SYMPTOMS OF FERTILIZER INJURY TO POTATOES

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Experiments on machine placement of fertilizers for potatoes are being conducted by several experiment stations in cooperation with the U. S. Dept. of Agriculture and the National Fertilizer Association. At the outset, in 1931, it was conceded that fertilizer in contact with seed pieces would have some detrimental effect. This opinion was based upon the work of Coe in New Jersey and that of Truog, et al., in Wisconsin, who reported reduced stands and retarded emergence from contact placement. It was surprising, therefore, in the Ohio tests of 1932 to find no detrimental effects whatever from contact placement and 1932 only retarded emergence and some weak hills without significant reduction in stand.

Truog and his co-workers also reported that potato sprouts are relatively sensitive to fertilizer salts and hence advised against placing fertilizer above the seed where the sprouts would encounter it. Such a placement was included in the 1932 Ohio tests and proved to be more detrimental to the stand than the contact placement. Incidental examination of missing hills, however, disclosed no injury to the sprouts; instead, the seed pieces had rotted. The majority of hills (more than 80%), however, had sturdy plants with no indication of any injury from the fertilizer. In these tests a 4-10-6 fertilizer was used at the rate of 1,500 pounds per acre. Details are reserved for a later publication.

Since these observations were not in accord with the literature, it seemed advisable to study in more detail the nature and symptoms of fertilizer injury to potatoes under Ohio conditions. Small, hand-placement experiments were therefore planted on the experiment farm at Wooster during the summer of 1932.

VARIOUS PLACEMENTS OF MIXED FERTILIZER WITH WHOLE TUBERS AND CUT SEED PIECES

The first series aimed to imitate machine types of placement, the fertilizer being laid in a band at various levels close to the seed pieces.

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3The experiments with machine fertilizer placement on potatoes were undertaken at the suggestion of the Joint Committee on Fertilizer Application whose membership is drawn from the American Society of Agronomy, the American Society of Agricultural Engineers, the National Fertilizer Association, and the National Association of Farm Equipment Manufacturers. For helpful suggestion on the hand placement work reported herein, the writer is particularly indebted to R. M. Salter, chairman of the committee in 1932 and agronomist of the Ohio Agricultural Experiment Station.
