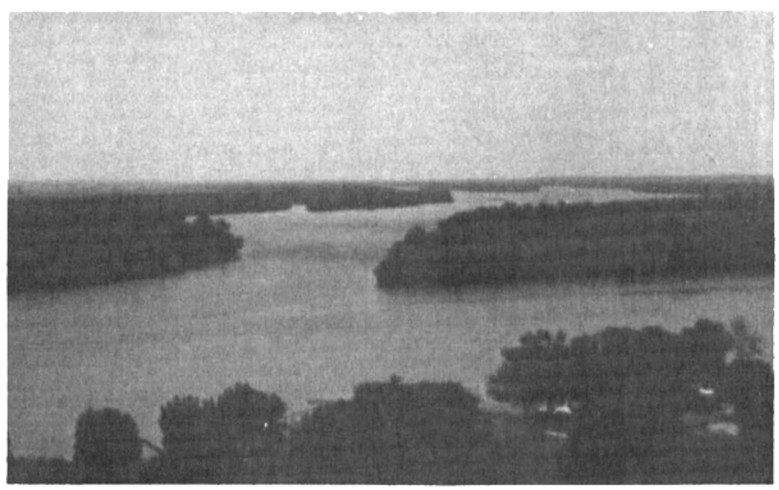
Soil Survey: Jersey County, Illinois

SOIL SURVEY:



The meeting of the Illinois and Mississippi rivers can be viewed from the county line on the south side of Jersey County. This view shows the Illinois River on the right in the foreground. The two river valleys were the major sources of loess, the predominant parent material of soils in the county.

SOIL REPORT 84

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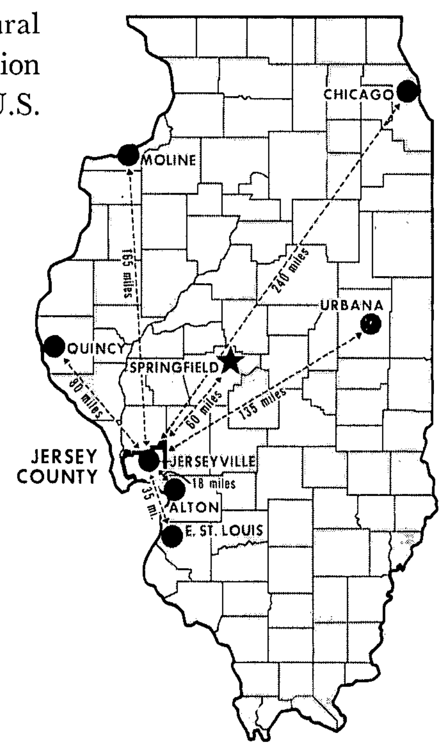
Jersey County, Illinois

University of Illinois Agricultural Experiment Station in cooperation with Soil Conservation Service, U.S. Department of Agriculture.



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Urbana, Illinois December, 1966

SCOPE OF THE SOIL REPORT

THIS SOIL SURVEY REPORT, including the soil map, will help all those interested in the proper use and management, understanding, and intelligent improvement of the soils of Jersey County. Farmers, foresters, engineers, planning boards, and many others will find useful information in various sections of the report. In the section on engineering properties of soils, for example, the engineer will find information useful in the design and application of road structures. In the section on use and management of soils for woodland, the farmer and the forester will find information on adapted species, management of existing stands, reforestation, and timber yields.

Considerable information on the management of the soils for common farm crops is also included in this report. Specific management suggestions, however, are given in a separate soil management guide entitled, "Jersey County Soil Management Guide" (*6*).[1, 2]

[1] Italicized numbers in parentheses refer to literature cited on page 75.

[2] The Jersey County Soil Management Guide is available through the offices of either the Jersey County Extension adviser or the Jersey County Soil and Water Conservation District.

This guide may be revised from time to time as new management information and techniques become available. The management guide is designed to give the farmer up-to-date, specific management suggestions and a soil map for his own farm.

All readers should carefully study the descriptions of the soils. Sound management, interpretive groupings, and classification of the soils can be accomplished only by understanding the nature and characteristics of the individual soils.

The soil map of the county at the back of this report has been compiled from maps made in the field on aerial photographs.

The aerial photographs were made in 1956 and the photomosaic background (symbols indicating buildings, roads, and so forth) on the accompanying assembled county map is of that date. Features on the map such as roads, houses, and ditches are those that existed in 1955 through 1957, when the fieldwork was done.

The soil map shows the extent and location of the various soil types and also the slope and erosion conditions of each area delineated.

Pasture in the foreground on strongly sloping land, cultivated crops such as corn in the middle on gently sloping and nearly level areas, and woodland on steep slopes in the background are typical of Jersey County. (Fig. 1)

HOW TO USE THE SOIL MAP AND SOIL REPORT

Examine the soil map. The soil map of Jersey County consists of 24 sheets. Most of the sheets cover half a township each, but along the county boundaries sheets may cover less than half-townships. An index to the numbered map sheets, showing the area covered by each sheet, accompanies the soil map.

The photomosaic background shows up in light and dark shades. Timber usually shows as darkened areas. Soil boundaries and soil symbols are in red, and the streams and cultural features, such as roads, houses, and towns, are in black.

The soil symbols designate mapping units that are based on three things: soil type, general slope of the area, and erosion condition.

In each symbol, the number(s) or its alternative symbol (the first capital letter) indicates the soil type or complex of two undifferentiated soil types. Capital letters were substituted for the soil type numbers in very small areas of two soil types and three soil complexes: X for 279, Y for 280, S for 8-18, T for 19-35, and Z for 280-471.

Where these are used, the symbol in the soil areas consists of two capital letters. The first capital letter is the alternate symbol for the soil type and the second, with or without bars, refers to the general slope and erosion conditions.

A capital letter following the soil type symbol shows the class of slope, but is omitted if the entire soil type is nearly level.

The slope letters or symbols have the following meanings:

Slope symbol	*Slope description*	*Percent of slope*
A	Nearly level	0–2
B	Gently sloping	2–4
C	Moderately sloping	4–7
D	Strongly sloping	7–12
E	Very strongly sloping	12–18
F	Steep	18–30
G	Very steep	over 30

The erosion symbol (a bar above or below the slope symbol or the absence of the bar) has the following meanings:

Slope symbol alone (for example, C) denotes no or slight erosion (over 7 inches of surface and subsurface soil or A horizon remaining).

Slope symbol overscored (for example, $\overline{C}$) denotes moderate erosion (3 to 7 inches of surface and subsurface soil or A horizon remaining).

Slope symbol underscored (for example, $\underline{C}$) denotes severe erosion (less than 3 inches of surface and subsurface soil or A horizon remaining).

For example, $18\overline{C}$ is the symbol used for Clinton silt loam (indicated by the "18"), where the slope is 4 to 7 percent (indicated by the "C"), and 3 to 7 inches of surface and subsurface soil remain or where moderate erosion exists (indicated by the bar above the letter).

The various mapping units, arranged according to soil type number, are listed in legends preceding and following the soil maps.

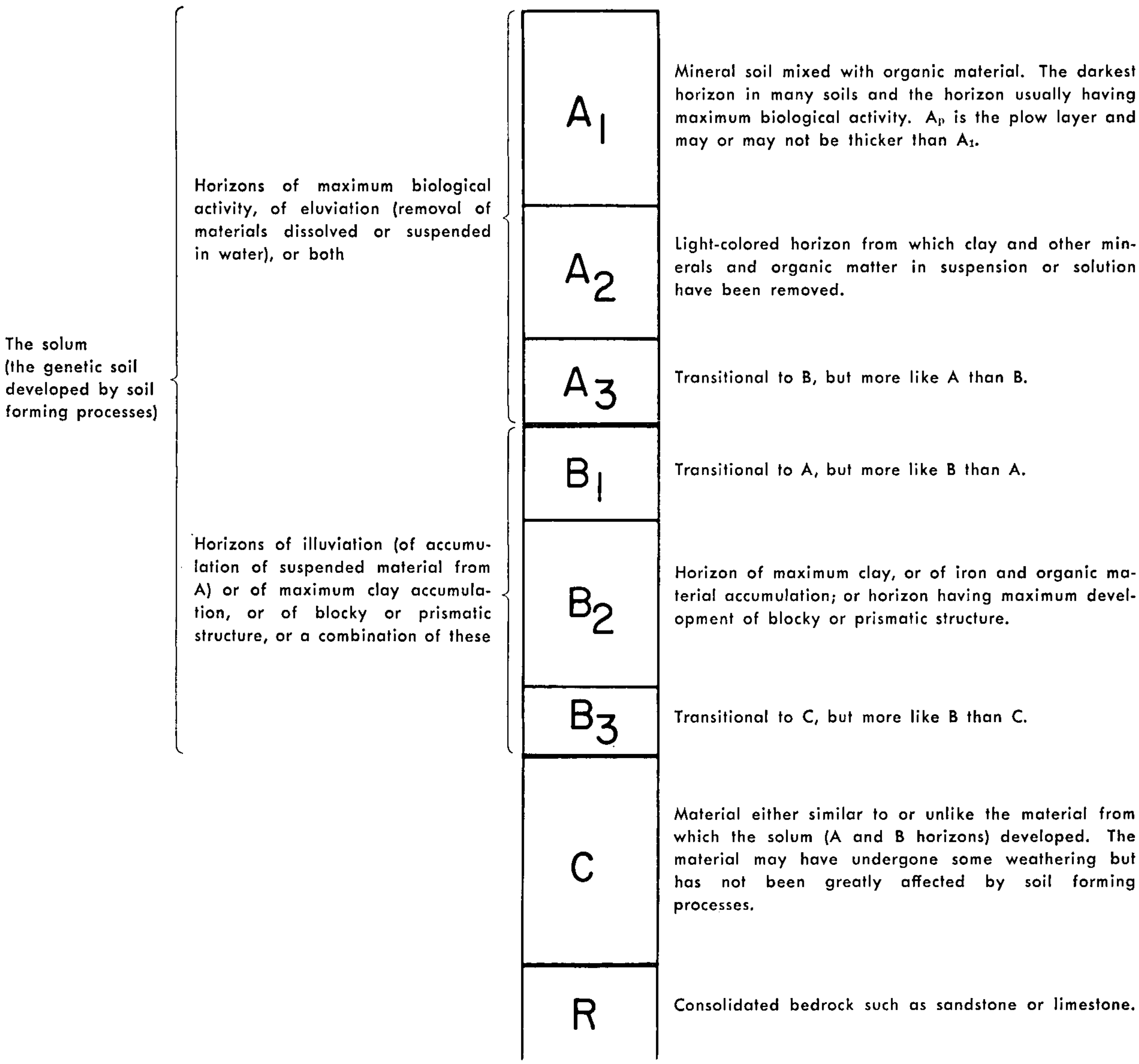
To help in finding a particular farm or tract of land, many cultural features, such as roads, railroads, towns, and farmhouses, are indicated. Section boundaries, section numbers, township and range numbers, and physical features, such as streams, lakes, and reservoirs, are also shown. If the legal description is known, a tract of land can be easily located by using township, range, and section numbers. Otherwise, start with a recognized point, such as a town or crossroad, and if the distance and direction of a tract of land are known, it can easily be found.

Study the characteristics of the soils. After locating a tract of land and identifying the mapping units on it, turn to the Guide to Mapping Units, page 77, to find where the different kinds of soil are described and where their management and other features are discussed.

In studying the soil type descriptions note particularly that soils are separated on the basis of their characteristics to a depth of 4 or 5 feet, or more, not on surface character alone. The surface or A horizon of one type is frequently little or no different from that of another. Yet the two types may differ widely in agricultural value, because of differences in the B horizon or subsoil. The nature of the B horizon is important in determining the drainability and water-supplying power of most soils, especially during critical periods of excess rainfall or drouths.

Most upland and terrace soils have three of four main horizons, an A, B, C, and sometimes an R. These letter designations of horizons are used in this report and are defined as shown in Figure 2. Not every soil has all the horizons and subhorizons shown in this diagram.

In studying the characteristics of various soils, it is also important to understand that each soil type has a range in properties and that the boundaries between soil types are not necessarily sharp. Sometimes types are so intermingled that it is impossible to show them separately on the soil map. Sylvan and Bold are two such intermingled types in Jersey County and are shown as a complex.



Principal horizons of upland soils. Not every horizon and subhorizon shown here, however, is necessarily present in all soils. (Adapted from *Nomenclature of soil horizons*, U.S. Dept. Agr. Handbook 18, pp. 174-183. 1951.) (Fig. 2)

GENERAL FEATURES OF JERSEY COUNTY

Natural Features

Location and size of county. Jersey County is located in southwestern Illinois at the junction of the Illinois River with the Mississippi River. It is bounded on the west by the Illinois River and Calhoun County, on the north by Greene County, on the east by Macoupin County, on the southeast by Madison County, and on the south by the Mississippi River and Missouri.

The southernmost tip of Jersey County is on the Mississippi River, 10 to 15 miles above its junction with the Missouri River. It is 20 to 25 miles north of St. Louis, Missouri. Alton and East St. Louis are nearby to the southeast in Illinois.

Jersey County has a total area of 374 square miles or 239,360 acres. Jerseyville, the county seat and largest town, is located in the north-central part of the county.

Physiography. Most of Jersey County (approximately the eastern three-fourths) is in the Springfield Plain, within the Till Plains section of the Central Lowland province (*15*). The remainder of the county is largely in the Lincoln Hills section of the Ozark Plateaus province, although the southwestern tip is in the Salem Plateau section of that province.

The Springfield Plain is a relatively level area (Fig. 3) with rather shallow entrenchment of drainage, as compared to the highly dissected Lincoln Hills and Salem Plateau sections. All of the Springfield Plain was glaciated. Near its boundary (the margin of the glaciated part of the county) between Otter and Macoupin creeks, several knolls or hills rise 25 feet or more above the general level of the plain. Some of these have their long axis arranged northeast-southwest and others have their longest dimension in a northwest-southeast direction. Some of these mounds have the appearance of drumlins (*17*) and are composed of glacial till with a loess cover.

The Lincoln Hills and the Salem Plateau sections are much more dissected than the Springfield Plain. Streams are more deeply incised and interfluves or drainage divides are much narrower in general. All of the Salem Plateau and part of the Lincoln Hills section are unglaciated. Local relief in these two sections is on the order of several hundred feet.

The Illinois, Mississippi, and Missouri rivers have a complex geological history in the Jersey County area. Both the Illinois and Mississippi rivers have cut deep trenches in the bedrock and there have probably been several cycles of cutting and filling (*17*). The present floodplains are aggraded (filled) to considerable extent above the bedrock floor. In both valleys, and especially in tributary valleys of Piasa, Otter, and Macoupin creeks, there are remnants of one or more fill levels at elevations intermediate between the present floodplains and the uplands. Two of these intermediate or terrace levels, Brussels (the oldest and highest) and Deer Plain (the youngest and lowest), are evident in the lower Macoupin Creek valley. The intermediate level between Brussels and Deer Plain, the Metz Creek terrace, is more poorly developed and often hard to recognize. Some of these levels are also evident in the lower stretches of Otter and Piasa creek valleys. The Deer Plain terrace level is evident below the bluffs just south of Spankey in the southwest 1/4 of section 33, T9N-R13W, and the Brussels terrace level is well preserved in the west-central part of section 35, T9N-R13W, about 2 miles east of Spankey.

The fill in the Illinois and Mississippi valleys at levels corresponding to these terrace levels in the tributary creek valleys has largely been removed by cutting and replaced by more recent alluvium or floodplain sediments. The Deer Plain terrace level is, however, well preserved west of the river in the Illinois valley. It is often characterized by very fine-textured sediments and very heavy soils, such as Darwin and Wabash, but in places the fine-textured material is covered by silty alluvium or bluff wash. The Brussels terrace often has a loess or sandy mantle.

Corn on a nearly level area in the eastern, glaciated part of Jersey County. (Fig. 3)

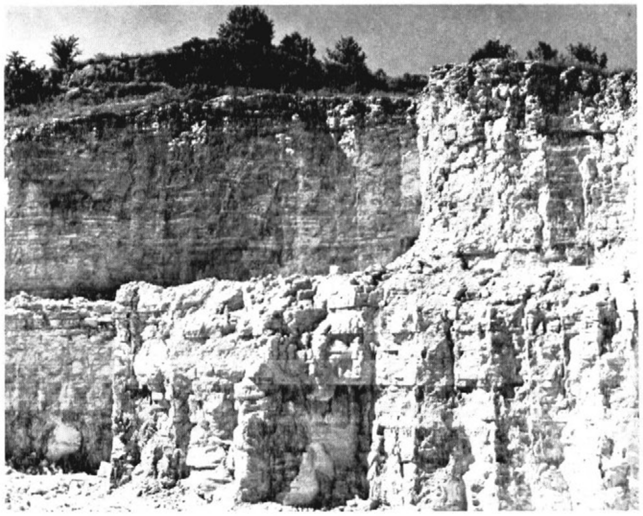
The lodge at Pere Marquette State Park is on a remnant of the Brussels terrace. Route 100 in front of the lodge is on a remnant of the lower lying Deer Plain terrace.

Maximum relief in Jersey County is in the vicinity of Pere Marquette State Park, where the highest elevation is about 890 feet and the lowest elevation (at the Illinois River to the south) is about 420 feet. Jerseyville has an elevation of about 650 feet, Fieldon about 700 feet, Otterville about 620, and Fidelity about 630 feet. Grafton has an elevation of about 440 feet and Elsah an elevation of about 450 feet. Both Grafton and Elsah are located on the Mississippi River.

Geology. Approximately the eastern one-half of Jersey County is underlain by rocks of Pennsylvanian age. The remainder of the county is underlain by older rocks. These are predominantly of Mississippian age, but even older rocks (Devonian, Silurian, and Ordivician age) are exposed in places along the Mississippi River bluffs and along the Illinois River bluffs south of the junction of Routes 16 and 100. Limestone, dolomite, and shale are the principal kinds of rocks in the county. Some of the limestones are cherty and the solution of the limey material has left an accumulation of the weather-resistant chert on many slopes and in the valleys in the southwestern part of the county.

The structural geology of Jersey County is complex, especially in the western and southwestern parts where there are a number of anticlines and synclines and the Cap Au Gres faulted flexure. Outside of the western and southwestern parts of the county the regional dip of the rocks is toward the east.

The Kansan glacier approached Jersey County from the northwest, but in this area remained to the west in the Mississippi valley. Later the Illinoian glacier,



Limestone exposed in a quarry in western Jersey County. (Fig. 4)

from the northeast, covered approximately the northeastern three-fourths of the county. The Hickory soils on slopes have developed from glacial till left by the Illinoian glacier. Later the Wisconsinan glacier covered the headwaters of the Illinois and Mississippi rivers and its melting sent tremendous floods down these rivers.

During seasons when the floods were lowest, winds picked up dust from the dry mud flats and deposited it as loess over the uplands. Two main loess sheets, the Farmdale or Roxanna and the Peorian, are present in Jersey County. The Peorian, the uppermost, is the parent material of most of the upland soils in the county. Total loess thickness varies from more than 300 inches in the western and southwestern part to about 70 or 80 inches in the eastern part of the county. Both the Illinois and Mississippi valleys contributed loess to Jersey County. Also, some loess was probably contributed to the county by the Missouri River valley, which joins the Mississippi valley a few miles south of Jersey County near St. Charles, Missouri.

During glacial times several levels of terraces were deposited in the Illinois and Mississippi valleys. As discussed in the section on physiography (page 5), remnants of these terraces are still present in protected areas, especially along Macoupin, Otter, and Piasa creeks.

Since glacial times, sediments have continued to be added to the stream valleys. Most of the bottomland soils are only slightly weathered and developed.

Mineral resources. One of the more important mineral resources of Jersey County is limestone, which outcrops on steep slopes, especially on the bluffs, in the western and southern parts of the county. Several limestone quarries in the Fieldon area produce agricultural limestone and aggregate for road building and other construction purposes (Fig. 4).

A number of formations in the county, including Kimmswick, Niagaran, Burlington-Keokuk, and St. Louis limestones, are suitable for building stone (*14*). Niagaran, which outcrops near Grafton, has been used for both exterior and interior building stone. The lodge and other buildings in Pere Marquette State Park are constructed with Niagaran limestone. Niagaran is a buff to slightly brown fine- to medium-grained dolomite. St. Louis limestone has been used as an exterior building stone in Alton. The building stone industry is not very active in this area at present.

Some refractory clay deposits of clay and shale exist in the county (*16*), but they have not been developed. Some thin beds of coal are found in places in the county. They are of little economic importance. Sand and gravel deposits exist in the Illinois valley. They have not been developed, possibly because they are not very pure.

Water resources. The Illinois and Mississippi rivers are the most obvious water resources of Jersey County (*5*). However, these two rivers have not been used much as a source of water in the county. Good sand and gravel aquifers exist in the Illinois and Mississippi river valleys. The Macoupin and Otter creek alluvial deposits are fair sources of water.

In the uplands of Jersey County, the Keokuk-Burlington limestone is the main source of water for private wells, which are usually 200 to 400 feet deep.

Farm ponds, used to water livestock, are common throughout the eastern three-fourths of the county.

Climate.[1] Jersey County has hot summers and cold winters typical of the continental climate of central Illinois. Low pressure areas, called storm centers, and associated weather fronts bring frequent changes in temperature, humidity, cloudiness, and wind direction during most of the year.

Average annual precipitation is about 35 inches (*20*). Over a 15-year period prior to 1961, about one-third of the years had less than 30 inches of rainfall and another one-third had over 40 inches. The winter months are the driest. January and December average less than 2 inches of precipitation per month. Average precipitation during July and August, when low moisture is most damaging to corn and soybeans, is 3.9 inches and 2.8 inches respectively.

[1] The authors are indebted to W. L. Denmark, State Climatologist for Illinois, U. S. Weather Bureau, for his assistance in the preparation of the material on climate.

Major drouths are infrequent. However, prolonged dry periods that result in some reduction in yields are not uncommon (*4*). Summer precipitation occurs mostly as brief showers or thunderstorms which are occasionally accompanied by hail and damaging winds. Thunderstorms occur on an average about 40 days annually. Hail-producing thunderstorms have averaged about three annually with less than one per year occurring during June, July, and August (*8*).

Summers are warm with humidity frequently high, but hot periods are seldom prolonged. Temperatures of 90° F. or higher occur on an average about 50 days annually and about half the summers (June through September) see maximum temperatures of 100° F. or higher. The highest recorded temperature was 112° F. on July 14 and 15, 1954.

January is the coldest month of the year. The coldest recorded temperature was −15° F. on January 11, 1962.

Wind and sunshine records are not available in Jersey County, but should approximate the following data from St. Louis. On the average, about 40 percent of the days in a year are cloudy; 30 percent are partly cloudy; and 30 percent have clear skies. Possible sunshine averages about 70 percent during the summer months and about 45 percent during December through February. Prevailing winds are from the south from May through November and from the northwest or west-northwest during other months. Average wind velocity is highest in March and April, ranging between 11 and 12 miles per hour. Lowest average wind velocity, about 7 miles per hour, occurs in July and August.

The average date of the last freezing temperature (32° F. or below) in the spring is April 18 and the average date of the first freezing temperature in the fall is October 20. Thus the average growing season is about 185 days. One year in four a freezing temperature occurs after April 27. One year in four a freezing temperature occurs before October 11 (*12*).

Cultural Features

Organization and population. When Marquette and Joliet first entered this area in the spring of 1673, they found it inhabited mainly by the Illinois tribe. A large stone cross commemorates the landing of these two explorers near the junction of the Illinois with the Mississippi River (Fig 5), an event which is the first recorded entrance of white men into what is now the state of Illinois. Jersey County was established by law in February, 1839.

Population of Jersey County, according to U. S. Census data, has steadily increased since 1930, as has the population of Jerseyville. Population of Grafton and Fieldon have remained about the same from 1910 to 1960. The number of people living in Elsah, Fidelity, and Otterville has declined since 1910.

Transportation and industrial development. Jersey County is served by the Gulf, Mobile, and Ohio railroad and several federal and state highways. All-weather farm to market roads are well distributed throughout the county. Barge traffic is heavy on the Illinois and Mississippi rivers.

Several small industries are located in Jersey County. Most of these are at Jerseyville, although limestone crushing for various purposes is confined largely to the bluff area west and south of Fieldon.

Many people who live in Jersey County work in a variety of industries in the Alton and St. Louis areas, which are within easy driving distance.

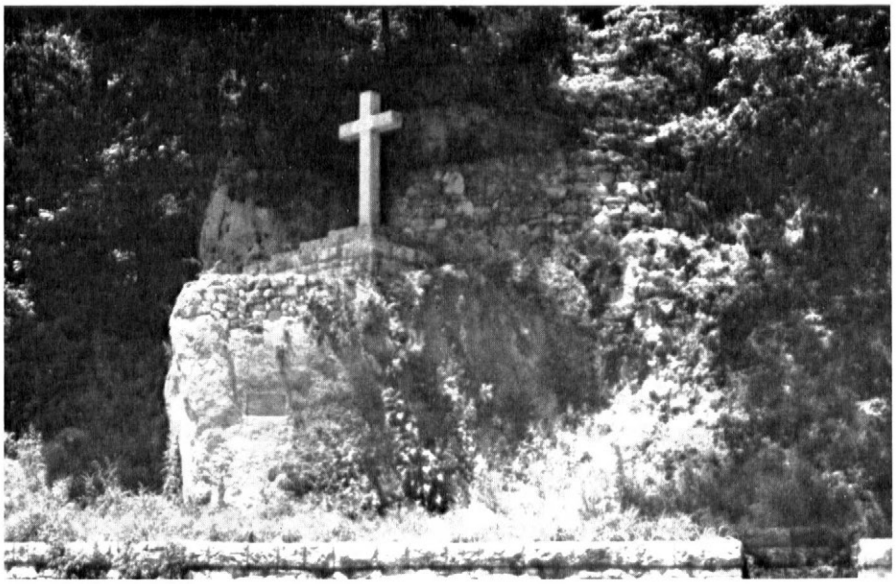
Pere Marquette State Park, the largest state park in Illinois, containing over 5,000 acres, is located in the southwestern part of Jersey County and attracts thousands of tourists and visitors each year.

Agriculture. Agriculture has long been the most important industry in Jersey County. Good soils, good transportation, and nearness to the St. Louis area markets have contributed substantially to favorable conditions for farming.

Corn and wheat have always been important crops in the county. Soybean acreage has increased many times since 1930, and in 1960 soybeans were second in acreage of the cultivated crops. The amount of woodland in the county is relatively high. Most of this is on rough land in the western and southern parts.

The number of farms in the county has gradually decreased from 1910 to 1960 and the average size of farms during this period has increased from about 144 to 214 acres.

Some farms in Jersey County are used strictly for grain production, but the majority are combination grain and livestock farms. Hogs and cattle have been and are at present the most important kinds of livestock in Jersey County. Dairy cattle numbers declined from 1950 to 1960. Sheep numbers have always been small. Horses and mules have gradually declined in numbers over the last 50 years. Chicken numbers have also declined.



The marker near the junction of the Illinois River with the Mississippi River where Marquette and Joliet first entered Illinois in 1673. (Fig. 5)

GENERAL SOIL AREAS OF JERSEY COUNTY

The location and extent of the seven general soil areas in Jersey County are shown on the accompanying general soil map (page 10) and each area or soil association is discussed below. The information given here is for those interested in a broad picture of the soil resources and soil conditions in the entire county. It is too general for the study and solution of problems on individual farms. Problems on individual tracts of land in Jersey County can be considered best by using the detailed soil maps and detailed information given elsewhere in this report.

Soils vary from place to place because of variations in soil parent material, drainage, slope, vegetation, degree of weathering, and so forth. Within a given area, however, the soil pattern is repeated over and over, and a certain kind of soil is expected to be found on similar landscape positions. Areas in which certain soils occur repeatedly on similar landscapes are known as soil associations.

One of the soil associations in Jersey County is on bottomlands and terraces, one is on colluvial or bluff-wash sediments, and five are on the upland.

Soils in the various general soil areas of the county are grouped according to parent material, surface color, degree of subsoil development, and natural soil drainage class in Table 2, page 35. The common landscape occurrence of a number of the soils in various general soil areas is shown in Figure 6.

Area A — Bottomland and Terrace Soil Association — Nearly level to gently sloping, poorly drained to well-drained bottomland soils, and nearly level to steep, imperfectly drained to well-drained terrace soils

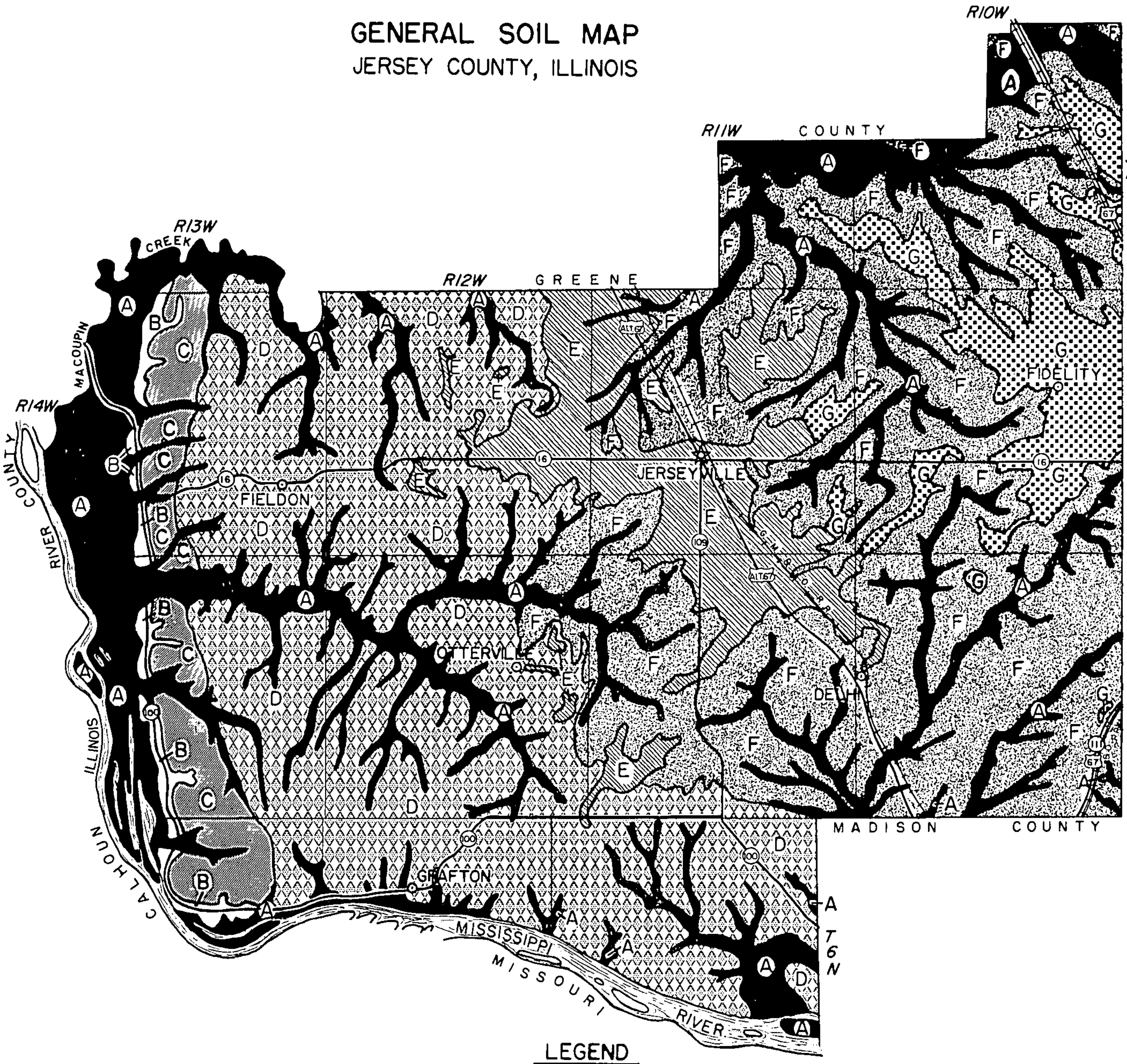
The terrace soils are included with the bottomland soils in this association because the terraces are of small extent and frequently occur as isolated areas between bottomlands and the uplands.

The bottomland soils occur along streams throughout the county, but the largest areas are in the Illinois River and Macoupin Creek valleys. The most common soils in these larger valleys are Beaucoup, Darwin, Wabash, Tice, McFain, Lawson, Dupo, Jules, and Huntsville. Lawson and Huntsville also occur in some of the smaller stream valleys along with Haymond, Wakeland, Elsah, and Petrolia soils.

None of the bottomland soils of Jersey County is very acid. Most of them are neutral in reaction and some range to slightly acid. Jules, however, is calcareous. The bottomland soils, in general, are well supplied with available potassium and available phosphorus, although responses to potash and phosphate fertilizers are obtained on Jules and response to nitrogen is sometimes obtained on light-colored Haymond, Wakeland, Elsah, Petrolia, and Dupo. Responses to potash fertilizers are most common on poorly drained Beaucoup, Darwin, Wabash, McFain, and Petrolia soils.

Drainage is one of the first requirements for good crop yields on the above-mentioned, poorly drained soils. Beaucoup and Petrolia can be tile-drained, but Darwin, Wabash, and often McFain have slow permeability and can be drained best with ditches. Overflow is a hazard on most of the bottomlands, unless

GENERAL SOIL MAP
JERSEY COUNTY, ILLINOIS



LEGEND

A BOTTOMLAND AND TERRACE SOILS

B WORTHEN - LITTLETON

C SYLAN - BOLD

D FAYETTE - STRONGHURST

E TAMA - MUSCATINE

F CLINTON - KEOMAH

G HARRISON - HERRICK

SCALE IN MILES

0 1 2 3 4 5 6

they are protected by levees. Even though the Illinois River bottomland is leveed, there is some flooding by hill water in wet seasons.

A large percentage of the bottomlands is used for corn and soybean production. Some hay is also grown, and small, inaccessible bottomland areas are often used for pasture.

All of the terrace soils except Beardstown are light-colored forest soils. Camden and Whitaker are silty soils and occur mainly in Macoupin, Otter, and Piasa creek valleys. Alvin is a sandy soil and McGary is a silty soil with a fine-textured subsoil. Both are of small extent. A few small areas of Alvin were mapped on uplands, as well as on terraces. Beardstown is a moderately dark-colored soil which occurs on low ridges in the Illinois River valley in the northwest part of the county.

The terrace soils of Jersey County are more acid, more strongly developed, require more limestone, and show greater responses to fertilizers than the bottomland soils. Alvin, Camden, and McGary occur to some extent on sloping areas where erosion control is a problem. In general, the sloping areas of these three soils are small and slopes are usually short so that sod crops or pasture are the best means of reducing soil losses caused by erosion.

The terrace soils are often farmed with surrounding or nearby bottomland soils. Many areas, especially the steeper slopes, could be more economically used for hay and pasture production.

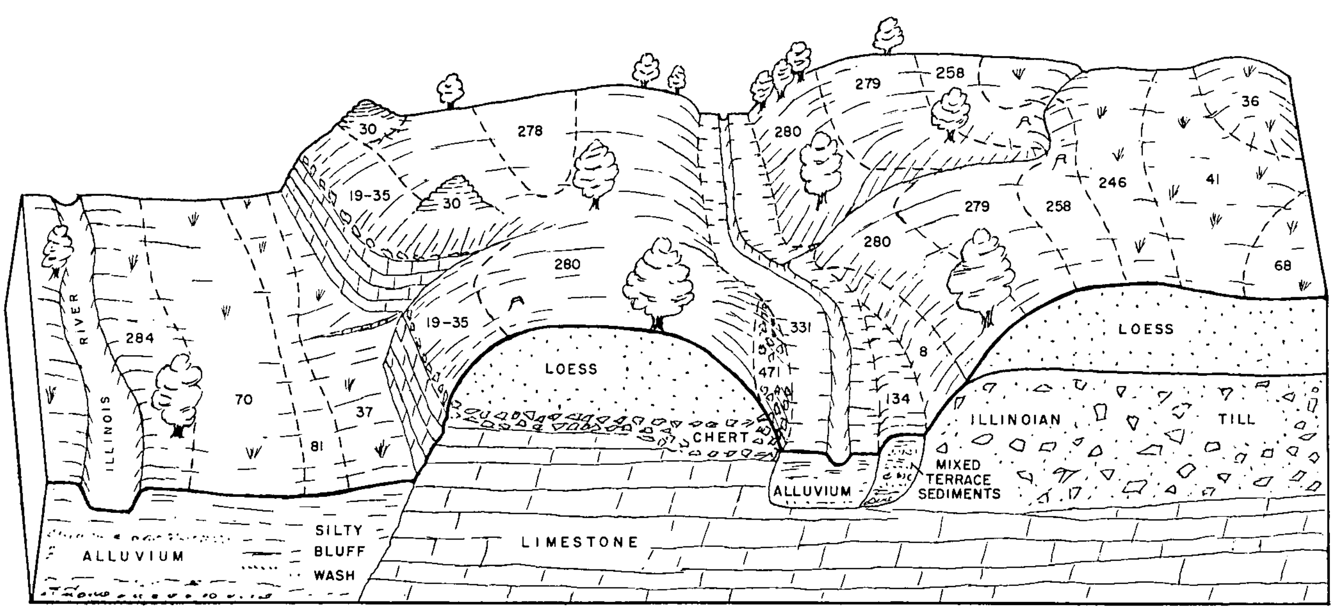
Area B — Worthen-Littleton Association — Nearly level to strongly sloping, imperfectly drained to well-drained, colluvial, bluff-wash soils

This soil association occurs at the base of the bluffs along the Illinois River valley. Besides the dark-colored Worthen and Littleton soils, this area also includes the light-colored Drury soils, which are most commonly located in the lower stretches of Macoupin and Otter Creek valleys and other small valleys tributary to the Illinois valley. The light-colored Drury soils are considered the forested counterpart of the dark-colored Worthen soils. Both are well to moderately well drained.

This area has a gentle slope downward toward bottomland soils. Most of the material has been washed from the nearby bluffs and was deposited in the form of alluvial fans near the base of the bluffs. Thus the area forms a long colluvial strip between the bluffs and the bottomlands of the Illinois River valley.

The soils of this area are relatively youthful and have weakly developed subsoils. They are silty soils, have a high or very high moisture-holding capacity, and are quite productive. Some of the more sloping areas of Worthen and Drury are subject to some erosion, but because of the permeable nature of the soils, runoff and erosion are seldom serious problems. Littleton is imperfectly drained and is occasionally benefited by tile or ditches.

These soils are usually used for grain crops. Small, irregular areas, however, are in hay or pasture.



Relationship of soils in general soil areas A, B, C, D, and E to slope, physiographic position, and kinds of soil parent materials. Numbers on drawing are soil type numbers. For names, descriptions, and profiles of these soil types, see section beginning on page 14. (Fig. 6)

Area C — Sylvan-Bold Association — Moderately sloping to very steep, well-drained, light-colored upland soils developed from very thick loess

Sylvan, Bold, and Hamburg soils and Limestone rockland comprise this soil association, which occurs as a relatively narrow band in the bluff area bordering the Illinois River valley.

This is an area of great dissection, deeply intrenched valleys, and steep slopes. Rock outcrops are common in the Limestone rockland land type, especially on the face of the bluffs. Many slopes are in forest, but some have been cleared and are used for pasture. Acreage of cultivated crops is small and is largely confined to the broader ridgetops or to the small valleys which cut through the area.

Hamburg is calcareous loess and occurs as conical, grass-covered mounds at the top of the bluffs. It is of minor extent.

Sylvan and Bold soils occur as a complex in this area, with the Bold usually found on the steeper part of slopes where geologic erosion has prevented profile development. Bold is calcareous, but since it occurs on side slopes it has a greater moisture-supplying power to plants than does Hamburg. Sylvan soils have moderate to weak subsoil development and calcareous loess occurs in its profile usually between 30 and 50 inches. It grades to Fayette soils, which are more deeply leached and more strongly developed.

As mentioned above, much of this area is in forest. This is probably as it should be, since some good hardwood timber is produced on these soils and the forest cover provides needed watershed protection.

Cleared areas of the Sylvan-Bold complex can be made into productive grass-legume hay and pasture fields. Alfalfa is well adapted to these soils.

Pere Marquette State Park occupies several thousand acres in the south end of this soil association.

Area D — Fayette-Stronghurst Association — Nearly level to very steep, imperfectly drained to well-drained, light-colored upland soils developed from thick loess

This association of light-colored, thick loess soils occurs as a 6- to 10-mile-wide zone next to the bluff area (area C) in the western part of the county and includes the bluffs in the southern part of the county.

Imperfectly drained Stronghurst, moderately well-drained Rozetta, and well-drained Fayette are the thick loess soils in this association. Although Bodine is somewhat influenced by loess, it is dominated by chert. It occurs in a complex with Fayette on some of the steep slopes in the southern and southwestern parts of the county. Fayette usually occupies the upper or less steep part of the slopes. Hickory soils, which are common in the Clinton-Keomah association (area F), also are present on slopes where there is very little or no loess over Illinoian till.

A considerable portion of this area is rough and broken, and many steep slopes are in woods. The ridgetops, which are variable in width, are generally under cultivation. Corn, soybeans, and wheat are the crops commonly grown along with considerable acreages of hay and pasture. Several apple and peach orchards are also located in this area.

The thick loess soils are very responsive to liming and good soil management. Drainage is needed on some of the flatter areas of Stronghurst, and erosion control is a major problem on the more sloping areas of Rozetta and Fayette. Bodine and Hickory soils are not suited to cultivation. Good pastures can be developed on Hickory soils, but Bodine, because of its cherty composition, is best used for forest.

Farms in this area usually are not large and many of them are used mostly for livestock production. Livestock farming is probably the best type of farming for this area, since it permits the use of the least sloping soils for grain production and the more sloping soil areas for hay and pasture. Fayette and Rozetta soils are well adapted to the production of apples.

The thick loess soils in this association are not as strongly weathered and developed as those developed in thinner loess under forest vegetation in the Clinton-Keomah association (area F).

Area E — Tama-Muscatine Association — Nearly level to moderately sloping, poorly drained to well-drained, dark-colored upland soils developed from thick loess

Tama, Bolivia, Muscatine, Sable, and Denny soils comprise general soil area E, which had a native grass vegetation. Denny is of minor extent and occurs in small scattered areas that appear as moderately dark-colored gray spots in plowed fields. Because of Denny's very slowly permeable subsoil, drainage is a major problem. Virden silt loam also occurs in area E, as well as in area G farther east in the county. Virden silt loam is a poorly drained soil and has a more strongly developed subsoil than Sable soils. However, with adequate drainage it is very productive.

