2. RELATIVE CROP RESPONSE TO POTASH

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The subject which has been assigned to me has to do with the relative capacity of different crop plants to obtain their potash needs in a given set of circumstances. The crop which is least able to secure its potash needs will of course respond most to an application of potash, and vice versa.

Because we are to compare crops, instead of the influence of situations, such as positions in rotations, it follows that the different crop plants must be compared under the same conditions if their relative response is to be learned.

The response of crops under different conditions is another question, requiring for its answer a comparison of conditions rather than of crop plants. This distinction should be recognized clearly.

Usually, in practice, different crops are not grown under the same soil conditions and frequently not at the same time of year, even when grown in an identical location. Therefore, data concerning the relative response of different crops are quite meager.

Attempts should be made to secure more knowledge on this subject for under identical conditions responses differ so widely with the different crops that these characteristics are fundamental to the selection of a fertilizer grade for a crop, subject to such modifications as may be made when it is known, for example, what is the influence on that crop of position in rotation or of different climatic conditions. In order, therefore, to ascertain the relative response of crops to any one fertilizer ingredient it is necessary that all conditions be as nearly optimum as they can be made, except that there should also be an area with sub-optimal potash for comparison. Organic matter, soil reaction, and the supply of nutrients can be controlled, but the influence of the weather on the relative response can only be estimated. However, unless the weather is quite unsuited to some of the crops under comparison, considerable confidence may be had in the results.

The most direct measure of the degree of suitability of the attempted optimal conditions is the yield of the crop. Therefore, in considering the relative response of crop plants there should be stated not only the varieties but especially the maximal yields to which reference

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