Crop production in any region is the result of the interaction of a number of factors, such as the climate, the soil, crop adaptation, markets, etc. In connection with soil survey work, the soil man has an unusual opportunity to make observations on the distribution of crop plants and natural vegetation, and to point out relationships to various soil conditions.

The present interest in land classification and land utilization has served to emphasize the importance of crop adaptation, and of the edaphic relationships in a planned agriculture.

In order to investigate the use being made of the land in southeastern Ohio, a number of areas varying in size from one to four square miles were selected, in which the soils were representative of a large area. Soil maps had been prepared in connection with the soil survey, and other maps were prepared showing the nature of the cover in a general way, and of the crops being grown on each field. In this latter work air photographs where available, serve a very useful purpose in giving the outline of the fields. This study also furnished much valuable information on agriculture for use in preparing the soil survey report.

These studies made in 1932 were confined to Athens County, Ohio where a soil survey was then in progress. Fortunately most of the extensive soils in southeastern Ohio are represented in the county.

**Soils of the Region**

Southeastern Ohio is part of the unglaciated portion of the Appalachian Plateau, in which the soils are largely residual from sandstone, shale, clay shale, and limestone. The region is for the most part maturely dissected so the topography is rolling, with narrow ridge tops and valleys, and a large percentage of sloping lands.

The area is part of the gray-brown podzolic soil region, although only on the ridge tops and terraces have characteristic mature soils developed. The slope soils are immature, being closely related to the character of the bed rock from which they are derived.

Three distinct types have been recognized: a brown soil, Muskingum, from sandstone and shale; a red soil, Upshur, from red clay shale; and a dark brown soil, Brooke, from limestone. Most of the rock formations are thin and interbedded so in a considerable area the soils derived from various types of rocks are so intimately mixed as to be inseparable in the detail used in mapping (1 inch to the mile). Limited areas of level terrace and flood plain soils are included in the tracts studied.

**Mixed Soils**

- Meigs — composed of Muskingum and Upshur.
- Westmoreland — composed of Muskingum and Brooke.
- Belmont — composed of Muskingum, Upshur, and Brooke.

In a high dissected area like southeastern Ohio, topography is of great importance in determining the availability of the land for cropping purposes. In soil mapping three phases based on topography have been recognized, a smooth phase including ridges of slopes of less than 10%; the typical soil on topography with slopes between 10 and 25%; and a steep phase for soils on slopes of more than 25%. In southeastern Ohio approximately 15% of the soils have smooth topography, 40% typical, and 45% steep.

The land use maps show the areas that in 1932 were in crops, pasture, brush, or woodland. Under crop land was included all lands in crops. Pasture included all lands in pasture that were not overgrown brush. Brush land included all lands that had once been cleared but which would now require some clearing before it could again be broken up. Woodland included all lands covered by timber. Measurements have been made of the use of each soil type by comparing the use map with the soil map.

The percentages of these various types are shown graphically in figure 1. From this chart it is possible to make several generalizations.

**Figure 1**