INTERPRETATION AND USE OF SOIL CLASSIFICATION IN THE SOLUTION OF SOIL MANAGEMENT PROBLEMS

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INFORMATION now available in the different fields of soil science can contribute more than it has in the past to the solution of soil management problems. The job at hand is to organize and integrate the information and then to present it in ways that will make it easier to use. Some of the available information may need re-examination and interpretation, some will need synthesis with that available in other fields, and all of it will need to be integrated with the existing system of soil classification. Yet this work must be done if the knowledge of soils is to be brought to bear most effectively in the solution of soil management problems. The need for solution of the problems now is acute. Expanded governmental agricultural programs, the wider acquaintance of agricultural workers and farmers with soils, and the efforts to provide more specific information have increased the demand for information useful in the solution of soil management problems.

A widely used device for the integration and expression of information regarding soils has been the grouping of soil individuals for limited practical objectives with subsequent organization of information on the basis of the grouping. These classifications, properly known as technical groupings (12), usually have one or two categories with relatively few classes in each category. Yet the principles that govern the more comprehensive natural classification of soils (10) also apply to the more simple technical classifications (12). A brief review of some of these principles, an examination of a number of technical groupings, and two examples of additional technical grouping of soils are presented in this paper.

Technical groupings are one device for the organization and extension of information regarding soil use and management. Other devices and technics also have been used. For example, recommendations for the application of lime—one element in soil management in many regions—are usually based on tests of soil samples taken from the field in question. Applications of fertilizer also are made on the basis of tests. New and improved methods of soil classification might prove helpful. Organization and application of information can be accomplished without such groupings of soils, but the work is made easier and more effective when such groupings, especially when the information is to be extended over large areas.

ESSENTIALS OF GROUPING OF SOILS

The principles of classification, as they apply to soils or to other objects, have been discussed in many previous papers (4, 6, 8, 9, 10). Reference is also made to the papers of Coffey (6), Marbut (10), and Kellogg (9) for discussions of principles of classification as they apply to the comprehensive natural scheme, and to the paper of Orvedal and Edwards (12) for further discussion of the principles of technical grouping of soils. These principles are rather obvious, but they are important enough to bear frequent repetition. No attempt is made in this paper, however, to consider the principles extensively.

The first essential in the preparation of a grouping of soils is a clear definition of the purpose the grouping is meant to serve. This requirement seems obvious enough. It is evident that the purpose of a scheme must be understood thoroughly before a logical and satisfactory system can be devised. For example, a grouping of soils into as few as five classes, as was done by Brown (5) for Iowa, provides a general picture of soil productivity, and from the extent of the different classes in Iowa it is apparent that much of the land is highly productive. The grouping of soils thus serves its purpose in providing a general picture of one feature. The grouping is not adequate, however, for other purposes, such as indicating grades of lime requirement or need for drainage.

The need for a clear definition of the purpose of a grouping of soils cannot be overemphasized. Prior to making any grouping, there should be a clearly recognized need for the classification and a thorough understanding of that need. Once