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COMPUTER-BASED SOIL DATA MANAGEMENT SYSTEM (COSMAS): ITS FUNCTION AND USE

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The large amount of data accumulated in soil surveys should always be available for research and practical use in agriculture, rural planning, and so on. For this purpose, the data must be managed by a well-organized computer-based system. This paper describes the basic function and organization of the system (COSMAS) now under development by the authors.

The site description and horizon observation of a soil survey are written on a standardized card in numerical and letter codes. Both the location of the observation site and the boundaries of the general soil map in the coordinate system of the base map are recorded by means of a peripheral device, the "tablet." Thus data obtained in the field and in the laboratory are filed by means of the packaged program, SPSS (Statistical Package for the Social Sciences). Four files are now in operation: site description, horizon description, analytical data, and cartographic files, all of which can be cross-referenced with one another. SPSS performs not only statistical analysis, but also such file management as data selection, recoding, and transformation. The processed information can be obtained in a form inherent to SPSS, or in various forms by programs developed by the authors, for example, soil survey report in text, contour maps, soil attribute maps, and transect-attribute diagrams.

As an example of its use, it would be explained here how COSMAS helped us to understand the distribution pattern of different soil materials in a given area.