Except for some areas of Bolivia and Tama along draws, this association is nearly level to gently sloping and is well adapted to large machinery and grain

Soybeans in a nearly level field in general soil area E. (Fig. 7)

crop production (Fig. 7). It is probably the most productive general soil area in the county and contains some of the largest farms. Proper attention to drainage, fertility maintenance, weed control, and preservation of good soil tilth should keep this area highly productive for grain crops such as corn and soybeans.

Dark-colored Tama, Bolivia, Muscatine, and Sable soils differ mainly in natural drainage characteristics. Tama is well drained, Bolivia is moderately well drained, Muscatine is imperfectly drained, and Sable is poorly drained. Tile can be used very well to drain Sable soils, which have moderately permeable subsoils. Tile also may be used for drainage in Virden silt loam soil.

General soil area E occurs in the central and north central parts of Jersey County. As mentioned in the description of Bolivia silt loam (246), page 18, further study of Bolivia subsequent to compilation of the Jersey County soil map has shown Bolivia to be the same soil as the moderately well-drained portion of Tama silt loam. The Tama shown on the Jersey County soil map as such (No. 36) is all well drained.

Area F — Clinton-Keomah Association — Nearly level to very steep, poorly drained to moderately well-drained, light-colored and moderately dark-colored upland soils developed from moderately thick loess

This soil association occurs in the central and eastern parts of Jersey County. The soils were developed under forest vegetation and, except for Sicily and Clarksdale, are light colored. Sicily and Clarksdale soils are moderately dark colored, because the forest cover on them had not been present long enough to entirely obliterate the dark color imparted by a previous grass vegetation. Rushville is poorly drained and occurs on the flatter areas. Keomah is imperfectly drained, occurring on nearly level to moderately sloping areas. Clinton is moderately well drained and is found on gently sloping to very strongly sloping areas. Hickory is also moderately well drained and occurs on strongly sloping to very steep areas where the loess over Illinoian till is very thin or absent. In some strongly sloping to steep areas Hickory and Clinton soils were mapped as a complex with Clinton usually occupying the upper portion of the slopes and Hickory the remaining lower portion.

Combination grain and livestock farms of moderate size are most commonly found in area F. In many respects this soil association resembles area D (Fayette-Stronghurst association), but the soils of area F are somewhat more highly weathered and developed than those of area D.

The soils of area F are acid, but respond well to liming and proper fertilization. Nitrogen is quite effective on these soils.

Since many areas are sloping, erosion control is a major problem. Greater use of improved hay and pasture crops and livestock production, especially on the Hickory-Clinton complex, on Hickory soils, and on the steeper areas of Clinton soils would reduce erosion and improve returns on many farms.

Area G — Harrison-Herrick Association — Nearly level to moderately sloping, poorly drained to well-drained, dark-colored and moderately dark-colored upland soils developed from moderately thick loess

General soil area G occurs in the eastern part of Jersey County where the loess is moderately thick, averaging about 6 to 8 feet. All the soils in this area were developed under grass vegetation, but they are somewhat more highly developed than those of area E, which also developed under grass.

Differences among dark-colored Virden, Herrick, Harrison, and Douglas soils are mainly differences in natural drainage. Virden is poorly drained; Herrick imperfectly drained; Harrison, moderately well drained; and Douglas, well to moderately well drained. Virden and Herrick can be tile-drained, although tile tend to drain somewhat slowly. Erosion control is a minor problem on the more sloping areas of Harrison and Douglas. All these soils respond to good management. Average yields, however, are somewhat lower than those of general soil area E.

Piasa soils occur as gray spots and streaks intermingled with the dark-colored soils discussed above. Piasa soils are often known as "scalds" in eastern Jersey County. They are difficult to drain because of a very slowly permeable subsoil that owes its unfavorable physical condition to an excess of sodium. They are less productive than associated soils, and yields of corn and soybeans are often reduced on them in dry seasons. Piasa soils are better adapted to wheat and hay crops than to corn and soybeans, but because of their irregular shape, size, and frequency of occurrence they have to be farmed with surrounding soils.

Cowden soils found in this association, like Piasa soils, occur as moderately dark-colored, irregular areas among the darker colored soils, but differ mainly from Piasa in that they do not have an excess of sodium in their subsoils. Cowden soils are more strongly developed than Herrick soils and have grayer A_2 horizons and less permeable subsoils. Since tile do not function satisfactorily in Cowden, ditches are the best means of removing excess water. Cowden, like Piasa, is usually farmed with surrounding soils in eastern Jersey County.

Topography in this association varies from nearly level to moderately sloping. Some farms are rather large and the area is well adapted to the use of big machinery. Both grain crops and livestock are produced.

DESCRIPTIONS OF JERSEY COUNTY SOILS

Descriptions of Jersey County soils will be found on the following pages. The general occurrence, formation, relationship to other soils, and profile characteristics of each soil type are given. The profile characteristics are for an extensive mapping unit which has not been severely eroded. In the profile descriptions, the horizons are designated by letters as discussed on page 4.

Munsell color notations and consistence are for moist soils. These notations refer to soil color standards developed by the Munsell Color Company, Inc. The notations consist of three variables: hue, value, and chroma. In the notation 10YR 4/2, for example, the hue is denoted by the 10YR (YR = yellow-red), the value by the 4, and the chroma by the 2. Hue is the dominant spectral (rainbow) color and is related to the dominant wave length of the light. Value refers to the relative lightness of color and is a function of the total amount of light. Chroma is the relative purity or strength of the spectral color.

Mapping units of each soil type are listed and briefly described where the name does not adequately indicate how they differ from the other mapping units.

The mapping units have been given names that show the soil type, the range in slope gradient if it is greater than 2 percent, and the degree of erosion if it is moderate or severe. If slope is not mentioned in the name, the slope gradient is less than 2 percent. If erosion is not indicated in the mapping unit name, the soil has had little or no erosion.

The names of the mapping units are given in the Guide to Mapping Units on pages 77 to 79. Only the descriptive symbols (e.g. **131B**) are used in the general text.

The soil types are described in alphabetical order on the following pages, but are in numerical order in Table 1. The area of each type and also of each mapping unit (combination of soil type, slope, and erosion) in the county is shown in the table.

Alvin fine sandy loam (131)

Alvin fine sandy loam is a light-colored, well-drained to moderately well-drained soil type developed under forest vegetation. It occurs on gently to very strongly sloping areas on terraces or benchlands bordering the Illinois River and Macoupin Creek bottomlands and in the upland near the bluffs of the Illinois valley.

A few small very sandy, drouthy areas in sections 5 and 8 of township 8 north, range 13 west, and one small area south of Pere Marquette State Park were included with Alvin fine sandy loam on the soil map.

Four mapping units are shown on the soil map: **131B, 131$\overline{\text{C}}$, 131$\underline{\text{D}}$, 131$\underline{\text{E}}$.**

The moderately eroded Alvin soils have lost about one-half of their original surface soil or A horizons. The severely eroded mapping units, in general, have lost practically all of their surface soil, so that the subsoil layers are exposed. Eroded areas have less material above the loose sand underlying the subsoils and are more drouthy than uneroded areas.

Alvin fine sandy loam (131B) representative profile

A_p (0-6″) Dark grayish-brown (10YR 4/2) to very dark grayish-brown (10YR 3/2), very friable, fine sandy loam. Very weak, medium crumb structure. Abrupt, smooth boundary. pH 5.8.

A_2 (6-11″) Dark grayish-brown (10YR 4/2) to brown (10YR 5/3), very friable, fine sandy loam. Very weak, coarse platy to weak, fine subangular blocky structure. Clear, smooth boundary. pH 5.8.

B_1 (11-14″) Brown (7.5YR 5/4), slightly firm, light sandy clay loam. Moderate, fine to medium subangular blocky structure. Moderately thick, dark brown (7.5YR 4/4) clay films on peds. Clear, smooth boundary. pH 5.5.

B_2 (14-24″) Brown (7.5YR 5/4), slightly firm, sandy clay loam. Strong, medium subangular blocky structure. Moderately thick, dark brown (7.5YR 4/4) clay films on peds. Clear, smooth boundary. pH 5.5.

B_3 (24-35″) Brown (7.5YR 5/4), friable, light sandy loam. Very weak, coarse subangular blocky structure. A few very dark grayish-brown (10YR 3/2) iron concretions. Clear, smooth boundary. pH 5.5.

C (35-60″) Dark brown (7.5YR 4/4), fine to medium, loose sand. pH 5.7.

Beardstown loam (188)

Beardstown loam is a moderately dark-colored soil type developed from mixed sandy and silty sediments on terraces in the Illinois River valley. It is a weakly to moderately developed soil which probably has been influenced by forest vegetation to some extent during its formation. Beardstown occurs on nearly level to gently sloping low ridges and is imperfectly drained. The two mapping units shown are **188A and 188B.**

Beardstown loam (188A) representative profile

A_p (0-9″) Very dark gray (10YR 3/1) to very dark grayish-brown (10YR 3/2) friable loam. Weak, medium crumb structure. Abrupt, smooth boundary. pH 6.2.

A_2 (9-15″) Dark gray (10YR 4/1) to gray (10YR 5/1) friable loam. Common, fine, prominent mottlings of yellowish-red (5YR 5/8). Weak, coarse platy to weak, coarse granular structure. Clear, smooth boundary. pH 5.8.

B_2 (15-28″) Brown (10YR 4/3) to dark grayish-brown (10YR 4/2) firm clay loam. Common, medium, distinct mottles of yellowish-brown (10YR 5/8). Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.5.

B_3 (28-40″) Dark grayish-brown (10YR 4/2) to grayish-brown (10YR 5/2) firm sandy clay loam. Many, medium, distinct yellowish-brown (10YR 5/8) mottles and few, fine, prominent yellowish-red (5YR 5/8) mottles. Weak, coarse, angular blocky structure. Clear, smooth boundary. pH 5.5.

C (40-46″+) Grayish-brown (10YR 5/2) massive sandy loam. Many, medium, distinct yellowish-brown (10YR 5/8) mottles and few, fine, prominent yellowish-red (5YR 5/8) mottles. pH 5.3.

Some areas included with Beardstown on the soil map vary from the representative profile because they have fine sandy loam surfaces and loam subsoils. In a few places the surface texture is a clay loam rather than a loam.

Beaucoup silty clay loam (70)

Beaucoup silty clay loam is a dark-colored, poorly drained bottomland type found on nearly level, low-lying areas in the Illinois River and Macoupin Creek valleys. One mapping unit is shown on the soil map, **Beaucoup silty clay loam (70).**

Beaucoup silty clay loam (70) representative profile

A_p (0-8″) Very dark gray (10YR 3/1) to very dark grayish-brown (10YR 3/2) firm silty clay loam. Moderate to strong, fine to medium granular structure. Abrupt, smooth boundary. pH 6.5.

A_1 (8-15″) Very dark gray (10YR 3/1) firm silty clay loam. Common, medium, prominent mottles of dark reddish-brown (5YR 3/4). Moderate, fine to medium, angular blocky to subangular blocky structure. Gradual, smooth boundary. pH 6.5.

B_{21g} (15-24″) Dark gray (10YR 4/1) firm silty clay loam. Common, fine, distinct yellowish-brown (10YR 5/8) mottles and few, fine, faint gray (10YR 5/1) mottles. Moderate, medium prismatic structure that breaks to strong, angular blocky structure. Peds are coated with very dark gray (10YR 3/1). Gradual, smooth boundary. pH 6.6.

B_{22g} (24-34″) Dark gray (10YR 4/1) to gray (10YR 5/1) firm silty clay loam. Common, medium, distinct mottles of yellowish-brown (10YR 5/8). Weak, fine prismatic structure that breaks to moderate, medium angular blocky structure. Peds coated with very dark gray (10YR 3/1) to dark gray (10YR 4/1). Many large to fine pores. Gradual, smooth boundary. pH 7.0.

B_{3g} (34-45″) Gray (10YR 5/1) firm silty clay loam. Common to many, medium, distinct dark yellowish-brown (10YR 4/4) and dark reddish-brown (5YR 3/4) mottles. Moderate to weak, coarse angular blocky structure. Many large and fine pores. Very dark gray krotovinas. pH 7.0.

C_g (45″+) Gray (10YR 5/1) light silty clay loam to heavy silt loam. pH 7.2.

In Jersey County, heavy silt loam, rather than medium silty clay loam sediments, often underlies Beaucoup below depths of 40 or 45 inches. Fall plowing often improves granulation and workability. A few of the wetter areas of Beaucoup are in woodland (Fig. 8).

Wetter areas of Beaucoup produce excellent growth of bottomland hardwood trees. (Fig. 8)

Table 1. — JERSEY COUNTY SOILS: Areas of the Different Types Grouped According to Slope and Erosion

Type No.	Type name	Percent of total area	Area in square miles	Area in acres	Erosion group[a]	Acres of various slope and erosion groups						
						A slope less than 2%	B slope 2–4%	C slope 4–7%	D slope 7–12%	E slope 12–18%	F slope 18–30%	G slope over 30%
8	Hickory loam	6.05	22.62	14,480	None to slight	.....	.....	.....	.....	141	4,730	3,171
					Moderate	.....	.....	.....	.....	570	2,559	536
					Severe	.....	.....	.....	196	878	1,498	201
8–18	Hickory-Clinton complex	3.51	13.14	8,412	None to slight	.....	.....	.....	.....	290	278	.....
					Moderate	.....	.....	.....	730	898	124	.....
					Severe	.....	.....	.....	2,097	3,684	311	.....
16	Rushville silt loam	.76	2.85	1,826	None to slight	1,826	.....	.....	.....	.....	.....	.....
17	Keomah silt loam	8.24	30.81	19,721	None to slight	282	18,700	.....	.....	.....	.....	.....
					Moderate	.....	500	239	.....	.....	.....	.....
18	Clinton silt loam	7.97	29.81	19,078	None to slight	.....	1,496	311	261	.....	.....	.....
					Moderate	.....	.....	7,508	1,338	.....	.....	.....
					Severe	.....	.....	3,063	4,945	156	.....	.....
19–35	Sylvan-Bold complex	3.36	12.56	8,038	None to slight	.....	.....	14	10	22	529	1,010
					Moderate	.....	.....	19	321	476	1,568	2,798
					Severe	.....	.....	.....	69	278	883	41
28	Jules silt loam	.49	1.83	1,170	None to slight	1,163	7	.....	.....	.....	.....	.....
30	Hamburg silt	.42	1.58	1,009	None to slight	.....	.....	.....	22	34	278	675
36[b]	Tama silt loam	.23	.85	540	None to slight	.....	81	184	.....	.....	.....	.....
					Moderate	.....	.....	275	.....	.....	.....	.....
37	Worthen silt loam	.53	1.97	1,261	None to slight	.....	1,031	194	36	.....	.....	.....
41	Muscatine silt loam	4.12	15.40	9,854	None to slight	9,854	.....	.....	.....	.....	.....	.....
45	Denny silt loam	.14	.51	326	None to slight	326	.....	.....	.....	.....	.....	.....
46	Herrick silt loam	3.22	12.02	7,695	None to slight	7,695	.....	.....	.....	.....	.....	.....
47	Virden silt loam	1.71	6.38	4,086	None to slight	4,086	.....	.....	.....	.....	.....	.....
50	Virden silty clay loam	.16	.61	388	None to slight	388	.....	.....	.....	.....	.....	.....
68	Sable silty clay loam	.33	1.22	783	None to slight	783	.....	.....	.....	.....	.....	.....
70	Beaucoup silt clay loam	1.98	7.40	4,735	None to slight	4,735	.....	.....	.....	.....	.....	.....
71	Darwin silty clay	1.05	4.94	2,526	None to slight	2,526	.....	.....	.....	.....	.....	.....
75	Drury silt loam	.12	.45	289	None to slight	.....	112	101	38	.....	.....	.....
					Moderate	.....	.....	.....	38	.....	.....	.....
77	Huntsville silt loam	.52	1.95	1,247	None to slight	663	.....	.....	.....	.....	.....	.....
					Silty deposition	584	.....	.....	.....	.....	.....	.....
81	Littleton silt loam	.22	.84	538	None to slight	423	.....	.....	.....	.....	.....	.....
					Silty deposition	115	.....	.....	.....	.....	.....	.....
83	Wabash silt clay	.13	.50	321	None to slight	321	.....	.....	.....	.....	.....	.....
94	Limestone rockland	.56	2.10	1,343	None to slight	.....	.....	.....	.....	.....	.....	1,343
112	Cowden silt loam	.33	1.24	792	None to slight	735	57	.....	.....	.....	.....	.....
127	Harrison silt loam	.70	2.62	1,676	None to slight	.....	1,561	.....	.....	.....	.....	.....
128	Douglas silt loam	.03	.13	81	None to slight	.....	57	24	.....	.....	.....	.....
131	Alvin fine sandy loam	.09	.32	205	None to slight	.....	81	.....	.....	.....	.....	.....
					Moderate	.....	.....	38	.....	.....	.....	.....
					Severe	.....	.....	.....	12	74	.....	.....
132	Whitaker silt loam	.32	1.22	779	None to slight	460	184	89	.....	.....	.....	.....
					Moderate	.....	12	34	.....	.....	.....	.....
134	Camden silt loam	.25	.94	599	None to slight	14	141	26	14	.....	.....	.....
					Moderate	.....	.....	89	22	10	.....	.....
					Severe	.....	.....	7	89	165	22	.....

Table 1. — Concluded

Type No.	Type name	Percent of total area	Area in square miles	Area in acres	Erosion group[a]	Acres of various slope and erosion groups: A slope less than 2%	B slope 2–4%	C slope 4–7%	D slope 7–12%	E slope 12–18%	F slope 18–30%	G slope over 30%
173	McGary silt loam	.04	.14	89	None to slight	14	24	.....	.....	.....	.....	.....
					Moderate	.....	22	.....	.....	.....	.....	.....
					Severe	.....	.....	29	.....	.....	.....	.....
180	Dupo silt loam	.27	1.01	649	None to slight	649	.....	.....	.....	.....	.....	.....
188	Beardstown loam	.04	.13	86	None to slight	69	17	.....	.....	.....	.....	.....
246	Bolivia silt loam	2.75	10.28	6,578	None to slight	.....	6,202	127	.....	.....	.....	.....
					Moderate	.....	153	96	.....	.....	.....	.....
248	McFain silty clay	.73	2.72	1,742	None to slight	1,565	.....	.....	.....	.....	.....	.....
					Silty deposition	177	.....	.....	.....	.....	.....	.....
257	Clarksdale silt loam	3.37	12.60	8,064	None to slight	8,064	.....	.....	.....	.....	.....	.....
258	Sicily silt loam	5.08	18.98	12,146	None to slight	.....	9,418	223	.....	.....	.....	.....
					Moderate	.....	472	1,822	.....	.....	.....	.....
					Severe	.....	.....	211	.....	.....	.....	.....
278	Stronghurst silt loam	1.12	4.20	2,688	None to slight	740	1,948	.....	.....	.....	.....	.....
279	Rozetta silt loam	7.08	26.48	16,943	None to slight	.....	7,135	416	77	.....	.....	.....
					Moderate	.....	.....	3,408	476	103	.....	.....
					Severe	.....	.....	1,278	2,896	1,154	.....	.....
280	Fayette silt loam	10.25	38.33	24,534	None to slight	.....	2,185	2,298	335	266	2,202	244
					Moderate	.....	.....	3,093	2,741	1,247	1,132	.....
					Severe	.....	.....	215	2,786	4,366	1,424	.....
280–471	Fayette-Bodine complex	9.98	37.38	23,927	None to slight	.....	.....	.....	.....	.....	6,250	13,939
					Moderate	.....	.....	.....	.....	...	1,565	1,268
					Severe	.....	.....	.....	.....	.....	905	.....
284	Tice silty clay loam	.60	2.25	1,438	None to slight	1,345	93	.....	.....	.....	.....	.....
288	Petrolia silty clay loam	.06	.21	132	None to slight	132	.....	.....	.....	.....	.....	.....
331	Haymond silt loam	2.74	10.25	6,558	None to slight	5,840	718	.....	.....	.....	.....	.....
333	Wakeland silt loam	1.29	4.82	3,083	None to slight	2,896	187	.....	.....	.....	.....	.....
451	Lawson silt loam	3.28	12.30	7,875	None to slight	4,739	17	.....	.....	.....	.....	.....
					Silty deposition	3,119	.....	.....	.....	.....	.....	.....
474	Piasa silt loam	.25	.93	594	None to slight	570	.....	.....	.....	.....	.....	.....
					Thin surface	24	.....	.....	.....	.....	.....	.....
475	Elsah cherty silt loam	1.24	4.64	2,973	None to slight	936	2,037	.....	.....	.....	.....	.....
	Borrow pits	.01	.03	17	....	.....	.....	.....	.....	.....	.....	.....
	Quarry	.01	.03	22	....	.....	.....	.....	.....	.....	.....	.....
	Water	2.27	8.48	5,424	....	.....	.....	.....	.....	.....	.....	.....
	TOTAL	**100.00**	**374.00**	**239,360**		**67,858**	**54,648**	**25,546**	**19,549**	**14,812**	**26,258**	**25,226**
	Area of each erosion and slope group											
	None to slight	67.48	252.38	161,525	None to slight	67,834	53,489	4,007	793	753	14,267	20,382
	Moderate	16.05	60.05	38,432	Moderate	24	1,159	16,729	5,666	3,304	6,948	4,602
	Severe	14.18	53.03	33,940	Severe	.....	.....	4,810	13,090	10,755	5,043	242

[a] Erosion groups have the following meanings: none to slight — over 7 inches of surface and subsurface soil or A horizon remaining; moderate — 3 to 7 inches of surface and subsurface soil or A horizon remaining; severe — less than 3 inches of surface and subsurface soil or A horizon remaining.

[b] Several areas of tama silt loam located in the north one-half of section 19, township 8 north, range 11 west are indicated on the soil map (sheet No. 16) by soil number 247 rather than 36.

Bolivia silt loam (246)[1]

Bolivia silt loam is a dark-colored, moderately well-drained soil type developed from loess under grass vegetation on slopes ranging from 2 to 7 percent. It occurs in the central and northern part of Jersey County in association with Sable (68) and Muscatine (41). Four mapping units are shown on the soil map: **246B, 246$\overline{\text{B}}$, 246C, 246$\overline{\text{C}}$.**

Bolivia silt loam (246B) representative profile

A_{11} (0-7″) Black (10YR 2/1) friable silt loam. Moderate, medium to fine crumb structure. Clear, smooth boundary. pH 6.3.

A_{12} (7-14″) Black (10YR 2/1) friable silt loam. Strong, medium to fine granular structure. Clear, smooth boundary. pH 6.5.

A_3 (14-18″) Very dark brown (10YR 2/2) friable to firm, heavy silt loam. Moderate to strong, fine subangular blocky structure. Clear, smooth boundary. pH 6.0.

B_1 (18-27″) Brown (10YR 4/3), with some very dark brown (10YR 2/2), firm, light silty clay loam. Moderate to strong, fine subangular blocky structure. Clear, smooth boundary. pH 6.0.

B_2 (27-39″) Dark yellowish-brown (10YR 4/4) and very dark grayish-brown (10YR 3/2) firm silty clay loam. Yellowish-brown (10YR 5/6) mottles. Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 6.0.

B_3 (39-56″) Dark yellowish-brown (10YR 4/4) to brown (10YR 4/3) firm, light silty clay loam. Ped coatings of dark brown (10YR 3/3) mottles, common, medium, distinct, yellowish-brown (10YR 5/6 and 5/8) mottles, and light brownish-gray (10YR 6/2) mottles. Weak, coarse subangular blocky structure. Gradual, smooth boundary. pH 6.0.

C_1 (56-62″+) Brown (10YR 5/3) friable silt loam that is nearly structureless. Many, medium, distinct yellowish-brown (10YR 5/6 and 5/8) mottles and a few black (10YR 2/1) iron-manganese concretions. pH 6.3.

Camden silt loam (134)

Camden silt loam is a light-colored, well- to moderately well-drained soil type developed under forest on terraces along the major creek valleys adjacent to the Illinois and Mississippi valleys. Major areas of occurrence of Camden are along Macoupin, Otter, and Piasa creeks in association with Whitaker silt loam (132). Camden has developed from thin loess or silty sediments on mixed, medium-textured, waterlaid sand, silt, and clay. Eleven mapping units are shown on the soil map. The profile of one unit **(134B)** is described as a representative profile.

Included with Camden are areas, particularly lower terrace areas along Otter and Piasa creeks, that have less clay accumulation in the B horizon than is typical. Also, in some areas the underlying material is more sandy than common for Camden soils.

Camden silt loam (134B) representative profile

A_p (0-6″) Dark grayish-brown (10YR 4/2) to grayish-brown (10YR 5/2) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 7.5.

A_2 (6-10″) Yellowish-brown (10YR 5/4) friable silt loam. Few, fine, dark yellowish-brown (10YR 3/4) iron concretions. Weak, medium platy structure. Clear, smooth boundary. pH 6.5.

B_1 (10-14″) Yellowish-brown (10YR 5/4) firm, light silty clay loam. Strong, fine to medium subangular blocky structure. Dark-yellowish brown (10YR 3/4) clay films and a few, fine, prominent, dark reddish-brown (5YR 3/2) iron concretions. Clear, smooth boundary. pH 6.5.

B_2 (14-24″) Yellowish-brown (10YR 5/4) firm silty clay loam. Strong, medium subangular blocky structure. Dark brown (7.5YR 3/4) clay films and a few, fine, prominent dark reddish-brown (5YR 3/2) iron concretions. Clear, smooth boundary. pH 6.5.

B_3 (24-38″) Yellowish-brown (10YR 5/4) firm, light silty clay loam. Strong to moderate, medium subangular blocky structure. Dark brown (7.5YR 3/4) clay films. Clear, smooth boundary. pH 6.2.

C_1 (38-60″) Brown to dark brown (7.5YR 4/4) friable to loose, massive sandy loam. Few, fine, faint, strong brown (7.5YR 5/8) mottles. pH 6.0.

Other mapping units are:

134A

134C

134$\overline{\text{C}}$

134$\underline{\text{C}}$ Most of the A horizon eroded away, exposing yellowish-brown subsoil.

134D

134$\overline{\text{D}}$

134$\underline{\text{D}}$ Plow layer is in yellowish-brown silty clay loam subsoil.

134$\overline{\text{E}}$ Depth to underlying sandy material is somewhat less than in less sloping units.

134$\underline{\text{E}}$ Silty clay loam subsoil exposed by erosion. Thinner to sandy material than less sloping and less eroded units.

134$\underline{\text{F}}$ Thinner to underlying sandy material and more drouthy than less sloping and less eroded units. Pasture renovation or reforestation therefore is more difficult.

Clarksdale silt loam (257)

Clarksdale silt loam is a moderately dark-colored, imperfectly drained soil type developed from loess in transitional prairie-forest areas. The forests had not been present long enough to entirely change soil features imparted by a previous grass vegetation. Clarksdale is associated with Sicily silt loam (258) and Keomah silt loam (17).

One mapping unit, **Clarksdale silt loam (257)**, is shown on the soil map. Some chemical and physical properties of Clarksdale silt loam are in Table 3, page 37.

[1] After compilation of the Jersey County soil map, further study showed this soil to be Tama silt loam. Tama is a moderately well- to well-drained soil and Bolivia of Jersey County is the moderately well-drained portion. Tama silt loam (36), described on page 32, is the well-drained portion.

Clarksdale silt loam (257) representative profile

A_1 (0-8″) Very dark grayish-brown (10YR 3/2) friable silt loam. Moderate, medium crumb structure. Clear, smooth boundary. pH 6.5.

A_2 (8-14″) Grayish-brown (10YR 5/2) slightly firm silt loam. Few, fine, distinct yellowish-brown (10YR 5/4) mottles. Weak, fine platy structure. Clear, smooth boundary. pH 6.0.

B_1 (14-18″) Brown (10YR 4/3) firm, light silty clay loam. Mottled with yellowish-brown (10YR 5/6). Strong fine to medium subangular blocky structure. Clear, smooth boundary. Fine iron concretions present. pH 5.8.

B_{21} (18-25″) Brown (10YR 4/3) to dark grayish-brown (10YR 4/2) firm silty clay loam. Few medium, distinct yellowish-brown (10YR 5/6) mottles. Very dark gray (10YR 3/1) clay films on peds. Many iron concretions present. Strong, fine prismatic structure breaking to moderate, medium to fine angular blocky structure. Clear, smooth boundary. pH 5.5.

B_{22} (25-36″) Grayish-brown (2.5Y 5/2) firm silty clay loam. Common, medium, prominent yellowish-brown (10YR 5/6 and 5/8) mottles. Dark gray (10YR 4/1) clay films on peds. Moderate, medium prismatic structure breaking to moderate, medium angular blocky structure. Clear, smooth boundary. Many iron concretions. pH 5.0.

B_3 (36-50″) Grayish-brown (2.5Y 5/2) firm, light silty clay loam. Many, medium, prominent yellowish-brown (10YR 5/6 and 5/8) mottles. Many iron concretions. Some very dark gray (10YR 3/1) and dark gray (10YR 4/1) clay films on peds. Weak, coarse angular blocky structure. Gradual smooth boundary. pH 6.0.

C (50-55″+) Light brownish-gray (2.5Y 6/2) friable, massive, heavy silt loam to silt loam. Few iron concretions. Common, medium to coarse, prominent yellowish-brown (10YR 5/6 and 5/8) mottles. pH 6.8.

Clinton silt loam (18)

Clinton silt loam is a light-colored, moderately well-drained soil type developed from loess under forest vegetation on gently to very strongly sloping upland areas. Clinton is associated with the imperfectly drained Keomah (17) and the poorly drained Rushville (16) soils. These soils have developed from thinner loess than the Fayette (280), Rozetta (279), and Stronghurst (278) soils and are more highly weathered.

Where Clinton occurs on steep slopes it is often associated with Hickory loam (8), a soil developed from glacial till. In many steep areas it is intermingled with Hickory soils on the same slopes and could not be separated conveniently on the soil map. These areas are shown on the soil map as a Hickory-Clinton complex (8-18), which is described on page 25.

Eight mapping units are shown on the soil map. Some chemical and physical properties of Clinton silt loam are given in Table 3, page 37. (Fig. 9.)

Clinton silt loam (18C) representative profile

A_1 (0-6″) Dark gray (10YR 4/1) to dark grayish-brown (10YR 4/2) friable silt loam. Moderate, medium crumb structure. Clear, smooth boundary. pH 6.3.

Pasture on Clinton silt loam. (Fig. 9)

A_2 (6-11″) Dark yellowish-brown (10YR 4/4) friable silt loam. Weak to moderate, medium platy structure. Clear, smooth boundary. pH 5.2.

B_1 (11-15″) Dark yellowish-brown (10YR 4/4) to yellowish-brown (10YR 5/4) friable, heavy silt loam. Moderate, medium, subangular blocky structure. Clear, smooth boundary. pH 5.3.

B_{21} (15-22″) Yellowish-brown (10YR 5/4) to dark yellowish-brown (10YR 4/4) firm, light silty clay loam. Dark brown (7.5YR 4/4) thin clay films on peds. Strong, medium subangular blocky structure. Clear, smooth boundary. pH 5.2.

B_{22} (22-31″) Yellowish-brown (10YR 5/4) firm, heavy silty clay loam. Few, fine, distinct gray (10YR 5/1) mottles and dark brown (7.5YR 4/4) clay films on peds. Strong, medium subangular blocky structure. Clear, smooth boundary. Numerous fine pores in B_{22} through the C horizons with many extending through the clay films. pH 5.3.

B_{23} (31-39″) Yellowish-brown (10YR 5/6) firm silty clay loam. Few, fine, distinct reddish-brown (5YR 4/3) mottles, dark brown (7.5YR 4/4) clay films, and gray (10YR 6/1) silt grains on peds. Moderate, medium to coarse subangular blocky structure. Clear, smooth boundary. Numerous very dark grayish-brown (10YR 3/2) Fe and Mn concretions in B_{23} and through C horizons. pH 4.8.

B_{31} (39-52″) Yellowish-brown (10YR 5/6) firm, light silty clay loam. Common, fine, faint brown (10YR 4/3) mottles, dark brown (7.5YR 4/4) clay films, and gray (10YR 6/1) silt grains on peds. Moderate, medium to coarse subangular blocky structure. Clear, smooth boundary. pH 4.6.

B_{32} (52-60″) Light brownish-gray (10YR 6/2) friable to firm, heavy silt loam. Common, medium, prominent yellowish-brown (10YR 5/6) mottles, dark brown (7.5YR 4/4) clay films, and gray (10YR 6/1) silt grains on peds. Weak, coarse angular blocky structure. Gradual, smooth boundary. pH 5.0.

C (60-66″+) Gray (10YR 6/1) friable, massive silt loam. Common, medium, prominent reddish-brown (5YR 4/3) mottles. pH 5.4.

Other mapping units are:

18B

18$\overline{C}$

18$\underline{C}$ The subsoil is exposed, making cultivation more difficult and lowering yields.

18D

18$\overline{D}$

18$\underline{D}$ Most of A horizon eroded away, exposing the subsoil.

18$\underline{E}$ Subsoil exposed, making it difficult to establish good stands of sod crops.

Cowden silt loam (112)

Cowden silt loam is a moderately dark-colored, poorly drained soil type developed from loess under grass vegetation on nearly level to gently sloping uplands. This soil occurs in the eastern part of Jersey County as gray soil areas associated with Herrick (46) and Harrison (127) soils. Cowden is usually medium acid. It has poor under-drainage and ordinarily does not tile satisfactorily. However, in Jersey County, it occurs in spots and streaks and tile lines are often installed through it.

The two mapping units shown on the soil map are **112A and 112B.**

Some chemical and physical properties of a Cowden silt loam profile from Montgomery County are given in Table 3, page 37. The Cowden in Jersey County is not quite as highly weathered as that in Montgomery County and is somewhat more productive.

Cowden silt loam (112A) representative profile

A_p (0-6″) Very dark gray (10YR 3/1) to very dark grayish-brown (10YR 3/2) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 6.5.

A_{12} (6-9″) Very dark gray (10YR 3/1) friable silt loam. Moderate, medium crumb structure. Clear, smooth boundary. pH 6.2.

A_2 (9-17″) Dark gray (10YR 4/1) to grayish-brown (10YR 5/2) friable silt loam. Weak, medium to fine platy structure. Clear, smooth boundary. pH 5.8.

B_{21} (17-28″) Grayish-brown (10YR 5/2) firm, heavy silty clay loam to silty clay. Common, fine, prominent yellowish-brown (10YR 5/8) mottles and peds thickly coated with continuous very dark gray (10YR 3/1) to nearly black (10YR 2/1) clay and organic material. Moderate, medium prismatic structure breaking to strong, medium angular blocky structure. Clear, smooth boundary. pH 5.8.

B_{22} (28-40″) Dark gray (10YR 4/1) firm silty clay loam. Many, medium, distinct light gray (10YR 7/2) and brownish-yellow (10YR 6/6) mottles. Moderate to weak, coarse prismatic structure breaking to weak, medium, angular blocky structure. Gradual, smooth boundary. Peds coated with very dark gray (10YR 3/1) clay and organic material. pH 6.2.

B_3 (40-47″) Dark gray (10YR 4/1) to light-brownish gray (10YR 6/2) firm, light silty clay loam. Common, medium, prominent strong brown (7.5YR 5/6) mottles. Weak, coarse, angular blocky structure. Gradual, smooth boundary. Dark gray (10YR 3/1) clay films on some peds and in fine pores. Many dark iron and manganese concretions. pH 6.4.

C (47-60″+) Grayish-brown (2.5YR 5/2) friable, massive silt loam. Common, medium, prominent strong brown (7.5YR 5/6) mottles. pH 6/5.

Darwin silty clay (71)

Darwin silty clay is a dark-colored, poorly drained bottomland soil type which occurs mainly in the Illinois and Mississippi River valleys. Some of the areas near the mouths of Macoupin valley and Piasa Creek are particularly heavy or fine textured.

Wet areas of Darwin are often left in woodland. (Fig. 10)

Only one mapping unit, **Darwin silty clay (71)**, is shown on the soil map. Some swampy areas of Darwin occur in the county, particularly in the Illinois River valley near Pere Marquette State Park, and are indicated on the soil map by a swamp symbol immediately preceding the soil type number. The swampy areas of Darwin are in management group Vw-1. (Fig. 10.)

Darwin silty clay (71) representative profile

A_1 (0-15″) Very dark gray (10YR 3/1) firm silty clay. Some rusty, dark reddish-brown (5YR 3/4) mottles. Moderate, medium granular to fine, angular blocky structure. Gradual, smooth boundary. pH 7.5.

A_3 (15-20″) Very dark gray (N3/) firm silty clay with few, fine, prominent dark yellowish-brown (10YR 3/4) mottles. Weak, medium prismatic structure breaking to strong, medium angular blocky structure. Gradual, smooth boundary. pH 7.0.

B_{2g} (20-32″) Gray (N/5) firm silty clay with common, fine to medium, prominent yellowish-brown (10YR 5/8) mottles. Moderate, medium prismatic structure breaking to strong, medium angular blocky structure. Gradual, smooth boundary. pH 7.0.

B_{3g} (32-45″) Gray (N/5) firm silty clay. Common, fine to medium, prominent yellowish-brown (10YR 5/8) mottles. Weak, medium prismatic structure breaking to weak, medium to coarse, angular blocky structure. Diffuse, smooth boundary. pH 7.5.

C_g (45-55″+) Gray (5Y 5/1), firm, massive silty clay to light silty clay containing some sand. Common, medium, prominent yellowish-brown (10YR 5/8) mottles. pH 8.0.

Denny silt loam (45)

Denny silt loam is a moderately dark-colored, poorly drained soil type developed from loess. It occurs on flats and in slight depressions as gray-appearing spots in north-central Jersey County in association with Muscatine (41) and Sable (68) soils.

Denny is a more strongly developed soil than Muscatine and Sable in that it has a grayer surface and subsurface (A_2 horizon) and a heavy, very slowly permeable subsoil.

Only one mapping unit, **Denny silt loam (45)**, is shown on the soil map.

Denny silt loam (45) representative profile

A_p (0-7″) Very dark gray (10YR 3/1) to dark gray (10YR 4/1) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 5.5

A_1 (7-9″) Very dark gray (10YR 3/1) friable silt loam. Weak, fine crumb structure. Clear, smooth boundary. pH 5.5.

A_2 (9-20″) Dark gray (10YR 4/1) to gray (10YR 5/1) friable silt loam. Common, fine, distinct yellowish-brown (10YR 5/8) mottles. Moderate, medium, platy structure. Abrupt, smooth boundary. pH 5.8.

B_{21} (20-27″) Very dark gray (10YR 3/1) to dark gray (10YR 4/1) firm, heavy, silty clay loam. Common, medium, distinct yellowish-brown (10YR 5/8) and brownish-yellow (10YR 6/8) mottles and few, fine, faint, light brownish-gray (10YR 6/2) mottles. Peds uniformly coated with very dark gray (10YR 3/1) clay films. Moderate, medium prismatic structure which breaks to strong, fine to medium blocky structure. Gradual, smooth boundary. pH 6.0.

B_{22} (27-37″) Light brownish-gray (10YR 6/2) firm, heavy silty clay loam. Common, medium, distinct yellowish-brown (10YR 5/8) mottles. Moderate, medium, prismatic structure which breaks to angular blocky structure. Peds coated with very dark gray (10YR 3/1) clay films and fine pores lined with some dark gray (10YR 4/1). Clear, smooth boundary. pH 6.3.

B_3 (37-48″) Light brownish-gray (10YR 6/2) firm, medium to light, silty clay loam. Many, medium, distinct yellowish-brown (10YR 5/8) mottles. Weak, coarse, angular blocky structure. Some very dark gray (10YR 3/1) clay films on ped faces. Gradual, smooth boundary. pH 6.4.

C_1 (48-54″+) Light brownish-gray (10YR 6/2) friable, massive silt loam. Many, medium to coarse, distinct brownish-yellow (10YR 6/8) and yellowish-brown (10YR 5/8) mottles. Very dark gray (10YR 3/1) coatings in pores. pH 6.5.

Douglas silt loam (128)

Douglas silt loam is a dark-colored, well- to moderately well-drained soil type developed from loess on gently to moderately sloping areas in eastern Jersey County, where it is associated with Harrison (127) and Herrick (46) soils. Douglas was formed from loess under grass vegetation and differs from Harrison in having somewhat better natural drainage. In many respects it is similar to Tama silt loam (36), but is believed to be more strongly developed.

The two mapping units shown on the soil map are **128B and 128C.**

Douglas silt loam (128C) representative profile

A_{11} (0-7″) Very dark grayish-brown (10YR 3/2) friable silt loam. Moderate, fine to medium crumb structure. Abrupt, smooth boundary. pH 6.5.

A_{12} (7-14″) Very dark grayish-brown (10YR 3/2) friable silt loam. Moderate, medium, granular to subangular blocky structure. Clear, smooth boundary. pH 6.2.

A_3 (14-18″) Very dark grayish-brown (10YR 3/2), intermingled with brown (10YR 4/3), firm silt loam. Moderate to strong, fine subangular blocky structure. Clear, smooth boundary. pH 6.0.

B_1 (18-28″) Brown (7.5YR 4/4) firm, light, silty clay loam. Clay coatings of dark brown (7.5YR 3/2) on peds. Strong, fine subangular blocky structure. Clear, smooth boundary. pH 5.8.

B_{21} (28-34″) Brown (7.5YR 5/4) firm silty clay loam. Clay coatings of dark brown (7.5YR 3/2) on peds. Strong, fine to medium subangular blocky structure. Clear, smooth boundary. pH 5.8.

B_{22} (34-50″) Dark yellowish-brown (10YR 4/4) firm silty clay loam. Common, medium, distinct strong brown (7.5YR 5/6 and 5/8) mottles. Peds coated with dark brown (7.5YR 4/2). A few, fine black (10YR 2/1) concretionary mottles. Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.8.

B_3 (50-58″) Brown (10YR 4/3) firm, light, silty clay loam. Common, medium, distinct light brownish-gray (10YR 6/2) and yellowish-brown (10YR 5/6 and 5/8) mottles. Weak, medium to coarse angular blocky structure. Some dark brown (7.5YR 4/2) clay films on peds. Gradual, smooth boundary. pH 5.9.

