Besides this limitation, opinion differs regarding the dosage and the degree of control obtained by each. Broadcasting under favorable conditions with calcium cyanamide or finely powdered kainit has given encouraging results with broad-leaved weed species. Experiments have further indicated that when mixed salts, such as calcium cyanamide and sylvanite or kainit are broadcast, an equally effective suppression accompanied by a higher yield of the crop is obtained. No knowledge exists, however, of the behavior of fertilizers in suppressing the weeds of arable land in the tropics where the problem is especially acute due to various favorable environmental and edaphic factors, viz., high moisture content and high light intensity, which apparently favor a vigorous growth not only of the crops but also of the weeds.

Moreover, certain weeds seem to have a close correlation with the fertilizers according to their nutrient requirements. There is a general tendency of the nitrogenous manures to encourage weed growth while minerals seem to behave otherwise. Studying the influence of manuring on the weed flora of arable land, Warington (8), on the other hand, has observed that the cumulative effect of long-continued manuring is of secondary importance except in certain instances of serious deficiency in the soil, such as lack of nitrogen or exhaustion of the minerals induced by prolonged application of ammonium salts only.

It thus appears that the influence of fertilizers in suppressing various species of weeds is by no means clear. A quantitative study of weed control by different fertilizers sprayed singly or in different combinations along with a study of their nutrient effect on the yield of the crop—the subject of the present study—should thus be of immense value. During the course of the present experiments, the

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3Figures in parenthesis refer to "Literature Cited", p. 473.