HOW SOME CROPS AFFECT SUCCEEDING CROPS

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In this paper principal attention will be given to the effects which crops have exhibited under pronounced acid-soil conditions at the Rhode Island Station. Since these particular effects of different crops are not greatly modified by ordinary variations in amounts of fertilizer elements when serving the purpose of nutrients, not of antidotes, we may at once dismiss from our minds those inhibiting effects which are due to the fact that one crop may not have left nitrogen, phosphorus, or potassium in combinations from which they could be secured sufficiently to nourish properly a subsequent crop (Bulletin 176). Inasmuch, then, as we are dealing mostly with the effect of crops under highly acid-soil conditions, it is fitting to recall that such conditions include not only acidity but any active substances which may result from that acidity or be associated with it. We shall especially discuss active aluminum as an example of such a substance (Bulletin 194).

Acidity may be diminished by lime, and aluminum may be made less active by the same substance. Phosphoric acid, however, does not lessen acidity, but does serve as an additional antidote for toxic aluminum. In fact, by practical applications of these two antidotes, deleterious effects of crops on those succeeding them may be largely eliminated. Only slight attention will be given to conditions which have resulted from the optimal use of lime and phosphorus as antidotes.

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3Reference in parenthesis is to publications of the R. I. Agr. Exp. Station in each case.