Enlarging the Use of Soil Survey Maps and Reports

EMIL TRUOG

JUST 40 years ago, almost to the day at this very moment, I was packing up my soil surveying equipment in Iowa County, Wisconsin, following several months' work with the State Soil Survey which, in cooperation with the Federal Survey, was just getting under way. This was my initial soil survey experience, and fortunately the leader of the two-man party, Mr. Clarence Lounsbury, was a patient and considerate teacher. But, it was not too difficult. Our soil survey vocabulary at that time was not encumbered with such words as podzol, chernozem, wiesenboden, solonetz, horizon, profile, catena, eluviation, ortstein, etc. For the most part, we got along with such commonly understood descriptive words as dark or light, tight or open, top-soil or sub-soil, level or hilly, and sand, silt, or clay. This had the advantage that both farmers and lawyers on asking us about our purpose or objective usually got the impression that we were engaged in a perfectly legitimate activity.

OBJECTIVES OF THE SOIL SURVEY

Before discussing ways and means of enlarging the use of soil survey maps and reports, it is, I feel, appropriate to discuss briefly the purposes or objectives of a soil survey. In the Third Report, year 1901, of the Field Operations of the U. S. Bureau of Soils, Milton Whitney said, "The purpose of the soil survey is to provide an accurate basis for the adaptation of soils to crops." In the Sixth Report, year 1904, he said, "It is the object of the soil survey to prepare maps which will indicate the extent, the distribution, and the location of the principal types of soil found in the United States. These are considered to be of equal importance with the various sources of fuel supply and the different kinds of ores, whose distribution and extent are carefully ascertained by all civilized governments. In addition to the fundamental work which concerns the area and distribution of the soils, there is based upon this a careful study of such particularly important problems as the best adaptation of crop to soil, the best method of maintaining or restoring soil fertility, the proper ways for redeeming land threatened by the accumulation of alkali, and the general study of the soil and crop resources of the entire country."

In the Soil Survey Report of Iowa County, Wisconsin, year 1914 (one of the early detailed county soil survey reports of this state), A. R. Whitson said in the introduction—"It is the object of this survey to make an inventory of the soils of the state, and to be of practical help to the farmers by locating and describing the different soils, by determining their physical character and chemical composition, and by offering suggestions for their management, based upon the work of the Soil Survey within the area, covered in the report, and upon the results of field tests made by the Experiment Station."

In the report for Iowa County, it was indicated that practically no commercial fertilizer was used in the county at that time. Only total analyses were made for the contents of phosphorus and potassium in the soils. These invariably showed a fair content of phosphorus and a very high content of potassium. Recommendations were made for maintaining and increasing the phosphorus content. It was indicated that the vast store of potassium could be made available at a satisfactory rate for crop needs, if organic matter were supplied through the regular use of manure and the growing of legumes. Unfortunately, as is well known now, this expectation cannot in general be realized.

Among the suggestions offered in the report for the management of Knox silt loam of Iowa County there appears the following on Pages 18 and 19:

The question of preventing erosion is one which should be carefully considered by all farmers on Knox silt loam. It is a difficult matter to check erosion and repair the damage when once it has made considerable headway, but there are a number of ways by which washing may be prevented, or at least reduced to the minimum.

Where it is found necessary to cultivate steep land, the plow should follow the contour of the hill, and narrow strips of sod should alternate with the cultivated strips. In some places strips of sod may be left running with the slope at points where most of the run-off water flows. Thus we see that erosion was recognized as a serious menace at that time, and rather sound methods of control were recommended.

The quotations from Whitney and Whitson seem to leave no question but that the main purpose of a soil survey should be to provide an inventory in the form of a map of the various kinds of soils that exist. This map should, of course, be accompanied by appropriate information regarding the nature of the soils, their management, and crop adaptation.

In an area like Wisconsin where an adapted type of cropping had been established by experience prior to the advent of the soil survey, it is not to be expected that the soil survey would greatly alter the cropping pattern. As a matter of fact, hay, corn, and small grains, occupying about 95% of the plow land in Wis-