C (58″+) Dark grayish-brown (10YR 4/2) friable to firm, massive silt loam. Common, medium, distinct yellowish-brown (10YR 5/4 and 10YR 5/6) mottles and a few fine black (10YR 2/1) concretionary mottles. pH 6.0.

Drury silt loam (75)

Drury silt loam is a well-drained to moderately well-drained, light-colored soil type developed under forest vegetation from silty wash below the bluffs in western Jersey County. It is a weakly developed soil with a silt loam subsoil. Except for being light colored, it is similar in many respects to Worthen silt loam (37).

Four mapping units are shown on the soil map: **75B, 75C, 75D, 75D̄.**

Drury silt loam (75C) representative profile

A_p (0-7″) Dark grayish-brown (10YR 4/2) to brown (10YR 4/3) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 6.5.

A_2 (7-12″) Mixed brown (10YR 4/3) and yellowish-brown (10YR 5/4) friable silt loam. Weak, fine crumb structure to weak, fine platy structure. Gradual, smooth boundary. pH 6.5.

B_1 (12-24″) Brown (10YR 4/3) to dark yellowish-brown (10YR 4/4) friable silt loam. Weak, fine subangular blocky structure. Gradual, smooth boundary. pH 6.5.

B_2 (24-35″) Dark yellowish-brown (10YR 4/4) friable to slightly firm silt loam (slightly heavier textured than surface). Weak, fine subangular blocky structure. Gradual, smooth boundary. pH 7.0.

C (35″+) Dark yellowish-brown (10YR 3/4) friable, massive silt loam. pH 7.0.

Dupo silt loam (180)

Dupo silt loam is an imperfectly drained, light-colored bottomland soil type found mainly in Macoupin Creek and Illinois River valleys. Dupo has been formed from light-colored silty sediments, 15 to 40 inches thick, over dark-colored, fine-textured material.

One mapping unit, **Dupo silt loam (180)**, is shown on the soil map.

Dupo silt loam (180) representative profile

A_p (0-8″) Dark grayish-brown (10YR 4/2) to dark brown (10YR 4/3) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 7.5.

C_1 (8-14″) Grayish-brown (10YR 5/2) to brown (10YR 5/3) friable silt loam. Common, medium, prominent laminated mottles of dark reddish-brown (5YR 3/4) and common, fine, distinct mottles of yellowish-brown (10YR 5/8). Weak, fine crumb structure. Gradual, smooth boundary. pH 7.2.

C_2 (14-27″) Grayish-brown (10YR 5/2) to brown (10YR 5/3) friable silt loam. Many, medium, prominent laminated mottles of dark reddish-brown (5YR 3/4) and few, fine, prominent mottles of yellowish-red (5YR 4/8). Weak, fine crumb structure. Occasional, thin, black (10YR 2/1) silty clay layer. Abrupt, wavy boundary. pH 7.5.

IIA_b (27-45″+) Very dark gray (N/3) firm silty clay. Moderate, coarse prismatic structure which breaks to coarse, blocky structure. pH 8.0.

Elsah cherty silt loam (475A)

Elsah cherty silt loam is a moderately well- to well-drained, light-colored, silty bottomland soil type containing chert fragments (Fig. 11). It occurs mainly in small bottoms in the unglaciated section of southwestern Jersey County, where chert left by the weathering of cherty limestone is present on many of the steep valley walls, as well as in many of the bottomlands.

The two mapping units of Elsah shown on the soil map are **475A** and **475B**.

Elsah cherty silt loam (475A) representative profile

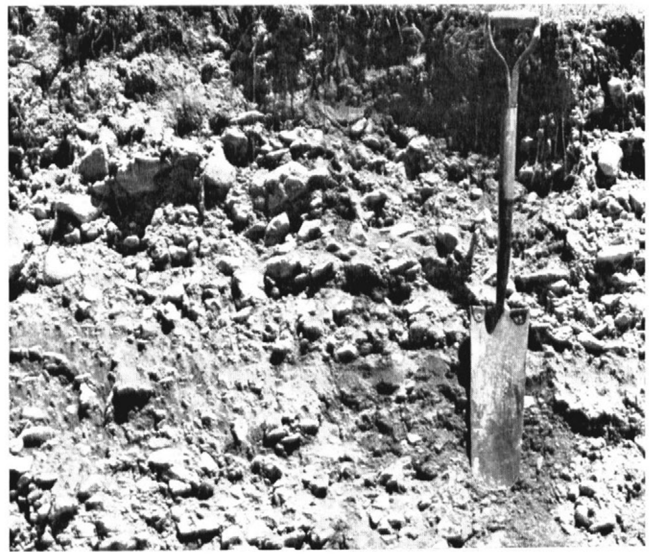
A_p (0-5″) Dark grayish-brown (10YR 4/2) to brown (10YR 4/3) friable silt loam with some chert. Weakly developed, fine crumb structure. Clear, smooth boundary. pH 6.5.

A_1 (5-15″) Brown (10YR 5/3) to dark brown (10YR 4/3) friable, cherty silt loam. Pronounced lighter and darker varves. Moderate, fine to very fine, platy to fine crumb structure. Gradual, smooth boundary. pH 6.5.

C (15-50″+) Brown (10YR 5/3) to dark grayish-brown (10YR 4/2) friable, cherty silt loam. Weak, fine platy to granular structure. Chert commonly becomes more prevalent with depth. pH 7.0.

Fayette silt loam (280)

Fayette silt loam is a well-drained, light-colored soil type developed from loess under forest vegetation on gently sloping to very steep areas in the western and southern parts of Jersey County. Fayette is associated with Rozetta (279) and Stronghurst (278) soils. Fayette and its associated soils are less weathered and less developed than Clinton, Keomah, and Rushville forest soils, which occur in central and eastern Jersey County on thinner loess.



Profile of Elsah cherty silt loam showing numerous chert fragments. (Fig. 11)

In the southwestern part of the county, Fayette is also associated in a complex with Bodine soils, which are very cherty. The Fayette-Bodine complex is discussed on page 23.

Fourteen mapping units of Fayette are shown on the soil map. Some chemical and physical properties for the soil profile described below are given in Table 3, page 37.

Fayette silt loam (280C or YC) representative profile

A_p (0-6″) Dark grayish-brown (10YR 4/2) to dark brown (10YR 4/3) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 5.4.

A_2 (6-14″) Brown (10YR 4/3 to 5/3) friable silt loam. Moderate, medium granular to platy structure. Clear, smooth boundary. pH 5.3.

B_{21} (14-29″) Dark yellowish-brown (10YR 4/4), firm silty clay loam. Strong, fine to medium subangular blocky structure. Dark brown (7.5YR 4/4) clay films and light brownish-gray (10YR 6/2-dry) silt coatings on peds. Clear, smooth boundary. pH 5.8.

B_{22} (29-36″) Brown to dark brown (7.5YR 4/4) firm, light silty clay loam. Moderately thick dark brown (7.5YR 3/2) clay coatings on peds. Few, fine, black (10YR 2/1) iron and manganese concretions. Moderate, medium to coarse subangular blocky structure. Diffuse, smooth boundaries. pH 5.6.

B_3 (36-59″) Dark yellowish-brown (10YR 4/4) firm to friable, light silty clay loam. Thin dark brown (7.5YR 4/4) clay coatings on peds. Less iron and manganese than in B_2. Moderate to weak, coarse subangular blocky structure. Diffuse, smooth boundary. pH 6.0.

C_1 (59″+) Dark yellowish-brown (10YR 4/4) friable, massive silt loam. A few, faint, light brownish-gray (10YR 6/2) streaks. pH 6.5.

Other mapping units are:

280B or YB

280$\overline{C}$ or Y$\overline{C}$

280$\underline{C}$ or Y$\underline{C}$ Most of A horizon has been lost by erosion.

280D or YD

280$\overline{D}$ or Y$\overline{D}$

280$\underline{D}$ or Y$\underline{D}$ Subsoil is exposed, but because it is not very fine textured, good stands of pasture can be established fairly easily.

280E or YE

280$\overline{E}$ or Y$\overline{E}$

280$\underline{E}$ or Y$\underline{E}$ Same as for 280$\underline{D}$ or Y$\underline{D}$ unit above.

280F or YF The solum of this unit is somewhat thinner than average for Fayette. Many areas are in woods.

280$\overline{F}$ or Y$\overline{F}$ Same comments as for 280F or YF above.

280$\underline{F}$ or Y$\underline{F}$ Subsoil is exposed. Solum thinner than average. Should be used for pasture or reforested.

280G or YG Most areas are in woods and should remain so.

Fayette-Bodine complex (280-471)

Fayette-Bodine complex occurs on steep and very steep slopes, mainly in the unglaciated section of southwestern Jersey County. Both are light-colored forest soils. Fayette silt loam is described on page 22. Bodine, a very cherty soil, is described below.

In this complex the two soils could not be separated readily on the soil map. Fayette most commonly occurs on the upper portions of slopes and Bodine on the lower portions. In some areas, though, the two are intermingled and on others Bodine may be on the steepest middle portion of long slopes and Fayette below it on footslope positions, as well as above it.

Bodine is a very weakly developed soil and in many places appears to be a mixture of loess and many chert fragments. The chert has been left by the weathering of cherty limestone.

Five mapping units of this complex are shown on the soil map. The Bodine described below is from the 280-471F or ZF unit.

Bodine cherty loam (471F) representative profile

A_1 (0-3″) Very dark grayish-brown (10YR 3/2) to dark grayish-brown (10YR 4/2) friable cherty silt loam. Few, dark yellowish-brown (10YR 4/4) mottles. Weak, fine crumb structure. Clear, smooth boundary. pH 5.5.

A_2 (3-15″) Brown (10YR 5/3) to pale brown (10YR 6/3) very stony silt loam. Weak, fine crumb structure. Clear, smooth boundary. pH 5.0 to 4.5.

B/C (15-30″+) Yellowish-brown (10YR 5/4) to brown (7.5YR 5/4) stony silt loam. Fines occur as discontinuous coatings and fillings among chert fragments. Very weak, fine subangular blocky structure. A deep layer of very cherty reddish-brown and yellowish-brown silty clay — limestone residuum — is present in places. pH 5.0.

Other mapping units are:

280-471$\overline{F}$ or Z$\overline{F}$ Most areas are in woods and should remain so. If cleared, pasture renovation is very difficult.

280-471$\underline{F}$ or Z$\underline{F}$ Pasture renovation difficult because of chert fragments, steep slopes, and erosion.

280-471G or ZG Nearly all areas are in woods and should be left so for timber production, watershed protection, and wild life.

280-471$\overline{G}$ or Z$\overline{G}$ Same as for 280-471G or ZG unit above.

Hamburg silt (30)

Hamburg silt is essentially unaltered loess. It occurs on strongly sloping to very steep exposed slopes, which face west and south, usually on the very top of the bluffs along the Illinois River valley. It is limey throughout and is grass-covered rather than forested. It often has the appearance of tall, conical mounds with very small benches or terracettes ringing the mound.

Four mapping units are shown on the soil map: **30D, 30E, 30F, 30G.**

Hamburg silt (30F) representative profile

A_1 (0-8″) Very dark grayish-brown (10YR 4/2) to brown (10YR 5/3), very friable silt. Moderate, medium crumb structure. Diffuse, smooth boundary. Calcareous.

C (8-100″+) Dark yellowish-brown (10YR 4/4) to yellowish-brown (10YR 5/4), very friable, massive silt. Calcareous.

Harrison silt loam (127)

Harrison silt loam is a moderately well-drained, dark-colored soil type developed from loess under grass vegetation on gently to moderately sloping areas in eastern Jersey County. Harrison is associated with Douglas (128) and Herrick (46) soils, and is intermediate between the two in natural drainage.

Three mapping units are shown on the soil map: **127B, 127$\overline{C}$, 127$\underline{C}$.**

Harrison silt loam (127B) representative profile

A_p (0-8″) Very dark gray (10YR 3/1) to very dark grayish-brown (10YR 3/2) friable silt loam. Weak to moderate, fine crumb structure. Abrupt, smooth boundary. pH 6.3.

A_1 (8-12″) Very dark brown (10YR 2/2) friable silt loam. Strong, medium granular structure. Clear, smooth boundary. pH 5.8.

A_3 (12-16″) Very dark brown (10YR 2/2) to very dark grayish-brown (10YR 3/2) friable, heavy silt loam. Moderate, fine to medium subangular blocky structure. Clear, smooth boundary. pH 5.6.

B_1 (16-20″) Brown (10YR 4/3) firm, light silty clay loam. Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.5.

B_{21} (20-28″) Brown (10YR 4/3) firm silty clay loam. Dark yellowish-brown (10YR 4/4) clay films on peds. Strong to moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.5.

B_{22} (28-36") Brown (10YR 4/3) firm silty clay loam. Many, medium, prominent strong brown (7.5YR 5/6 and 5/8) mottles. Dark yellowish-brown (10YR 4/4) clay films on peds. Moderate, medium subangular blocky structure. Gradual, smooth boundary. pH 5.7.

B_3 (36-50") Brown (10YR 5/3) firm, light silty clay loam. Many, medium, distinct yellowish-brown (10YR 5/6 and 5/8) mottles. Weak, coarse subangular to angular blocky structure. Some dark yellowish-brown (10YR 4/4) clay films on peds, especially in upper part. Gradual, smooth boundary. pH 5.8.

C (50"+) Grayish-brown (10YR 5/2) to gray (10YR 5/1) friable, massive silt loam. Many, medium, prominent yellowish-brown (10YR 5/6 and 5/8) mottles. pH 6.2.

Haymond silt loam (331)

Haymond silt loam is a light-colored, moderately well- to well-drained bottomland soil type which is associated with the imperfectly drained Wakeland (333) soils in valleys in various parts of Jersey County. Haymond has been formed from sediments washed from light-colored upland forest soils. (Fig. 12.)

The two mapping units shown on the soil map are **331A and 331B**. The B slope unit (331B), has somewhat less overflow hazard than the more level unit (331A), in that floods don't usually last as long.

Haymond silt loam (331A) representative profile

A_p (0-8") Dark grayish-brown (10YR 4/2), very friable silt loam. Weak, fine crumb structure. Clear, smooth boundary. pH 6.5.

A_1 (8-15") Dark grayish-brown (10YR 4/2) to brown (10YR 4/3) friable silt loam. Weak, fine crumb structure. Gradual, smooth boundary. pH 7.0.

C (15-45"+) Brown (10YR 4/3 to 10YR 5/3) friable silt loam. Some very weak crumb structure. Contains some very fine sand lenses. pH 7.5.

Corn on Haymond silt loam. (Fig. 12)

Herrick silt loam (46)

Herrick silt loam is a dark-colored, imperfectly drained loess-derived soil type found on nearly level areas in eastern Jersey County in association with Virden (50), Harrison (127), and Douglas (128) soils.

One mapping unit, **Herrick silt loam (46)**, is shown on the soil map. Some chemical and physical properties of the soil profile below are given in Table 3, page 37.

Herrick silt loam (46) representative profile

A_{11} (0-12") Black (10YR 2/1) to very dark gray (10YR 3/1) friable silt loam. Moderate, fine to medium crumb to granular structure. Clear, smooth boundary. pH 5.9.

A_{12} (12-19") Very dark gray (10YR 3/1) friable silt loam. Fine, gray to dark gray (10YR 5/1 to 4/1) specks when dry. Moderate, fine to medium crumb to granular structure. Clear, smooth boundary. pH 5.8.

A_2 (19-23") Dark gray (10YR 4/1) friable silt loam. Many, fine faint mottlings of gray (10YR 5/1) and grayish-brown (10YR 5/2). Moderate, fine and medium subangular blocky to weak platy structure. Clear, smooth boundary. pH 5.2.

B_1 (23-27") Dark grayish-brown (10YR 4/2) firm, light silty clay loam. Common, fine, faint mottlings of brown (10YR 5/3) and yellowish-brown (10YR 5/4). Thick, very dark gray (10YR 3/1) clay films on peds. Moderate to strong, subangular blocky structure with tendency toward prismatic structure. Clear, smooth boundary. pH 5.1.

B_2 (27-36") Grayish-brown (10YR 5/2) firm, heavy silty clay loam. Many, medium, distinct yellowish-brown (10YR 5/6 and 5/8) mottles. Thick, very dark gray (10YR 3/1) clay films on peds. Moderate, medium prismatic structure, breaking to strong, medium angular to subangular blocky structure. Clear, smooth boundary. pH 5.2.

B_{31} (36-47") Grayish-brown (10YR 5/2) firm, silty clay loam. Many, medium, distinct yellowish-brown (10YR 5/6) mottlings, and thick clay coatings of dark gray (10YR 4/1). Weak, coarse blocky structure. Clear, smooth boundary. pH 5.5.

B_{32} (47-55") Grayish-brown (2.5Y 5/2) firm, light silty clay loam. Many, medium, distinct mottlings of strong brown (7.5YR 5/6) and thick clay coatings of dark gray (10YR 4/1) in old root channels. Weak, coarse blocky structure to massive. Gradual, smooth boundary. pH 5.8.

C (55-78") Grayish-brown (2.5Y 5/2) and light brownish-gray (2.5Y 6/2) friable, massive silt loam. Common, medium distinct mottlings of yellowish-brown (10YR 5/4) and coatings of dark gray (10YR 4/1) in many fine root channels. pH 6.0.

Hickory loam (8)

Hickory loam, derived from Illinoian glacial till, occurs on strongly sloping to very steep topography throughout Jersey County except in the unglaciated section in the southwestern part.

Hickory is a light-colored, moderately well-drained soil formed under forest. It is commonly associated with Fayette (280) and Clinton (18) soils and also occurs in a complex with Clinton in the central and eastern parts of the county.

Hickory soils contain some sand and gravel. The till from which these soils have formed was deposited before the loess and is exposed on slopes where erosion has removed the loess.

Ten mapping units are shown on the soil map.

Hickory loam (8E) representative profile

A_1 (0-5″) Dark brown (10YR 3/3) friable, gritty silt loam to loam. Weak to moderate, fine crumb structure. Clear, wavy boundary. pH 6.0.

A_{21} (5-9″) Dark brown (10YR 4/3) friable, gritty silt loam to loam. Very weak, fine platy to crumb structure. Clear, smooth boundary. pH 5.5.

A_{22} (9-12″) Dark yellowish-brown (10YR 4/4) friable loam. Weak to moderate, fine subangular blocky structure. Clear, smooth boundary. pH 5.0.

B_1 (12-19″) Brown to dark brown (7.5YR 4/4) friable, light clay loam. Strong, fine subangular blocky structure. Gradual, smooth boundary. pH 5.5.

B_{21} (19-32″) Brown to dark brown (7.5YR 4/4) firm clay loam. Few, medium, distinct yellowish-brown (10YR 5/4 and 5/6) mottles. Moderately thick, reddish-brown (5YR 4/3) clay films on peds. Strong, fine to medium subangular blocky structure. Gradual, smooth boundary. pH 5.8.

B_{22} (32-40″) Brown to dark brown (7.5YR 4/4) firm clay loam. Common, medium, distinct yellowish-brown (10YR 5/4 and 5/6) mottles. Reddish-brown (5YR 4/3) clay films on peds. Strong, fine to medium subangular blocky structure. Gradual, smooth boundary. pH 5.8.

B_3 (40-53″) Brown (10YR 5/3) firm, light clay loam. Few, medium, distinct grayish-brown (2.5Y 5/2) mottles. Dark brown (10YR 4/3) clay films on peds. Weak, coarse angular blocky structure. Gradual, wavy boundary. pH 5.8.

C (53-60″+) Grayish-brown (2.5Y 5/2) friable, massive loam to sandy loam. Few, medium, prominent dark yellowish-brown (10YR 4/4) mottlings. Calcareous. Some vertical and oblique cracks in upper part averaging 12 inches apart are filled with leached clay loam.

Other mapping units are:

8$\underline{D}$ A horizon has been lost by erosion.

8$\overline{E}$

8$\underline{E}$ Subsoil exposed. Some gullies are usually present.

8F

8$\overline{F}$

8$\underline{F}$ Subsoil exposed. Some gullies are usually present.

8G

8$\overline{G}$

8$\underline{G}$ Subsoil exposed. Gullies often present. Good pasture stands hard to establish because of active erosion when grass is young.

Hickory-Clinton complex (8-18)

The Hickory-Clinton complex occurs on strongly sloping to steep upland areas in central and eastern Jersey County. In the complex, Clinton usually occupies the upper portions of slopes and Hickory the remaining lower portions. Both of these light-colored, moderately well-drained soils developed under forest. Clinton is a loess-derived soil and Hickory is derived from glacial till. These two soils occur separately in many areas, as well as in the complex. Clinton silt loam is described on page 19 and Hickory loam on page 24.

The eight mapping units are:

8-18$\overline{D}$ or S$\overline{D}$ Representative profile of Clinton is described on page 19.

8-18$\underline{D}$ or S$\underline{D}$ Most of A horizons have been lost by erosion.

8-18E or SE Representative profile of Hickory is described on page 24.

8-18$\overline{E}$ or S$\overline{E}$

8-18$\underline{E}$ or S$\underline{E}$ Subsoil exposed. Pasture renovation is difficult because of active erosion when sod is very young.

8-18F or SF

8-18$\overline{F}$ or S$\overline{F}$

8-18$\underline{F}$ or S$\underline{F}$ Same comment as for 8-18$\underline{E}$ or S$\underline{E}$ unit above.

Huntsville silt loam (77)

Huntsville silt loam is a dark-colored, moderately well- to well-drained bottomland soil type. It occurs in some of the small stream valleys in northeastern and central Jersey County, but the largest areas are found in the Macoupin Creek valley. It is associated with imperfectly drained Lawson silt loam (451).

In the larger valleys, Huntsville is frequently found on natural levee positions near the stream channel or previous channels that are now abandoned.

Huntsville shows very weak, if any, soil development. Often there is some stratification of sand and silt in the lower profile, but some areas, particularly higher ones, show development of weak subangular blocky structure and the beginning of a B horizon.

The two mapping units of Huntsville shown on the soil map are 77 **and overwash** 77+. The latter mapping unit differs from the former in having 10 to 20 inches of light-colored silt loam wash over the normal dark-colored surface soil.

Huntsville silt loam (77) representative profile

A_{11} (0-15″) Very dark grayish-brown (10YR 3/2) with some very dark brown (10YR 2/2) friable silt loam. Moderate, fine crumb structure. Clear, smooth boundary. pH 7.0.

A_{12} (15-26″) Very dark grayish-brown (10YR 3/2) friable silt loam. Weak, fine granular to crumb structure. Gradual, smooth boundary. pH 7.0.

C_1 (26-36″) Very dark grayish-brown (10YR 3/2) to dark grayish-brown (10YR 4/2) friable silt loam. Common, fine, faint brown (10YR 4/3) mottles. Weak, fine granular to weak, subangular blocky structure. Diffuse, wavy boundary. pH 6.5.

C_2 (36-48″) Mixed dark grayish-brown (10YR 4/2) and brown (10YR 4/3), friable, nearly structureless silt loam. Fine sandy lenses present. ph 6.8.

Jules silt loam (28)

Jules silt loam is a light-colored bottomland soil type derived from silty material washed from the steep loess bluffs in western Jersey County. Jules is calcareous throughout. It is moderately well drained for the most part, but includes imperfectly drained and well-drained profiles.

Jules silt loam is often found in settling basins placed to allow silt to settle out from upland hill water before the water enters the Illinois River valley drainage systems.

The two mapping units shown on the soil map are **28A and 28B.**

Jules silt loam (28A) representative profile

A_p (0-7″) Brown (10YR 4/3) very friable silt loam. Weak, fine crumb structure. Clear, smooth boundary. Calcareous.

C (7-42″) Dark yellowish-brown (10YR 4/4) to yellowish-brown (10YR 5/5) very friable silt loam. Few, medium, prominent, rusty, dark red (2.5YR 3/6) mottles in lower part. Clear, smooth boundary. Calcareous.

IIA_b (42″+) Very dark gray (10YR 3/1) silty clay loam to silt loam. Granular to blocky structure. pH 7.0.

Keomah silt loam (17)

Keomah silt loam is an imperfectly drained, light-colored soil type developed under forest on nearly level to moderately sloping upland areas in central and eastern Jersey County. Keomah is associated with two other loess-derived soils, Clinton (18) and Rushville (16), and is intermediate between them in natural drainage.

Four mapping units of Keomah are shown on the soil map: **17A, 17B, 17$\overline{B}$, 17$\overline{C}$.**

Keomah silt loam (17A) representative profile

A_p (0-6″) Grayish-brown (10YR 5/2) to dark grayish-brown (10YR 4/2) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 5.9.

A_2 (6-14″) Grayish-brown (10YR 5/2) with some pale brown (10YR 6/3), friable silt loam. Weak, medium platy structure. Clear, smooth boundary. pH 5.2.

B_1 (14-18″) Dark grayish-brown (10YR 4/2) friable to firm, light silty clay loam. Few, fine, distinct light brownish-gray (10YR 6/2) mottles. Moderate coatings of light gray (10YR 7/2-dry) on peds and numerous very dark brown (10YR 2/2) iron concretions. Moderate, medium granular to fine subangular blocky structure. Clear, smooth boundary. pH 5.2.

B_{21} (18-26″) Dark grayish-brown (10YR 4/2) firm silty clay loam. Common, fine, distinct light brownish-gray (10YR 6/2) mottles and heavy coatings of light gray (10YR 7/2-dry) on peds and containing numerous iron concretions. Moderately thick dark gray (10YR 4/1) clay films on peds. Strong, medium subangular blocky structure. Clear, smooth boundary. pH 5.3.

B_{22} (26-37″) Brown (10YR 4/3) firm silty clay loam. Common, medium, faint light brownish-gray (10YR 6/2) mottles. Very heavy coatings of light gray (10YR 7/2-dry) on peds and containing numerous iron concretions. Moderate to strong, medium to coarse subangular blocky structure. Clear, smooth boundary. Moderately thick dark grayish-brown (10YR 4/2) clay films on peds. pH 5.4.

B_3 (37-45″) Brown (10YR 5/3) firm, light silty clay loam. Many mottlings of grayish-brown (10YR 5/2) and pale brown (10YR 6/3). Coatings of light gray (10YR 7/2-dry) on peds and containing numerous iron concretions. Weak, coarse subangular blocky to angular blocky structure. Gradual, smooth boundary. pH 5.8.

C (45-60″+) Grayish-brown (10YR 5/2) friable, massive silt loam. Many mottlings of yellowish-brown (10YR 5/6). pH 6.4.

Lawson silt loam (451)

Lawson silt loam is a dark-colored, imperfectly drained bottomland soil type which occurs in stream valleys in association with Huntsville (77) soils. It is derived from sediments washed mainly from dark-colored prairie soils. It is generally silty throughout, but shows some stratification of sandy lenses in the lower profile in places.

Three mapping units of Lawson silt loam are shown on the soil map: **451A, overwash 451A+,** which differs from **451A** in having 10 to 20 inches of light-colored silty wash over the normal dark-colored surface soil; and **451B.** In some areas, the lower profile of Lawson is grayer than that described in the representative profile.

Lawson silt loam (451A) representative profile

A_1 (0-26″) Very dark gray (10YR 3/1), friable silt loam. Dark yellowish-brown (10YR 3/4) iron stains. Weak, fine crumb structure. Gradual, smooth boundary. pH 7.0.

C_1 (26-42″+) Dark grayish-brown (10YR 4/2) to grayish-brown (10YR 5/2), friable, massive silt loam. Numerous, dark yellowish-brown (10YR 3/4) iron stains. pH 6.5.

Limestone rockland (94)

This land type occurs mainly on steep bluffs along the Illinois and Mississippi River valleys. Most areas have light-colored silty material among the rocks and show little, if any, soil development. But in places the silty material is dark-colored and resembles the Sogn soils. The limestone includes cherty, as well as chert-free, limestone in the form of slabs, boulders, rubble, and consolidated rock outcrops (Fig. 13).

The main outcrops are shown on the soil map by special symbols indicated in the map legend. The most prominent bluff outcrops of limestone are along the Mississippi River at the south edge of the county. Here, sheer limestone bluffs, several hundred feet high, overlook the Mississippi River and valley to the south.

Also included in this land type are areas of Maquoketa and Hannibal shale. The larger areas of shale are

Limestone outcrop in an area of limestone rockland in the background and Littleton silt loam in the foreground. (Fig. 13)

shown on the soil map by a special symbol as indicated in the map legend.

One mapping unit, **Limestone rockland (94G)**, is shown on the soil map.

Limestone rockland (94G) representative profile

A (0-7″) Brown (10YR 4/3) to very dark grayish-brown (10YR 3/2) silt loam fines among numerous limestone rock fragments. pH 7.0+.

R (7″+) Bedrock limestone.

Littleton silt loam (81)

Littleton silt loam is a dark-colored, imperfectly drained soil type formed on silty colluvial terrace areas below the bluffs which border the Illinois River valley. Littleton has a weakly developed subsoil and occurs in association with Worthen silt loam (37).

The two mapping units of Littleton shown on the soil map are **81 and overwash 81+**, which is similar to the first mapping unit, except that it has 8 to 20 inches of light-colored silty overwash.

Littleton silt loam (81) representative profile

A_1 (0-18″) Very dark brown (10YR 2/2) to very dark grayish-brown (10YR 3/2) friable silt loam. Moderate, medium crumb structure. Clear, smooth boundary. pH 6.5.

B_1 (18-26″) Very dark grayish-brown (10YR 3/2) with some dark grayish-brown (10YR 4/2) friable silt loam. Moderate, coarse granular structure. Clear, smooth boundary. pH 6.5.

B_2 (26-35″) Dark grayish-brown (10YR 4/2) friable, heavy silt loam. Common, coarse, distinct mottles of dark reddish-brown (5YR 3/4) and many, medium, distinct mottles of grayish-brown (10YR 5/2). Moderate, fine to medium subangular blocky structure. Gradual, smooth boundary. pH 6.5.

C (35-50″+) Dark grayish-brown (10YR 4/2) friable silt loam. Common, medium, faint mottles of light brownish-gray (10YR 6/2) and many medium to coarse, prominent mottles of dark reddish-brown (5YR 3/4). Very weak, coarse subangular blocky structure to massive. pH 6.4.

McFain silty clay (248)

McFain silty clay is a dark-colored, poorly to very poorly drained, fine-textured soil type formed from alluvial-lacustrine sediments on slightly depressional to nearly level areas in the Illinois River valley. McFain resembles Darwin silty clay (71) in its upper horizons, but contains mollusk and snail shells and is highly calcareous at 2 to 3 feet in depth. Also, in the highly calcareous zone, McFain is coarser textured that Darwin.

The two mapping units of McFain shown on the soil map are **248 and overwash 248+**, which differs from 248 in having 8 to 20 inches of recent, light-colored silt loam wash over the normal dark-colored, fine-textured surface of McFain.

McFain silty clay (248) representative profile

A_1 (0-12″) Black (10YR 2/1) to very dark gray (10YR 3/1) firm silty clay. Strong, fine to medium granular to angular blocky structure. Clear, wavy boundary. pH 7.0.

B_{1g} (12-16″) Dark gray (N 4/) and gray (N 5/) firm silty clay. Common, fine, prominent mottles of dark brown (7.5YR 4/4). Strong, very fine to fine angular blocky structure. Clear, wavy boundary. pH 7.5.

B_{2g} (16-23″) Grayish-brown (2.5Y 5/2) to gray (N 5/) friable to firm silt loam to silty clay loam. Common, medium, prominent mottles of dark yellowish-brown (10YR 4/4). Moderate, fine to very fine angular blocky structure. Gradual, wavy boundary. pH 8.0.

B_{3g} (23-38″) Grayish-brown (2.5Y 5/2) friable silt loam to very fine sandy loam. Many, medium distinct mottles of olive brown (2.5Y 4/4). Weak, very fine angular blocky structure. Clear, wavy boundary. Effervesces slightly to moderately. Mollusk shells present.

IIC_g (38-45″) Grayish-brown (2.5Y 5/2) very friable, massive very fine sandy loam. Many, medium mottles of strong brown (7.5YR 4/4). Gradual, wavy boundary. Snail and mussel shells abundant. Effervesces violently with dilute acid.

$IIIC_g$ (45-75″+) Dark gray (N 4/) firm silty clay loam to silty clay. Common, large, prominent mottles of dark yellowish-brown (10YR 4/4) and few, medium, faint mottles of very dark gray (10YR 3/1). Very weak, coarse blocky structure. pH 8.0.

McGary silt loam (173)

McGary silt loam is an imperfectly drained, light-colored soil type formed from fine-textured, slack water deposits under forest vegetation. It occurs on stream terraces mostly along Piasa and Otter creeks.

In some areas in the county, the C horizons of

McGary have a dark gray or a pinkish and reddish color, rather than olive gray. Some areas also have calcareous lower B or subsoil horizons.

Four mapping units are shown on the soil map: **173A, 173B, 173B̲, 173C̲.**

McGary silt loam (173A) representative profile

A_p (0-6") Dark grayish-brown (10YR 4/2) to very dark grayish-brown (10YR 3/2) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 6.0.

A_2 (6-12") Grayish-brown (10YR 5/2) to dark grayish-brown (10YR 4/2) friable silt loam. Common, medium distinct mottles of yellowish-brown (10YR 5/8). Weak, fine platy structure. Clear, smooth boundary. pH 6.0.

B_1 (12-16") Dark grayish-brown (10YR 4/2) firm silty clay loam. Common, medium, distinct mottles of yellowish-brown (10YR 5/8). Moderate, fine to medium blocky structure. Gradual, smooth boundary. pH 6.4.

B_2 (16-30") Brown (10YR 4/3) to dark grayish-brown (10YR 4/2) firm clay. Dark grayish-brown (2.5Y 4/2) clay films on peds. Few, fine, distinct dark brown (7.5YR 4/2) iron concretions. Weak to moderate, medium to coarse prismatic structure which breaks to moderate, medium angular blocky structure. Diffuse, smooth boundary. pH 7.0.

C (30"+) Olive gray (5Y 5/2) firm, calcareous, massive clay.

Muscatine silt loam (41)

Muscatine silt loam is an imperfectly drained, dark-colored soil type formed from loess under grass vegetation on nearly level upland areas in the north central part of Jersey County. Muscatine is associated with Tama (36) and Sable (68) soils.

One mapping unit, **Muscatine silt loam (41)**, is shown on the soil map. Some chemical and physical properties of the profile described below are given in Table 3, page 37.

Muscatine silt loam (41) representative profile

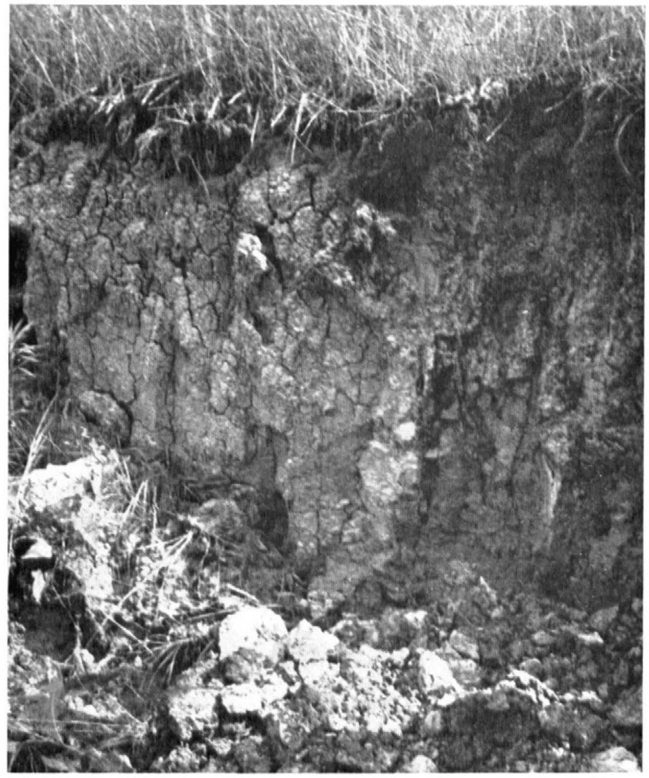
A_1 (0-15") Black (10YR 2/1) friable silt loam. Moderate, fine to medium crumb to granular structure. Clear, smooth boundary. pH 5.2.

A_3 (15-19") Black (10YR 2/1) to very dark gray (10YR 3/1) friable, light silty clay loam. Few, fine, faint mottlings of dark grayish-brown (10YR 4/2). Moderate, medium to fine granular structure. Clear, smooth boundary. pH 5.1.

B_1 (19-25") Very dark grayish-brown (10YR 3/2) to dark grayish-brown (10YR 4/2) friable, silty clay loam. Many, fine, distinct mottlings of brown (10YR 5/3) and common, fine distinct mottlings of dark yellowish-brown (10YR 4/4). Moderate, fine subangular blocky structure containing many worm castings. Clear, smooth boundary. pH 5.1.

B_2 (25-34") Dark grayish-brown (10YR 4/2) firm silty clay loam. Many, medium, distinct mottlings of yellowish-brown and pale brown (10YR 5/4 and 6/3) and common, fine mottlings of yellowish-brown (10YR 5/8). Very dark grayish-brown (10YR 3/2) clay films on peds. Moderate, medium subangular blocky structure to blocky structure. Clear, smooth boundary. pH 5.2.

B_{31} (34-40") Grayish-brown (10YR 5/2) to brown (10YR 5/3) firm silty clay loam. Some mottlings of yellowish-brown (10YR 5/5) and common, medium, distinct mottlings of brown to dark brown (7.5YR 4/4). Moderately thick dark gray (10YR 4/1) to very dark gray (10YR 3/1) clay films on peds. Weak, medium to coarse blocky structure. Clear, smooth boundary. pH 5.3.



Profile of Piasa silt loam in a ditch bank showing prismatic structure in the B horizon and white "salt" coatings in the left part of the photo. (Fig. 14)

B_{32} (40-47") Grayish-brown (2.5Y 5/2) friable, heavy silt loam. Many, medium, distinct mottlings of yellowish-brown (10YR 5/4) and common, medium, distinct mottlings of dark brown to strong brown (7.5YR 4/6). Dark gray (10YR 4/1) coatings in root channels. Weak, coarse blocky structure. Gradual, smooth boundary. pH 5.3.

C (47-61") Gray to light gray (10YR 6/1) friable, massive silt loam. Common, medium, distinct mottlings of brown (10YR 5/3). Some dark gray (10YR 4/1) coatings in root channels. pH 5.5.

Petrolia silty clay loam (288)

Petrolia silty clay loam is a poorly drained, light-colored bottomland soil type found mostly along Piasa Creek, near its junction with the Mississippi River. A few areas also occur in the Macoupin Creek bottomlands. One mapping unit is shown on the soil map, **Petrolia silty clay loam (288).**

Petrolia silty clay loam (288) representative profile

A_1 (0-3") Dark gray (10YR 4/1) firm silty clay loam. Few, fine, distinct iron mottlings of yellowish-brown (10YR 5/8). Moderate, medium granular structure. Clear, smooth boundary. pH 6.5.

A_3 (3-15″) Light brownish-gray (10YR 6/2) firm silty clay loam. Common, medium, distinct mottlings of yellowish-brown (10YR 5/8). Moderate, fine blocky structure. Clear, smooth boundary. pH 6.2.

B_{1g} (15-25″) Gray (10YR 5/1) firm silty clay loam. Common, medium, distinct mottles of yellowish-brown (10YR 5/8). Moderate, medium blocky structure with tendency to prismatic structure. Clear, smooth boundary. pH 6.5.

B_{2g} (25-32″) Dark gray (10YR 4/1) to gray (10YR 5/1) firm, silty clay loam. Few, medium, distinct mottles of yellowish-brown (10YR 5/8). Moderate, medium angular blocky structure with tendency to be arranged in prisms. Clear, smooth boundary. pH 6.5.

C_g (32-45″+) Gray to light gray (10YR 6/1) firm silty clay loam. Common, medium, distinct mottles of yellowish-brown (10YR 5/8). Weak, coarse blocky structure to massive. pH 6.5.

Piasa silt loam (474)

Piasa silt loam is a moderately dark-colored, poorly drained soil type developed from loess on nearly level areas in association with Herrick (46) and Virden (47 and 50) soils in the eastern part of Jersey County. The surface soil is normally acid and not very thick, but the subsoil is alkaline, containing an excess of sodium and also lime concretions (7) (Fig. 14). This soil is quite often referred to as a "scald" in eastern Jersey County, and is usually less productive than surrounding soils.

The two mapping units shown on the soil map are **474A and 474Ā**. The latter mapping unit has from 3 to 7 inches of surface soil remaining, while the former has about 8 to 12 inches. The thinner surface soil on the one mapping unit, in general, is not caused by erosion, because both units occur on nearly level areas. It is probably caused by more intense soil development (*23*).

Some chemical and physical properties of Piasa silt loam are given in Table 3, page 37.

Piasa silt loam (474A) representative profile

A_1 (0-8″) Very dark gray (10YR 3/1) friable silt loam. Weak to moderate, fine to medium crumb structure. Abrupt, wavy boundary. pH 6.5.

A_2 (8-11″) Dark gray (10YR 4/1) friable silt loam. Weak, fine platy structure. Abrupt, wavy boundary. pH 5.8.

B_{21} (11-22″) Dark grayish-brown (2.5Y 4/2) to very dark gray (10YR 3/1) firm, heavy silty clay loam to silty clay. Few, fine, prominent yellowish-brown (10YR 5/8) mottles. Rounded lime concretions present. Weak, fine angular blocky to prismatic structure. Gradual, smooth boundary. pH 8.2.

B_{22} (22-37″) Olive gray (5Y 5/2) firm silty clay loam. Common to many, fine, prominent, strong brown (7.5YR 4/4) to light olive-brown (2.5Y 5/4) mottles. Occasional rounded lime concretions present. Weak, medium angular blocky to prismatic structure. Gradual, smooth boundary. pH 8.0.

B_3 (37-49″) Grayish-brown (2.5Y 5/2) to gray (10YR 5/1) firm, light silty clay loam. Very weak, coarse blocky structure. Gradual, smooth boundary. pH 7.5.

C (49-70″+) Gray (N 5/) to light brownish-gray (2.5Y 6/2) friable, massive silt loam. pH 7.5.

Rozetta silt loam (279)

Rozetta silt loam is a moderately well-drained, light-colored soil type developed from loess under forest vegetation on gently to very strongly sloping upland areas. It occurs in association with Fayette (280) and Stronghurst (278) soils in the western and southern parts of the county.

Rozetta differs from Fayette mainly in that Rozetta is mottled in the lower subsoil, whereas Fayette is free of mottlings to a depth of 40 inches or more. Rozetta often occurs in draws near the head of the drainageways.

