LAND UTILIZATION IN RELATION TO SOIL TYPES AND SOIL RATINGS

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Numerous valuable studies of land use have been made by economists and others having no special knowledge of soils or soil types. It appears to the soils student that a great many of the variations in land use are closely allied with variations in soils. It may be inferred from this that a study of land use, if it is to be on a firm foundation, needs to be correlated with a detailed soil survey map or similar map which delineates the soil boundaries and soil types. An inventory of the soils is of basic importance in the understanding of variations in land use and in judicious land planning. Considerable attention has been directed recently toward the retirement of submarginal land from cultivation. Work of this nature needs to be based on a knowledge of the soil and its suitability for crops.

Soil Survey field men have an excellent opportunity to study the utilization of each soil type within their respective areas. In fact, they are called on to provide such information in the soil survey reports. In most instances, this information is included in notes gathered during the progress of the survey, and is very generalized. The author has found this method rather unsatisfactory, because the information on land utilization gathered in this manner is not very specific and not very accurate. Most field men are inclined to be somewhat lax in taking notes. This peculiar trait of human nature can be altered to some extent by persistent application of will power. Few will admit that they are successful in following this course to such an extent that it becomes habitual. By studying his own notes, the author has found that it is difficult to avoid exaggeration of the percentage of land occupied by the dominant crop on each soil type. It is also difficult to keep from exaggerating the percentage of crops which are grown on only a few soil types. Often the percentage of land in pasture on the better types of land is underestimated, and it is overestimated on the poorer types of arable land. It is necessary that these more important or more noticeable characteristics of land use be emphasized in the report, but they should not be exaggerated. The increasing importance of studies on land utilization make it imperative that statements regarding land use be as accurate as possible.

The author has found that the preparation of crop maps of representative areas in the county is of considerable value in obtaining more specific information regarding the land use of each soil type. The crop map is constructed on the same scale as the soil survey map, and both crop and soil maps are cross lined in pencil in such a manner that each ten acres on the crop map may be compared with the corresponding ten acres on the soil map. By this means it is possible to obtain a reasonably accurate estimate of the number of acres of each soil that is devoted to each of the various crops in the area covered by the crop maps. The percentage of a particular soil type devoted to each of the various crops may then be calculated.

Crops may be mapped in large blocks or sections of land, or they may be mapped in a narrow strip adjoining the roadside. Mapping crops in narrow strips along each side of the road is more rapid and, therefore, more satisfactory, except where nearness to the road influences utilization of the soil. A general knowledge of the county as a whole is desirable in selecting the areas to be covered by crop maps. The crop maps are easily constructed if made during the season when crops are growing on the land. Aerial photographs may be of value in this work, but it would be necessary to compare the photographs with actual conditions in the field, because the photographs will not, in many instances, reveal the type of the crop.

Using both the block system and the narrow-strip system, a soil survey party has made crop maps of representative areas in several counties of Oklahoma during the progress of the soil survey. Included in this paper are the results of these studies in Pontotoc County, the mapping of which was completed in 1936. Most of the crop mapping in Pontotoc County was done in 1937.