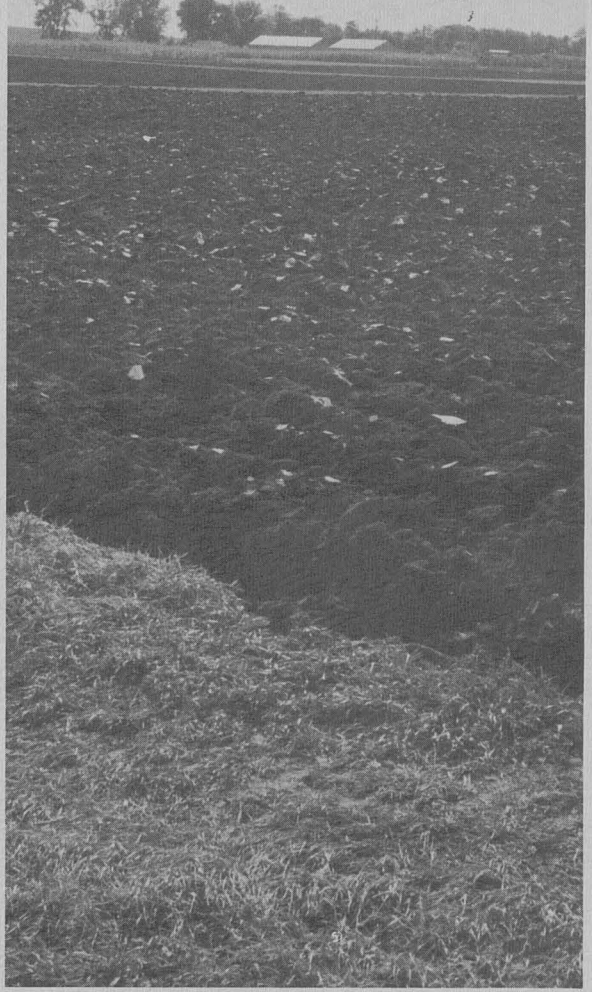


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# Minnesota Soil Surveys

## An Inventory of our Land Resource

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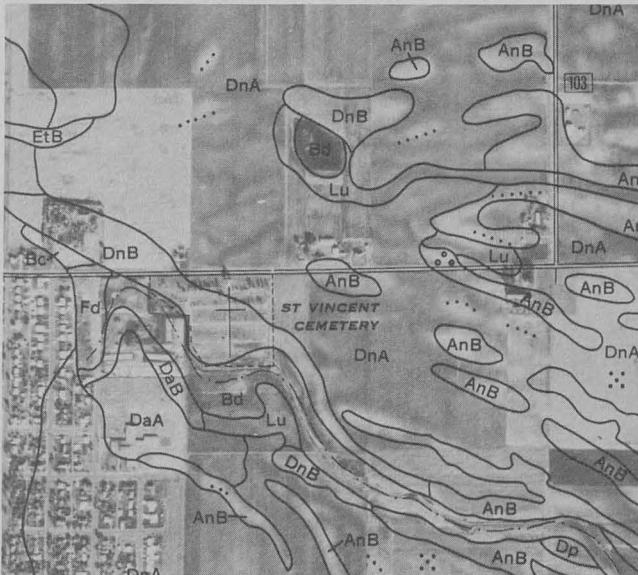
# Minnesota Soil Surveys

## An Inventory of Our Land Resource

Soils are the surface layer of the land and support most plant life as well as man's construction of roads and buildings.

Soils vary widely in character. Texture varies from coarse, sandy types to fine clay while slope and drainage range from hilly and dry (well-drained) to level or depressional and wet. Acidity, fertility and stoniness also differ greatly. These soil differences have been observed and organized into a national system of classification so that the soils of any land area can be classified in an accurate, efficient manner.

The process of classifying, mapping, and interpreting soil resource information in a systematic way is called the Cooperative Soil Survey. This means that soil maps can be drawn by professional soil classifiers and the resulting soil survey made available to land owners and others with interests in soils of a particular area.



This example of a portion of a soil map shows the distribution pattern of individual soils. A soil survey report will have 25 to 40 pages of similar photo background maps.

Thus one person's ability to know the land can be extended far beyond his own firsthand experience through the use of this organized resource inventory system, the soil survey. In this era of critical choices in man's use of his environment and resources, accurate, available data about our soils are essential.

### How soil surveys are made

Soil survey techniques have changed considerably since 1903 when the first soil maps were prepared in the Marshall area of Lyon County. At that time the tools for soil examination were hand augers and shovels, and the soil areas were drawn on a base map with the help of a plane table and compass.

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The picture above shows a hydraulic probe device that allows soil cores to be examined down to a depth of 5 to 10 feet. The standard depth for soil descriptions is 60 inches in a modern soil survey report. Aerial photographs now are used as the base for soil maps. The photographs often show soil patterns that help the surveyor identify the different soil map units accurately, and the photographic base is also helpful to the map user.