Nine mapping units are shown on the soil map. The profile of one unit, **279B** or **XB**, is described in detail below.

Rozetta silt loam (279B or XB) representative profile

A_p (0-7″) Dark grayish-brown (10YR 4/2) friable silt loam. Weak to moderate, fine crumb structure. Abrupt, smooth boundary. pH 6.5.

B_1 (7-10″) Brown (10YR 4/3 to 5/3) friable, light silty clay loam. Dark brown (7.5YR 4/4) clay films on peds. Weak, fine subangular blocky structure. Clear, smooth boundary. pH 5.1.

B_{21} (10-16″) Brown to dark brown (10YR 4/3) firm silty clay loam. Few, fine, distinct mottles of strong brown (7.5YR 5/8). Clay coatings of brown to dark brown (7.5YR 4/4) on peds. Strong, fine subangular blocky structure. Gradual, smooth boundary. pH 5.2.

B_{22} (16-25″) Brown to dark brown (10YR 4/3) firm silty clay loam. Few, fine faint mottles of grayish-brown (10YR5/2) and few, fine, distinct mottles of dark yellowish-brown (10YR 4/4) in lower part. Brown (10YR 5/3) silt coatings on peds and soft manganese concretions present. Peds coated with dark yellowish-brown (7.5YR 4/4) clay films. Strong, medium subangular blocky structure. Gradual, smooth boundary. pH 5.2.

B_{31} (25-39″) Brown to dark brown (10YR 4/3) firm silty clay loam. Common, medium, distinct mottles of yellowish-brown (10YR 5/8) and few, fine, faint mottles of grayish-brown (10YR 5/2). Peds have clay coatings of dark brown (7.5YR 4/4) and silt coatings of grayish-brown (10YR 5/2). Moderate to weak, coarse subangular blocky structure. Diffuse, smooth boundary. pH 5.2.

B_{32} (39-50″) Brown to dark brown (10YR 4/3) friable to firm silty loam. Common, medium, distinct mottles of dark brown (7.5YR 4/4) and grayish-brown (10YR 5/2) and prominent mottles of strong brown (7.5YR 5/8). Peds have discontinuous clay coatings of dark brown (10YR 3/3). Weak, medium to coarse subangular blocky structure. Gradual, smooth boundary. pH 5.8.

C_1 (50-72″) Mixed grayish-brown (10YR 5/2) and dark yellowish-brown (10YR 4/4) friable, massive silt loam. Common, medium, distinct mottles of dark yellowish-brown (10YR 3/4) and brown (7.5YR 5/4). pH 6.1.

Other mapping units are:

279C or XC

279C̄ or XC̄

279$\underline{C}$ or X$\underline{C}$ Surface soil has been eroded exposing the silty clay loam subsoil which is more difficult to farm and less productive than uneroded areas.

279D or XD

279$\overline{D}$ or X$\overline{D}$

279$\underline{D}$ or X$\underline{D}$ The exposed subsoil is more difficult to farm and makes it harder to establish good stands of crops. Production is lowered by the loss of the topsoil.

279$\overline{E}$ or X$\overline{E}$

279$\underline{E}$ or X$\underline{E}$ This very strongly sloping mapping unit has the subsoil exposed. It is suitable for hay or pasture production only, but good stands are often difficult to establish.

Rushville silt loam (16)

Rushville silt loam is a poorly drained, light-colored soil type developed from loess under forest vegetation on nearly level areas. It occurs mainly in the eastern and central parts of Jersey County and is associated with Keomah (17) and Clinton (18) soils.

One mapping unit, **Rushville silt loam (16)**, is shown on the soil map.

Rushville silt loam (16) representative profile

A_{11} (0-3″) Dark grayish-brown (10YR 4/2) friable silt loam. Weak, fine crumb structure. Clear, smooth boundary. pH 6.5.

A_{12} (3-7″) Grayish-brown (10YR 5/2) friable silt loam. Weak, fine platy structure. Clear, smooth boundary. pH 5.7.

A_2 (7-18″) Light brownish-gray (10YR 6/2) friable silt loam. Many iron-manganese concretions present. Moderate, medium platy structure. Clear, smooth boundary. pH 4.8.

B_{21} (18-28″) Gray (10YR 5/1) to grayish-brown (10YR 5/2) firm silty clay loam. Many, medium, distinct yellowish-brown (10YR 5/6) and a few dark brown (7.5YR 4/4) mottles. Dark grayish-brown (10YR 4/2) clay films on peds. Moderate to strong, medium to coarse prismatic structure, breaking to moderate, medium blocky structure. Clear, smooth boundary. pH 5.1.

B_{22} (28-40″) Grayish-brown (2.5Y 5/2) firm silty clay loam. Many, medium distinct strong brown (7.5YR 5/6 and 5/8) mottles. Dark grayish-brown (10YR 4/2) clay films on peds. Moderate, medium to coarse blocky structure. Clear, smooth boundary. pH 5.2.

B_3 (40-50″) Light brownish-gray (2.5Y 6/2) firm, light silty clay loam. Many, medium, prominent yellowish-brown (10YR 5/8) mottles. Weak, medium to coarse prismatic structure breaking to weak, medium to coarse blocky structure. Gradual, smooth boundary. pH 6.0.

C_1 (50-60″+) Light brownish-gray (2.5Y 6/2) friable, massive silt loam. Many, medium, distinct yellowish-brown (10YR 5/6 and 5/8) mottles. pH 6.3.

Sable silty clay loam (68)

Sable silty clay loam is a poorly drained, dark-colored soil type developed under grass vegetation on nearly level, upland loess areas in the north central part of Jersey County. Sable is associated with Muscatine (41), Bolivia (246), and Tama (36) soils.

One mapping unit, **Sable silty clay loam (68)**, is shown on the soil map.

Sable silty clay loam (68) representative profile

A_1 (0-12″) Black (10YR 2/1) friable silty clay loam. Moderate, fine granular structure. Clear, smooth boundary. pH 6.5.

A_3 (12-18″) Black (10YR 2/1) firm silty clay loam. Moderate, medium to coarse granular structure. Clear, smooth boundary. pH 7.0.

B_2 (18-26″) Dark gray (10YR 4/1) to very dark gray (10YR 3/1) firm silty clay loam. Few, medium distinct dark grayish-brown (2.5Y 4/2) mottles. Moderate, medium prismatic structure, breaking to moderate, medium blocky structure. Clear, smooth boundary. pH 7.3.

B_3 (26-35″) Dark grayish-brown (2.5Y 4/2) firm silty clay loam. Many, fine, distinct light olive-brown (2.5Y 5/4 and 5/6) mottles. Weak to moderate, medium angular blocky structure. Gradual, smooth boundary. Numerous iron-manganese concretions present. pH 7.5.

C (35-50″+) Grayish-brown (2.5Y 5/2) firm, light silty clay loam to silt loam. Many, fine, distinct yellowish-brown (10YR 5/6 and 5/8) mottles. Few iron-manganese concretions present. Weak, coarse angular blocky structure to massive. pH 7.7.

Sicily silt loam (258)

Sicily silt loam is a moderately well-drained, moderately dark-colored soil type developed from loess on gently to moderately sloping topography in the central and eastern parts of Jersey County.

Sicily soils have developed in areas that have had a relatively recent encroachment of forest onto prairies. The forest vegetation has not been present long enough to entirely change some of the features imparted by the earlier grass vegetation. Sicily is associated with Clarksdale (257) and Clinton (18) soils.

Five mapping units are shown on the soil map. The profile of one of the more extensive units **258B**, is described below.

Sicily silt loam (258B) representative profile

A_1 (0-9″) Very dark grayish-brown (10YR 3/2) friable silt loam. Weak, fine crumb structure. Clear, smooth boundary. pH 6.0.

A_2 (9-17″) Dark grayish-brown (10YR 4/2) friable silt loam. Moderate, medium, platy structure. Clear, smooth boundary. pH 5.2.

B_1 (17-24″) Brown (10YR 4/3) firm silty clay loam. Very dark grayish-brown (10YR 3/2) clay coatings on peds. Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.3.

B_2 (24-34″) Brown (10YR 4/3) firm silty clay loam. Few, fine, faint, strong brown (7.5YR 5/6) mottles. Dark grayish-brown (10YR 4/2) clay films on peds. Weak, medium prismatic structure breaking to moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.5.

B_3 (34-43″) Dark grayish-brown (10YR 4/2) firm, light silty loam. Many, medium, distinct strong brown (7.5YR 5/6 and

5/8) mottles. Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 6.0.

C_1 (43-50″+) Gray (10YR 5/1) friable, massive, heavy silt loam. Many, medium, distinct yellowish-brown (10YR 5/6 and 5/8) mottles. pH 6.0.

Other mapping units are:

258$\overline{B}$

258C

258$\overline{C}$

258$\underline{C}$ Subsoil is exposed. More difficult to farm and less productive than uneroded areas.

Corn and clover on Stronghurst silt loam. (Fig. 15)

Stronghurst silt loam (278)

Stronghurst silt loam is an imperfectly drained, light-colored soil type developed from loess under forest vegetation on nearly level to gently sloping upland areas in the western and southern parts of Jersey County. Stronghurst occurs in association with Rozetta (279) and Fayette (280) soils. In general, individual areas of Stronghurst are small.

The two mapping units shown on the soil map are **278A and 278B.** (Fig. 15.)

Stronghurst silt loam (278A) representative profile

A_p (0-7″) Dark gray (10YR 4/1) friable silt loam. Moderate, medium to fine granular structure. Abrupt, smooth boundary. pH 6.5.

A_2 (7-14″) Grayish-brown (10YR 5/2) friable silt loam. Moderate, fine platy structure. Clear, smooth boundary. pH 5.8.

B_1 (14-21″) Dark grayish-brown (10YR 4/2) friable to firm, heavy silt loam. Few, fine iron concretions present. Moderate, medium to fine subangular blocky structure. Gradual, smooth boundary. pH 5.2.

B_{21} (21-28″) Dark grayish-brown (10YR 4/2) firm silty clay loam. Common, fine, faint brown (7.5YR 5/2) and yellowish-brown (10YR 5/4) mottles. Dark grayish-brown (10YR 4/2) clay films on peds. Strong, medium blocky to subangular blocky structure. Clear, smooth boundary. pH 5.0.

B_{22} (28-38″) Brown (10YR 5/3) silty clay loam. Common, fine, distinct grayish-brown (10YR 5/2) and yellowish-brown (10YR 5/4 and 5/6) mottles. Dark grayish-brown (10YR 4/2) clay films on peds. Moderate, medium blocky structure. Clear, smooth boundary. pH 5.0.

B_3 (38-45″) Grayish-brown (2.5Y 5/2) firm, light silty clay loam. Many, medium, prominent strong brown (7.5YR 5/6 and 5/8) mottles. Very dark gray (10YR 3/1) clay coatings on peds and in pores. Moderate to weak, coarse blocky structure. Gradual, smooth boundary. pH 5.8.

C_1 (45-55″+) Grayish-brown (2.5Y 5/2) friable, massive silt loam. Many, medium, prominent strong brown (7.5YR 5/8 and 5/6) mottles. pH 7.0.

Sylvan-Bold Complex (19-35)

Sylvan-Bold complex occurs in the western and southwestern parts of Jersey County where the loess is very thick and topography is generally steep. This complex also occurs on some strongly sloping and a few moderately sloping areas.

Sylvan soils have thin, weakly to moderately developed B horizons, whereas Bold soils do not have B horizons and are calcareous throughout. Where this complex has been cultivated, it is often eroded so that Bold occurs as lighter colored (often more yellowish) spots on the slopes. In steeper areas, geologic or natural erosion has often been severe enough to keep soil development to a minimum, so that even under forest cover Bold soils are usually found on the steeper part of the slopes.

Fourteen mapping units of Sylvan-Bold complex are shown on the soil map. Representative profiles of the Sylvan and Bold are described separately below. Depth to calcareous loess varies from about 20 to 45 or 50 inches in Sylvan. Bold is usually calcareous throughout, although in undisturbed areas it often has a few inches at the surface that are not extremely high in lime content.

Sylvan silt loam (19) representative profile

A_1 (0-3″) Very dark brown (10YR 2/2) to very dark grayish-brown (10YR 3/2) friable, light silt loam. Moderate, fine crumb structure. Clear, smooth boundary. pH 7.5.

A_2 (3-8″) Dark yellowish-brown (10YR 4/4) friable, light silt loam. Moderate, medium to fine platy structure. Clear, smooth boundary. pH 6.3.

B_1 (8-15″) Dark yellowish-brown (10YR 4/4) firm, light silty clay loam. Dark brown (10YR 3/3) clay films on peds. Strong, fine subangular blocky structure. Gradual, smooth boundary. pH 6.0.

B_2 (15-24″) Dark yellowish-brown (10YR 4/4) firm, light to medium silty clay loam. Dark brown (10YR 3/3) clay films on peds. Strong, medium subangular blocky structure. Gradual, smooth boundary. pH6.0.

B_3 (24-36″) Yellowish-brown (10YR 5/4) to dark yellowish-brown (10YR 4/4) friable silt loam. Some dark brown (10YR 4/3) clay films on peds. Moderate to weak, coarse subangular blocky structure. Clear, wavy boundary. pH 6.5.

C (36-60″+) Yellowish-brown (10YR 5/4) very friable, massive, calcareous light silt loam.

Bold silt loam (35) representative profile

A_1 (0-6″) Very dark grayish-brown (10YR 3/2) friable, light silt loam. Fine lime concretions present. Moderate, fine crumb structure. Diffuse, smooth boundary. pH 8.0.

C_1 (6-12″) Dark yellowish-brown (10YR 4/4) friable, massive, calcareous, light silt loam. Diffuse, smooth boundary

C_2 (12-40″+) Yellowish-brown (10YR 5/4) friable, massive, calcareous, silt loam.

Other mapping units are:

19-35C or TC

19-35C̅ or TC̅

19-35D or TD See representative profile of Sylvan above.

19-35D̅ or TD̅

19-35D̲ or TD̲ Surface soil (or A horizons) has been lost because of erosion.

19-35E or TE

19-35E̅ or TE̅

19-35E̲ or TE̲ Sylvan soils are somewhat thinner to limey loess. A horizons have been removed.

19-35F or TF See representative profile of Bold above.

19-35F̅ or TF̅

19-35F̲ or TF̲ Sylvan soils are thinner than average to limey loess. A horizons have been removed.

19-35G or TG Sylvan soils are thinner than average to limey loess.

19-35G̅ or TG̅ Sylvan soils are thinner than average to limey loess.

19-35G̲ or TG̲ Sylvan soils are thinner than average to limey loess. Erosion has exposed subsoil of Sylvan.

Tama silt loam (36)[1]

Tama silt loam is a well-drained, dark-colored soil type developed from loess under grass vegetation on gently to moderately sloping upland areas in association with Muscatine (41) and Sable (68) soils. The Tama series includes both the moderately well- and well-drained natural soil drainage classes, but in Jersey County the moderately well-drained portion of Tama is shown as Bolivia silt loam (246). See page 18 for a discussion and description of Bolivia. (Fig. 16.)

Three mapping units of Tama are shown on the soil map: **36B, 36C, 36C̅.**

[1] Several areas of Tama silt loam located in the north one-half of section 19, township 8 north, range 11 west are indicated on the soil map (sheet No. 16) by soil number 247, rather than 36.

Corn with a grass waterway on moderately sloping area of Tama silt loam southwest of Jerseyville. (Fig. 16)

Tama silt loam (36B) representative profile

A_{11} (0-7″) Very dark brown (10YR 2/2) friable silt loam. Moderate, medium granular structure. Gradual, smooth boundary. pH 6.5.

A_{12} (7-13″) Very dark brown (10YR 2/2) friable silt loam. Moderate, medium granular structure. Clear, smooth boundary. pH 6.2.

A_3 (13-20″) Dark brown (10YR 3/3) friable silt loam. Very dark grayish-brown (10YR 3/2) clay-organic coatings on peds. Strong, fine to medium subangular blocky structure. Clear, smooth, boundary. pH 5.8.

B_1 (20-26″) Dark brown (10YR 3/3 to 4/3) firm, light silty clay loam. Very dark grayish (10YR 3/2) clay-organic coatings on ped surfaces. Moderate, medium subangular blocky structure. Clear, smooth boundary. pH 5.6.

B_2 (26-40″) Yellowish-brown (10YR 5/4) firm, silty clay loam. Coatings of dark brown (10YR 3/3) on peds. Moderate to strong, medium subangular blocky structure. Clear, smooth boundary. pH 5.5.

B_3 (40-54″) Yellowish-brown (10YR 5/4) firm, light silty clay loam. Some ped coatings of brown (10YR 4/3) and a few, fine, faint, light yellowish-brown (10YR 6/4) mottles. Moderate to weak, coarse to medium subangular blocky structure. Gradual, smooth boundary. pH 5.8.

C_1 (54-60″+) Yellowish-brown (10YR 5/4) friable, massive silt loam. Few, fine, faint yellowish-brown (10YR 5/8) mottles. pH 6.0.

Tice silty clay loam (284)

Tice silty clay loam is an imperfectly drained, dark-colored bottomland soil type, occurring on nearly level to gently sloping areas in the Illinois River valley. Tice is most extensive near the border between Jersey and Greene counties along Macoupin Creek below the point where this creek enters the Illinois valley. Along the Illinois River, Tice is most often found on a natural levee position.

The two mapping units of Tice shown on the soil map are **284A and 284B.**

Tice silty clay loam (284A) representative profile

A_p (0-8″) Very dark grayish-brown (10YR 3/2) to very dark gray (10YR 3/1) friable, light silty clay loam. Weak, fine granular structure. Abrupt, smooth boundary. pH 6.0.

A_1 (8-14″) Very dark gray (10YR 3/1) to very dark grayish-brown (10YR 3/2) firm silty clay loam. Few, fine, faint dark gray (10YR 4/1) mottles. Moderate, medium granular structure. Clear, smooth boundary. pH 6.5.

B_1 (14-18″) Dark grayish-brown (10YR 4/2) firm silty clay loam. Common, medium, distinct dark brown (10YR 3/3) and yellowish-brown (10YR 5/4) mottles. Moderate, medium to coarse blocky structure. Gradual, smooth boundary. pH 6.0.

B_2 (18-26″) Dark grayish-brown (10YR 4/2) firm silty clay loam. Common, fine, faint brown (19YR 4/3) mottles and few, fine distinct yellowish-brown (10YR 5/8) mottles. Moderate, medium blocky to subangular blocky structure. Gradual, smooth boundary. pH 6.0.

B_3 (26-32″) Dark grayish-brown (10YR 4/2) firm silty clay loam. Many, medium, faint brown (10YR 4/3) and few, fine, distinct yellowish-brown (10YR 5/8) mottles. Weak, coarse blocky to subangular blocky structure. Gradual, smooth boundary. pH 5.9.

C (32-48″+) Gray (10YR 5/1) to dark gray (10YR 4/1) firm, nearly massive, silty clay loam. Many, medium, distinct yellowish-brown (10YR 4/4 and 5/6) mottles. pH 5.8.

Virden silt loam (47)

Virden silt loam is a poorly drained, dark-colored soil type developed from loess under grass vegetation on nearly level upland areas. It occurs throughout the prairie areas in central and eastern Jersey County.

In the central part of the county Virden silt loam is associated with Sable (68) and Muscatine (41) soils, and in the eastern part of the county it is associated with Virden silty clay loam (50) and Herrick (46) soils. It differs from Herrick because it lacks an A_2 horizon and is less strongly developed.

Areas of Virden silt loam (47) associated with Sable (68) and Muscatine (41) soils are somewhat more productive than areas associated with Virden silty clay loam (50).

One mapping unit, **Virden silt loam (47)**, is shown on the soil map.

Virden silt loam (47) representative profile

A_p (0-8″) Black (10YR 2/1) friable silt loam. Weak, medium to fine granular structure. Abrupt, smooth boundary. pH 6.5.

A_1 (8-17″) Black (10YR 2/1) firm, light to medium silty clay loam. Moderate to strong, coarse granular structure. Clear, smooth boundary. pH 6.4.

B_1 (17-23″) Very dark gray (10YR 3/1) to dark gray (10YR 4/1) firm silty clay loam. Common, fine, prominent olive-brown (2.5Y 4/4) mottles. Black (10YR 2/1) clay-organic coatings on peds. Moderate, fine to medium prismatic structure, breaking to medium to fine blocky structure. Clear, smooth boundary. pH 6.4.

B_2 (23-32″) Dark gray (N 4/) firm silty clay loam. Coatings of very dark gray (N 3/) on peds and with common, medium, distinct yellowish-brown (10YR 5/4) mottles. Moderate, medium prismatic structure breaking to weak, fine blocky structure. Clear, smooth boundary. pH 6.5.

B_3 (32-48″) Grayish-brown (2.5Y 5/2) firm, light silty clay loam. Many, medium, prominent yellowish-brown (10YR 5/4 and 5/6) mottles. Coatings of very dark gray (10YR 3/1) on ped surfaces and in pores. Weak, coarse angular blocky structure. Gradual, smooth boundary. pH 7.0.

C_1 (48-60″) Grayish-brown (2.5Y 5/2) friable, massive silt loam. Many, medium, prominent yellowish-brown (10YR 5/6 and 5/8) mottles. pH 7.0.

Virden silty clay loam (50)

Virden silty clay loam is a poorly drained, dark-colored, fine-textured soil type developed from loess on flat to slightly depressional upland areas in eastern Jersey County where it is associated with Virden silt loam (47) and Herrick (46) soils.

Virden silty clay loam differs mainly from Virden silt loam in having a finer textured surface soil. The silty clay loam surface texture makes this soil more difficult to work than Virden silt loam. The silty clay loam type usually occurs on flatter areas where water disposal is somewhat more critical.

Since the principal difference between Virden silty clay loam and Virden silt loam is in the surface texture, see the discussion on Virden silt loam for a description representative of the Virden soils.

One mapping unit, **Virden silty clay loam (50)**, is shown on the soil map.

Wabash silty clay (83)

Wabash silty clay is a fine-textured, dark-colored, poorly to very poorly drained soil type developed from slack-water sediments on rather high bottomlands in Jersey County. The main area of Wabash occurs below the bluff in northwestern Jersey County.

One mapping unit, **Wabash silty clay (83)**, is shown on the soil map.

Wabash silty clay (83) representative profile

A_p (0-6″) Black (10YR 2/1) firm silty clay. Moderate, medium granular to fine subangular blocky structure. Abrupt, smooth boundary. pH 7.0.

A_1 (6-20″) Black (10YR 2/1) with some very dark gray (10YR 3/1) firm silty clay to clay. Moderate, medium to fine blocky structure. Clear, smooth boundary. pH 6.8.

B_{1g} (20-29″) Very dark gray (10YR 3/1), firm clay to silty clay. Moderate, medium to fine blocky structure. Gradual, smooth boundary. pH 6.6.

B_{2g} (29-40″) Very dark gray (10YR 3/1), with some very dark brown (10YR 2/2), firm clay to silty clay. Weak, medium blocky structure. Gradual, smooth boundary. pH 7.2.

C_g (40-48″+) Dark gray (5Y 4/1 to 5/1) firm, massive, clay to silty clay. pH 7.5.

Wakeland silt loam (333)

Wakeland silt loam is an imperfectly drained, light-colored bottomland soil type found along streams in all parts of Jersey County. It is usually associated with Haymond silt loam (331), but is not as well drained as Haymond. The sediments from which

Pasture on a small bottomland of Wakeland silt loam with Clinton silt loam on the slope at the right. (Fig. 17)

Wakeland has been formed were washed from light-colored upland soils. (Fig. 17.)

The two mapping units of Wakeland shown on the soil map are **333A and 333B.**

Wakeland silt loam (333A) representative profile

A_p (0-7") Dark grayish-brown (10YR 4/2) friable silt loam with few fine, faint mottlings of very dark grayish-brown (10YR 3/2). Weak, fine crumb structure. Abrupt, smooth boundary. pH 7.0.

A_1 (7-15") Dark grayish-brown (10YR 4/2) to brown (10YR 4/3) friable silt loam. Common, medium, faint, light brownish-gray (10YR 6/2) mottles. Weak, fine crumb structure. Gradual, smooth boundary. pH 7.0.

C_1 (15-35") Dark grayish-brown (10YR 4/2) friable, silt loam. Common, medium, faint, light brownish-gray (10YR 6/2) and very dark grayish-brown (10YR 3/2) mottles. Very weak, fine crumb structure. Gradual, smooth boundary. pH 7.5.

C_2 (35-50"+) Grayish-brown (10YR 5/2) to brown (10YR 5/3) friable, massive silt loam. Common, medium, faint, very dark grayish-brown (10YR 3/2) and light brownish-gray (10YR 6/2) mottles. pH 7.8.

Whitaker silt loam (132)[1]

Whitaker silt loam is an imperfectly drained, light-colored soil type developed under forest from silty sediments on stream terraces. It occurs mainly along the lower courses of Macoupin, Otter, and Piasa creeks on nearly level to moderately sloping areas in association with the moderately well- to well-drained Camden silt loam (134).

Where Whitaker occurs on low terraces, particularly along Otter and Piasa creeks, it has somewhat less clay accumulation in the B horizon or subsoil than where it occurs on higher lying terraces.

Whitaker silt loam (132A) representative profile

A_p (0-5") Dark grayish-brown (10YR 4/2) to very dark grayish-brown (10YR 3/2) friable silt loam. Weak, fine crumb structure. Abrupt, smooth boundary. pH 6.2.

A_2 (5-16") Grayish-brown (10YR 5/2) friable silt loam. Weak, medium platy structure. Clear, smooth boundary. pH 5.8.

B_1 (16-21") Brown (10YR 4/3) firm, light silty clay loam. Few, fine, distinct yellowish-brown (10YR 5/4) mottles. Moderate, fine, subangular blocky structure. Clear, smooth boundary. Very dark grayish-brown (10YR 3/2) clay films on peds. pH 6.0.

B_2 (21-30") Brown (10YR 4/3) firm, silty clay loam. Common, fine, faint (10YR 5/2) mottles and few, fine, distinct yellowish-brown (10YR 5/4) mottles. Very dark grayish-brown (10YR 3/2) clay films on peds. Strong medium subangular blocky structure which tends to be arranged in prisms. Gradual, smooth boundary. pH 5.3.

B_3 (30-42") Brown (10YR 5/3) firm, light silty clay loam to clay loam. Many, medium, distinct mottlings of strong brown (7.5YR 5/8) and many, fine, distinct mottlings of light grayish-brown (10YR 6/2). Peds coated with very dark grayish-brown (10YR 3/2). Weak, coarse, angular to subangular blocky structure. Gradual, smooth boundary. pH 5.8.

C_1 (42-50"+) Brown (10YR 5/3) friable, massive silt loam with some sand. Many, medium, distinct yellowish-brown (10YR 5/8) mottles and many, fine, distinct light grayish-brown (10YR 6/2) mottles. pH 5.8.

Other mapping units are:

132B, 132B̄, 132C, 132C̄.

Worthen silt loam (37)

Worthen silt loam is a moderately well- to well-drained, dark-colored soil developed from colluvial sediments below the bluffs along the Illinois River valley. Worthen occurs on gently to strongly sloping areas in association with the imperfectly drained Littleton soils (81).

Three mapping units are shown on the soil map: **37B, 37C, 37D.**

Worthen silt loam (37B) representative profile

A_1 (0-17") Very dark brown (10YR 2/2) to very dark grayish-brown (10YR 3/2) friable silt loam. Weak, fine granular structure. Diffuse, smooth boundary. pH 6.3.

A_3 (17-20") Very dark grayish-brown (10YR 3/2) to dark brown (7.5YR 3/2) friable silt loam. Weak, fine subangular blocky to medium granular structure. Gradual, smooth boundary. pH 6.2.

B_2 (20-29") Dark brown (10YR 3/3 and 7.5YR 3/2) friable to slightly firm silt loam. Weak, medium to fine subangular blocky structure. Gradual, smooth boundary. pH 6.0.

B_3 (29-37") Brown to dark brown (10YR 4/3) friable silt loam. Very weak, medium subangular blocky structure. Gradual, smooth boundary. pH 6.0.

C (37-45"+) Dark yellowish-brown (10YR 4/4) very friable, massive, light silt loam. pH 6.2.

[1] After the soil maps were printed, the name of this soil type was changed to Starks silt loam.

GENESIS AND CLASSIFICATION OF JERSEY COUNTY SOILS

Factors of Soil Formation in Various General Soil Areas

Soils are developed primarily by the action of climate and living plants and animals upon parent materials. Relief or topography indirectly affects soil formation by influencing drainage conditions. The time during which parent materials have been subjected to these forces partly determines the degree to which the present soils have weathered and developed.

How these five major factors of soil development — parent material, climate, biological activity or living organisms, relief, and time — have influenced the soils of Jersey County and their distribution is discussed in the following paragraphs. (See also general soil areas of Jersey County, page 9, and soil key below.)

Parent materials. Parent materials of soils result mainly from the weathering of rock. Glaciers, wind, and water may move these materials from place to place. Jersey County soils developed mainly from loess deposited by wind or from alluvium deposited by water. Glacial till is the parent material of Hickory (8) soils on some of the more sloping areas in central Jersey County and on many of the steeper slopes in the eastern part. Of less importance is limestone on some of the steep slopes bordering the Illinois and Mississippi valleys where the Bodine (471) soils are formed in cherty residual material and also where the land type, Limestone rockland (94), occurs. However, much of the fines (silty material) in these areas is loess derived.

The loess, when first deposited in Jersey County, was calcareous or relatively high in lime and also contained various minerals. Soils that developed from it were probably high in plant nutrients at first. But, as will be discussed later, the action of climate and living organisms over long periods of time has leached plant nutrients in varying degrees from the parent materials. The result has been soils that require limestone and fertilizers in varying amounts for high crop yields.

Total loess thickness on nearly level, uneroded, upland areas varies from over 300 inches in the western and southwestern parts of the county to about 70 or 80 inches in the eastern part. The thickness of the loess deposits has an important bearing on the degree of leaching and profile development that has taken place in soils. The soils in general soil areas F and G in the central and eastern parts of the county devel-

Table 2. — JERSEY COUNTY SOILS: Grouped According to Parent Material, Surface Color, Degree of Development, and Natural Soil Drainage

General soil area and physiography	Parent material	Surface color	Degree of subsoil development	Natural soil drainage class			
				Poor to very poor	Imperfect	Moderately well	Well
A (Bottomland)	Neutral silt loam	Light	None		Wakeland (333)	Haymond (331)	Haymond (331)
	Calcareous silt loam	Light	None		Jules (28)	Jules (28)	
	Neutral silt loam on silty clay loam	Light	None		Dupo (180)		
	Neutral cherty silt loam	Light	None			Elsah (475)	Elsah (475)
	Neutral silt loam	Dark	Very weak		Lawson (451)	Huntsville (77)	Huntsville(77)
	Neutral silty clay loam	Dark	Weak	Beaucoup (70)	Tice (284)		
	Neutral silty clay loam	Light	Weak	Petrolia (288)			
	Neutral silty clay over calcareous sandy loam	Dark	Weak	McFain (248)			
	Neutral silty clay	Dark	Weak	Darwin (71)			
	Neutral silty clay	Dark (thick)	Weak	Wabash (83)			
A (Terrace)	Sandy loam sediments	Light	Moderate			Alvin (131)	Alvin (131)
	Loam sediments	Mod. dark	Moderate-weak		Beardstown (188)		
	Silt loam sediments	Light	Moderate		Whitaker (132)	Camden (134)	Camden (134)
	Silty clay sediments	Light	Moderate		McGary (173)		
B (Colluvial terrace)	Silt loam bluff wash	Light	Weak			Drury (75)	Drury (75)
	Silt loam bluff wash	Dark	Weak		Littleton (81)	Worthen (37)	Worthen (37)
C (Upland)	Calcareous silt	Light	None				Hamburg (30)
	Calcareous silt loam	Light	None			Bold (35)	Bold (35)
	Very thick loess	Light	Moderate-weak				Sylvan (19)
	Limestone + silt	Light	None				Limestone rockland (94)
D (Upland)	Thick loess	Light	Moderate		Stronghurst (278)	Rozetta (279)	Fayette (280)
	Chert + silt	Light	Weak				Bodine (471)
E (Upland)	Thick loess	Dark	Moderate	Sable (68)	Muscatine (41)	Bolivia (246)	Tama (36)
	Thick loess	Mod. dark	Strong	Denny (45)			
F (Upland)	Moderately thick loess	Light	Moderately strong	Rushville (16)	Koemah (17)	Clinton (18)	
	Moderately thick loess	Mod. dark	Moderately strong		Clarksdale (257)	Sicily (258)	
	Glacial till	Light	Moderate			Hickory (8)	
G (Upland)	Moderately thick loess	Dark	Moderately strong	Virden (47) Virden (50)	Herrick (46)	Harrison (127)	Douglas (128)
	Moderately thick loess	Mod. dark	Moderately strong	Piasa (474)			
	Moderately thick loess	Mod. dark	Strong	Cowden (112)			

oped in thinner loess than the soils in areas D and E, and therefore are more highly weathered and more strongly developed.

In the thinner loess area, where annual deposits were small, considerable leaching probably occurred during each year of loess deposition. Many of the readily soluble minerals were removed as fast as they were deposited. In the soils formed from thicker deposits, annual leaching may not have kept up with the deposition of lime carbonates and other minerals. This means simply that in the same period of time soils formed from thick loess deposits will not be developed as much as soils from thinner loess.

When it was deposited it was mainly of silt size, as reflected in the silt loam texture of most A horizons. Weathering and downward movement of fine materials in soils have increased the clay content of the B horizon in comparison with the parent loess.

The alluvial soils of Jersey County are derived from slightly acid to calcareous sediments washed from upland soils. Most of the alluvial soils, however, range from slightly acid to mildly alkaline in reaction. Only Jules, which is found in the Illinois River valley near the bluff, is calcareous. Both light- and dark-colored bottomland soils are present in various areas. The finer or heavier textured alluvial soils are largely confined to the Illinois and Mississippi River and Macoupin Creek valleys. The Elsah soils, which contain large amounts of chert fragments, occur mainly in the southern part of the county. The chert is residual from the weathering of cherty limestone and was washed from slopes in the watersheds.

Most of the terrace soils in Jersey County are underlain by silty or sandy water-deposited sediments. The exception is McGary soil which was formed from silty clay or clay sediments. Probably all terrace soils, except Alvin and Beardstown, had some loess influence in the upper horizons of their profiles.

The glacial till from which the Hickory soils developed in central and eastern Jersey County was deposited during the Illinoian glacial stage. It was exposed to weathering for a long period before the loess was deposited, and on the more level areas, well-developed soils were formed in it.

These well-developed soils are still present beneath the loess on the level areas, but on slopes erosion has removed all or part of the original till-derived soil. Since removal of the original till-derived soils, caused by down cutting of the valleys, soil development has been only moderate on most slopes and the present Hickory soils have resulted. On some of the steep and very steep slopes, runoff and erosion (even under natural forest cover) have been sufficient to prevent the development of thick profiles.

Under these conditions the depth to calcareous (limey) glacial till is less than average in some areas of the Hickory soils. Most of the calcareous glacial till from which the Hickory soils developed in Jersey County is a sandy loam or loam, and some sand and gravel or pebbles are present throughout most of the profile.

The chert found in Bodine soils in the southwestern and southern parts of the county has been derived principally from Burlington, Fern Glen, and Keokuk formations of Mississippian age. These limestones and the St. Louis and Salem limestones, also of Mississippian age, are the main formations that outcrop at the high bluffs bordering the Mississippi River along the south edge of Jersey County. Various limestone formations, and in places Maquoketa and Hannibal shales, are present in the land type, Limestone rockland (94).

Climate and vegetation. Climate is important in soil development because it influences the type of vegetation growing on soils and also largely determines the type of weathering that takes place. The humid, temperate climate of Jersey County is conducive to the growth of trees, but at the time of settlement, there were large prairie areas remaining in the central and eastern parts of the county.

These two factors — the humid, temperate climate and the vegetation — account for the predominant type of weathering in the county. In such a climate the decay of litter forms carbonic and other acids which increase the rate of leaching by downward-percolating water. Eventually the soils become highly acid and leached of most of the bases. Leaching and weathering are more rapid under forest than under grass vegetation, so forest soils are more highly developed and somewhat less productive.

Clay and some iron and aluminum are removed from the A horizon and carried down into the B horizon, resulting in a well-developed soil. This translocation of materials is particularly pronounced on the more level-lying areas, and as time passes the result is a very fine-textured B horizon or "claypan."

In Jersey County the prairies (and the resulting present dark-colored soils) were largely confined to the more level areas on the broad divides between streams. Commonly there is a transition from the dark soils to the lighter colored soils developed under forest. Clarksdale and Sicily are the two soils mapped in these transition areas in the county. It is apparent in most of these areas that the forest vegetation had encroached on previous prairie land and had only partly changed the dark-colored soils to light-colored soils. The transition zones are frequently narrow, al-

Table 3. — CHEMICAL ANALYSES AND PARTICLE SIZE DISTRIBUTION OF SELECTED JERSEY COUNTY SOILS

Soil type and location	Horizon	Depth, in.	pH	Pct. organic carbon[a]	Exchangeable cations,[b] me./100 gm.			Cation exchange capacity, me./100 gm.	Pct. base saturation	Pct. of particle size		
					Ca	Mg	K			Sand 2-.05 mm.	Silt .05-.002 mm.	Clay <.002 mm.
Clarksdale silt loam	Ap	0–7	5.7	1.52	10.3	2.2	.2	14.2	89	3.6	78.0	18.4
T.13N., R.2W., Sec. 12,	A2	7–12	5.0	.69	7.9	3.3	.3	15.2	76	4.0	73.6	22.4
SE160, SE40, SW10	B1	12–15	5.3	.81	10.7	6.4	.4	20.4	86	4.1	66.5	29.4
(Christian County)	B21	15–20	5.4	.74	14.6	10.7	.6	27.0	96	2.5	58.1	39.4
	B22	20–26	6.1	.62	16.1	12.7	.6	29.5	100	2.4	57.0	40.6
	B23	26–33	6.7	.44	15.0	12.8	.5	27.1	100	2.3	60.9	36.8
	B31	33–39	7.2	.32	....	...	.4	23.5	..	1.8	69.2	29.0
	B32	39–49	7.6	.20	....	...	.3	16.0	..	2.1	77.9	20.0
	C1	49–55	7.9	.12	....	...	.2	12.5	..	1.5	81.6	16.9
Clinton silt loam	A1	0–6	6.3	3.8	10.8	1.9	..	17.8	70	4.2	76.0	18.8
T.8N., R9W., Sec. 30,	A2	6–11	5.2	1.6	5.5	1.6	..	13.5	52	4.9	76.0	19.1
NW160, SW40, SW10	B1	11–15	5.3	.8	6.3	2.7	..	13.7	66	3.7	74.0	22.3
(Macoupin County)	B21	15–19	5.2	.4	....	...	..	....	..	3.8	67.2	29.0
	B22	19–31	5.3	.3	10.4	7.4	..	17.7	72	2.4	62.1	35.5
	B23	31–39	4.8	.2	8.7	7.1	..	24.6	64	3.2	64.6	32.2
	B31	39–52	4.6	.1	6.9	6.2	..	21.6	61	2.8	69.0	28.4
	B32	52–60	5.0	.1	7.7	6.3	..	20.0	70	2.5	73.8	23.7
	C	60–66+	5.4	.0	8.0	6.6	..	18.8	78	2.7	75.4	21.9
Cowden silt loam	Ap	0–8	5.6	1.22	7.2	1.5	.1	10.5	85	9.1	77.9	13.0
T.8N., R.3W., Sec. 28,	A21	8–14	5.4	.86	6.0	2.4	.2	11.5	76	8.3	74.8	16.9
NW160, SE40, NW10	A22	14–17	5.2	.55	5.6	3.3	.2	11.7	79	8.9	72.5	18.6
(Montgomery County)	A2&B	17–19	5.1	.45	7.3	5.3	.4	16.3	82	5.8	69.8	24.4
	B2&A	19–21	5.1	.50	10.4	8.5	.7	23.7	85	4.2	59.9	35.9
	B21	21–28	5.3	.54	13.7	11.7	1.1	30.0	90	3.3	53.2	43.5
	B22	28–36	6.2	.32	13.1	11.4	1.4	25.4	100	3.5	60.8	35.7
	B31	36–45	6.5	.21	12.0	9.8	1.5	22.4	100	4.5	64.5	31.0
	B32	45–57	6.8	.13	8.5	6.8	1.1	16.0	100	13.6	63.0	23.4
Fayette silt loam	Ap	0–6	5.4	.61	3.3	.3	.2	8.1	52	6.0	83.3	10.7
T.8N., R.13W., Sec.27,	A2	6–14	5.3	.31	6.2	1.7	..	12.0	71	4.6	77.1	18.3
NE160, SE40, NE10	B21	14–29	5.8	.22	9.5	3.7	..	22.1	67	3.6	65.9	30.5
(Jersey County)	B22	29–36	5.6	.15	10.2	3.3	..	23.5	67	3.8	69.0	27.2
	B3	36–59	6.0	.12	8.3	4.5	..	19.3	67	4.3	74.4	21.3
	C	59–73	6.5	.12	7.8	3.4	..	14.8	76	5.8	78.9	15.3
Herrick silt loam	A11	0–12	5.9	2.01	12.7	2.1	.3	15.7	95	1.7	81.2	17.1
T.8N., R.11W., Sec.13,	A12	12–19	5.8	1.60	11.0	3.3	.3	16.5	91	2.3	76.5	21.2
SE160, SE40, SE10	A2	19–23	5.2	1.29	8.6	3.9	.3	16.5	76	2.2	74.8	23.0
(Jersey County)	B1	23–27	5.1	.98	9.4	5.4	.4	18.2	79	1.9	70.3	27.8
	B2	27–36	5.2	.74	12.7	8.2	.4	23.2	87	1.8	62.5	35.7
	B31	36–47	5.5	.50	12.2	7.5	.4	21.8	92	1.3	64.8	33.7
	B32	47–55	5.8	.32	10.6	7.0	.4	19.4	93	1.1	70.6	28.3
	C	55–78	6.0	.18	8.4	5.6	.3	14.5	99	1.1	66.0	22.9
Muscatine silt loam	A1	0–15	5.2	2.33	14.0	3.2	..	19.9	88	.9	76.2	22.9
T.8N., R.12W., Sec.1,	A3	15–19	5.1	1.46	11.9	4.4	..	20.6	81	1.1	71.3	27.6
NE160, NE40, SW10	B1	19–25	5.1	1.02	13.2	5.7	..	22.9	85	1.9	66.7	31.4
(Jersey County)	B2	25–34	5.2	.67	13.5	6.3	..	22.6	88	2.0	65.0	33.0
	B31	34–40	5.3	.50	11.8	5.8	..	21.2	85	2.3	66.7	31.0
	B32	40–47	5.3	.38	11.0	5.2	..	18.7	93	1.9	70.6	27.5
	C1	47–61	5.5	.21	9.5	5.2	..	15.8	96	1.3	75.9	22.8
Piasa silt loam	Ap	0–7	7.1	1.23	7.9	.7	.1	7.3	100	6.6	85.4	8.0
T.8N., R. 5W., Sec.1,	A2	7–10	7.6	.68	5.6	1.1	.1	5.8	100	6.6	83.4	10.0
SE160, SW40, SW10	B1	10–14	7.8	.60	6.8	7.3	.2	15.5	100	6.9	69.4	23.7
(Montgomery County)	B21	14–19	7.9	.54	9.2	11.9	.2	28.0	94	3.6	58.7	37.7
	B22	19–27	8.1	.41	9.4	13.3	.4	26.0	100	3.1	56.3	40.6
	B23	27–39	8.2	.28	9.8	12.2	.3	24.2	100	3.3	61.1	35.6
	B3	39–52	8.2	.22	8.5	9.4	.4	18.5	100	3.2	68.9	27.9
	C1	52–56	8.1	.19	7.6	7.0	.2	13.2	100	6.5	71.0	22.5

[a] Percent organic carbon times 1.724 = percent organic matter.
[b] One me. Ca (calcium) per 100 gm. soil = 400 pounds per acre or per 2 million pounds soil. One me. Mg (magnesium) per 100 gm. soil = 240 pounds per acre or per 2 million pounds of soil. One me. K (potassium) per 100 gm. = 780 pounds per acre or per 2 million pounds of soil.

though on some moderately wide divides the moderately dark-colored transition soils predominate.

