OUTLYING EXPERIMENT FIELDS AS A MEANS OF DETERMINING THE FERTILITY OF DIFFERENT SOIL TYPES

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It has long been recognized that information secured at the central experiment station will not apply directly to the various conditions in different parts of a state. To supply this more or less local need several methods have been employed. In some states substations have been established. These are usually few in number and cannot represent many soil types. The work done at these substations is, however, carefully conducted under the direct supervision of well-trained men. It is also extensive enough to include a wide range of experiments.

Small permanent fields have been used in some states. In many cases, these have been donated to the experiment stations. They are usually too small to be called substations and are seldom representative of a single soil type. They have the advantage of permanency and have usually been well managed.

In other states information on specific soil types has been secured by the use of temporary experimental fields. These fields have usually been leased by the station for a period of 5 to 15 years and the farmer owning the land has been employed to care for the crops under the supervision of a technically trained man.

In order to apply the results of field experiments throughout the extent of a given soil type, it is necessary to assume a reasonable uniformity of the type involved. Some types are normally more uniform than others. In addition to this they may also remain more uniform. An example of this difference in conditions may be found in a comparison of the Putnam silt loam, a level prairie soil, with the Shelby loam, a glacial drift soil. The Putnam is not only more uniform than the Shelby under normal conditions, but it is not disturbed to the same extent by erosion. There are, however, certain groups of soil types that respond to the same treatments and after tests have thoroughly demonstrated this fact, they may be considered together so far as some particular treatments are concerned. The points of difference that exist between such types may be kept in mind whenever recommendations for treatments are being made. Lyon has already presented these points.

VARIATION IN RESPONSE TO TREATMENTS

Some types of soil are so deficient in certain elements that even the most crude test may be sufficient to bring out the need for a given treatment. Such tests are often made by farmers by shutting off

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