Field and laboratory work for a detailed county soil survey often requires the time of between three and six soil scientists over a period of several years. The final report contains the results of the intensive study of the soils of the county and will be useful for 30 to 50 years.

### Cooperative nature of surveys

Because soil resource information is a basic need for a number of government agencies and users, the possibility of different types of soil surveys—for agriculture, forest, or urban development use—has existed in Minnesota. However, such specialized surveys would have resulted in duplication and inefficient use of professional talent and tax money.

Instead, a cooperative survey program, developed and coordinated under a memorandum of agreement between the following agencies is underway in Minnesota.

Agricultural Experiment Station  
Agricultural Extension Service  
Forest Service, USDA  
Soil And Water Conservation Board  
Department Of Natural Resources  
Soil Conservation Service, USDA

A Minnesota map at the end of this folder shows the 1977 status of county detailed soil surveys.

The cost of soil surveys averages 75 cents per acre, which is a modest cost for information which can help guide the best use of that acre of land. About 60 percent of the state is still to be mapped, however, so decisions on investment to finish the soil survey of the remaining counties need to be made.

### Looking ahead

Because of an increased urgency to provide soil survey maps for the unsurveyed area of the state, the Administrative Committee of the Minnesota Cooperative Soil Survey has developed a plan to accomplish this statewide coverage by 1989. Costs of this accel-

ated program have been allocated among federal, state, and local agencies through a formula that takes into account the land ownership pattern in individual counties.

Based on the experience of counties with modern detailed soil surveys, the day to day value of this resource information far exceeds the initial cost.

## Soils information can help you

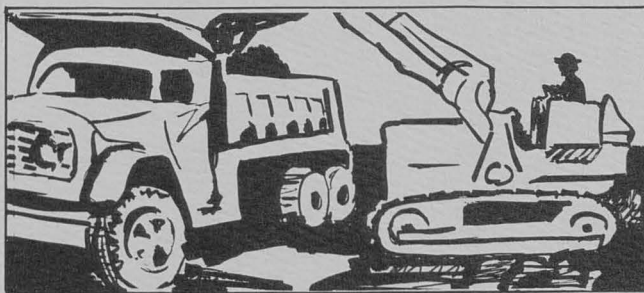
Soils information helps all of us plan for the future. It is useful in determining locations for housing developments, airports, and industries. It guides people in using the land wisely, aids in expanding and maximizing agricultural production and recreational opportunities.

Types of land use vary in their soil requirements. The following examples illustrate this.



### Agriculture and forestry

Some soils are best suited to corn, others to jack pine forests. Soil maps help locate suitable soil for various crops and make possible yield predications for specific parcels of land. Tax assessment of agricultural land is becoming more equitable because of modern soil surveys.



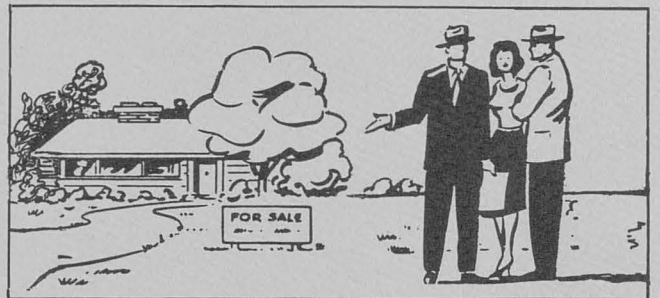
### Utilities and highways

Costs of road construction and long term performance roads are often closely related to the subgrade material. Soil maps provide information useful to transportation engineers and contractors. They also provide information for locating pipelines and electric transmission lines.



### Recreation

A soil map can be interpreted for wildlife habitat for hunters and for camping and hiking for individuals or recreation planners.



### Industry, real estate, and public officials

Cities and counties need soil data to identify the limitations of land for schools, parks, reservoirs, and zoning. Industry and real estate interests also need a ready reference of soil patterns and suitability for various uses. Soil maps aid in locating commercial deposits of topsoil, gravel, and peat.



### Waste disposal

Many Minnesota soils have severe limitations for liquid waste disposal because they are too wet, too impermeable, or too shallow over bedrock. The exact location of these soil differences is useful to proper location and design of home sewage treatment systems as well as larger community and municipal land treatment systems.



# Soil Fact-Finding: WHAT'S DONE AND WHAT'S AHEAD

## Information survey

Soil survey information is available at County Agricultural Service Centers and County Extension Offices. For information on how to secure published soil survey reports, write to Extension Soils Specialists, Soil Science Building, 1529 Gortner Avenue, University of Minnesota, St. Paul, Mn 55108.

Acres currently mapped (July 1, 1976)	20,418,544
Acres remaining	30,782,456
Total acres	51,201,000