Relief. Under given climatic conditions and in uniform parent materials, relief largely controls the amount of moisture in the soils. It influences the amount of runoff, infiltration, drainage water, and the degree of erosion. The direction of slopes is of some importance. Because south-facing slopes receive direct rays from the sun, they have more evaporation and are generally drier than north-facing slopes.

In Jersey County some of the flat to depressional areas have received runoff from higher slopes. This activity and the normal rainfall have brought about a somewhat higher degree of soil development, causing much of the clay originally in the A horizons to move into the B horizons and form "claypans." Claypan soils, however, are very minor in the county. Cowden (developed under grass), Rushville (developed under forest in the eastern part of the county), and Denny (developed under grass in the central part), are the only soils that approach claypan conditions. Cowden and Denny occur as relatively small "gray spots" in prairie areas where most flats are occupied by dark-colored, moderately fine-textured soils. Rushville occurs in larger areas. Its development is partly caused by forest vegetation, as well as by wetness or poor drainage.

In the more sloping areas, part of the rainfall runs off and with less water passing through the profile, soil development has not proceeded quite as far. Soil horizons are not so strongly differentiated and chemical weathering has not been as severe. On quite steep slopes, where runoff is very rapid, geologic erosion or the removal of soil under natural conditions may almost keep pace with soil development. Soils on these slopes usually are thin and weakly developed.

Time. Time as a factor in soil formation cannot be measured strictly in years. The length of time necessary for a certain soil to develop depends upon the other factors involved. An acid soil, for example, will develop much faster from parent materials low in lime than from materials very high in lime. Fine-textured parent materials that impede downward movement of water are leached free of lime much more slowly than are coarse-textured materials, other factors being equal.

In general, soil development is faster in humid climates which support good vegetation growth than in dry climates which support little vegetation. On slopes where geologic erosion is great, soils may be in the early stages of development, even though the slopes have been exposed to weathering for thousands of years.

Grouping of soils according to soil-forming factors. Various combinations of the five soil-forming factors just discussed have been operative in the different areas of the county. Jersey County soils are grouped in Table 2 according to parent materials and physiography, degree of development or degree of weathering, surface color, and natural soil drainage class. The general climate over the entire county is essentially the same.

As can be seen in Table 2, the soils of Jersey County belong to seven broad soil areas. The locations of these areas are shown on the general soil map (page 10).

Chemical and Physical Characteristics of Some Jersey County Soils

Selected chemical and physical properties of several soils that occur in Jersey County are given in Table 3. Some of the data are from surrounding counties.

Clarksdale, Cowden, and Piasa profile samples were taken in Montgomery and Christian counties, to the east of Jersey County in areas of thinner loess farther removed from loess sources. Consequently, these soils as they occur in Jersey County may not be quite as fine textured nor quite as highly weathered as in areas farther east in the state.

The Clinton data from Macoupin County are for a profile sampled just southwest of the town of Piasa within a quarter of a mile of the east line of Jersey County. In comparison to Fayette (also developed under forest) sampled just west of Fieldon in Jersey County, Clinton appears to be a somewhat more weathered soil (Table 4). In the B horizon, Clinton has lower pH values, higher maximum and average clay content, and lower average calcium to magnesium ratios than Fayette. Average base saturation of the B horizon is the same in the two soils. Fayette has a higher maximum B horizon to minimum A horizon clay ratio and a higher average B to average A horizon clay ratio. This is caused mainly by the very low (10.7 percent) clay content in the A_p horizon, which probably results from geologically recent, coarse loess deposition, rather than from strong soil development.

The Herrick profile (Table 4) was sampled farther east in Jersey County than the Muscatine. Although base saturation and pH of these two soils are similar,

Table 4. — SELECTED PROPERTIES OF CLINTON AND FAYETTE SOILS AND HERRICK AND MUSCATINE SOILS IN JERSEY COUNTY

Property	Forest soils		Grassland soils	
	Clinton	Fayette	Herrick	Muscatine
Ave. base saturation of B horizon (%)	67	67	89	88
pH in B horizon (range)	4.6-5.3	5.6-6.0	5.1-5.8	5.1-5.3
Ave. Ca\Mg ratio in B horizon	1.3	2.5	1.6	2.2
Maximum clay in B horizon (%)	35.5	30.5	35.7	33.0
Ave. clay in entire B horizon (%)	27.7	25.3	32.2	30.9
Ratio (maximum clay in B horizon / minimum clay in A horizon)	1.9	2.8	2.1	1.4
Ratio (ave. clay in B horizon / ave. clay in A horizon)	1.4	1.7	1.7	1.3

Herrick has higher clay content and lower calcium to magnesium ratios in the B horizon, and higher B horizon to A horizon clay ratios, and is a more highly developed soil than Muscatine. Both of these soils developed under grass vegetation. Herrick also has an A_2 (dark gray) horizon between the dark-colored surface horizons and the B horizon or subsoil (see description, page 24). In general, the Clinton and Herrick soils are not quite as fine textured in their B horizons in the Jersey County area as they are in western Illinois or in counties farther east in south central Illinois.

Comparisons between Clinton and Fayette developed under forest and Herrick and Muscatine developed under grass cannot be made directly, because the two forest soils are naturally better drained soils than the two grassland soils.

Taxonomic Classification of Jersey County Soils

The soils of Jersey County are classified in Table 5 into six categories: order, suborder, great group, subgroup, family, and series.

Soil types are not included in Table 5. The soil types of Jersey County are described on pages 14 to 34.

Classification is based on soil characteristics without reference to geographic occurrence (*13*). Soils from several different soil areas may be classified the same in the higher categories above the soil series.

While soil characteristics or soil properties are the chief basis of classification, the soil characteristics having genetic significance tend to be emphasized more in the great groups, suborders, and orders. Soil characteristics used as differentiating in any category are also differentiating in all lower categories.

The categories of the soil classification system (*18*) are discussed briefly in the following paragraphs.

Order. The orders are based on several critical horizons whose presence provides a key to the main soil-forming processes that have been active or whose absence indicates a lack of development. Thus, soils that are similar in the kinds and relative degree of processes tending to develop horizons are grouped in the orders. Because of the importance of climate to soil formation, the orders are to some extent climatic-zonal groups.

Suborder. Suborders are subdivisions of the orders which have considerable genetic homogeneity. In orders that include soils of varying moisture status, the color associated with the various degrees of wetness is the main characteristic used to define the suborders. Genetic differences caused by climatic variations and associated vegetation variations are also used. Other orders are subdivided into suborders on the basis of chemical or mineralogical differences that either control the kind and degree of development or are the result of soil development. Extreme textures, such as sands for example, are the differentiating properties for suborders in some orders.

Great group. Great groups approach uniformity in the kind and arrangement of significant horizons and their degree of development. The presence or absence of diagnostic horizons is important in the placing of soils in the great groups. A few suborders have only one great group. Some of the horizons used for differentiating great groups within suborders include horizons that contain illuvial clay, iron, and humus; thick dark-colored surface horizons; and pan horizons that restrict roots or water movement or both. Where differences in horizons cannot be used, other diagnostic features such as wide differences in base saturation, irreversible hardening, tonguing of eluvial horizons into illuvial horizons, and low soil temperature are used.

Subgroup. There are three kinds of subgroups: (1) The Typic subgroup represents the central concept of the great group. (2) Some subgroups are intergrades to other great groups, suborders, or orders. They represent the fringes of great groups, beyond the central concept, and have some of the same properties as other great groups, suborders, or orders. (3) Extragrades have properties which do not represent any other great group, suborder, or order.

Family. Families are rather uniform in properties that affect plant growth. They approach uniformity in properties that influence the capacity of the soil to supply air, water, and major nutrients (except nitrogen) to plant roots. Many of the properties used for groupings in the family are the same as those used for soil series, but they have a wider range in the family. The main properties considered in soil families are texture, mineralogy, reaction, and soil temperature. Other characteristics sometimes used are permeability, consistence, and soil thickness.

Series. Soil series are rather uniform in certain characteristics and arrangement of horizons. If genetic horizons are thin or absent, as in alluvial soils for example, the series are uniform in soil properties within a defined depth limit, usually the upper 40 inches. A soil series is a group of soils which has developed from a particular kind of parent material and has genetic horizons similar in differentiating characteristics and arrangement in the profile.

These differentiating characteristics include such morphological features as kind, thickness, and arrangement of horizons, as well as their color, structure, reaction, consistence, mineralogical and chemical composition, and texture below the A horizon. The soil series is the lowest category in the taxonomic key, Table 5.

Many of the terms used in classifying the soils of Jersey County in Table 5 are technical and are explained very briefly in the following paragraphs.

The four orders into which the soils of Jersey County are classified are:

Entisols — very youthful or undeveloped soils and recently deposited soils of floodplains.

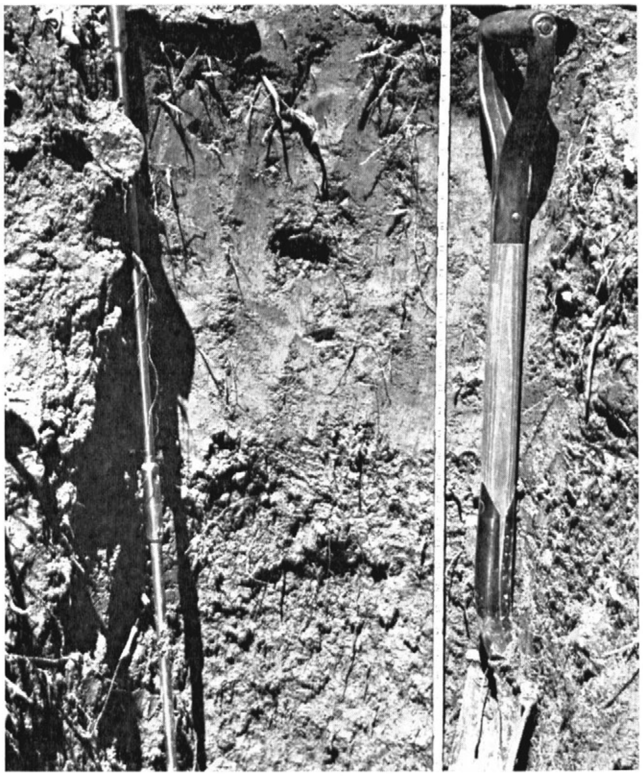
Inceptisols — youthful or weakly developed soils that have incipient or weak horizonation.

Mollisols — soils that have a dark-colored surface layer more than 10 inches thick and base saturation of more than 50 percent. Most Mollisols have developed under a grass vegetation. Some on floodplains may have dark-colored surface soils, partly because the sediment as deposited was dark colored.

Alfisols — light-colored soils with base saturation more than 35 percent (Fig. 18). If the surface of an

Table 5. — TAXONOMIC CLASSIFICATION OF JERSEY COUNTY SOILS

Order	Suborder	Great group	Subgroup	Family	Series
Entisols	Orthents	Udorthents	Typic Udorthents	Coarse silty, mixed, calcareous, mesic	Bold Hamburg
	Fluvents	Udifluvents	Typic Udifluvents	Loamy skeletal, mixed, nonacid, mesic	Elsah
				Coarse silty, mixed, nonacid, mesic	Haymond
				Coarse silty, mixed, calcareous, mesic	Jules
			Aquic Udifluvents	Fine silty, mixed, nonacid, mesic	Dupo
Inceptisols	Aquepts	Haplaquepts	Aeric Fluventic Haplaquepts	Coarse silty, mixed, nonacid, mesic	Wakeland
			Fluventic Haplaquepts	Fine silty, mixed, nonacid, mesic	Petrolia
	Ochrepts	Eutrochrepts	Dystric Eutrochrepts	Fine silty, mixed, mesic	Drury
		Dystrochrepts	Typic Dystrochrepts	Loamy skeletal, mixed, mesic	Bodine
Mollisols	Aquolls	Argiaquolls	Typic Argiaquolls	Fine silty, mixed, noncalcareous, mesic	Virden
		Haplaquolls	Typic Haplaquolls	Fine silty, mixed, noncalcareous, mesic	Beaucoup Sable
			Vertic Haplaquolls	Fine, montmorillonitic, noncalcareous, mesic	Darwin
				Fine, montmorillonitic over coarse silty, mixed, noncalcareous, mesic	McFain
			Cumulic Vertic Haplaquolls	Fine, montmorillonitic, noncalcareous, mesic	Wabash
	Udolls	Argiudolls	Typic Argiudolls	Fine silty, mixed, mesic	Bolivia Douglas Harrison Tama
			Aquic Argiudolls	Fine silty, mixed, mesic	Muscatine
		Hapludolls	Aquic Hapludolls	Fine silty, mixed, mesic	Tice
			Cumulic Hapludolls	Fine silty, mixed, mesic	Huntsville Worthen
			Aquic Cumulic Hapludolls	Fine silty, mixed, mesic	Lawson Littleton
	Albolls	Argialbolls	Argiaquic Argialbolls	Fine, montmorillonitic, mesic	Herrick
Alfisols	Udalfs	Hapludalfs	Typic Hapludalfs	Coarse loamy, mixed, mesic	Alvin
				Fine silty, mixed, mesic	Camden Fayette Rozetta Sylvan
				Fine, montmorillonitic, mesic	Clinton
				Fine loamy, mixed, mesic	Hickory
			Aquic Hapludalfs	Fine silty, mixed, mesic	Whitaker
			Mollic Hapludalfs	Fine silty, mixed mesic	Sicily
	Aqualfs	Ochraqualfs	Aeric Ochraqualfs	Fine silty, mixed, mesic	Stronghurst
				Fine, montmorillonitic, mesic	Keomah
				Fine, mixed, mesic	McGary
			Udollic Ochraqualfs	Fine loamy, mixed, mesic	Beardstown
				Fine, montmorillonitic, mesic	Clarksdale
			Typic Ochraqualfs	Fine, montmorillonitic, mesic	Rushville
		Albaqualfs	Mollic Albaqualfs	Fine, montmorillonitic, mesic	Cowden Denny
		Natraqualfs	Mollic Natraqualfs	Fine, montmorillonitic, mesic	Piasa



Profile of an Alfisol (Keomah silt loam), one of the light-colored soils developed under forest vegetation in Jersey County. (Fig. 18)

Alfisol is dark, it is thinner than 10 inches. Most Alfisols have developed under forest vegetation, although there are some that have had a grass vegetation. Those that had a grass vegetation are strongly developed, acid soils in which sufficient organic matter has been lost so their dark-colored surfaces are relatively thin (<10 inches).

The Entisols in Jersey County have two suborders, the Orthents which occur on steep slopes and lack soil development because of relatively rapid geological erosion, and the Fluvents which occur in bottomlands and receive deposits of sediments during overflow periods. The Udorthents are the great group subdivision of the Orthents which occur in moist climates, and the Typic Udorthents fit the central concept of the Udorthents.

The Udifluvents are the great group subdivision of the Fluvents which occur in moist climates, and the Typic Udifluvents fit the central concept of the Udifluvents and are moderately well- and well-drained soils. The Aquic Udifluvents are imperfectly drained soils, in general, and have grayer and more mottled profiles than the typic subgroup.

The family subdivisions of the subgroups are defined on a nearly uniform basis for all of the soils of Jersey County regardless of subgroup and are discussed on page 42.

The Inceptisols of Jersey County are subdivided into two suborders, Aquepts and Ochrepts. The Aquepts are wet, and unless artificially drained, are saturated with water at some period of the year and show evidence of wetness such as gray mottles or dull grayish colors at depths of less than 20 inches. The Ochrepts are also light colored, but are better drained and have brighter colors than the Aquepts.

Within the Aquept suborder there is only one great group, the Haplaquepts which is subdivided into the Fluventic Haplaquepts and Aeric Fluventic Haplaquepts subgroups. Both the Fluventic Haplaquepts and the Aeric Fluventic Haplaquepts occur on bottomlands where they receive sediments during flooding. The Fluventic Haplaquepts are poorly drained, gray soils and the Aeric Fluventic Haplaquepts are imperfectly drained soils with somewhat brighter colors in the upper part of the profile.

The Ochrepts (ochr = pale or light-colored surface soil) are subdivided in the great group category into the Eutrochrepts (Eutro = fertile or high base saturation) and the Dystrochrepts (dystr = infertile or low base saturation).

The Eutrochrepts have carbonates in the soil or base saturation of more than 80 percent above a depth of 30 inches. The Dystric Eutrochrepts subgroup lacks carbonates in the soil, but has base saturation of more than 80 percent in the soil above a depth of 30 inches.

The Dystrochrepts and, therefore, the Typic Dystrochrepts lack carbonates in the soil and have a base saturation of less than 80 percent in the soil.

The order Mollisols includes three suborders, the Aquolls, Udolls, and Albolls in Jersey County. The Aquolls are saturated with water at some season of the year unless artificially drained, and have dull grayish or bluish colors with or without mottles immediately below the dark-colored surface soil. They are naturally poorly drained soils.

The Argiaquoll great group has moderate subsoil development and the Typic Argiaquoll subgroup includes the central concept of the Argiaquolls. The Haplaquolls have weak subsoil development and the Typic Haplaquoll subgroup includes the central concept of the Haplaquolls.

The Vertic Haplaquolls are high in clay and shrink considerably when they dry. This causes the formation of large cracks from the surface downward. The Cumulic Vertic Haplaquolls are like the Vertic Haplaquolls except that they have a dark-colored surface layer more than 24 inches thick.

The Udolls are better drained and have brighter and browner subsoils than the Aquolls. They lack the A_2 horizon of the Albolls. The Argiudolls have moderate subsoil development. Typic Argiudolls have dark-colored surface soils less than 24 inches thick and fit the central concept of the Argiudolls. The Aquic Argiudolls are wetter (less well drained) than the Typic subgroup. The Hapludolls have weak subsoil development. The Aquic Hapludolls are imperfectly drained and, therefore, are less well drained than the Typic subgroup. The Cumulic Hapludolls have dark-colored surface soils more than 24 inches thick, whereas, the Typic subgroup has less than 24 inches of dark-colored surface soil. The Aquic Cumulic Hapludolls are wetter and also have thicker (more than 24 inches) dark-colored surface soils than the Typic subgroup.

The Albolls have an A_2 horizon immediately below the dark-colored surface soil and in the A_2 and B horizon show evidence of wetness such as dull colors, mottles, and iron-manganese concretions. The Argialbolls have a moderate to strongly developed subsoil. The Typic subgroup has an abrupt textural change from the A_2 to the B horizon, but the Argiaquic Argialbolls (the only subgroup of Argialbolls present in Jersey County) lack this abrupt textural change.

The Alfisol order in Jersey County is divided into two suborders, the Udalfs and the Aqualfs. The Udalfs are better drained soils than the Aqualfs and have brighter, browner colored subsoils. The Udalfs are usually moist in some part of the solum, but in some seasons may be dry in some part of the solum for periods of less than 3 months.

The Hapludalfs are the Udalfs which lack a fragipan and also lack tonguing of the A_2 into the B horizon. The Typic Hapludalfs include the central concept of the Hapludalfs. The Aquic Hapludalfs are wetter than the Typic subgroup and the Mollic Hapludalfs have darker colored surface soils which are from 6 to 10 inches thick. Since the dark-colored surface soil is less than 10 inches thick, these soils do not fit with the Mollisols (the dark-colored soils of the county in which the dark color carries down to a depth of more than 10 inches.)

The Aqualfs are saturated with water during a part of the year, unless artificially drained, and show evidence of wetness in the A_2 and B horizons such as dull, gray colors, mottlings, and iron-manganese concretions. The Ochraqualfs are light-colored, poorly to imperfectly drained soils. They do not have a fragipan or tonguing of the A_2 into the B horizon, nor an abrupt textural change from the A to the B horizon.

The Typic Ochraqualfs are poorly drained soils that are dominantly gray in the upper 30 inches of their profiles. The Aeric Ochraqualfs are imperfectly drained, in general, and have less gray and more brown and yellowish-brown horizon colors in the upper 30 inches of their profiles. The Udollic Ochraqualfs are similar to the Aeric Ochraqualfs but have darker colored surface soils that are from 6 to 10 inches thick.

The Albaqualfs are the Aqualfs that have an abrupt textural change from the A to the B horizon. They are slowly to very slowly permeable and lack tonguing of the A_2 horizon into the B horizon. Mollic Albaqualfs have darker colored surface soils than the Typic Albaqualfs. Thickness of the dark-colored surface layer ranges from 6 to 10 inches. The Natraqualfs are the Aqualfs that have more than 15 percent of the cation exchange capacity of the B horizon saturated with sodium. The Mollic Natraqualfs have thicker (6 to 10 inches) dark-colored surface soils than the Typic subgroup.

As was mentioned above, the subdivisions in the family category or the soil families have common meanings regardless of the higher categories. In other words, the fine silty, mixed, mesic family is defined the same for the Typic Argiudolls as it is in all other subgroups for which it is present and listed in Table 5. The soil families are defined below.

The soil families of Jersey County are defined on the basis of texture, mineralogy, and soil temperature (in that order). The families of the Entisols and some of the Inceptisols and Mollisols are defined on the basis of reaction, in addition to the three characteristics mentioned above. In naming the soil families, the texture name is given first, the mineralogy name second, the reaction class is third, if it is used, and the temperature class is last in all cases.

The texture classes and their definitions are:

1. **Loamy skeletal.** More than 50 percent, by volume, coarser than 2mm., with enough fines (<2mm.) of loamy material to fill interstices larger than 1 mm. These requirements apply to depths between 10 and 40 inches for the two soils in this family in Jersey County.

2. **Coarse loamy.** Less than 18 percent weighted average clay and more than 15 percent weighted average coarser than very fine sand (including coarse fragments) in the fines (< 2mm.) in the upper 20 inches of the B horizon, or between depths of 10 and 40 inches if no developed B horizon is present.

3. **Fine loamy.** More than 18 percent but less than 35 percent weighted average clay and more than 15 percent weighted average coarser than very fine sand (including coarse fragments) in the fines (< 2mm.) in the upper 20 inches of the B horizon, or between

depths of 10 and 40 inches if no developed B horizon is present.

4. **Coarse silty.** Less than 18 percent weighted average clay, and less than 15 percent weighted average coarser than very fine sand (including coarse fragments) in the fines (< 2mm. material) in the upper 20 inches of the B horizon, or between depths of 10 and 40 inches if no developed B horizon is present.

5. **Fine silty.** More than 18 percent weighted average clay but less than 35 percent clay, and less than 15 percent weighted average coarser than very fine sand (including coarse fragments) in the fines (< 2mm.) in the upper 20 inches of the B horizon, or between depths of 10 and 40 inches if no developed B horizon is present.

6. **Fine.** More than 35 percent weighted average clay but less than 60 percent clay in the fines (< 2mm.) in the upper 20 inches of the B horizon, or between depths of 10 and 40 inches if no developed B horizon is present.

The mineralogy classes are based on an average of the mineralogy of all horizons or of depths specified and are defined as follows:

1. **Mixed.** When used for soils that are coarser than the fine texture class, there is a mixture of weatherable minerals such as feldspars and micas, but less than 40 percent of any one mineral is present other than quartz which may be as much as 65 percent of the fines (< 2mm.) of the soil from surface of the soil to the base of the developed B horizon, or if there is no developed B horizon, to a depth of 40 inches, or to rock, whichever is shallower. When used for fine- or very fine-textured soils, mixed refers to the clay mineralogy and indicates the soil is not dominated by any particular kind of clay.

2. **Montmorillonitic.** This is one of the clay mineralogy classes which is used only for the fine and very fine texture classes (> 35 percent clay in the fines or the < 2mm. portion of the soil). In this class, the clay is dominated by the expandable mineral, montmorillonite. This mineralogy class applies to the same depths of soil as those described above for the mixed mineralogy class.

Reaction classes used in defining the soil families of Jersey County have the following meanings:

1. **Calcareous.** Contains sufficient lime to effervesce with dilute hydrochloric acid. Reaction is generally above pH 8.0.

2. **Noncalcareous.** Lacks sufficient lime to effervesce.

3. **Nonacid.** pH is above 5.5 in at least some part of the control section or to a depth of 40 inches.

Only one temperature class, **mesic**, was used in defining the families of Jersey County soils. The mesic temperature class includes soils which have mean annual soil temperatures between 47° and 59° F. at a depth of 20 inches.

INTERPRETATION OF SOILS FOR SPECIFIC PURPOSES

Use and Management of Soils for Field Crop Production

Many of the soils of Jersey County have common management requirements when used for cultivated crops and pastures. These general management requirements, such as fertility, erosion control, and drainage, are discussed in the first part of this section. The capability groupings and specific management suggestions for the various management groups are discussed in the second part.

General management practices for cultivated crops and pastures

Cultivated crops. A sound fertilization program is needed on all Jersey County soils. Soils vary in their ability to supply plant nutrients. Soil tests indicate the level of a particular nutrient in the surface soils, but do not necessarily indicate the level of the entire soil. Also, plants vary in their need for nutrients and in their response to applied nutrients. The cropping system also should be considered in planning the fertility program. Soil type, soil test, and the requirements of the crops to be grown should be considered in the selection of a fertility program.

Nitrogen is the most limiting plant nutrient, particularly for corn. A plant receiving insufficient nitrogen has a pale green color, stunted growth, and, in the instance of corn, yellowing of the midrib of the lower leaves. Two principal means are used to supply nitrogen The most prevalent until recently was growing alfalfa, red clover, or sweet clover in the cropping system. Any of the crops will supply most of the nitrogen needed for one year of corn. If corn is grown more than one year after clover, heavy applications of nitrogen are required. In cropping systems in which corn is grown almost continuously, nitrogen will have to be applied in excess of that removed by the corn crops.

Soybeans, wheat, and oats do not require as much nitrogen as corn. However, yields of these crops, especially those of wheat and oats are usually improved by the application of this nutrient.

The phosphorus levels of most Jersey County soils are sufficiently high that corn gives only small increases when phosphate is applied. On soils similar to the dark-colored soils of eastern Jersey County at the University of Illinois Agronomy fields at Clayton (*2*) and Carlinville (*1*) applied phosphorus did not give significant increases in returns on corn or soybeans. However, significant increases were obtained on these fields when superphosphate was applied to wheat, oats, and alfalfa. The phosphate requirements for wheat, oats, and clovers are considerably higher than for corn. Thus, phosphorus levels adequate for corn are not sufficiently high to give maximum yields of small grains and legumes.

While experimental data are not available for the light-colored soils of Jersey County, it is believed most of them would give yield responses to phosphate similar to those of the dark-colored soils. Exceptions to this are Hickory, Alvin, and Colp series, which may be lower in this element and more responsive to applied phosphate fertilizer. Soil tests will provide a guide to intelligent use of phosphorus fertilizer.

The potassium level of most Jersey County soils is about medium. At the Carlinville Agronomy field, significant increases in corn and hay yields were obtained from applications of potassium. Soil tests should be used as a guide to a potassium fertilizer program.

Limestone is used to change the acidity of soils. Almost all of the upland soils of the county are acid in the plow layer, unless they have been limed. However, limestone has been applied to most fields and the surface soil reaction is variable depending on the amount applied. Average annual limestone needs on most of these soils are from 500 to 1,000 pounds. Lawson, Huntsville, Jules, Bold, Hamburg, and Wabash soils are neutral to alkaline and do not require lime. Beaucoup, Darwin, Haymond, Sable, and Virden silty clay loam soils are slightly acid to neutral and require only small amounts of limestone. Soil pH values of 6.5 are considered optimum for most crops, but alfalfa, sweet clover, and possibly soybeans will do best at pH values of 7.0. These higher pH values should be maintained in cropping systems where these legumes are grown for several years.

Minor elements are not known to be deficient in Jersey County, although symptoms of boron deficiency have been observed in alfalfa.

Erosion is a serious problem on many soils in Jersey County. Water erosion not only moves valuable topsoil from farms and causes gullies, but also the soil eroded from the fields becomes a problem by filling road ditches, drainage ditches, and ponds.

Soil loss under good grass or forest cover is negligible. Pasture, hay, or forest will protect sloping soils from erosion. Graded terraces are the most effective erosion control practice for Jersey County. Many of these terraces have been built. They are most needed on long slopes as they intercept the water and conduct it to grassed waterways before it erodes the soil. Contour tillage is used with terraces and as a separate practice. Contouring is most effective on gently sloping soils. On strongly sloping soils where it is more difficult to keep the rows level, contouring is not as effective unless used with a terrace system.

Cropping systems with meadow crops provide an effective method of erosion control (Fig. 19). This is true not only during the time the soil is covered with close-growing crops, but also in succeeding crops because meadow crops promote better soil structure. This permits more of the rainfall to enter the soil and consequently there is less runoff to erode the soils. Minimum tillage also promotes structure and increases infiltration. To achieve maximum erosion control, plowing should be delayed as long as practical and other tillage operations should be limited to those needed to kill weeds. Many farmers have planted corn with no other field preparation than plowing.

One of the most important means of controlling erosion is to maintain a high fertility level. Such a fertility level promotes rapid plant growth that quickly covers the soil and thus provides erosion control.

Rotation meadow in the foreground with terraces in the light area on the ridge in the background. (Fig. 19)

Pine plantation around an orchard pond in foreground with peach trees in center background. (Fig. 20)

Peaches and apples are specialized crops on several thousand acres in Jersey County (Fig. 20). Most of this fruit is produced on sloping Fayette and Rozetta soils. These deep, moderately permeable, well- and moderately well-drained soils with their high available moisture capacities are well suited to the production of apples. Because most orchards are maintained in sod, erosion is not a serious problem, except for gully erosion in roads between the trees. Careful planning of road systems with the tree rows on the contour will aid in preventing erosion.

Many of the soils in Jersey County were developed under poor or imperfect natural drainage conditions and require artificial drainage for high crop yields. Since the time of settlement, drainage has been improved on the darker colored soils by the installation of tile and surface ditches. In many areas additional tiling will improve drainage and increase crop yields.

Pastures. Most pastures are much less well cared for than the cultivated fields and, as a result, are low producing. The fertilization of pastures is much the same as the fertilization of cultivated crops, except that larger initial amounts are needed at seeding. This is the best time to mix the lime and fertilizers with the soil.

Periodic fertilization, however, will prolong the life of pastures and increase the yields. Topdressing of phosphorus and potassium are particularly needed for legumes. Nitrogen fertilizers increase the production of grass. Often it is more economical to make annual applications of nitrogen fertilizers to a good stand of desirable grasses, such as brome or tall fescue grasses, than to kill the sod and reseed the pasture with mixtures of legumes and grasses.

Alfalfa is the best legume for pasture on Jersey County soils. Ladino clover grows well on the Haymond, Wakeland, and other alluvial soils, but tends to disappear during dry years on most upland soils. Red and sweet clover do not persist and are unsuitable for long-term pastures.

Bromegrass, tall fescue, and orchard grass all do well on Jersey County soils. They produce considerably more forage than timothy or redtop.

Many existing pastures in Jersey County are in bluegrass and production is generally low. However, production can be increased to a high level with good management which includes heavy fertilization. A good legume, such as alfalfa or Ladino clover, is needed in addition to the grass to give maximum returns. Without legumes, good grass growth can only be obtained with nitrogen fertilizers.

Capability classification and management groups of Jersey County soils

A capability classification is a grouping of soils which shows, in a general way, their suitability for most kinds of farming. It is a practical grouping based on limitation of the soils, the risk of soil damage when used, and the way they respond to treatment.

In this system all the kinds of soils are grouped at three levels: the capability class, subclass, and unit. The eight capability classes in the broadest grouping are designated by Roman numerals I through VIII. In class I are the soils that have the fewest limitations, the widest range of use, and the least risk of damage when used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise limited that they do not produce worthwhile yields of crops, forage, or wood products. All classes are found in Jersey County except class VIII.

The subclasses indicate major kinds of limitations within the classes. Within most classes there can be as many as three subclasses. There are no subclasses in class I, however, because the soils of this class have few or no limitations. The subclass is indicated by adding a small letter e, w, or s, to the class numeral (for example IIe). The letter e shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; w means that water in or on the soil will interfere with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and s shows that the soil is limited mainly because it is shallow, drouthy, or stony.

Within the subclasses are the capability units. These are groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus the capability unit is a convenient grouping of soils for many statements about their management. These units are generally identified by numbers (for example, IIe-1 or IIIw-2) and are called management groups in the following section.

Soils are classified in capability classes, subclasses, and units according to the degree and kind of their permanent limitations. Consideration is not given to major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil, or to possible but unlikely major reclamation projects.

The seven classes in the capability system and the subclasses occurring in Jersey County are defined, and the management groups are discussed in the following paragraphs. As mentioned earlier (page 3), specific management information, including recommended crop rotations, is available in the Jersey County Soil Management Guide (*6*).

Class I. — Soils having few or no limitations or hazards that restrict their use.

Management group I-1. This management group consists of deep, dark- and moderately dark-colored soils with silt loam and loam surface horizons. They are imperfectly drained, moderately permeable, and nearly level to gently sloping. Except for Beardstown, these soils have high to very high available moisture capacities. Because of sandy lower horizons, Beardstown has only a moderate available moisture capacity.

The following soils are in this management group:

41, 46, 81, 81+, 188A, 257, 284A, 284B, 451A, 451A+, 451B.

Except for the neutral to slightly acid Lawson and Tice, these soils are moderately to strongly acid throughout the main rooting zone of most plants. Limestone is needed to correct the acid conditions.

While natural drainage is adequate to grow crops, higher yields are often obtained after tile drains have been installed. Flooding may occur occasionally on Lawson and Tice soils, depending upon their location.

Corn is the most common crop grown on these soils. Some farmers apply large amounts of nitrogen and grow corn continuously with good yields. Other farmers prefer to grow clover and alfalfa crops in rotation for hay and pasture and to increase the nitrogen level in the soil (Fig. 21). While the perennial grasses such as bluegrass, bromegrass, orchard grass, and tall fescue produce well on these soils, they are seldom grown because greater economic return is obtained from grain crops.

Meadow in foreground and corn in the background on soils of management group I-1. (Fig. 21)

Management group I-2. This management group consists of deep, light- to dark-colored soils with silt loam surface horizons and are well- and moderately well-drained, moderately permeable, and nearly level to gently sloping. They have high available moisture capacities. Huntsville and Haymond soils are subject to overflow unless protected from flooding. Some of the Camden floods after very heavy rains.

The following soils are in this management group:

77, 77+, 134A, 331A, 331B.

These soils produce good yields of corn and other common crops of the area. Corn is often the only crop grown on areas that flood, since flood waters usually damage it less than they do soybeans and wheat. When properly fertilized, good yields can be expected from continuous corn.

Huntsville and Haymond are about neutral in reaction, but Camden is acid and requires the application of limestone. These soils are medium to high in phosphorus and potassium.

Many of the smaller areas of these soils, with streams meandering through them and with adjacent steep land that is not tillable, are utilized for pasture or woodland. Ladino clover, as well as alfalfa, bromegrass, and tall fescue, produce good pasture and hay crops on these soils.

Class II. — Soils having some limitations that reduce the choice of plants or require moderate conservation practices.

***Subclass IIe.** — Soils having a moderate hazard of erosion if not protected.*

Management group IIe-1. This management group consists of deep, dark- and light-colored, moderately permeable, gently sloping, imperfectly drained to well-drained soils with slight to moderate erosion hazards. Except for Alvin and Beardstown soils, they have silt loam surface horizons and high available moisture capacities. Alvin and Beardstown soils have sandier textures and have moderate available moisture capacities.

The following soils are in this management group:

18B, 36B, 37B, 75B, 127B, 128B, 131B, 134B, 188B, 246B, 246$\bar{\text{B}}$, 258B, 258$\bar{\text{B}}$, 279B or **XB, 280** or **YB.**

These soils are variable in organic matter and nitrogen, but levels of nitrogen are too low for maximum yields of corn. Phosphorus levels are high with the exception of Beardstown and Alvin soils, which have moderate levels. The potassium levels of these soils are medium or medium to high. These soils are acid if they have not been limed.

These soils are suitable for the crops usually grown in the county. With some attention to erosion control, such as farming on the contour or the use of terraces and grass waterways (Fig. 22), row crops can be grown continuously without excessive damage to the soil by erosion.

Grass waterways can be used to protect the shallow draws which are common in soils of management group IIe-1. (Fig. 22)

Management group IIe-2. This management group consists of deep, light- to dark-colored, moderately well- to well-drained, moderately sloping soils that are slightly to moderately eroded. They have high to very high available moisture capacities. Although Whitaker soils are generally imperfectly drained, drainage is not a problem on these moderately sloping mapping units. Erosion is a hazard when these soils are cropped with row and grain crops.

The following soils are in this management group:

18C, 18$\bar{\text{C}}$, 19-35C or **TC, 19-35$\bar{\text{C}}$** or **T$\bar{\text{C}}$, 36C, 36$\bar{\text{C}}$, 37C, 75C, 127$\bar{\text{C}}$, 128C, 132C, 132$\bar{\text{C}}$, 134C, 134$\bar{\text{C}}$, 246C, 246$\bar{\text{C}}$, 258C, 258$\bar{\text{C}}$, 279C** or **XC, 279$\bar{\text{C}}$** or **X$\bar{\text{C}}$, 280C** or **YC, 280$\bar{\text{C}}$** or **Y$\bar{\text{C}}$.**

The nitrogen and organic matter contents of these soils are low, except for Tama and Bolivia soils which are moderate in these materials. The phosphorus is high and the potassium levels are medium. These soils, except Bold, are acid if they have not been limed.

Erosion is a problem on these soils if they are plowed and cropped regularly. A combination of conservation practices and meadow crops in the rotation is needed for erosion control.

If contour tillage or terraces are used, several years of row crops, a small grain crop, and a clover crop will prevent serious erosion. If these practices are not used, it is necessary to use a cropping system of equal years of row crops and meadow crops, such as corn, oats, and clover, or corn, soybeans, wheat, and two years of alfalfa to control erosion.

***Subclass IIw.** — Soils having moderate limitations because of excess water.*

Management group IIw-1. This management group consists of poorly drained, dark-colored, moderately permeable soils found on nearly level areas of the upland. These soils have a high natural fertility level and a high available moisture capacity. Nitrogen and some potash fertilizers are needed for highest yields.

The following soils are in this management group:

47, 50, 68.

The plow layers of these soils range from slightly acid to neutral. Virden silt loam may be somewhat more acid, unless it has been heavily limed. The soils with silty clay loam surfaces are more difficult to till. Seedbeds are more easily prepared if the soil is plowed the preceding fall. Occasional clover and meadow crops grown in the cropping system will promote soil structure and good tilth. Good drainage also promotes good tilth. Although most areas of these soils have been tiled, many of them would benefit from additional tile drains. Tile drains installed at 80-foot to 100-foot spacings and at depths of 3 to 3½ feet will give effective drainage.

Management group IIw-2. This management group consists of nearly level and gently sloping, moderately dark-colored, poorly drained soils. These soils occur as flat areas or slight depressions on nearly level areas or on the lower slopes of some of the knolls in association with dark-colored soils. They have a lower natural fertility level than the soils with which they occur. Their available moisture capacity is high, but they are slowly permeable to water.

The following soils are in this management group:

45, 112A, 112B.

The plow layers of these soils were originally acid, but now vary from strongly acid to neutral, depending on the amount of limestone that has been applied. The phosphorus and potassium levels are medium to high. After heavy rains, these soils do not dry out as quickly as the surrounding soils. Shallow ditches can be used in many areas to remove excess water after heavy rains. Although tile do not function well in these soils, they are often tiled with surrounding soils. Backfilling the tile ditch with fine gravel or corn cobs will promote the efficiency of the tile.

Some erosion control practices may be needed on Cowden silt loam, 2- to 4-percent slopes. Terraces can be used to provide erosion control on these slopes. Other areas should be farmed on the contour or should be in meadow crops about one year in three. Under good management, these soils will produce good yields of the common crops grown in the county.

Management group IIw-3. This management group consists of light-colored, nearly level, imperfectly drained soils. These moderately to slowly permeable soils have only a moderate inherent fertility, but have high available moisture capacities.

The following soils are in this management group:

17A, 132A, 278A.

The plow layers of these soils range from strongly acid to nearly neutral, depending on the amount of limestone that has been applied. These soils are low in organic matter and nitrogen, but high in phosphorus and moderate in potassium. While these soils may well be cropped mainly to corn, they commonly occur adjacent to more sloping soils that need some meadow crops to assist in erosion control. They are well adapted to wheat. These soils have subsoil colors indicative of some wetness, but drainage other than short surface ditches is seldom required.

Management group IIw-4. This management group consists of nearly level, moderately fine- and fine-textured, poorly drained bottomland soils. These light- and dark-colored soils are fertile and have high available moisture capacities. Beaucoup and Petrolia soils are moderately permeable. McFain soils are more slowly permeable in the surface and possibly in the subsoil, but are very permeable in the shelly zone (zone of accumulation of mollusk and snail shells) at depths of 2 to 3 feet. This layer permits much faster drainage of excess water from this soil than would otherwise be possible.

The following soils are in this management group:

70, 248, 248+, 288.

These soils are seldom very acid, but some limestone may be required. The overwash phase of McFain may have sufficient lime to be slightly calcareous. The phosphorus level is high and the potassium level is medium to high.

Areas of these soils that are drained and protected from flooding are planted to corn and soybeans, as well as to some wheat and other crops. When properly managed, high yields are obtained.

Drainage and flood control is needed on all of these soils. Most of these soils are protected from floods in the drainage and levee districts. Additional drainage would be beneficial in some areas. Tile can be used to remove the excess water. For best results place tile 3 to 3½ feet deep at 75-foot to 100-foot intervals.

It is much easier to prepare a seedbed if these soils are plowed in the fall. Tilling these soils when they are wet compacts them and reduces yield potential. The soil often appears dry in the spring on fall-plowed fields, but it is only the granular surface that is dry and the soil at several inches depth may be too wet to till without damage to soil structure.

Management group IIw-5. This management group consists of nearly level to gently sloping, silty, bottomland soils. These soils are fertile, have high available moisture capacities, and are imperfectly drained to moderately well drained. Wakeland soils are mainly found in creek bottoms and they flood frequently.

The following soils are in this management group:

28A, 28B, 180, 333A, 333B.

Soil reaction varies from slightly acid to neutral in Wakeland to calcareous in Jules. Organic matter and nitrogen are low in these soils. Applications of soluble

Corn on a small bottomland with alfalfa on the slope in the background. (Fig. 23)

phosphorus on Jules soils give good returns because of their alkaline reaction which limits the availability of this nutrient. Potassium may give good yield increases on all of these soils.

Corn and soybeans are the principal crops grown and good yields are obtained (Fig. 23). Additional drainage ditches and tile lines can be used in some areas to increase yields.

Management group IIw-6. This management group consists of stony or cherty soils in small bottomlands in the southern and western parts of the county. These soils are moderately to rapidly permeable and moderately fertile. Available moisture capacity is moderate because of stoniness. Overflow is usually of short duration and ordinarily not harmful, except where swift currents deposit chert fragments on the surface soil.

The following soils are in this management group:

475A, 475B.

These soils are typically slightly acid. They are low to moderate in organic matter and nitrogen and medium in phosphorus and potassium.

Because of stoniness and the moderate available moisture capacity only moderate corn and soybean yields are obtained. Most other crops grow well on these soils.

These soils are difficult to plow and till because of the stones. Most areas are in small bottoms adjacent to steep soils and are usually in pasture or woodland.

Management group IIw-7. In this management group are gently sloping, light-colored, imperfectly drained soils. These soils have high available moisture capacities and are moderately to moderately slowly permeable. They are productive when well managed.

The following soils are in this management group:

17B, 17B̄, 132B, 132B̄, 173B, 173B̄, 278B.

These soils are low in organic matter and nitrogen. They are high in phosphorus with the exception of McGary, which may be somewhat low. They are medium in potassium content.

These soils are suited to production of crops of the area. Erosion is a problem if these soils are cropped regularly to row crops. However, if terraced or contoured, these soils may be used rather regularly for row crops. Without these practices, the soils should be in meadow about one third of the time.

These soils have colors indicative of some wetness, but they have sufficient slope for water to run off quickly and additional surface drainage is not needed.

Class III. — Soils having severe limitations that reduce the choice of plants or require special conservation practices, or both.

Subclass IIIe. — Soils subject to severe erosion if cultivated and not protected.

Management group IIIe-1. In this management group are light-colored, moderately sloping and strongly sloping soils. These soils are silty, except Alvin, which is sandy, and Hickory, which is loamy. Erosion conditions in this group vary from little or none to severe. Erosion control is a serious problem on most areas. Most of these soils are moderately well to well drained. Keomah is imperfectly drained internally, but this mapping unit has good surface drainage. These soils are moderately permeable and have moderate to high available moisture capacities.

The following soils are in this management group:

8-18D̄ or SD̄, 17C̄, 18C̲, 18D, 18D̄, 19-35D or TD, 19-35D̄ or TD̄, 30D, 37D, 75D, 75D̄, 127C̲, 131C̄, 134C̲, 134D, 134D̄, 258C̲, 279C̲ or XC̲, 279D or XD, 279D̄ or XD̄, 280C̲ or YC̲, 280D or YD, 280D̄ or YD̄.

These soils are low in organic matter and nitrogen. Except for Hickory and Alvin, they are high in phosphorus and about medium in potassium. Unless they have been limed, these soils are usually acid and require limestone for good crop growth.

They are suitable for the production of grain crops if precautions are taken to control erosion. Terraces provide the most effective erosion control, but meadow crops are also needed. About one meadow crop in a three-year cropping system is needed to prevent seri-

Pasture can be used for erosion control on soils in management group IIIe-1. (Fig. 24)

ous soil loss. Because of the steep slopes, contour farming is not nearly as effective a control practice as terracing. Without terraces, these soils should be left in meadow most of the time. These soils will produce excellent pasture and hay yields when properly managed (Fig. 24).

Subclass IIIs. *— Soils that have severe limitations of moisture capacity or tilth.*

Management group IIIs-1. This management group consists of nearly level, moderately dark-colored, poorly drained soils with alkaline subsoils which are high in sodium. These soils occur as small, irregular areas. Low to moderate available moisture capacity because of shallow rooting zones and low to medium availability of phosphorus and potassium limit the yield of most crops on these soils.

The following soils are in this management group:

474A, 474$\bar{A}$.

These soils are low in organic matter and nitrogen. Phosphorus and potassium are much less available in alkaline material, such as the subsoil of these soils, than they are in the more acid subsoils in the county. High levels of phosphorus and potassium are needed in the surfaces of these soils to compensate for the low availability of these nutrients in the subsoil.

With proper fertilization, corn and soybean yields are moderate. Wheat and early season clover yields are high. While the corn and soybean crops on these soils are noticeably poorer than on the surrounding soils, this difference is much less noticeable in wheat and early-season clover crops.

Drainage is a difficult problem on these soils, because water will not drain through the subsoil when it is moist. Adequate surface drainage is needed for satisfactory crop production. However, surface drainage removes only the excess surface water, leaving the subsoils to dry by evaporation. Tile drainage is not effective because of the very slowly permeable subsoils.

Subclass IIIw. *— Soils having severe limitations because of excess water.*

Management group IIIw-1. In this management group are poorly drained, nearly level bottomland soils with silty clay textures. The fine textures, poor drainage, and slow permeability combine to make a difficult tilth problem. These soils develop cracks when they dry, and many plant roots are damaged by this process.

The following soils are in this management group:

71, 83.

While these soils are moderately high in organic matter and nitrogen, regular additions obtained by the plowing down of grass and legume meadow crops as organic matter are needed for easiest tilth. Phosphorus levels are high and potassium levels are medium. These soils are usually slightly acid to neutral.

Corn, soybeans, and wheat are the principal crops on these soils in the drained areas protected from flooding.

Fall plowing is desirable because this permits the large clods to break down by freezing and thawing and wetting and drying. Tiling is not used extensively on these soils because of their slow permeability. Surface removal of water is often necessary for crop production. Without surface drainage and flood control, these soils are difficult to cultivate and should be used for pasture or woodland. Some swampy areas of Darwin silty clay occur in Jersey County and are indicated on the soil map by a swamp symbol immediately preceding the soil type number. These swampy areas are in management group Vw-1, page 51.

Management group IIIw-2. In this management group are nearly level, light-colored, poorly drained soils with slowly permeable subsoils. Natural fertility is moderate and the available moisture capacity is high.

The following soils are in this management group:

16, 173A.

These soils are low in organic matter and nitrogen and medium in phosphorus and potassium. Unless they have been limed, they are acid.

Corn, soybeans, wheat, alfalfa, and clover are successfully grown on these soils. Particular attention should be paid to nitrogen fertilization, because these soils are deficient in this plant nutrient.

Water drains through these soils slowly and much of the wetness is caused by this slow water movement, rather than by a high water table. Surface drains and meadow crops that add organic matter to the surface improve drainage. Tile are not effective in these slowly permeable soils.

Class IV. — Soils having severe limitations that restrict the choice of plants or require very careful management, or both.

***Subclass IVe.** — Soils subject to very severe erosion if cultivated and not protected.*

Management group IVe-1. In this management group are moderately to very strongly sloping, slightly to severely eroded soils.

These light-colored soils are moderately permeable and have moderate to high available moisture capacities. These soils are silty, except Alvin, which is sandy, and Hickory, which is loamy. All of these soils are acid except Bold and Hamburg, which are calcareous. Erosion is a problem on all soils in this group.

The following soils are in this management group:

8$\underline{D}$, 8E, 8$\overline{E}$, 8-18$\underline{D}$ or S$\underline{D}$, 8-18E or SE, 18$\underline{D}$, 19-35$\underline{D}$ or T$\underline{D}$, 19-35E or TE, 19-35$\overline{E}$ or T$\overline{E}$, 30E, 131$\underline{D}$, 134$\underline{D}$, 134$\overline{E}$, 173$\underline{C}$, 279$\underline{D}$ or X$\underline{D}$, 279$\overline{E}$ or X$\overline{E}$, 280$\underline{D}$ or Y$\underline{D}$, 280E or YE, 280$\overline{E}$ or Y$\overline{E}$.

These soils are low in organic matter and nitrogen and about medium in potassium. Except for Hamburg, Hickory, Alvin, and Bold, these soils are high in phosphorus. Hickory and Alvin are medium in this nutrient. Bold and Hamburg soils require higher levels of phosphorus than usual because of their alkaline reaction.

While these soils will produce moderate yields of the common crops, the erosion hazard limits the amount of cropping that can be done without serious soil loss. The "E" slopes are too steep when terraced to permit the safe use of ordinary farm equipment. The "C" and "D" slopes can be terraced and cropped to a limited extent. On the whole, soils of this management group are most suitable for the production of meadow and pasture crops.

Class V. — Soils having severe limitations that restrict use to pasture, woodland, or wildlife food and cover.

***Subclass Vw.** — Soils too wet for cultivation.*

Management group Vw-1. A part of Darwin silty clay is the only soil in this management group. The part of 71 Darwin clay in this management group is shown on the soil map by a swamp symbol immediately preceding the soil type number. This soil is dark-colored, fine textured, and very poorly drained. It occurs mostly along the Illinois River in the vicinity of Pere Marquette State Park in low bottomlands where the water level is quite high. The high water level is caused in part by the dam on the Mississippi River at Alton, Illinois. In general, drainage and cultivation are impractical on this soil. Most areas are in forest. These areas also supply food and cover for wildlife.

Class VI. — Soils having severe limitations that make them generally unsuitable for cultivation and limit use largely to pasture, woodland, or wildlife food and cover.

***Subclass VIe.** — Soils severely limited, chiefly by risk of erosion if protective cover is not maintained.*

Management group VIe-1. In this management group are light-colored, moderately to severely eroded, very strongly sloping soils and slightly, moderately, and severely eroded steep soils. The soils are fertile, and except for Hickory and Alvin soils, they have high available moisture capacities. Hickory and Alvin soils have moderate available moisture capacities.

The following soils are in this management group:

8$\underline{E}$, 8F, 8$\overline{F}$, 8$\underline{F}$, 8-18$\overline{E}$ or S$\overline{E}$, 8-18$\underline{E}$ or S$\underline{E}$, 8-18F or SF, 8-18$\overline{F}$ or S$\overline{F}$, 8-18$\underline{F}$ or S$\underline{F}$, 18$\underline{E}$, 19-35$\underline{E}$ or T$\underline{E}$, 19-35F or TF, 19-35$\overline{F}$ or T$\overline{F}$, 19-35$\underline{F}$ or T$\underline{F}$, 30F, 131$\underline{E}$, 134$\underline{E}$, 134$\underline{F}$, 279$\underline{E}$ or X$\underline{E}$, 280$\underline{E}$ or Y$\underline{E}$, 280F or YF, 280$\overline{F}$ or Y$\overline{F}$, 280$\underline{F}$ or Y$\underline{F}$, 280-471F or ZF, 280-471$\overline{F}$ or Z$\overline{F}$, 280-471$\underline{F}$ or Z$\underline{F}$.

These soils are low in organic matter and nitrogen and about medium in potassium. Except for Hickory, Bold, Hamburg, and Alvin, they are high in phosphorus. Hickory and Alvin soils are medium in phosphorus, and the phosphorus in Bold and Hamburg is only slowly available for plants. Except for Bold and Hamburg, these soils are acid.

These soils are too steep or badly eroded for cropping with tilled crops (Fig. 25). Care should be taken to prevent erosion while pastures are being reseeded on these soils. Reseeding of pastures can usually be done with ordinary farm equipment. Adapted pasture plants are alfalfa, Ladino clover, bromegrass, and tall fescue.

Class VII. — Soils having very severe limitations that make them unsuitable for cultivation without major reclamation and restrict use largely to grazing, woodland, or wildlife.

Subclass VIIe. *— Soils very severely limited, chiefly by risk of erosion, if protective cover is not maintained.*

Management group VIIe-1. In this management group are very steep soils including some cherty and stony soils, as well as some soils shallow to rock.

The following soils are in this management group:

8G, 8$\overline{G}$, 8$\underline{G}$, 19-35G or TG, 19-35$\overline{G}$ or T$\overline{G}$, 19-35$\underline{G}$ or T$\underline{G}$, 30G, 94G, 280G or YG, 280-471F or ZF, 280-471$\overline{F}$ or Z$\overline{F}$, 280-471$\underline{F}$ or Z$\underline{F}$, 280-471G or ZG, 280-471$\overline{G}$ or Z$\overline{G}$.

These soils are so steep that ordinary farm equipment would overturn when operated on them. Because it is difficult to manage pasture profitably without fertilization, reseeding, and occasional mowing, these soils, except Hamburg, are best suited for woodland. However, Hamburg soils, because of their calcareous and drouthy site conditions, will not produce merchantable forest products.

Pasturing of woodland should be avoided because it may lead to serious erosion through the destruction of the leaf mulch cover. Pasturing also lowers timber production by decreasing the infiltration rate of the soil and thus promoting runoff. Heavy grazing may eventually destroy the forest by killing the small trees.

Pasture in a small bottomland and on Hickory loam of management group VIe-1 on the side slopes. (Fig. 25)

Crop yield and productivity

Average crop yields under two levels of management are given in Table 6 for each mapping unit. The two levels of management, moderately high (column A under each crop) and high (column B), are defined in the following paragraphs.

A moderately high level of management includes the following management practices: adequate drainage; timely use of adapted cultural practices; careful handling of manure; a cropping system which minimizes erosion and helps maintain good soil tilth and nitrogen supply; and application of limestone, phosphate, and potash as soil tests indicate. Corn should have 40 pounds each of phosphate (P_2O_5) and potash (K_2O) per acre, either applied or estimated as residual from previous applications. The nitrogen requirement for corn is a total of 100 to 120 pounds per acre in the current and the previous year (from legumes, commercial nitrogen, manure, or some combination of these sources). The nitrogen, phosphate, and potash requirements for soybeans, wheat, and oats are about 70 percent of those for corn.

A high level of management includes more intensive and near optimum application of all the practices considered in the moderately high level of management, plus an increase (30 to 40 percent) in the application of nitrogen, phosphate, and potash fertilizers.

The yields in Table 6 are based on information obtain during the past 10 years and can be expected to change with improvements in farming techniques, crop varieties, and soil management. Yields from experiments by the Illinois Agricultural Experiment Station and from longtime records kept by farmers in cooperation with the University of Illinois, Department of Agricultural Economics, were used as a basis for estimating yields in Table 6 wherever data were available and applicable.

Yields obtained by the Illinois Agricultural Experiment Station on agronomy fields in Illinois on soils occurring in Jersey County are somewhat higher than the yields given in Table 6. Longtime average yields, as well as current information on the yields on the agronomy fields, can be obtained by writing to the Agronomy Department, University of Illinois, Urbana.

Agronomy experiment field yields on Sable silty clay loam (68) are given in Agronomy Dept. Mimeo. AG-1759 from the Aledo field in Mercer County and in Mimeo. AG-1755 from the Hartsburg field in Logan County. Experimental field yields on Muscatine silt loam (41) are given in Agronomy Dept. Mimeo. AG-1760 from the Dixon field in Lee County. Experi-

Table 6. — ESTIMATED AVERAGE YIELDS OF CROPS ON JERSEY COUNTY SOILS UNDER MODERATELY HIGH (Column A) AND HIGH (Column B) LEVELS OF MANAGEMENT[a]

Soil map symbol	Corn		Soybeans		Oats		Wheat		Alfalfa hay		Mixed pasture		Bluegrass pasture	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	bu.	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*tons*	*tons*	*days*[b]	*days*[b]	*days*[b]	*days*[b]
8D̲	34	49	15	18	28	38	16	20	1.5	2.1	70	105	45	75
8E	46	64	17	20	32	42	18	24	1.9	2.4	90	145	60	95
8E̅	43	60	15	18	30	40	17	22	1.8	2.1	75	135	55	90
8E̲	N	N	N	N	N	N	N	N	1.3	1.8	65	95	40	70
8F	N	N	N	N	N	N	N	N	2.1	3.1	90	150	65	110
8F̅	N	N	N	N	N	N	N	N	1.7	2.4	80	120	30	80
8F̲	N	N	N	N	N	N	N	N	1.1	1.7	55	85	35	60
8G	N	N	N	N	N	N	N	N	N	N	N	N	55	95
8G̅	N	N	N	N	N	N	N	N	N	N	N	N	45	70
8G̲	N	N	N	N	N	N	N	N	N	N	N	N	30	45
8-18D̅ or SD̅	47	65	20	23	34	47	21	26	2.1	3.0	100	145	65	110
8-18D̲ or SD̲	43	60	18	20	31	43	19	24	1.9	2.8	90	135	60	100
8-18E or SE	48	66	20	23	34	48	21	27	2.1	3.0	100	150	70	110
8-18E̅ or SE̅	45	62	19	22	32	45	20	25	2.0	2.8	95	140	60	105
8-18E̲ or SE̲	N	N	N	N	N	N	N	N	N	N	85	110	55	95
8-18F or SF	N	N	N	N	N	N	N	N	N	N	95	140	70	115
8-18F̅ or SF̅	N	N	N	N	N	N	N	N	N	N	90	135	60	100
8-18F̲ or SF̲	N	N	N	N	N	N	N	N	N	N	85	95	50	90
16	60	75	27	31	42	53	26	32	2.1	2.6	110	165	70	120
17A	60	85	27	32	45	55	28	40	2.8	4.0	140	210	90	130
17B	51	72	23	27	38	47	24	34	2.4	3.4	120	180	75	110
17B̅	42	59	19	22	31	38	19	28	1.9	2.8	100	140	60	90
17C̅	39	55	18	21	29	36	18	26	1.8	2.6	90	140	60	85
18B	60	83	25	30	43	57	28	39	2.6	4.1	130	200	80	125
18C	58	80	24	29	41	55	27	37	2.5	3.9	125	195	75	120
18C̅	54	74	22	27	38	51	25	34	2.3	3.6	115	180	70	110
18C̲	49	68	20	25	35	47	23	31	2.1	3.0	100	155	60	95
18D	55	77	23	28	39	53	26	35	2.4	3.7	120	185	70	115
18D̅	52	71	21	26	36	49	24	33	2.2	3.5	110	175	65	105
18D̲	47	65	20	19	33	45	22	30	2.0	2.9	95	150	55	85
18E̲	N	N	N	N	N	N	N	N	1.9	2.5	85	140	50	80
19-35C orTC	60	82	23	28	42	59	27	36	2.8	4.2	140	210	85	135
19-35C̅ or TC̅	57	78	22	27	40	56	25	34	2.7	4.0	130	200	80	130
19-35D or TD	58	79	22	27	40	57	26	33	2.7	4.0	130	200	80	130
19-35D̅ or TD̅	55	75	21	25	38	54	25	33	2.5	3.8	130	190	75	120
19-35D̲ or TD̲	52	70	20	24	36	50	23	31	2.4	3.6	120	180	70	115
19-35E or TE	55	75	21	25	38	54	25	33	2.5	3.8	130	190	75	120
19-35E̅ or TE̅	52	70	20	24	36	50	23	31	2.4	3.6	120	180	75	115
19-35E̲ or TE̲	N	N	N	N	N	N	N	N	2.3	3.4	110	170	65	110
19-35F or TF	N	N	N	N	N	N	N	N	2.4	3.6	120	180	70	115
19-35F̅ or TF̅	N	N	N	N	N	N	N	N	2.3	3.4	110	170	65	110
19-35F̲ or TF̲	N	N	N	N	N	N	N	N	2.0	3.0	100	150	65	95
19-35G or TG	N	N	N	N	N	N	N	N	2.0	3.0	100	150	60	95
19-35G̅ or TG̅	N	N	N	N	N	N	N	N	N	N	N	N	60	90
19-35G̲ or TG̲	N	N	N	N	N	N	N	N	N	N	N	N	55	85
28A	75	95	32	35	52	63	36	42	3.2	4.8	160	240	105	180
28B	75	95	32	35	52	63	36	42	3.2	4.8	160	240	105	180
30D	50	65	17	20	30	47	20	25	2.5	3.5	120	70	70	100
30E	45	60	15	18	28	45	18	22	2.4	3.2	110	160	60	90
30F	N	N	N	N	N	N	N	N	2.0	3.0	115	180	75	130
30G	N	N	N	N	N	N	N	N	N	N	N	N	65	115
36B	79	105	30	37	55	73	36	45	3.1	4.7	155	235	100	155
36C	76	101	29	35	53	70	34	43	3.0	4.5	150	225	95	150
36C̅	72	96	28	33	50	67	32	41	2.8	4.3	140	210	90	145
37B	75	100	28	35	52	70	35	42	3.0	4.6	150	230	95	145
37C	72	95	27	32	50	65	33	40	2.9	4.4	145	220	90	150
37D	68	90	26	30	48	60	30	38	2.7	4.2	135	200	85	140

See footnotes on page 55.

Table 6. — Continued

Soil map symbol	Corn		Soybeans		Oats		Wheat		Alfalfa hay		Mixed pasture		Bluegrass pasture	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	bu.	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*tons*	*tons*	*days*[b]	*days*[b]	*days*[b]	*days*[b]
41	85	110	33	40	55	75	38	48	3.3	5.0	165	250	100	175
45	66	87	26	33	43	58	30	39	2.4	3.9	120	190	50	110
46	75	95	32	38	50	65	35	45	2.9	4.3	145	215	85	145
47	84	108	33	40	53	73	38	47	3.3	4.9	160	245	100	175
50	72	90	30	36	48	64	34	43	2.8	4.2	150	210	85	145
68	84	105	31	38	52	69	36	46	3.3	4.9	160	245	100	175
70	80	100	30	36	50	66	36	44	3.1	4.7	155	235	100	175
71	53	72	24	28	35	44	28	36	2.6	3.8	120	190	95	150
75B	69	95	26	32	49	69	31	42	2.9	4.4	145	220	90	140
75C	66	91	25	31	47	66	30	40	2.8	4.2	140	210	85	135
75D	63	87	20	25	45	63	29	38	2.7	4.0	135	200	85	130
75D̄	59	81	18	23	42	59	27	36	2.5	3.8	125	190	77	120
77	77	95	34	37	54	65	38	43	3.2	4.8	160	240	105	180
77+	77	95	34	37	54	65	38	43	3.2	4.8	160	240	105	180
81	81	105	32	38	52	71	36	46	3.2	4.8	155	240	95	165
81+	81	105	32	38	52	71	36	46	3.2	4.8	155	240	95	165
83	53	72	24	28	35	44	28	36	2.6	3.8	120	190	95	150
94G	N	N	N	N	N	N	N	N	N	N	N	N	N	N
112A	66	87	26	33	43	58	30	39	2.4	3.9	120	190	50	110
112B	59	78	24	30	39	53	27	35	2.2	3.5	110	175	45	100
127B	70	92	28	36	50	60	32	42	2.8	4.2	140	215	85	145
127C̄	63	85	26	33	45	55	30	40	2.6	4.0	135	210	80	140
127C̲	58	80	24	30	40	50	28	36	2.4	3.5	130	200	75	130
128B	70	92	28	36	50	60	32	42	2.8	4.2	140	215	85	145
128C	68	90	27	34	48	57	31	41	2.7	4.1	140	215	85	145
131B	54	77	24	29	40	55	26	34	2.1	3.3	105	155	90	140
131C̄	48	69	22	26	36	49	23	30	1.9	3.0	95	135	80	125
131D̲	42	59	18	22	31	42	20	26	1.6	2.5	80	120	60	110
131E̲	N	N	N	N	N	N	N	N	1.5	2.4	75	110	55	100
132A	57	83	26	31	43	53	27	38	2.7	3.8	130	200	85	125
132B	49	69	22	26	37	45	23	32	2.3	3.2	110	170	70	115
132B̄	44	63	20	24	34	42	21	30	2.1	3.0	100	155	65	95
132C	46	65	21	25	35	43	22	31	2.2	3.1	105	160	70	100
132C̄	43	60	19	23	32	39	20	28	2.0	2.8	95	150	65	95
134A	56	82	25	30	43	53	27	38	2.6	3.7	125	190	80	120
134B	48	68	23	25	36	45	23	32	2.3	3.2	110	170	70	115
134C	45	62	20	22	34	43	22	30	2.2	3.1	105	160	70	100
134C̄	42	58	18	20	31	39	20	28	2.0	2.9	100	155	65	95
134C̲	40	52	16	18	28	36	18	25	1.8	2.7	95	140	60	90
134D	42	56	18	20	30	41	20	28	2.0	2.9	100	155	65	95
134D̄	38	54	15	17	27	36	17	24	1.7	2.6	95	150	60	90
134D̲	35	48	13	15	25	32	16	22	1.6	2.5	90	145	55	85
134Ē	36	49	14	16	26	34	15	22	1.5	2.4	90	145	55	85
134E̲	N	N	N	N	N	N	N	N	N	N	80	135	50	80
134F̲	N	N	N	N	N	N	N	N	N	N	70	125	50	75
173A	53	66	22	28	37	46	23	28	1.9	2.4	120	150	80	110
173B	45	56	19	24	31	39	20	24	1.6	2.0	100	130	70	95
173B̄	37	42	15	19	22	32	16	19	1.3	1.7	85	105	55	65
173C̲	24	30	10	13	17	21	10	13	.8	1.1	55	65	35	50
180	66	90	27	35	44	55	32	42	2.8	4.2	140	215	85	145
188A	57	81	25	31	42	58	27	36	2.3	3.5	110	165	90	135
188B	55	79	24	30	41	56	26	35	2.2	3.4	105	150	85	125
246B	79	106	30	37	55	73	36	45	3.1	4.7	155	235	100	155
246B̄	76	101	29	35	53	70	34	43	3.0	4.5	150	225	95	150
246C	76	101	29	35	53	70	34	43	3.0	4.5	150	225	95	150
246C̄	72	96	28	33	50	66	32	41	2.8	4.3	140	215	90	140
248	58	80	26	31	39	48	31	40	2.9	4.2	130	200	105	155
248+	63	85	29	34	43	52	33	43	3.2	4.6	140	215	115	165
257	73	93	30	35	49	64	32	42	2.9	4.2	145	215	95	150

See footnotes on page 55.

Table 6. — Concluded

Soil map symbol	Corn		Soybeans		Oats		Wheat		Alfalfa hay		Mixed pasture		Bluegrass pasture	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	bu.	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*bu.*	*tons*	*tons*	*days*[b]	*days*[b]	*days*[b]	*days*[b]
258B	70	94	28	33	49	65	31	42	2.9	4.4	145	220	90	140
258B̄	65	88	26	31	46	61	29	39	2.7	4.1	135	200	82	130
258C	67	91	27	32	47	63	30	40	2.8	4.2	140	210	85	135
258C̄	62	84	25	30	44	58	28	37	2.6	3.9	130	195	80	125
258C̲	57	77	23	27	40	54	26	34	2.4	3.3	120	180	70	115
278A	63	89	28	34	47	58	29	42	2.9	4.2	150	220	95	135
278B	58	85	26	32	45	56	27	40	2.6	3.8	135	200	85	120
279B or XB	69	95	26	32	49	69	31	42	2.9	4.4	145	220	90	140
279C or XC	66	91	25	31	47	66	30	40	2.8	4.2	140	210	85	135
279C̄ or XC̄	61	85	23	29	46	61	28	37	2.6	3.9	130	195	80	125
279C̲ or XC̲	56	77	21	26	40	52	24	31	2.2	3.3	110	165	70	115
279D or XD	63	89	23	28	45	63	29	38	2.7	4.0	135	200	80	130
279D̄ or XD̄	59	81	22	26	42	59	27	36	2.5	3.7	125	185	80	120
279D̲ or XD̲	53	74	20	25	38	50	25	30	2.1	3.6	115	160	65	110
279Ē or XĒ	55	76	20	23	39	55	25	34	2.4	3.5	120	175	70	115
279E̲ or XE̲	N	N	N	N	N	N	N	N	1.7	3.0	105	150	60	100
280B or YB	69	95	26	32	49	69	31	42	2.9	4.4	145	220	90	140
280C or YC	66	91	25	31	47	66	30	40	2.8	4.2	140	210	85	135
280C̄ or YC̄	61	85	23	29	46	61	28	37	2.6	3.9	130	195	80	125
280C̲ or YC̲	56	77	21	26	40	52	24	31	2.2	3.3	110	165	70	115
280D or YD	63	89	23	28	45	63	29	38	2.7	4.0	135	200	80	130
280D̄ or YD̄	59	81	22	26	42	59	27	36	2.5	3.7	125	185	80	120
280D̲ or YD̲	53	74	20	25	38	50	25	30	2.1	3.6	115	160	65	110
280E or YE	60	83	22	27	43	60	27	36	2.5	3.8	125	190	75	120
280Ē or YĒ	55	76	20	23	39	55	25	34	2.4	3.5	120	175	70	115
280E̲ or YE̲	N	N	N	N	N	N	N	N	1.7	3.0	105	150	60	100
280F or YF	N	N	N	N	N	N	N	N	2.3	3.5	115	170	70	110
280F̄ or YF̄	N	N	N	N	N	N	N	N	2.0	3.1	110	160	65	100
280F̲ or YF̲	N	N	N	N	N	N	N	N	1.5	2.7	90	140	55	80
280G or YG	N	N	N	N	N	N	N	N	N	N	N	N	60	90
280-471F or ZF	N	N	N	N	N	N	N	N	N	N	100	140	60	95
280-471F̄ or ZF̄	N	N	N	N	N	N	N	N	N	N	85	125	50	85
280-471F̲ or ZF̲	N	N	N	N	N	N	N	N	N	N	70	105	40	75
280-471G or ZG	N	N	N	N	N	N	N	N	N	N	N	N	35	60
280-471Ḡ or ZḠ	N	N	N	N	N	N	N	N	N	N	N	N	N	N
284A	82	102	31	38	53	70	37	47	3.2	4.8	155	235	100	175
284B	82	102	31	38	53	70	37	47	3.2	4.8	155	235	100	175
288	72	90	27	33	46	60	32	40	2.8	4.0	145	220	90	165
331A	73	90	33	35	51	62	36	41	3.0	4.5	150	220	100	170
331B	73	90	33	35	51	62	36	41	3.0	4.5	150	220	100	170
333A	69	85	31	33	49	59	34	39	2.9	4.3	140	210	95	160
333B	69	85	31	33	49	59	34	39	2.9	4.3	140	210	95	160
451A	73	90	33	35	51	62	36	41	3.0	4.5	150	220	100	170
451A+	73	90	33	35	51	62	36	41	3.0	4.5	150	220	100	170
451B	73	90	33	35	51	62	36	41	3.0	4.5	150	220	100	170
474A	52	65	19	24	35	44	22	28	2.1	2.7	100	130	65	80
474Ā	47	58	17	21	31	39	20	25	1.9	2.4	90	120	55	70
475A	65	81	30	32	46	56	32	37	2.7	4.1	140	210	90	160
475B	65	81	30	32	46	56	32	37	2.7	4.1	140	210	90	160

[a] For definitions of moderately high and high levels of management see page 52. Yields for bottomlands assume no damage from flooding. N means crop not adapted.
[b] Estimated number of days that one acre will carry one cow.

mental field yields on Herrick silt loam (46) and Harrison silt loam (127) are given in Agronomy Dept. Mineo. AG-1756 from the Carlinville field in Macoupin County and in Mimeo. AG-1765a from the Clayton field in Adams County. These mimeos are revised periodically. They usually have the same identification number and are available through the University of Illinois Agronomy Department, Urbana.

Use and Managment of Soils for Woodland[1]

The uplands of Jersey County were covered by forests of mixed oak, hickory, hard maple, and other hardwoods at the time of settlement, except for the areas in Tama-Muscatine and Harrison-Herrick soil associations. Excellent stands of cottonwood, sycamore, silver maple, and other bottomland hardwoods grew on the bottomlands.

The forest was cleared on the upland sites which were more favorable for cultivation and on most of the river bottomland until at present there is woodland on about 55,000 to 65,000 acres, mainly in the southwestern part of the county. The present forests are on land that is not well suited for agriculture because of steep slopes, stoniness, inaccessibility, or some other feature.

In the past very little attention has been given to woodland management in the county. If small trees escaped the pasturing of livestock and forest fires and were able to produce a sawlog of marketable size, they were usually sold off the farm. The cull trees and the trees of unsalable species were left to occupy the land and contributed to the low stocking of desirable trees that now exists on many of the woodlands in the county. In other woodlands the stands are mature to overage and are not producing new growth. Good forest management would contribute much to the income that can be expected from woodlands.

Forest products of Jersey County include sawlogs, veneer logs, stave bolts, pulpwood, and many other products. Besides the many farm, home, and industrial uses for wood material, forests are invaluable for watershed protection, wildlife cover, and recreation. Forests provide profitable employment opportunities for local residents. This is particularly true where local industries are developed to utilize the kinds and amounts of timber that can be produced. Eighty acres of well-managed forest, including all activities associated with growing and harvesting the crop, will provide continuous employment for one man (*19*).

[1] The authors are indebted to William R. Boggess, Professor of Forestry, University of Illinois, for reviewing this section.

According to the 1959 study of conservation needs, the privately owned acreage of forest land was 53,400 acres in the county. Although some land will be cleared and some will be planted, the total acreage of woodland is likely to remain about the same. While planting of trees is done by some owners, much more land is being reforested naturally by being left idle. Trees reproducing naturally in this manner are usually of poor species such as American elm, honey locust, and hickory.

Interest in woodland conservation is increasing and there is a greater need than ever for reforestation, especially on badly eroded land which is now being cultivated or lying idle. Recognizing the need for reforestation, the Illinois Department of Conservation, Division of Forestry, has developed two large tree nurseries capable of producing 15 million trees annually for reforestation and erosion control. These trees are available to farmers and land owners and can be secured from the state. They must be used for reforestation and erosion control — not for landscape or ornamental plantings (*9*).

Species of trees vary in their site requirements. While the kind of soil is an important consideration, there are some other contributing factors in site quality. In the steeper areas, particularly adjacent to the Illinois and Mississippi river valleys, aspect or the direction a slope faces and position on the slope (upper or lower) influence both the kinds of trees that will grow and the possible yields.

Thus, on the upper part of long steep slopes that face southwest (relatively dry sites) forest growth, even on the better soils, is often slow and the trees are short and of poor quality. The poorer soils such as Bodine with southwest aspect will often not produce salable forest products. In contrast to this, trees on the same soil, but on lower slopes that face the north, particularly those in coves, produce excellent, tall trees which will yield several good sawlogs. In areas of less rugged topography, as in the rest of the county, slope direction and position are of much less importance.

The most important factors affecting the productive capacities of a soil for growing trees are those which affect the availability of moisture and permit the development of a good root system. These are related to some of the major soil characteristics such as natural supply of plant nutrients, consistence, texture, aeration, drainage, depth to water table and available moisture capacity, and thickness of permeable soil.

Source of soil-woodland interpretations

Information in this section was obtained from many sources, including technicians working in the area of soil-tree growth relationships. Two publications by the Illinois Technical Forestry Association have been used freely (*10, 11*). Volume yield and other information on tree growth was available from 96 forest stands studied throughout the state by foresters of the University of Illinois, Cooperative Extension Service. Soils on which these stands occurred were identified and the data were analyzed to determine the relationships between groups of similar soils and tree growth (*21*). An additional 33 forest sites on 16 soil series occurring in Jersey County were measured to supplement the information. This information was used to estimate annual growth rate (board feet per acre) given in Table 7.

Site index is the average total height of the tallest trees (those that have been consistently in a dominant or co-dominant crown position) found growing in naturally occurring, well-stocked stands when they are 50 years of age. Site-index curves have been developed

Table 7. — WOODLAND SUITABILITY GROUPS OF JERSEY COUNTY SOILS

Group No. and soil type No.[a]	Estimated annual growth rate (board ft. per acre)	Suitable species: To favor in managing existing stands	Suitable species: To plant	Plant competition	Seedling mortality	Equipment limitation	Erosion hazard
Group 1: 8 8–18 18 75 131 134 258 278 279 280 280–471	Upland oaks 160 to 265	White oak Red oak Black oak White ash Hard maple Black walnut	Red pine White pine White oak Northern red oak	Severe	Slight	Slight to moderate	Moderate
Group 2: 17 132 257	Upland oaks 195 to 265	White oak Black oak Red oak Bur oak	Red pine White pine White oak Red oak	Moderate to severe	Slight	Slight	Slight
Group 3: 16 173	Upland oaks 75 to 160	Black oak White oak Post oak	Scotch pine[b]	Moderate	Slight	Slight	Slight
Group 4: 19–35	Upland oaks 130 to 210	White oak Red oak Black walnut Black oak White ash	White oak Red oak Black walnut Yellow poplar	Moderate	Slight	Slight to moderate	Moderate
Group 5: 94	Upland oaks 100 to 160	White oak Red oak Red cedar	Red cedar Scotch pine[b] Red pine[b] White pine[b] Jack pine[b]	Slight	Severe	Severe	Severe
Group 6: 77 180 284 331 333 451 475	Cottonwood Sycamore 400 to 800 Bottomland oaks 375 to 750	Cottonwood Sycamore Silver (soft) maple Pin Oak	Cottonwood Soft (silver) maple Sycamore Yellow poplar Black walnut Sweet gum Pin oak	Severe	Slight	Slight	Slight
Group 7: 70 288	Cottonwood Sycamore 350 to 750 Bottomland oaks 300 to 550	Pin oak Cottonwood Cherry bark red oak Swamp white oak Bur oak Silver (soft) maple	Pin oak Cottonwood Silver (soft) maple Sweet gum	Severe	Slight to moderate	Slight to severe	Slight
Group 8: 71 83 248	Bottomland oaks 200 to 350	Pin oak Swamp white oak Bur oak Cherry bark red oak Soft (silver) maple Cottonwood Ash Sycamore	Pin oak Cottonwood Sycamore Silver (soft) maple	Severe	Moderate to severe	Severe	Slight

[a] Each soil type number includes all mapping units for its type.
[b] For Christmas trees only.

to determine site index based on total height and age measurements of trees in any particular qualifying stand regardless of the age.

Foresters have found that site index is closely related to volume yield from well-stocked, unmanaged stands, and they have developed yield tables giving approximate information that can be used as a measure of potential soil productivity. However, site-index information is not yet available for all the soils in the county. For that reason, the woodland suitability groups (Table 7) show estimates of average annual per acre growth of Illinois hardwood timber as supplied by the Illinois Technical Forestry Association.

Woodland suitability groupings of soils

The soils of Jersey County have been placed into eight woodland suitability groups based on detailed knowledge of their physical characteristics and on less thorough information about their responses to woodland use and management. Each group is made up of soils requiring similar conservation treatment and having about the same potential soil productivity for woodcrops.

The soils of Beardstown, Bolivia, Cowden, Denny, Douglas, Hamburg, Harrison, Herrick, Jules, Littleton, Muscatine, Piasa, Sable, Tama, and Worthen series, however, were not placed in these groups, because the native vegetation was grass instead of trees. Trees grow on them in only a few places. Jules soils were not placed into woodland groups, because Jules is calcareous and not well adapted to growth of trees. Estimated potential productivity for hardwood timber is given in terms of average annual acre growth for each group of soils.

Tree species to favor in management of existing stands and species for reforestation, stream-bank protection, and erosion-control cover are also listed for each group.

Important limitations and hazards involved in woodland uses of each group of soils include plant competition, equipment limitations, seedling mortality, and erosion hazard. These limitations have been rated "slight," "moderate," or "severe" to direct attention to the kinds and intensities of treatments that should be considered in woodland conservation.

Plant competition refers to the degree of competition from undesirable species and the rate at which they invade or develop on different soils (brush encroachment) when openings are made in the canopy for regenerating the stand or similar purposes. It is assumed that stands are well stocked with species which normally grow on the soils in question.

Seedling mortality (an indication of regeneration potential) refers to the expected mortality of naturally occurring or planted tree seedlings as influenced by soil or topographic condition. Plant competition is assumed not to be a limiting factor. Adequate seed supply for naturally occurring seedlings, good stock, proper planting for plantations, and normal environmental factors are assumed.

Equipment limitations (trafficability) include those soil characteristics and topographic features that restrict or prohibit the use of equipment commonly used in crop tending or tree harvesting. Differences may be caused by soil characteristics, stones, drainage, slope, wetness, or other factors. Problems may be seasonal or year long.

Erosion hazard refers to the potential risk of erosion when the area is managed according to acceptable standards for woodland use. Factors influencing these risks are slope and profile characteristics.

Information on the woodland suitability groups of the various soils is summarized in Table 7 and discussed below.

Woodland group 1. This woodland management group includes most of the upland soils of the county (Fig. 26). These soils are deep, and moderately well to well drained, except Stronghurst which is imperfectly drained. They are acid, moderately permeable soils mainly with high to very high available moisture capacities. Alvin and Bodine soils have moderate available moisture capacity, but otherwise they fit into this group. They are all stone-free soils, except for cherty Bodine soils. Sicily soils have moderately dark surfaces, but the remainder of the soils have light-

Many of the upland soils in Jersey County are in woodland group 1. These soils are used for crops such as in the foreground if they are not too sloping, but the steep areas are better suited to woodland as shown in the background. (Fig. 26) colored surfaces which are low in organic matter. In general, these soils are well supplied with plant nutrients important in forest tree growth.

The following soils are in this group:

$8\underline{D}$	$18\overline{C}$	$134\overline{D}$	$279\underline{E}$ or $X\underline{E}$
$8E$	$18\underline{C}$	$134\underline{D}$	$280B$ or YB
$8\overline{E}$	$18D$	$134\overline{\overline{E}}$	$280C$ or YC
$8\underline{E}$	$18\overline{D}$	$134\underline{E}$	$280\overline{C}$ or $Y\overline{C}$
$8F$	$18\underline{D}$	$134\underline{F}$	$280\underline{C}$ or $Y\underline{C}$
$8\overline{F}$	$18\underline{E}$	$258B$	$280D$ or YD
$8\underline{F}$	$75B$	$258\overline{B}$	$280\overline{D}$ or $Y\overline{D}$
$8G$	$75C$	$258C$	$280\underline{D}$ or $Y\underline{D}$
$8\overline{G}$	$75D$	$258\overline{C}$	$280E$ or YE
$8\underline{G}$	$75\overline{D}$	$258\underline{C}$	$280\overline{E}$ or $Y\overline{E}$
$8\text{-}18\overline{D}$ or $S\overline{D}$	$131B$	$278A$	$280\underline{E}$ or $Y\underline{E}$
$8\text{-}18\underline{D}$ or $S\underline{D}$	$131\overline{C}$	$278B$	$280F$ or YF
$8\text{-}18E$ or SE	$131\underline{D}$	$279B$ or XB	$280\overline{F}$ or $Y\overline{F}$
$8\text{-}18\overline{E}$ or $S\overline{E}$	$131\underline{E}$	$279C$ or XC	$280\underline{F}$ or $Y\underline{F}$
$8\text{-}18\underline{E}$ or $S\underline{E}$	$134A$	$279\overline{C}$ or $X\overline{C}$	$280G$ or YG
$8\text{-}18F$ or SF	$134B$	$279\underline{C}$ or $X\underline{C}$	$280\text{-}471F$ or ZF
$8\text{-}18\overline{F}$ or $S\overline{F}$	$134C$	$279D$ or XD	$280\text{-}471\overline{F}$ or $Z\overline{F}$
$8\text{-}18\underline{F}$ or $S\underline{F}$	$134\overline{C}$	$279\overline{D}$ or $X\overline{D}$	$280\text{-}471\underline{F}$ or $Z\underline{F}$
$18B$	$134\underline{C}$	$279\underline{D}$ or $X\underline{D}$	$280\text{-}471G$ or ZG
$18C$	$134D$	$279\overline{\overline{E}}$ or $X\overline{\overline{E}}$	$280\text{-}471\overline{G}$ or $Z\overline{G}$

The predominant kinds of trees now growing on these soils are white, red, black, and shingle oak, several species of hickory and ash, and American elm. Minor kinds of trees include black walnut, sugar maple, hackberry, post oak, honey locust, and red elm. These soils are suitable for planting coniferous trees for wildlife cover and for Christmas tree production. No information is available on the potential coniferous timber production for these soils.

There is so little market for the American elm and hickory trees that they are considered weed trees at the present time. Because these two species are the most common understory trees in typical woodlands on these soils they predominate when the mature trees are removed. Timber stand improvement and other forest management practices are needed to maintain more desirable species. Vines can also cause trouble in woodland on these soils.

It is difficult and dangerous to operate wheel equipment, such as farm tractors, on the G slopes. Trucks used for hauling logs cannot operate on the E, F, and G slopes with safety.

Woodland group 2. In this woodland management group are imperfectly drained, nearly level to sloping soils mainly on ridgetops, but also including some soils on terraces. These soils are acid, moderately to moderately slowly permeable, and have high available moisture capacities. Keomah and Whitaker soils are low in organic matter and Clarksdale soils are medium.

The following soils are in this woodland group:

$17A$, $17B$, $17\overline{B}$, $17\overline{C}$, $132A$, $132B$, $132\overline{B}$, $132C$, $132\overline{C}$, 257.

The production potential of these soils is moderate. White oak, black oak, and hickory are the predominant species present. The most serious plant competition is from weed trees, such as American elm and hickory. Desirable trees will reproduce if the weed trees are removed. There is little equipment limitation, except for the problem of soft ground during late winter and early spring.

Woodland group 3. The soils in this management group are sometimes known by the type of their forest cover, those on nearly level areas being named "post oak flats" by the early settlers. Largest areas are nearly level, poorly to imperfectly drained, acid soils on upland and terraces. The soils are deep and slowly permeable.

The following soils are included in this group:

16, $173A$, $173B$, $173\overline{B}$, $173\underline{C}$.

The potential productivity for forest on these soils is low. In addition to post oak and white oak, black oak is the principal tree now growing on these soils. Planted pine trees should make fair growth. Plant competition is not as severe on these soils as on others, but attention should be given to maintaining good kinds of trees and to eliminating vines and shrubs. There is normally only slight equipment limitation on these soils, except in early spring when the ground is wet.

Woodland group 4. In this woodland group are deep soils that have calcareous material at or near the surface. They have high available moisture capacities and are moderately well to well drained.

The following soils are included in this group:

$19\text{-}35C$ or TC, $19\text{-}35\overline{C}$ or $T\overline{C}$, $19\text{-}35D$ or TD, $19\text{-}35\overline{D}$ or $T\overline{D}$, $19\text{-}35\underline{D}$ or $T\underline{D}$, $19\text{-}35E$ or TE, $19\text{-}35\overline{E}$ or $T\overline{E}$, $19\text{-}35\underline{E}$ or $T\underline{E}$, $19\text{-}35F$ or TF, $19\text{-}35\overline{F}$ or $T\overline{F}$, $19\text{-}35\underline{F}$ or $T\underline{F}$, $19\text{-}35G$ or TG, $19\text{-}35\overline{G}$ or $T\overline{G}$, $19\text{-}35\underline{G}$ or $T\underline{G}$.

While some red oak will grow on this soil complex, more often the present forest growth consists of red and American elm, dogwood, redbud, and other trees of low timber value. It is doubtful that even moderate production can be attained on these soils. Because of limey material, it is doubtful pines will make sufficient growth for woodland products or Christmas trees.

Woodland group 5. The land type, Limestone rockland, comprises this woodland group. These soils are shallow, rocky, and drouthy. Root penetration is shallow and water-holding capacity is low.

94G is the only soil in this group.

Plant competition is slight, but seedling mortality, equipment limitations, and erosion hazard are severe on this soil. Where it is eroded, it is doubtful if plantations of any species can survive. Where uneroded, red cedar survives better than other species. On a short Christmas tree rotation, scotch, red, white, and jack pine may be planted.

Woodland group 6. In this group are imperfectly to well-drained bottomland soils with slightly acid to alkaline reaction. Lawson, Tice, and Huntsville are high in organic matter. These soils are deep and free of stones except in Elsah. However, it is doubtful that the chert in the Elsah affects the growth of trees to any extent. Haymond, Wakeland, and (to some extent) Lawson soils occur in the small bottoms and are not exposed to drying winds.

The following soils are included in this group:

77, 77+, 180, 284A, 284B, 331A, 331B, 333A, 333B, 451A, 451A+, 451B, 475A, 475B.

Expected yields from cottonwood, silver (soft) maple, and sycamore are high. Because of plant competition or other reasons, restocking of the cottonwood and silver maple is difficult. There is often a grass cover between the trees, in addition to many vines, weeds, and shrubs, particularly on Huntsville, Tice, and Lawson soils. These plants compete with the trees for moisture. Black walnut grows well on these soils. Other trees are American elm, burr oak, hickory, and pecan.

Before selecting trees to plant, tests should be made to determine soil reaction, because pines will not grow well on alkaline soils. Cottonwood and sycamore will often grow rapidly in abandoned fields. Yellow poplar (tulip trees) may be a good species to plant.

Woodland group 7. This woodland management group includes poorly drained, silty clay loam, alluvial soils about neutral in reaction. These soils are in the Macoupin Creek and Illinois River bottomlands. Floods of short to long duration occur on many areas of these soils.

The following soils are in this management group:

70, 288.

With properly stocked stands of cottonwood and sycamore, yields are high. The yields of mixed bottomland hardwoods are somewhat less. Plant competition is severe on these soils, especially in areas where high water tables promote rapid growth and development of many undesirable plants. These plants compete severely and prevent the more desirable tree species from becoming established.

Special management and site preparation are necessary in order to assure adequate regeneration and growth of desirable trees. Less desirable trees, such as willow, elm, and hickory, should be eliminated whenever more valuable species can be favored. The neutral reaction and poor drainage are unfavorable factors for coniferous trees.

Seedling mortality is slight for most species adapted to these soils. However, sycamore and cottonwood have difficulty becoming established, unless other naturally occurring species are eliminated. Equipment limitation is moderate to severe, because these soils are wet several months a year.

Woodland group 8. Included in this group are poorly drained alluvial soils of silty clay to clay textures. Most areas of these soils with trees growing on them are along the Illinois River and are subject to flooding. At times the water may remain for several weeks. These soils are high in organic matter and nitrogen, about neutral in reaction, and have high available moisture capacities.

The following soils are in this group:

71, 83, 248, 248+.

These soils are capable of producing high yields of silver (soft) maple, cottonwood, sycamore, and pin oak (Fig. 27). Reproduction is limited, because flood-

Trees growing on a wet area of Darwin silty clay in the Illinois River valley. (Fig. 27)

In constructing bridges such as this one, it is important to know the engineering properties of the soils being used. (Fig. 28)

ing for an extended time kills all low-growing vegetation. Because of flooding, plant competition is rather limited. However, in many areas vines often grow on the trees. Harvesting is best done in the late summer and fall when it is dry and there is little chance of flooding.

Engineering Properties of Jersey County Soils[1]

The following section summarizes the engineering characteristics of Jersey County soils and points out principal soil features affecting engineering practices (Fig. 28). It is provided to help readers interpret soil survey information that has application in planning works of improvement related to engineering.

It is not intended that this report will eliminate the need for on-site sampling and testing of sites for design and construction of specific engineering works. The interpretations given in this section should be used primarily to plan more detailed field investigations to determine soil conditions at the proposed site of installation.

The information presented on engineering applications can be used for the following purposes.

1. Making soil and land use studies that will aid in the planning and development of sites for industrial, business, residential, and recreational uses.
2. Making more accurate estimates of runoff and erosion in designing drainage structures and planning dams and other structures for soil and water conservation.
3. Making reconnaissance surveys of ground conditions to aid in selecting locations for highways and airports and in planning detailed studies of soils at the intended locations.
4. Estimating drainage areas and runoff characteristics for culvert and bridge design.
5. Classifying the soils along proposed highway routes and using this information to make preliminary estimates of the required surface thickness for rigid pavements.
6. Estimating conditions of terrain such as topography, surface drainage, and depth of water table, in connection with the design of highway embankments, subgrades, and pavements, both rigid and flexible.

The information on engineering applications is presented in two ways — a report of test results on some soils, and estimates for all the soils in the county.

Soil test data

Soil test data are reported in Table 8 for five Jersey County soils. These five soils were sampled at the time the mapping was done in Jersey County.[2] In order to obtain a range in characteristics, each of the five soils was sampled in three locations. The tests were made by the U. S. Department of Commerce, Bureau of Public Roads. In addition to the soil properties reported in the tests, the soil material is classified into two engineering systems of classification. Highway engineers use the American Association of State Highway Officials (AASHO) system (*3*). The other classification system is the Unified Soil Classification System (*22*). Both of these systems are based primarily on the performance of soil as a construction material.

In the American Association of State Highway Officials system all soil materials are classified in seven principal groups, based on mechanical analysis and plasticity test data. These groups range from A-1 (gravelly soils of high bearing-capacity — the best soils for subgrades) to A-7 (clay soils having low strength when wet — the poorest soils for subgrades). Within each of the principal groups the relative engineering performance of soil material is indicated by a group index number, ranging from 0 for the best materials to 20 for the poorest. The group index is in parentheses after the soil group symbol.

[1] The authors are indebted to T. H. Thornburn, Professor of Civil Engineering, University of Illinois, for reviewing this section.

[2] One profile of Herrick silt loam was sampled in Macoupin County near the Jersey County line and is considered representative of the Jersey County Herrick silt loam.

Some engineers prefer to use the Unified Soil Classification System, established by the Waterways Experimental Station, Corps of Engineers. In this system soils are classified according to texture, plasticity, and performance as engineering construction materials.

Estimated properties of soils for engineering

The test data in Table 8, supported by information in the rest of the report and by experience with the same soils in other counties, are the basis of Tables 9 and 10. A brief description of the soils of Jersey County and their estimated physical and chemical properties are given in Table 9. In this table the Unified and AASHO classifications are given. Additional information is given on the percent of coarse fractions, permeability, available water capacity, reaction, and corrosion potential for the major soil horizons. In many cases, however, engineers will find it advantageous to read the detailed soil profile descriptions beginning on page 14 of this report.

Engineering interpretations of soils

The soil features that adversely affect the installation and performance of drainage systems, terraces, waterways, irrigation systems, highways, and reservoirs are listed in Table 10.

Interpretations of suitability for winter grading and as a source of sand and gravel do not appear in Table 10. There are several limitations for winter grading on Jersey County soils. With only minor exceptions, the soils are silty, loamy, or clayey, and become very hard when frozen. If they are not frozen, they are sticky and plastic. This makes them quite difficult to handle with earth-moving equipment during the winter period.

The sources of sand and gravel are few. Alvin and Beardstown soils are underlain by nearly pure sand. There may be sand under Camden, Whitaker, Haymond, and Wakeland soils. Fine sand occurs at some depth beneath many of the soils of the Illinois River valley.

Elsah soils are a source of low grade cherty gravel which in the past has been used as a road-surfacing material. This same cherty material is often present below the profile of Haymond soils in the southwestern part of the county.

Table 8. — ENGINEERING TEST DATA FOR FIVE SOIL TYPES IN JERSEY COUNTY

Soil name, number, and location	Parent material	Depth in inches from surface	Horizon	Moisture-density: Maximum dry density (lb./cu. ft.)	Moisture-density: Optimum moisture (percent)	Particle size distribution, percent[a]: Passing #40 sieve (.42 mm.)	Passing #200 sieve (.074 mm.)	<.02 mm.	Clay <.002 mm.	Liquid limit	Plasticity index	Classification: A.A.S.H.O.	Classification: Unified
FAYETTE silt loam (280)													
T8N, R13W, Sec. 26,	Loess	4–19	A_2	111	15	...	100	58	17	27	6	A-4(8)[b]	ML-CL
NW160, NE40, NW10.		24–37	B_{21}	107	19	...	100	68	31	46	23	A-7-6(14)	CL
		75–100	C_1 and C_2	112	14	...	100	60	14	28	5	A-4(8)	ML-CL
T9N, R13W, Sec. 34,	Loess	5–13	A_2	108	15	...	100	60	16	28	6	A-4(8)	ML-CL
SW160, SW40, SW10.		24–42	B_2	106	19	...	100	67	29	44	21	A-7-6(13)	CL
		100+	C	109	15	...	100	52	7	26	4	A-4(8)	ML-CL
T6N, R11W, Sec. 4,	Loess	5–14	A_2	109	15	...	99	63	16	25	5	A-4(8)	ML-CL
NE160, NW40, NW10.		24–36	B_{21}	107	19	...	100	74	32	46	23	A-7-6(14)	CL
		70+	C_1	110	18	...	100	68	23	37	15	A-6(10)	CL
HERRICK silt loam (46)													
T8N, R10W, Sec. 1,	Loess	0–10	A_1	104	18	99	98	63	19	33	9	A-4(8)	ML-CL
SW160, SE40, SW10.		17–25	B_{21}	96	24	99	97	79	44	69	37	A-7-5(20)	MH–CH
		52–70+	C	112	16	100	98	66	21	36	14	A-6(10)	CL
T8N, R11W, Sec. 13,	Loess	0–12	A_{11}	103	18	99	97	64	19	36	10	A-4(8)	ML-CL
SW160, SE40, SE10.		27–36	B_2	99	23	99	98	74	37	57	30	A-7-6(19)	CH
		55–78	C	110	17	...	100	65	25	39	17	A-6(11)	CL
T8N, R9W, Sec. 18,	Loess	0–9	A_{11}	101	20	99	98	66	20	37	11	A-6(8)	ML-CL
NW160, SW40, SW10.		27–35	B_{21}	98	24	...	99	77	40	64	34	A-7-5(20)	MH–CH
		57–73	B_3	111	18	...	100	75	23	37	16	A-6(10)	CL
HICKORY loam (8)													
T9N, R10W, Sec. 35,	Illinoian till	0–8	A_1	110	15	97	82	53	18	30	10	A-4(8)	CL
NE160, NE40, NW10.		23–36	B_{21}	108	18	93	77	56	33	49	27	A-7-6(17)	CL
		50+	C	119	14	86	58	44	27	37	21	A-6(9)	CL
T9N, R10W, Sec. 28,	Illinoian till	0–5	A_1	110	14	97	82	48	12	27	6	A-4(8)	ML-CL
SW160, SW40, SE10.		19–32	B_{21}	110	17	88	66	48	30	40	21	A-6(11)	CL
		53–80	C	126	11	87	68	38	15	23	9	A-4(7)	CL
T8N, R10W, Sec. 17,	Illinoian till	0–8	A_1	117	12	90	62	38	12	22	5	A-4(5)	ML-CL
SW160, NW40, NE10.		15–30	B_2	115	16	84	58	42	24	33	15	A-6(7)	CL
		38–60	C_1	122	12	86	52	36	18	25	10	A-4(3)	CL
MUSCATINE silt loam (41)													
T8N, R12W, Sec. 1,	Loess	0–17	A_1	99	21	99	98	67	26	42	14	A-7-6(10)	ML
NE160, NE40, SW10.		25–34	B_2	99	23	99	98	71	35	53	26	A-7-6(17)	MH
		47+	C	110	18	...	100	69	24	40	17	A-6(11)	CL
T8N, R12W, Sec. 22,	Loess	0–11	A_1	106	18	99	98	66	22	32	9	A-4(8)	ML-CL
NW160, SW40, NE10.		17–25	B_{21}	100	22	99	98	73	37	56	29	A-7-6(19)	CH
		54–65+	C_1	111	17	...	99	61	21	37	14	A-6(10)	ML-CL

[a] Particle size distribution was run by sieve and hydrometer analysis. The Hickory soil contained from 3 to 8 percent material greater than 2mm. (No. 10 sieve).
[b] Numbers in parentheses refer to group indexes which range from 0 for the best to 20 for the poorest material for engineering purposes.

(Table is concluded on next page.)

Table 8. — Concluded

Soil name, number, and location	Parent material	Depth in inches from surface	Horizon	Moisture-density: Maximum dry density (lb./cu. ft.)	Moisture-density: Optimum moisture (percent)	Particle size distribution, percent[a]: Passing #40 sieve (.42 mm.)	Passing #200 sieve (.074 mm.)	<.02 mm.	Clay <.002 mm.	Liquid limit	Plasticity index	Classification: A.A.S.H.O.	Classification: Unified
T8N, R11W, Sec. 1,	Loess	0–10	A_1	103	19	99	98	68	23	35	11	A-6(8)[b]	ML–CL
SW160, NW40, SE10.		18–30	B_{21}	100	22	99	98	73	36	51	24	A-7-6(16)	MH
		52–70+	C	111	16	...	100	69	19	36	13	A-6(9)	ML
PIASA silt loam (474)													
T7N, R10W, Sec. 1,	Loess	0–5	A_1	108	19	97	95	68	24	36	14	A-6(10)	CL
SE160, SE40, SE10.		24–36	B_{22}	102	23	97	95	72	35	57	31	A-7-6(19)	CH
		49–60+	C	109	19	...	99	71	22	42	20	A-7-6(12)	CL
T8N, R10W, Sec. 23,	Loess	0–5	A_1	99	20	...	99	72	27	41	15	A-7-6(10)	ML–CL
SE160, SE40, SE10.		30–46	B_{22}	99	23	...	100	80	44	61	35	A-7-6(20)	CH
		46–65	B_3	106	20	...	99	76	34	50	28	A-7-6(17)	CL–CH
T8N, R10W, Sec. 13,	Loess	0–10	A_1	102	20	99	98	69	26	44	19	A-7-6(12)	ML–CL
SW160, SW40, NW10.		17–26	B_{22}	103	21	99	98	78	39	62	38	A-7-6(20)	CH
		60–72+	C_1	108	20	...	99	72	29	46	24	A-7-6(15)	CL

See footnotes on page 63.

Table 9. — SOIL PROPERTIES SIGNIFICANT TO ENGINEERING[a]

Soil type name, number, and description	Depth to seasonal high water table (ft.)	Depth from surface (in.)	Probable classification: Unified	Probable classification: AASHO	Percent passing sieve: No. 10 (2.0 mm.)	Percent passing sieve: No. 200 (0.074 mm.)	Range in permeability (in./hr.)	Available water capacity (in./in. of soil)	Reaction (pH)	Shrink-swell potential	Corrosion potential for metal conduits
Alvin fine sandy loam (131) 1 ft. of fine sandy loam over 1½ feet of fine sandy loam to light sandy clay loam over several feet of loamy sand to sand.	10+	0–11	SM or ML	A2 or A4	95–100	30–60	.63–2.0	.15	5.6–6.5	Low	
		11–35	SC or SM	A4 or A2	95–100	40–60	.63–2.0	.17	5.1–6.5	Low to mod.	Moderate
		35–60+	SP or SM	A2 or A3	95–100	0–20	2.0–6.3	.02	5.6–6.5	Low	Low
Beardstown loam (188) 1 ft. of loam over 2½ feet of clay loam over several feet of sandy loam.	2–3	0–15	ML or SM	A4 or A6	95–100	40–60	.63–2.0	.20	5.6–6.5	Low	
		15–40	SC or CL	A6 or A7	95–100	50–70	.63–2.0	.17	5.1–6.1	Moderate	Moderate
		40–60	SP or SM	A2 or A3	95–100	10–30	2.0–6.3	.10	5.1–6.1	Low	Mod. to high
Beaucoup silty clay loam (70) 3 to 4 feet of silty clay loam over silt loam.	0–3	0–48	CL or CH	A6 or A7	100	90–100	.2–2.0	.23	6.1–7.3	Mod. to high	Mod. to high
Bodine cherty silt loam (471) 2 to 4 feet or more of cherty to stony silt loam.	10+	0–12	GM or ML	A1 or A4	35–90	40–90	.63–2.0	.10	5.0–6.1	Low	Moderate
		12–48	GM or GC	A1 or A2	25–45	30–35	.63–2.0	.10	5.0–6.1	Low to mod.	Moderate
Bold silt loam (19) 5 to 10 feet or more of calcareous silt loam.	10+	0–90	ML	A4	95–100	90–100	2.0–6.3	.24	7.8–8.0	Low	Low
Bolivia silt loam (246) 1½ feet of silt loam over 3 feet of silty clay loam over several feet of silt loam.	3–4	0–18	ML or CL	A6 or A7	100	95–100	.63–2.0	.25	5.6–6.5	Moderate	
		18–56	CL	A6 or A7	100	95–100	.63–2.0	.25	5.6–6.0	Mod. to high	Mod. to high
		56–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	6.1–7.3	Low to mod.	Low to mod.

Table 9. — Continued

Soil type name, number, and description	Depth to seasonal high water table (ft.)	Depth from surface (in.)	Probable classification: Unified	Probable classification: AASHO	Percent passing sieve: No. 10 (2.0 mm.)	Percent passing sieve: No. 200 (0.074 mm.)	Range in permeability (in./hr.)	Available water capacity (in./in. of soil)	Reaction (pH)	Shrink-swell potential	Corrosion potential for metal conduits
Camden silt loam (134) 1 foot of silt loam over 2½ feet of silty clay loam over several feet of sandy loam to silt loam.	6+	0–10	ML or CL	A4 or A6	95–100	90–100	.63–2.0	.25	5.6–7.3	Low to mod.	
		10–38	CL	A6	95–100	90–100	.63–2.0	.25	5.6–6.5	Moderate	Moderate
		38–60	ML, CL, or SC	A2, A4, or A6	95–100	30–80	.63–2.0	.10–.18	5.6–6.5	Low to mod.	Moderate
Clarksdale silt loam (257) 1 ft. of silt loam over 3 feet of silty clay loam over several feet of silt loam.	2–3	0–14	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	5.6–7.0	Low to mod.	
		14–50	MH or CH	A7	100	95–100	.63–2.0	.25	5.0–6.5	Mod. to high	Moderate
		50–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	5.6–7.0	Low to mod.	Moderate
Clinton silt loam (18) 1 ft. of silt loam over 3½ feet of silty clay loam over several feet of silt loam.	6+	0–11	ML or CL	A4 or A6	100	95–100	.63–2.0	.26	5.6–7.0	Low to mod.	
		11–60	CL	A6 or A7	100	95–100	.63–2.0	.23	5.1–5.5	Mod. to low	Moderate
		60–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	5.6–7.0	Low to mod.	Moderate
Cowden silt loam (112) 1½ feet of silt loam over 2½ to 3 feet of silty clay loam over 1 to 2 feet of silt loam over gritty silt loam to clay loam.	1–3	0–17	ML or CL	A4 or A6	100	95–100	.2–.63	.26	5.6–7.0	Low to mod.	
		17–47	MH or CH	A7	100	95–100	.05–.2	.23	5.6–6.5	Mod. to high	Moderate
		47–90	ML or CL	A4 or A6	100	95–100	.05–.2	.25	6.6–7.3	Low to mod.	Moderate
Darwin silty clay (71) 4 to 5 feet or more of silty clay.	0–3	0–45	CH	A7	100	95–100	.05–.2	.18	6.1–7.3	High to very high	Very high
		45–70	CH or CL	A7 or A6	100	90–100	.05–.2	.16	6.1–7.3	High	Very high
Denny silt loam (45) 1½ feet of silt loam over 2½ feet of silty clay loam over several feet of silt loam.	1–3	0–20	ML or CL	A4 or A6	100	95–100	.2–.63	.26	5.6–7.0	Low to mod.	
		20–48	MH or CH	A7	100	95–100	.05–.2	.23	5.6–6.5	Mod. to high	Moderate
		48–90	ML or CL	A4 or A6	100	95–100	.05–.2	.25	6.5–8.0	Low to mod.	Moderate
Douglas silt loam (128) 1½ feet of silt loam over 2½ feet of silty clay loam over several feet of silt loam.	6+	0–18	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	5.6–7.0	Low to mod.	
		18–58	CL	A6 or A7	100	95–100	.63–2.0	.25	5.6–6.0	Mod. to high	Moderate
		58–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.28	6.1–6.5	Low to mod.	Moderate
Drury slit loam(75) 4 to 6 feet or more of silt loam.	10+	0–60	ML or CL	A4 or A6	90–100	95–100	.63–2.0	.25	5.6–7.4	Low to mod.	Moderate
Dupo silt loam (180) 1½ to 3 feet of silt loam over several feet of silty clay.	1–3	0–27	ML or CL	A4 or A6	90–100	85–100	.63–2.0	.25	6.5–8.0	Low to mod.	Moderate
		27–45	CH	A7	100	95–100	.2–.63	.18	6.5–8.0	High	Moderate
Elsah cherty silt loam (475) 4 or more feet of cherty silt loam.	4+	0–50	GM or ML	A1 or A2	35–65	30–35	2.0–6.3	.10	6.1–7.5	Low	Low
Fayette silt loam (280) 1 ft. of silt loam over 3 to 4 feet of silty clay loam over several feet of silt loam.	6+	0–14	ML or CL	A4	100	95–100	.63–2.0	.26	5.6–6.5	Low to mod.	
		14–59	CL	A7–6	100	95–100	.63–2.0	.25	5.1–5.5	Mod. to high	Moderate
		59–100	ML or CL	A4 or A6	100	95–100	.63–2.0	.28	5.5–7.0	Low to mod.	Moderate
Fayette-Bodine complex (280-471). Both Fayette silt loam (280) and Bodine cherty silt loam (471) are in these soil areas. See the information given for the individual soil type.											
Hamburg silt (30) 10 feet or more of calcareous silt.	10+	0–100	ML	A4	95	90	2.0–6.3	.20	7.8–8.0	Low	Low
Harrison silt loam (127) 1½ feet of silt loam over 2½ feet of silty clay loam over several feet of silt loam.	4+	0–16	ML or CL	A4	100	95–100	.63–2.0	.26	6.1–7.0	Low to mod.	
		16–50	CL	A7–6	100	95–100	.63–2.0	.24	5.5–6.1	Mod. to high	Moderate
		50–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.24	6.1–7.0	Low to mod.	Moderate

[a] The information in this table is based on data (see Table 8) wherever possible. Where data were unavailable, estimates were made.

(Table is continued on next page.)

Table 9. — Continued

Soil type name, number, and description	Depth to seasonal high water table (ft.)	Depth from surface (in.)	Probable classification: Unified	Probable classification: AASHO	Percent passing sieve: No. 10 (2.0 mm.)	Percent passing sieve: No. 200 (0.074 mm.)	Range in permeability (in./hr.)	Available water capacity (in./in. of soil)	Reaction (pH)	Shrink-swell potential	Corrosion potential for metal conduits
Haymond silt loam (331) 4 feet or more of silt loam over silt loam to sandy loam.	4+	0–24	ML	A4	95–100	80–100	.63–2.0	.22	5.6–7.0	Low to mod.	Moderate
		24–60	ML or SM	A4 or A2	90–100	40–80	.63–2.0	.21	6.1–7.8	Low to mod.	Moderate
Herrick silt loam (46) 1½ feet of silt loam over 3 feet of silty clay loam over several feet of silt loam.	2–3	0–23	ML or CL	A4 or A6	100	95–100	.63–2.0	.26	5.1–7.0	Low to mod.	
		23–55	CH or MH	A7	100	95–100	.2–.63	.23	5.1–6.1	Mod. to high	High
		55–90	ML or CL	A4 or A6	100	95–100	.2–.63	.25	5.6–7.0	Low to mod.	High
Hickory loam (8) 1 ft. of loam to gritty silt loam over 4 feet of clay loam over several feet of loam.	4+	0–12	ML or CL	A4	90–95	50–80	.63–2.0	.18	5.0–7.0	Low to mod.	
		12–53	CL	A6	90–95	50–70	.63–2.0	.17	5.6–6.6	Low to mod.	Moderate
		53–100	CL	A4	80–90	50–70	.63–2.0	.10	7.5–8.0	Low	Low
Hickory-Clinton complex (8-18). Both Hickory loam (8) and Clinton silt loam (18) are in these soil areas. See the information given for these individual soil types.											
Huntsville silt loam (77) 4 to 5 feet or more of silt loam with some sandy loam layers in lower part.	4+	0–40	ML or CL	A4 or A6	95–100	85–100	.63–2.0	.24	6.1–7.3	Low to mod.	
		40–80	ML or CL	A4 or A2	80–100	30–100	.63–2.0	.24	6.1–7.3	Low to mod.	Moderate
Jules silt loam (28) 4 to 5 feet or more of silt loam.	2	0–60	ML or CL	A4 or A6	90–100	80–95	.63–2.0	.20	7.8–8.0	Low to mod.	Moderate
Keomah silt loam (17) 1 ft. of silt loam over 3 feet of silty clay loam over several feet of silt loam.	3	0–14	ML or CL	A4 or A6	100	95–100	.63–2.0	.26	5.1–7.0	Low to mod.	
		14–45	CL or CH	A6 or A7	100	95–100	.2–.63	.23	5.1–5.6	Mod. to high	Moderate
		45–90	ML or CL	A4 or A6	100	95–100	.2–.63	.25	5.6–7.0	Low to mod.	Moderate
Lawson silt loam (451) 4 to 5 feet or more of silt loam with some sandy loam layers in lower part.	2	0–24	ML or CL	A4 or A6	90–100	80–95	.63–2.0	.24	5.6–6.5	Low to mod.	
		24–60	ML or CL	A4 or A2	80–95	30–90	.63–2.0	.22	5.6–6.5	Low to mod.	Moderate
Limestone rockland (94) Usually less than 1 ft. of silt loam on limestone.	...	0–7	Variable	Variable	80–100	80–100	......	.22	......	......	......
Littleton silt loam (81) 4 to 5 feet or more of silt loam.	2	0–60	ML or CL	A4 or A6	100	90–100	.63–2.0	.24	6.1–7.0	Low to mod.	Moderate
McFain silty clay (248) 2 feet of silty clay over 1 to 2 feet of silt loam to sandy loam over silty clay to silt clay loam.	0	0–16	CH	A7	100	100	.05–0.2	.18	6.1–7.0	High	
		16–38	ML or CL	A4 or A6	55–90	40–85	.63–2.0	.16	7.8–8.0	Mod. to high	Moderate
		38–60	CH	A7	100	95–100	.05–0.2	.16	7.8–8.0	High	High
McGary silt loam (173) 1 ft. of silt loam over several feet of silty clay to clay.	2–3	0–12	ML or CL	A4 or A6	100	100	.63–2.0	.26	5.5–6.5	Low to mod.	
		12–30	CL or CH	A6 or A7	100	100	.05–0.2	.20	6.1–7.0	High	High
		30–60	CH	A7	100	100	Less than .05	.16	7.0–8.0	High	High
Muscatine silt loam (41) 1½ feet of silt loam over 2 to 3 feet of silty clay loam over several feet of silt loam.	2–3	0–19	ML or CL	A4 or A7	100	95–100	.63–2.0	.25	5.6–7.0	Moderate	
		19–47	CL	A6 or A7	100	95–100	.63–2.0	.25	5.6–6.5	Mod. to high	High
		47–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.28	6.6–7.8	Low to mod.	Moderate
Petrolia silty clay loam (288) 4 to 5 feet or more of silty clay loam.	0–3	0–48	CL or CH	A6 or A7	100	100	.63–2.0	.22	6.1–7.1	Mod. to high	Mod. to high
Piasa silt loam (474) 1 ft. of silt loam over 3 feet of silty clay loam to silty clay over several feet of silt loam.	0–2	0–11	ML or CL	A4 or A7	100	95–100	.2–0.63	.25	6.5–8.0	Mod. to high	
		11–49	CH	A7	100	95–100	Less than .05	.20	7.5–8.3	High	High
		49–70	CL or CH	A7 or A6	100	95–100	.05–0.2	.20	7.5–8.3	Low to mod.	
Rozetta silt loam (279) 1½ feet of silt loam over 3 feet of silty clay loam over several feet of silt loam.	3–4	0–7	ML or CL	A4 or A6	100	95–100	.63–2.0	.26	6.1–7.0	Low to mod.	
		7–50	CL	A6 or A7	100	95–100	.63–2.0	.25	5.1–5.6	Moderate	Moderate
		50–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.28	5.6–7.0	Low to mod.	Moderate

Table 9. — Concluded

Soil type name, number, and description	Depth to seasonal high water table (ft.)	Depth from surface (in.)	Probable classification: Unified	Probable classification: AASHO	Percent passing sieve: No. 10 (2.0 mm.)	Percent passing sieve: No. 200 (0.074 mm.)	Range in permeability (in./hr.)	Available water capacity (in./in. of soil)	Reaction (pH)	Shrink-swell potential	Corrosion potential for metal conduits
Rushville silt loam (16) 1½ feet of silt loam over 2½ feet of silty clay loam over several feet of silt loam.	1–2	0–18	ML or CL	A4 or A6	100	95–100	.2–0.63	.22	6.1–7.0	Low to mod.	
		18–50	CL or CH	A7 or A6	100	95–100	.05–0.2	.25	5.1–5.5	Mod. to high	High
		50–90	ML or CL	A4 or A6	100	95–100	.2–0.63	.24	5.6–7.0	Low to mod.	High
Sable silty clay loam (65) 3 ft. of silty clay loam over several feet of silt loam.	0–1	0–35	CL or CH	A6 or A7	100	95–100	.63–2.0	.26	6.6–7.1	Mod. to high	High
		35–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	6.6–7.1	Moderate	High
Sicily silt loam (258) 1½ feet of silt loam over 2 to 3 feet of silty clay loam over several feet of silt loam.	3–4	0–17	CL or CH	A4 or A6	100	95–100	.63–2.0	.26	5.1–7.0	Low to mod.	
		17–43	CL	A6 or A7	100	95–100	.63–2.0	.23	5.1–5.5	Mod. to high	Moderate
		43–70	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	6.0–7.0	Low to mod.	Moderate
Stronghurst silt loam (278) 1½ feet of silt loam over 2 to 3 feet of silty clay loam over several feet of silt loam.	2–3	0–14	ML or CL	A4 or A6	100	95–100	.63–2.0	.26	5.1–7.0	Low to mod.	
		14–45	CL	A6 or A7	100	95–100	.2–.63	.23	5.0–6.1	Mod. to high	High
		45–90	ML or CL	A4 or A6	100	95–100	.2–.63	.25	6.1–7.0	Low to mod.	High
Sylvan silt loam (19) 1 ft. of silt loam over 2 feet of silty clay loam over several feet of silt loam.	10+	0–8	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	6.0–7.5	Low	
		8–36	CL	A6	100	95–100	.63–2.0	.23	6.6–7.5	Low to mod.	Low
		36–90	ML	A4	100	95–100	.63–2.0	.25	8.0	Low	Low
Sylvan-Bold complex (19-35). Both Sylvan and Bold soils are in these soil areas. See the information given for the individual soil types.											
Tama silt loam (36) 1½ feet of silt loam over 3 feet of silty clay loam over several feet of silt loam.	6+	0–20	CL	A4 or A6	100	95–100	.63–2.0	.25	5.6–7.0	Moderate	
		20–54	CL	A6 or A7	100	95–100	.63–2.0	.25	5.6–6.5	Mod. to high	Moderate
		54–90	ML or CL	A4 or A6	100	95–100	.63–2.0	.25	6.0–7.8	Low to mod.	Moderate
Tice silty clay loam (284) 4 to 5 feet or more of silty clay loam.	2–3	0–32	CL or CH	A6 or A7	100	95–100	.2–.63	.25	6.0–7.0	Moderate	Moderate
		32–70	ML, CL, or CH	A4 or A7	100	80–100	.05–.63	.23	5.6–7.0	Moderate	Moderate
Virden silt loam(47) 1 ft. of silt loam over 3 feet of silty clay loam over several feet of silt loam.	0–1	0–17	ML or CL	A6	100	95–100	.2–.63	.25	6.1–7.3	Low to mod.	
		17–48	CL or CH	A6 or A7	100	95–100	.2–.63	.23	6.5–7.3	Mod. to high	High
		48–90	ML or CL	A4 or A6	100	95–100	.2–.63	.25	6.5–7.3	Low to mod.	High
Virden silty clay loam (50) 3 to 4 feet of silty clay loam over several feet of silt loam.	0–1	0–35	CL or CH	A6 or A7	100	95–100	.2–.63	.23	6.1–7.3	Mod. to high	High
		35–70	ML or CL	A4 or A6	100	95–100	.2–.63	.25	6.5–7.3	Moderate	High
Wabash silty clay (83) 3 to 4 feet or more of silty clay to clay.	0–1	0–40	CH	A7	100	95	.05–.2	.21	6.1–7.3	Very high	Very high
		40–80	CH	A7	100	95	Less than .05	.18	6.1–7.5	Very high	Very high
Wakeland silt loam (333) 3 to 4 feet or more of silt loam	2–3	0–50	ML	A4	95–100	80–95	.63–2.0	.22	6.6–8.0	Low to mod.	Moderate
		50–90	SM or ML	A2 or A4	80–100	30–80	.63–2.0	.18	6.6–8.0	Low to mod.	Moderate
Whitaker silt loam (132) 1½ feet of silt loam over 3 feet of silty clay loam over several feet of silt loam to sandy loam.	2–3	0–16	ML or CL	A4 or A6	95–100	90–100	.63–2.0	.25	6.1–7.3	Low to mod.	
		16–42	CL or CH	A6 or A7	95–100	80–100	.63–2.0	.23	5.2–6.0	Moderate	Moderate
		42–80	ML, CL, or SM	A2 or A4	90–100	30–90	.63–2.0	.25	5.6–6.1	Low to mod.	Moderate
Worthen silt loam (37) 4 to 5 feet or more of silt loam.	6+	0–90	ML	A4	95–100	90–100	.63–2.0	.27	6.1–7.5	Low to mod.	Moderate

[a] The information in this table is based on data (see Table 8) wherever possible. Where data were unavailable, estimates were made.

Table 10. — SUITABILITY OR NEED OF SOILS FOR SPECIFIC ENGINEERING PRACTICES

Soil type name and number	Suitability in highway construction				Suitability for septic tank disposal field[a]	Suitability for farm ponds		Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
	As a source of topsoil	As a source of subgrade material	For highway location	For subgrade		Reservoir area	Embankments				
Alvin fine sandy loam (131)	Good in surface layer; somewhat sandy.	Subsoil fair to poor. Substrata fair to good.	Seepage possible in deep cuts.	Exposed sand is erosive.	Slight limitations; may contaminate near-by water supply.	Severe limitations; reservoir area too porous to hold water well.	Severe limitations; too porous to hold water well; fair to good compaction character and stability.	None needed.	Rapid rate of water intake; low available moisture capacity; would require frequent irrigation.	Terraces needed; suitable outlets difficult to obtain.	When exposed, substrata is sandy and hard to vegetate.
Beardstown loam (188)	Good in surface layer; somewhat sandy.	Subsoil fair to poor. Substrata fair to good.	Occasional high water table.	Subsoil unstable when wet.	Moderate limitations; seasonal high water table; may contaminate near-by water supply.	Severe limitations; topography not suitable; substrata too porous to hold water.	Severe limitations; material in lower horizons too sandy to hold water well; fair to good compaction character and stability.	Surface drainage or tile needed; sand may wash into tile.	Rapid rate of water intake; moderate available moisture capacity.	Not needed.	Seldom needed; deep cuts would be difficult to vegetate.
Beaucoup silty clay loam (70)	Fair in surface layer; clayey.	Poor.	High water table and flooding in many areas.	Unstable when wet; high susceptibility to frost action.	Severe limitations; seasonal high water table; some areas may be flooded.	Moderate limitations; normally suited to dug ponds. May have excessive seepage below 60 inches.	Moderate limitations; fair stability and compaction character; medium to high shrink-swell.	Both surface and tile drains may be used.	Medium water intake rate; high available moisture capacity; additional drainage may be needed if irrigated.	Not needed.	Seldom needed; no problem in construction except high water table.
Bodine cherty silt loam (471)	Poor; too stony.	Too stony to excavate.	Rough topography; requires much grading.	Bed rock at 1–3′	Severe limitations; fractured rock is likely to transmit effluent considerable distance.	Not suitable; underlain by porous rock.	Unsuitable.	None needed.	Too steep and stony for cultivation.	Not adapted.	Seldom used; too stony and steep to be practical.
Bold silt loam (35)	Fair throughout profile.	Poor.	Seepage in deep cuts; rough topography, requires much grading.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Severe limitations; excessive seepage.	Severe limitations; poor resistance to piping; poor stability and compaction character.	None needed.	Medium rate of water intake; high available moisture capacity.	Terraces will assist in erosion control on adapted topography.	Steep gradients make vegetation difficult.
Bolivia silt loam (246)	Good in surface layer.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	Tile drains often needed in draws.	Medium rate of water intake; high available moisture capacity.	Terraces assist in erosion control.	No major construction problem.
Camden silt loam (134)	Good in surface layer.	Subsoil poor to fair. Substrata fair to poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Severe limitations; apt to be underlain by porous material.	Moderate limitations; poor resistance to piping; fair to good compaction character and stability.	None needed.	Medium rate of water intake; high available moisture capacity.	Terraces assist in erosion control on suitable topography.	No major construction problem.
Clarksdale silt loam (257)	Good in surface layer.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Moderate limitations; seasonal high water table.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	Tile drainage usually needed.	Medium water intake rate; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	No major construction problem.

Table 10. — Continued

Soil type name and number	Suitability in highway construction				Suitability for septic tank disposal field[a]	Suitability for farm ponds		Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
	As a source of topsoil	As a source of subgrade material	For highway location	For subgrade		Reservoir area	Embankments				
Clinton silt loam (18)	Good in surface layer.	Subsoil and substrata poor to fair.	Seepage in deep cuts; moderate to rough topography, requires grading.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Slight to moderate limitations.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	None needed.	Medium water intake rate; high available moisture capacity; runoff problems on steep slopes.	Terraces assist in erosion control on suitable topography.	Steep gradients often make grass establishment difficult.
Cowden silt loam (112)	Fair in surface layer.	Poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Severe limitations; slow permeability and seasonal high water table.	Slight limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to fair compaction character and stability.	Under-drainage usually needed; tile draw slowly.	Slow water intake rate; high available moisture capacity; slowly permeable; needs drainage.	Not usually needed.	Seldom used; no major construction problem.
Darwin silty clay (71)	Poor.	Very poor.	High water and flooding problems in many areas.	Very clayey; unstable when wet; high shrink-swell; high suceptibility to frost action.	Severe limitations; slow permeability and seasonal high water table.	Moderate limitations; high seasonal water table; may be sandy and porous below 60″.	Severe limitations; very high shrink-swell; high compacted compressibility; fair stability and compaction character.	Both surface and under drainage needed; tile draw very slowly.	Slow water intake rate; high available moisture capacity; slowly permeable; needs drainage.	Not needed.	Not needed.
Denny silt loam (45)	Fair in surface only.	Poor.	Seepage in deep cuts.	Unstable when wet; susceptibility to frost action is high.	Severe limitations; slow permeability and seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	Under-drainage usually needed; tile draw slowly.	Slow water intake rate; high available moisture capacity; slowly permeable; needs drainage.	Not needed.	Seldom needed; no major construction problem.
Douglas silt loam (128)	Good in surface layer.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	None needed.	Medium water intake; high available moisture capacity.	Terraces assist in erosion control.	No major construction problem.
Drury silt loam (180)	Good in surface; subsoil fair.	Fair to poor.	Seepage in deep cuts.	Unstable when wet; susceptibility to frost action.	Slight limitations.	Severe limitations; high to moderate seepage.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	None needed.	Medium water intake; high available moisture capacity.	Terraces useful in some areas.	No major construction problem.
Dupo silt loam (180)	Good in surface.	Poor.	High water table and flooding in some areas.	Very plastic clay below 1–3′; unstable when wet.	Severe limitations; seasonal high water table and slow permeability.	Moderate limitations; topography suitable for dug ponds only; may be sandy and porous below 60″.	Moderate limitations; surface has poor resistance to piping; subsoil is compressible and has high shrink-swell.	Surface and under-drainage needed; tile draw slowly to moderately slow.	Medium to low rate of water intake; high available moisture capacity; would need adequate drainage.	Not needed.	Seldom used; no major construction problem.

[a] Ratings on suitability for septic tank disposal fields apply only to slopes under 12 percent. Therefore, mapping units of soils having more than 12 percent slopes are not rated.

(Table is continued on next page.)

Table 10. — Continued

Soil type name and number	Suitability in highway construction: As a source of topsoil	Suitability in highway construction: As a source of subgrade material	Suitability in highway construction: For highway location	Suitability in highway construction: For subgrade	Suitability for septic tank disposal field[a]	Suitability for farm ponds: Reservoir area	Suitability for farm ponds: Embankments	Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
Elsah cherty silt loam (475)	Poor; too stony.	Good.	Flooding.	Good subgrade material except for large stones.	Moderate limitations; may flood for short periods.	Not suitable; too porous.	Severe limitations; poor resistance to piping; poor to fair compaction character; fair stability.	None needed.	Medium rate of water intake; medium available moisture; stones make cultivating difficult.	Not needed.	Seldom used.
Fayette silt loam (280)	Good in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts; moderate to rough topography, much grading required.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage; many areas underlain by porous cherty material.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	None needed.	Medium rate of water intake; high available moisture capacity; runoff problems on steep slopes.	Terraces assist in erosion control on suitable topography.	Steep gradients make grass establishment difficult.
Hamburg silt (30)	Fair throughout profile.	Fair.	Rough topography; much grading required.	Fair subgrade material, but unstable when wet.	Slight limitations.	Severe limitations; excessive seepage.	Severe limitations; poor stability and compaction character; poor resistance to piping.	None needed.	Medium rate of water intake; high available moisture capacity; runoff problems on steeper slopes.	Not adapted.	Steep gradients make grass establishment difficult.
Harrison silt loam (127)	Good in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good compaction character and stability.	Some underdrainage needed in draws. Tile draw moderately.	Medium rate of water intake; high available moisture capacity.	Terraces assist in erosion control.	No major construction problem.
Haymond silt loam (331)	Good throughout profile.	Poor to fair.	Flooding.	Medium to high susceptibility to frost action.	Moderate limitations; subject to infrequent flooding.	Severe limitations; usually underlain by coarse material; core of dam should extend through this material.	Severe limitations; poor resistance to piping and poor to good stability.	None usually needed.	Medium rate of water intake; high available moisture capacity.	Not needed.	No major construction problem.
Herrick silt loam (46)	Good in surface only.	Poor.	Seasonal high water table.	High susceptibility to frost action.	Severe limitations; seasonal high water table and moderately slow permeability.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character; subsoil has high shrink-swell.	Surface and under-drainage often needed. Tile draw moderately slow.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	No major construction problem.
Hickory loam (8)	Good in surface.	Subsoil fair to poor. Substrata fair.	Few local seeps; rough topography, much grading required.	Fair subgrade material; likely to seep in local areas; moderate to high susceptibility to frost action.	Slight limitations; steep slopes makes installation difficult.	Slight limitations.	Slight limitations.	None needed.	Medium rate of water intake; medium available moisture capacity; runoff problems on steep slopes.	Usually too steep for terrace construction.	Steep gradients and infertile material make vegetation establishment difficult.

Table 10. — Continued

Soil type name and number	Suitability in highway construction: As a source of topsoil	Suitability in highway construction: As a source of subgrade material	Suitability in highway construction: For highway location	Suitability in highway construction: For subgrade	Suitability for septic tank disposal field[a]	Suitability for farm ponds: Reservoir area	Suitability for farm ponds: Embankments	Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
Hickory-Clinton complex (8-18)	For the Hickory part of this complex, see the information for Hickory loam. For the Clinton, see the information given for Clinton silt loam.										
Huntsville silt loam (77)	Good throughout profile.	Poor to fair.	Flooding.	Medium to high susceptibility to frost action.	Moderate limitations; subject to infrequent flooding.	Severe limitations; usually underlain by coarse material; core of embankment should extend through this material.	Severe limitations; poor resistance to piping and poor to fair stability.	None needed.	Medium rate of water intake; high available moisture capacity.	Not needed.	No major construction problem.
Jules silt loam (28)	Fair throughout profile.	Poor to fair.	Flooding and high water table.	Medium to high susceptibility to frost action.	Severe limitations subject to infrequent flooding; seasonal high water table.	Severe limitations; usually underlain by coarse material; core of embankment should extend through this material.	Severe limitations; poor resistance to piping and poor to fair stability.	Surface drainage may be needed. Tile draw moderately.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	No major construction problem.
Keomah silt loam (17)	Good in surface only.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Moderate limitations; moderately slow permeability may limit water intake.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Usually not needed; some tile are installed in draws.	Medium to low rate of water intake; high available moisture capacity.	Terraces assist in erosion control.	No major construction problem.
Lawson silt loam (451)	Good throughout profile.	Poor to fair.	Flooding and seasonal high water table.	Medium to high susceptibility to frost action; may overflow; seasonal high water table.	Severe limitations; seasonal high water table and may flood.	Severe limitations; usually underlain by coarse material; core of embankment should extend through this material.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Surface and under-drainage needed; tile draw moderately.	Medium rate of water intake; high available moisture capacity.	Not needed.	No major construction problem.
Limestone rockland (94)	Unsatisfactory; too stony.	Poor; too stony to excavate.	Very rough topography; much grading required.	Rock at or near surface; steep slopes.	Severe limitations; fractured rock may transmit effluent considerable distance; difficult to install.	Not suitable; too porous.	Not suitable.	Not needed.	Unsuitable for cultivation.	Not adapted.	Seldom used; very shallow and stony.
Littleton silt loam (81)	Good in upper profile.	Poor to fair.	Seasonal high water table; possible flooding in some areas.	High susceptibility to frost action.	Moderate limitations; seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Severe limitations; poor resistance to piping; poor to fair compressibility.	Surface and under-drainage usually needed; tile draw moderately.	Medium rate of water intake; high available moisture capacity.	Not needed.	No major construction problem.

[a] Ratings on suitability for septic tank disposal fields apply only to slopes under 12 percent. Therefore, mapping units of soils having more than 12 percent slopes are not rated.

(Table is continued on next page.)

Table 10. — Continued

Soil type name and number	Suitability in highway construction: As a source of topsoil	Suitability in highway construction: As a source of subgrade material	Suitability in highway construction: For highway location	Suitability in highway construction: For subgrade	Suitability for septic tank disposal field[a]	Suitability for farm ponds: Reservoir area	Suitability for farm ponds: Embankments	Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
McFain silt clay (248)	Poor.	Poor.	Seasonal high water table; possible flooding.	Poorly suited; high shrink-swell; high susceptibility to frost action.	Severe limitations; seasonal high water table and slow permeability.	Moderate limitations; topography suitable for dug ponds only.	Severe limitations; high shrink-swell; high compacted compressibility; fair stability and compaction character.	Surface and under-drainage needed; tile draw moderately to slowly.	Low rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Not needed.
McGary silt loam (173)	Fair in surface only.	Subsoil poor to fair. Substrata poor to very poor.	Seasonal high water table.	Poorly suited; high shrink-swell; high susceptibility to frost action.	Severe limitations; slow permeability and seasonal high water table.	Slight limitations; topography of site often not favorable.	Severe limitations; high shrink-swell; high compacted compressibility; fair stability and compaction character.	Surface drainage needed in some areas.	Low rate of water intake; moderate to high available moisture capacity; some areas may need additional drainage if irrigated.	Terrace channels apt to be in subsoil with unfavorable characteristics.	Difficult to vegetate deep cuts.
Muscatine silt loam (41)	Good in upper horizons.	Subsoil poor to fair. Substrata poor.	Seasonal high water table; seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Moderate limitations; seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Soil is often improved by under-drainage; tile draw moderately.	Medium rate of water intake; high available moisture capacity.	Terraces will assist in erosion control.	No major construction problem.
Petrolia silty clay loam (288)	Poor.	Poor.	Flooding and seasonal high water table.	Unstable when wet; high susceptibility to frost action.	Severe limitations; seasonal high water table and may flood.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; fair stability and compaction character; medium to high shrink-swell.	Tiling and surface drainage needed in most areas. Tile draw moderately.	Slow to medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Not needed.
Piasa silt loam (474)	Poor.	Poor.	Poor drainage.	High shrink-swell; high susceptibility to frost action.	Very severe limitations; very slow permeability and seasonal high water table.	Severe limitations; topography suitable for dug ponds only. Water apt to be murky caused by high sodium content of soil.	Severe limitations; high shrink-swell; poor stability.	Surface drainage needed in many areas. Tile will not draw satisfactory in this soil.	Slow rate of water intake; moderate available moisture capacity; irrigation may aggravate drainage problem.	Not needed.	Seldom used; difficult to vegetate cuts into subsoil.
Rozetta silt loam (279)	Good in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts; moderate to rough topography, much grading required.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Not needed.	Moderate rate of water intake; high available moisture capacity.	Terraces will assist in erosion control on adapted topography.	Steep gradients make vegetation establishment difficult.
Rushville silt loam (16)	Fair in surface.	Poor.	Seepage in deep cuts; seasonal high water table.	Unstable when wet; high susceptibility to frost action.	Moderate limitations; slow permeability and seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Surface drainage needed in some areas. Tile draw slowly in this soil.	Slow rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	No major construction problem.

Table 10. — Continued

Soil type name and number	Suitability in highway construction: As a source of topsoil	As a source of subgrade material	For highway location	For subgrade	Suitability for septic tank disposal field[a]	Suitability for farm ponds: Reservoir area	Embankments	Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
Sable silty clay loam (68)	Fair in surface; apt to have high seasonal water table.	Poor.	Seasonal high water table; seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Severe limitations; seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Surface and under-drainage needed; installation of tile most satisfactory. Tile draw moderately.	Moderate rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Seldom used; no major construction problem.
Sicily silt loam (258)	Good in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	None needed.	Medium rate of water intake; high available moisture capacity.	Terraces will assist in erosion control in sloping areas.	No major construction problem.
Stronghurst silt loam (278)	Fair in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Moderate limitations; moderately slow permeability.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Drainage need in some areas; surface drains or random tile lines with surface inlets function best.	Medium to slow rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Terraces will assist in erosion control in sloping areas.	No major construction problem.
Sylvan silt loam (19)	Good in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts; rough topography, much grading required.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Severe limitations; excessive seepage.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	None needed.	Medium rate of water intake; high available moisture capacity.	Terraces will assist in erosion control on adapted topography.	Steep gradients make vegetation establishment difficult.
Sylvan-Bold complex (19-35)	For the Sylvan part of this complex, see the information for Sylvan silt loam. For the Bold, see the information given for Bold silt loam.										
Tama silt loam (36)	Good in surface.	Subsoil poor to fair. Substrata poor.	Seepage in deep cuts.	Unstable when wet; high susceptibility to frost action.	Slight limitations.	Moderate limitations; moderate seepage.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Occasional random tile lines are needed in draws.	Medium rate of water intake; high available moisture capacity.	Terraces will assist in erosion control.	No major construction problem.
Tice silty clay loam (284)	Fair to a depth of about 30"; apt to have high water table in wet seasons.	Poor.	High water table and flooding in many areas.	Poor subgrade material; unstable when wet; high susceptibility to frost action.	Moderate limitations; seasonal high water table; some areas may flood.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; fair stability and compaction character; medium to high shrink-swell.	Often needs some drainage; open ditches and tile are used.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Seldom used; no major construction problems.

[a] Ratings on suitability for septic tank disposal fields apply only to slopes under 12 percent. Therefore, mapping units of soils having more than 12 percent slopes are not rated.

(Table is concluded on next page.)

Table 10. — Concluded

Soil type name and number	Suitability in highway construction: As a source of topsoil	As a source of subgrade material	For highway location	For subgrade	Suitability for septic tank disposal field[a]	Suitability for farm ponds: Reservoir area	Embankments	Drainage needs	Suitability for sprinkler irrigation	Need for terraces and diversions	Need for grassed waterways
Virden silt loam (47)	Fair in surface layer; apt to have high water table during wet seasons.	Poor.	Seepage in deep cuts.	Deep silt under soil; unstable when wet; high susceptibility to frost action.	Severe limitations; seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Drainage needed; installation of tile most satisfactory practice. Tile draw moderately to moderately slow.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Seldom used; no major construction problems.
Virden silty clay loam (50)	Fair in surface layer; apt to have high water table during wet seasons.	Poor.	Seepage in deep cuts.	Deep silt under soil; unstable when wet; high susceptibility to frost action.	Severe limitations; seasonal high water table.	Moderate limitations; topography suitable for dug ponds only.	Moderate limitations; poor resistance to piping; poor to good stability and compaction character.	Drainage needed; installation of tile most satisfactory practice. Tile draw moderately to moderately slow.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Seldom used; no major construction problem.
Wabash silty clay (83)	Poor; apt to have high water table.	Very poor.	High water table; soil unstable in cuts. Some areas may flood.	Poorly suited; unstable when wet; very high shrink-swell; high susceptibility to frost action.	Severe limitations; slow permeability and high water table; some areas may flood.	Moderate limitations; topography suitable for dug ponds only.	Severe limitations; high to very high shrink-swell; fair stability; poor to fair compaction character.	Both surface and underdrainage needed. Tile draw very slowly.	Low rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	Not needed.
Wakeland silt loam (333)	Good to a depth of about 30″.	Poor to fair.	Flooding in many areas.	Fair subgrade material; moderate susceptibility to frost action.	Severe limitations; seasonal high water table; subject to flooding.	Severe limitations; usually underlain by coarse material; core of embankment should extend through this material.	Severe limitations; poor stability, compaction character, and resistance to piping.	Drainage often needed; subject to occasional overflow; tile function satisfactorily.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Not needed.	No major construction problem.
Whitaker silt loam (132)	Fair in surface.	Subsoil poor to fair. Substrata fair to poor.	Seepage in deep cuts; some areas may flood.	Subsoil fair; substrata poor to good; high susceptibility to frost action.	Moderate limitations; seasonal high water table.	Moderate limitations; apt to be underlain by porous material.	Moderate limitations; poor to medium resistance to piping fair to good stability and compaction character.	Additional drainage needed in some areas; surface drains or random tile lines with surface inlets function best.	Medium rate of water intake; high available moisture capacity; may need additional drainage if irrigated.	Terraces useful in erosion control on sloping areas.	No major construction problem.
Worthen silt loam (37)	Good to a depth of 4 or 5′.	Poor to fair.	Seepage in deep cuts.	Fair subgrade material; unstable when wet.	Slight limitations.	Severe limitations; topography not favorable; excessive seepage.	Severe limitations; poor resistance to piping and compaction character; moderate permeability.	Not needed.	Medium rate of water intake; high available moisture capacity.	Usually not needed.	No major construction problem.

[a] Ratings on suitability for septic tank disposal fields apply only to slopes under 12 percent. Therefore, mapping units of soils having more than 12 percent slopes are not rated.

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GLOSSARY

Aggregate — many fine soil particles held in a single mass, such as a clod, crumb, block, or prism.

Alluvial sediment — particles of different size carried by running water and left on the floodplains.

Available water — an approximation (in inches per inch of soil depth) of the water in the soil that is available to plants.

Clay — a soil separate with mineral particles of less than 0.002 mm. in diameter. Clay, as a textural class, contains 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Claypan — compact soil horizon high in clay content and having a rather abrupt textural change from the overlying horizon.

Compact — said of soils that are difficult to penetrate, being made of particles so closely packed there is relatively little pore space between them.

Concretions — small hard nodules, or lumps, of mixed composition, shapes, and coloring (limestone concretions and dark rounded pellets of iron-manganese are common).

Friable — easily crumbled or crushed in the fingers; a desirable physical condition in soils.

Glacial drift — any material carried by the ice or waters of glaciers and deposited either as layers of particles sorted by size or as mixed materials.

Granular structure — individual grains grouped into spherical aggregates with indistinct sides. Highly porous granules are commonly called crumbs.

Intake rate — the rate at which rain or irrigation water enters the soil (generally expressed in inches per hour). This rate is controlled partly by surface conditions (infiltration rate) and partly by subsurface conditions (permeability). It also varies with the method of applying water. The same kind of soil has different intake rates under sprinkler irrigation, border irrigation, and furrow irrigation.

Leached — dissolved and washed out of or down through the soil. This has happened with the more soluble materials, such as limestone.

Liquid limit — the moisture content at which soil passes from a plastic to a liquid state.

Mapping unit — a subdivision of a soil type having limited range in slope and in thickness of remaining surface and subsurface soil, but having a large enough area to be shown on the soil map.

Maximum dry density — the highest dry density obtained in the compaction test.

Moisture density — if a soil material is compacted at successively higher moisture contents, assuming that the compaction force remains constant, the density (mass per unit volume) of the compacted material will increase until the optimum moisture content is reached. Then the density decreases with further increases in moisture content. Data showing moisture density are important in earthwork for, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at about the optimum moisture content.

Percent slope — the slant of a slope stated in percent; for example a 15-percent slope changes 15 feet in elevation for each 100 feet horizontal distance.

Permeability — the rate at which air or water moves through soil material under natural conditions. Permeability depends largely upon soil texture and structure.

Plastic limit — the moisture content at which soil passes from a solid to a plastic state.

Plasticity index — the numerical difference between the liquid limit and the plastic limit. The plasticity index indicates the range of moisture content within which a soil material is plastic.

Road subgrade — the soil material below the finished grade on which the base material and then the pavement are placed.

Sand — a soil separate having mineral particles ranging from 2.00 mm. to 0.05 mm. in diameter. As a textural class, sand contains 85 percent or more sand and not more than 15 percent clay.

Shrink-swell potential — indicates the volume change to be expected of soil material with changes in moisture content.

Silt — a soil separate having mineral particles ranging from 0.05 mm. to 0.002 mm. in diameter. As a textural class, silt contains 80 percent or more silt and less than 12 percent clay.

Weathered — disintegrated and decomposed by the action of natural elements, such as air, rain, sunlight, freezing, thawing, and so on. Weathered soils are soils that have been leached and changed physically and chemically.

GUIDE TO MAPPING UNITS

(For acreages and proportionate extent of the soils, see Table 1, page 16; for information on field crop production, see page 43; for information on woodland, see page 56; and for information on engineering properties of the soils, see page 61.)

Soil map symbol	Name of mapping unit	Description	Management group		Woodland group	
		Page	Symbol[1]	Page	No.	Page
131B	Alvin fine sandy loam, 2- to 4-percent slopes	14	IIe-1	47	1	58
131$\overline{C}$	Alvin fine sandy loam, 4- to 7-percent slopes, moderately eroded	14	IIIe-1	49	1	58
131$\underline{D}$	Alvin soils, 7- to 12-percent slopes, severely eroded	14	IVe-1	51	1	58
131$\underline{E}$	Alvin soils, 12- to 18-percent slopes, severely eroded	14	VIe-1	51	1	58
188A	Beardstown loam, 0- to 2-percent slopes	15	I-1	46	(2)	..
188B	Beardstown loam, 2- to 4-percent slopes	15	IIe-1	47	(2)	..
70	Beaucoup silty clay loam	15	IIw-4	48	7	60
246B	Bolivia silt loam, 2- to 4-percent slopes	18	IIe-1	47	(2)	..
246$\overline{B}$	Bolivia silt loam, 2- to 4-percent slopes, moderately eroded	18	IIe-1	47	(2)	..
246C	Bolivia silt loam, 4- to 7-percent slopes	18	IIe-2	47	(2)	..
246$\overline{C}$	Bolivia silt loam, 4- to 7-percent slopes, moderately eroded	18	IIe-2	47	(2)	..
134A	Camden silt loam, 0- to 2-percent slopes	18	I-2	46	1	58
134B	Camden silt loam, 2- to 4-percent slopes	18	IIe-1	47	1	58
134C	Camden silt loam, 4- to 7-percent slopes	18	IIe-2	47	1	58
134$\overline{C}$	Camden silt loam, 4- to 7-percent slopes, moderately eroded	18	IIe-2	47	1	58
134$\underline{C}$	Camden soils, 4- to 7-percent slopes, severely eroded	18	IIIe-1	49	1	58
134D	Camden silt loam, 7- to 12-percent slopes	18	IIIe-1	49	1	58
134$\overline{D}$	Camden silt loam, 7- to 12-percent slopes, moderately eroded	18	IIIe-1	49	1	58
134$\underline{D}$	Camden soils, 7- to 12-percent slopes, severely eroded	18	IVe-1	51	1	58
134$\overline{E}$	Camden silt loam, 12- to 18-percent slopes, moderately eroded	18	IVe-1	51	1	58
134$\underline{E}$	Camden soils, 12- to 18-percent slopes, severely eroded	18	VIe-1	51	1	58
134$\underline{F}$	Camden soils, 18- to 30-percent slopes, severely eroded	18	VIe-1	51	1	58
257	Clarksdale silt loam	18	I-1	46	2	59
18B	Clinton silt loam, 2- to 4-percent slopes	19	IIe-1	47	1	58
18C	Clinton silt loam, 4- to 7-percent slopes	19	IIe-2	47	1	58
18$\overline{C}$	Clinton silt loam, 4- to 7-percent slopes, moderately eroded	19	IIe-2	47	1	58
18$\underline{C}$	Clinton soils, 4- to 7-percent slopes, severely eroded	19	IIIe-1	49	1	58
18D	Clinton silt loam, 7- to 12-percent slopes	19	IIIe-1	49	1	58
18$\overline{D}$	Clinton silt loam, 7- to 12-percent slopes, moderately eroded	19	IIIe-1	49	1	58
18$\underline{D}$	Clinton soils, 7- to 12-percent slopes, severely eroded	19	IVe-1	51	1	58
18$\underline{E}$	Clinton soils, 12- to 18-percent slopes, severely eroded	19	VIe-1	51	1	58
112A	Cowden silt loam, 0- to 2-percent slopes	20	IIw-2	48	(2)	..
112B	Cowden silt loam, 2- to 4-percent slopes	20	IIw-2	48	(2)	..
71	Darwin silty clay	20	IIIw-1	50	8	60
45	Denny silt loam	20	IIw-2	48	(2)	..
128B	Douglas silt loam, 2- to 4-percent slopes	21	IIe-1	47	(2)	..
128C	Douglas silt loam, 4- to 7-percent slopes	21	IIe-2	47	(2)	..
75B	Drury silt loam, 2- to 4-percent slopes	21	IIe-1	47	1	58
75C	Drury silt loam, 4- to 7-percent slopes	21	IIe-2	47	1	58
75D	Drury silt loam, 7- to 12-percent slopes	21	IIIe-1	49	1	58
75$\overline{D}$	Drury silt loam, 7- to 12-percent slopes, moderately eroded	21	IIIe-1	49	1	58
180	Dupo silt loam	22	IIw-5	48	6	60
475A	Elsah cherty silt loam, 0- to 2-percent slopes	22	IIw-6	49	6	60
745B	Elsah cherty silt loam, 2- to 4-percent slopes	22	IIw-6	49	6	60
280B or YB	Fayette silt loam, 2- to 4-percent slopes	22	IIe-1	47	1	58
280C or YC	Fayette silt loam, 4- to 7-percent slopes	22	IIe-2	47	1	58
280$\overline{C}$ or Y$\overline{C}$	Fayette silt loam, 4- to 7-percent slopes, moderately eroded	22	IIe-2	47	1	58
280$\underline{C}$ or Y$\underline{C}$	Fayette silt loam, 4- to 7-percent slopes, severely eroded	22	IIIe-1	49	1	58
280D or YD	Fayette silt loam, 7- to 12-percent slopes	22	IIIe-1	49	1	58
280$\overline{D}$ or Y$\overline{D}$	Fayette silt loam, 7- to 12-percent slopes, moderately eroded	22	IIIe-1	49	1	58
280$\underline{D}$ or Y$\underline{D}$	Fayette silt loam, 7- to 12-percent slopes, severely eroded	22	IVe-1	51	1	58
280E or YE	Fayette silt loam, 12- to 18-percent slopes	22	IVe-1	51	1	58
280$\overline{E}$ or Y$\overline{E}$	Fayette silt loam, 12- to 18-percent slopes, moderately eroded	22	IVe-1	51	1	58
280$\underline{E}$ or Y$\underline{E}$	Fayette silt loam, 12- to 18-percent slopes, severely eroded	22	VIe-1	51	1	58
280F or YF	Fayette silt loam, 18- to 30-percent slopes	22	VIe-1	51	1	58
280$\overline{F}$ or Y$\overline{F}$	Fayette silt loam, 18- to 30-percent slopes, moderately eroded	22	VIe-1	51	1	58

See footnotes (1) and (2) on page 79.

GUIDE TO MAPPING UNITS — Continued

(For acreages and proportionate extent of the soils, see Table 1, page 16; for information on field crop production, see page 43; for information on woodland, see page 56; and for information on engineering properties of the soils, see page 61.)

Soil map symbol	Name of mapping unit	Description	Management group		Woodland group	
		Page	Symbol[1]	Page	No.	Page
280$\underline{F}$ or Y$\underline{F}$	Fayette silt loam, 18- to 30-percent slopes, severely eroded	22	VIe-1	51	1	58
280G or YG	Fayette silt loam, 30- to 50-percent slopes	22	VIIe-1	52	1	58
280-471F or ZF	Fayette-Bodine complex, 18- to 30-percent slopes	23	VIe-1 or VIIe-1	51 or 52	1	58
280-471$\overline{F}$ or Z$\overline{F}$	Fayette-Bodine complex, 18- to 30-percent slopes, moderately eroded	23	VIe-1 or VIIe-1	51 or 52	1	58
280-471$\underline{F}$ or Z$\underline{F}$	Fayette-Bodine complex, 18- to 30-percent slopes, severely eroded	23	VIe-1 or VIIe-1	51 or 52	1	58
280-471G or ZG	Fayette-Bodine complex, 30- to 85-percent slopes	23	VIIe-1	52	1	58
280-471$\overline{G}$ or Z$\overline{G}$	Fayette-Bodine complex, 30- to 85-percent slopes, moderately eroded	23	VIIe-1	52	1	58
30D	Hamburg silt, 7- to 12-percent slopes	23	IIIe-1	49	(2)	..
30E	Hamburg silt, 12- to 18-percent slopes	23	IVe-1	51	(2)	..
30F	Hamburg silt, 18- to 30-percent slopes	23	VIe-1	51	(2)	..
30G	Hamburg silt, 30- to 75-percent slopes	23	VIIe-1	52	(2)	..
127B	Harrison silt loam, 2- to 4-percent slopes	23	IIe-1	47	(2)	..
127$\overline{C}$	Harrison silt loam, 4- to 7-percent slopes, moderately eroded	23	IIe-2	47	(2)	..
127$\underline{C}$	Harrison silt loam, 4- to 7-percent slopes, severely eroded	23	IIIe-1	49	(2)	..
331A	Haymond silt loam, 0- to 2-percent slopes	24	I-2	46	6	60
331B	Haymond silt loam, 2- to 4-percent slopes	24	I-2	46	6	60
46	Herrick silt loam	24	I-1	46	(2)	..
8$\underline{D}$	Hickory soils, 7- to 12-percent slopes,severely eroded	24	IVe-1	51	1	58
8E	Hickory loam, 12- to 18-percent slopes	24	IVe-1	51	1	58
8$\overline{E}$	Hickory loam, 12- to 18-percent slopes, moderately eroded	24	IVe-1	51	1	58
8$\underline{E}$	Hickory soils, 12- to 18-percent slopes, severely eroded	24	VIe-1	51	1	58
8F	Hickory loam, 18- to 30-percent slopes	24	VIe-1	51	1	58
8$\overline{F}$	Hickory loam, 18- to 30-percent slopes, moderately eroded	24	VIe-1	51	1	58
8$\underline{F}$	Hickory soils, 18- to 30-percent slopes, severely eroded	24	VIe-1	51	1	58
8G	Hickory loam, 30- to 65-percent slopes	24	VIIe-1	52	1	58
8$\overline{G}$	Hickory loam, 30- to 65-percent slopes, moderately eroded	24	VIIe-1	52	1	58
8$\underline{G}$	Hickory soils, 30- to 65-percent slopes, severely eroded	24	VIIe-1	52	1	58
8-18$\overline{D}$ or S$\overline{D}$	Hickory-Clinton complex, 7- to 12-percent slopes, moderately eroded	25	IIIe-1	49	1	58
8-18$\underline{D}$ or S$\underline{D}$	Hickory-Clinton complex, 7- to 12-percent slopes, severely eroded	25	IVe-1	51	1	58
8-18E or SE	Hickory-Clinton complex, 12- to 18-percent slopes	25	IVe-1	51	1	58
8-18$\overline{E}$ or S$\overline{E}$	Hickory-Clinton complex, 12- to 18-percent slopes, moderately eroded	25	VIe-1	51	1	58
8-18$\underline{E}$ or S$\underline{E}$	Hickory-Clinton complex, 12- to 18-percent slopes, severely eroded	25	VIe-1	51	1	58
8-18F or SF	Hickory-Clinton complex, 18- to 30-percent slopes	25	VIe-1	51	1	58
8-18$\overline{F}$ or S$\overline{F}$	Hickory-Clinton complex, 18- to 30-percent slopes, moderately eroded	25	VIe-1	51	1	58
8-18$\underline{F}$ or S$\underline{F}$	Hickory-Clinton complex, 18- to 30-percent slopes, severely eroded	25	VIe-1	51	1	58
77	Huntsville silt loam	25	I-2	46	6	60
77+	Huntsville silt loam, overwash	25	I-2	46	6	60
28A	Jules silt loam, 0- to 2-percent slopes	26	IIw-5	48	(2)	..
28B	Jules silt loam, 2- to 4-percent slopes	26	IIw-5	48	(2)	..
17A	Keomah silt loam, 0- to 2-percent slopes	26	IIw-3	48	2	59
17B	Keomah silt loam, 2- to 4-percent slopes	26	IIw-7	49	2	59
17$\overline{B}$	Keomah silt loam, 2- to 4-percent slopes, moderately eroded	26	IIw-7	49	2	59
17$\overline{C}$	Keomah silt loam, 4- to 7-percent slopes, moderately eroded	26	IIIe-1	49	2	59
451A	Lawson silt loam, 0- to 2-percent slopes	26	I-1	46	6	60
451A+	Lawson silt loam, 0- to 2-percent slopes, overwash	26	I-1	46	6	60
451B	Lawson silt loam, 2- to 4-percent slopes	26	I-1	46	6	60
94G	Limestone rockland, 30- to 85-percent slopes	26	VIIe-1	52	5	60
81	Littleton silt loam	27	I-1	46	(2)	..
81+	Littleton silt loam, overwash	27	I-1	46	(2)	..
248	McFain silty clay	27	IIw-4	48	8	60
248+	McFain silt loam, overwash	27	IIw-4	48	8	60
173A	McGary silt loam, 0- to 2-percent slopes	27	IIIw-2	50	3	59
173B	McGary silt loam, 2- to 4-percent slopes	27	IIw-7	49	3	59
173$\overline{B}$	McGary silt loam, 2- to 4-percent slopes, moderately eroded	27	IIw-7	49	3	59
173$\underline{C}$	McGary soils, 4- to 7-percent slopes severely eroded	27	IVe-1	51	3	59

See footnotes (1) and (2) on page 79.

GUIDE TO MAPPING UNITS — Concluded

(For acreages and proportionate extent of the soils, see Table 1, page 16; for information on field crop production, see page 43; for information on woodland, see page 56; and for information on engineering properties of the soils, see page 61.)

Soil map symbol	Name of mapping unit	Description	Management group		Woodland group	
		Page	Symbol[1]	Page	No.	Page
41	Muscatine silt loam	28	I-1	46	([2])	..
288	Petrolia silty clay loam	28	IIw-4	48	7	60
474A	Piasa silt loam, 0- to 2-percent slopes	29	IIIs-1	50	([2])	..
474A̅	Piasa silt loam, 0- to 2-percent slopes, thin surface	29	IIIs-1	50	([2])	..
279B or XB	Rozetta silt loam, 2- to 4-percent slopes	29	IIe-1	47	1	58
279C or XC	Rozetta silt loam, 4- to 7-percent slopes	29	IIe-2	47	1	58
279C̅ or XC̅	Rozetta silt loam, 4- to 7-percent slopes, moderately eroded	29	IIe-2	47	1	58
279C̲ or XC̲	Rozetta soils, 4- to 7-percent slopes, severely eroded	29	IIIe-1	49	1	58
279D or XD	Rozetta silt loam, 7- to 12-percent slopes	29	IIIe-1	49	1	58
279D̅ or XD̅	Rozetta silt loam, 7- to 12-percent slopes, moderately eroded	29	IIIe-1	49	1	58
279D̲ or XD̲	Rozetta soils, 7- to 12-percent slopes, severely eroded	29	IVe-1	51	1	58
279E̅ or XE̅	Rozetta silt loam, 12- to 18-percent slopes, moderately eroded	29	IVe-1	51	1	58
279E̲ or XE̲	Rozetta soils, 12- to 18-percent slopes, severely eroded	29	VIe-1	51	1	58
16	Rushville silt loam	30	IIIw-2	50	3	59
68	Sable silty clay loam	30	IIw-1	47	([2])	..
258B	Sicily silt loam, 2- to 4-percent slopes	30	IIe-1	47	1	58
258B̅	Sicily silt loam, 2- to 4-percent slopes, moderately eroded	30	IIe-1	47	1	58
258C	Sicily silt loam, 4- to 7-percent slopes	30	IIe-2	47	1	58
258C̅	Sicily silt loam, 4- to 7-percent slopes, moderately eroded	30	IIe-2	47	1	58
258C̲	Sicily soils, 4- to 7-percent slopes, severely eroded	30	IIIe-1	49	1	58
278A	Stronghurst silt loam, 0- to 2-percent slopes	31	IIw-3	48	1	58
278B	Stronghurst silt loam, 2- to 4-percent slopes	31	IIw-7	49	1	58
19-35C or TC	Sylvan-Bold complex, 4- to 7-percent slopes	31	IIe-2	47	4	59
19-35C̅ or TC̅	Sylvan-Bold complex, 4- to 7-percent slopes, moderately eroded	31	IIe-2	47	4	59
19-35D or TD	Sylvan-Bold complex, 7- to 12-percent slopes	31	IIIe-1	49	4	59
19-35D̅ or TD̅	Sylvan-Bold complex, 7- to 12-percent slopes, moderately eroded	31	IIIe-1	49	4	59
19-35D̲ or TD̲	Sylvan-Bold complex, 7- to 12-percent slopes, severely eroded	31	IVe-1	51	4	59
19-35E or TE	Sylvan-Bold complex, 12- to 18-percent slopes	31	IVe-1	51	4	59
19-35E̅ or TE̅	Sylvan-Bold complex, 12- to 18-percent slopes, moderately eroded	31	IVe-1	51	4	59
19-35E̲ or TE̲	Sylvan-Bold complex, 12- to 18-percent slopes, severely eroded	31	VIe-1	51	4	59
19-35F or TF	Sylvan-Bold complex, 18- to 30-percent slopes	31	VIe-1	51	4	59
19-35F̅ or TF̅	Sylvan-Bold complex, 18- to 30-percent slopes, moderately eroded	31	VIe-1	51	4	59
19-35F̲ or TF̲	Sylvan-Bold complex, 18- to 30-percent slopes, severely eroded	31	VIe-1	51	4	59
19-35G or TG	Sylvan-Bold complex, 30- to 75-percent slopes	31	VIIe-1	52	4	59
19-35G̅ or TG̅	Sylvan-Bold complex, 30- to 75-percent slopes, moderately eroded	31	VIIe-1	52	4	59
19-35G̲ or TG̲	Sylvan-Bold complex, 30- to 75-percent slopes, severely eroded	31	VIIe-1	52	4	59
36B[3]	Tama silt loam, 2- to 4-percent slopes	32	IIe-1	47	([2])	..
36C	Tama silt loam, 4- to 7-percent slopes	32	IIe-2	47	([2])	..
36C̅	Tama silt loam, 4- to 7-percent slopes, moderately eroded	32	IIe-2	47	([2])	..
284A	Tice silty clay loam, 0- to 2-percent slopes	32	I-1	46	6	60
284B	Tice silty clay loam, 2- to 4-percent slopes	32	I-1	46	6	60
47	Virden silt loam	33	IIw-1	47	([2])	..
50	Virden silty clay loam	33	IIw-1	47	([2])	..
83	Wabash silty clay	33	IIIw-1	50	8	60
333A	Wakeland silt loam, 0- to 2-percent slopes	33	IIw-5	48	6	60
333B	Wakeland silt loam, 2- to 4-percent slopes	33	IIw-5	48	6	60
132A	Whitaker silt loam, 0- to 2-percent slopes	34	IIw-3	48	2	59
132B	Whitaker silt loam, 2- to 4-percent slopes	34	IIw-7	49	2	59
132B̅	Whitaker silt loam, 2- to 4-percent slopes, moderately eroded	34	IIw-7	49	2	59
132C	Whitaker silt loam, 4- to 7-percent slopes	34	IIe-2	47	2	59
132C̅	Whitaker silt loam, 4- to 7-percent slopes, moderately eroded	34	IIe-2	47	2	59
37B	Worthen silt loam, 2- to 4-percent slopes	34	IIe-1	47	([2])	..
37C	Worthen silt loam, 4- to 7-percent slopes	34	IIe-2	47	([2])	..
37D	Worthen silt loam, 7- to 12-percent slopes	34	IIIe-1	49	([2])	..

[1] Where two management groups are shown for the Fayette-Bodine complex (280-471 or Z), the first group refers to the Fayette and the second group refers to the Bodine.
[2] Soil not placed in woodland suitability group.
[3] Several areas of Tama silt loam located in the north one-half of section 19, township 8 north, range 11 west are indicated on the soil map (Sheet No. 16) by soil number 247 rather than 36.

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Report No. 74 for Iroquois County replaces No. 22; No. 72 for Livingston County replaces No. 25; No. 80 for Will County replaces No. 35; No. 81 for McHenry County replaces No. 21; No. 82 for Johnson County replaces No. 30; and No. 83 for Wabash County replaces No. 61.

Much new information about soils has been obtained since the older soil maps and reports in the above list were printed, especially numbers 1 to 53, which were issued before 1933. For many areas this newer information is necessary if the maps and other soil information in the reports are to be correctly interpreted. Help in making these interpretations can be obtained by writing to the Department of Agronomy, University of Illinois, Urbana 61801.

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