SOIL SURVEY OF

Yazoo County, Mississippi

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Mississippi Agricultural and Forestry
Experiment Station

Major fieldwork for this soil survey was completed in 1969. Soil names and descriptions were approved in 1969. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1969. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Yazoo County Soil Conservation District, which was organized in April 1945.

Either enlarged or reduced copies of the soil map in this publication can be made by commercial photographers, or they can be purchased on individual order from the Cartographic Division, Soil Conservation Service, United States Department of Agriculture, Washington, D.C. 20250.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation.

Locating Soils

All the soils of Yazoo County are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs Each sheet is numbered to correspond with a number on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all the soils of the county in alphabetic order by map symbol and gives the capability classification of each. It also shows the page where each soil is described and the woodland suitability group in which the soil has been placed.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the discussions of the woodland groups.

Foresters and others can refer to the section "Use of the Soils for Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others can find information about soils and wildlife in the section "Use of the Soils for Wildlife."

Community planners and others can read about soil properties that affect the choice of sites for nonindustrial buildings and for recreation areas in the section "Use of the Soils for Town and Country Planning."

Engineers and builders can find, under "Engineering Uses of the Soils," tables that contain test data, estimates of soil properties, and information about soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in the county may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given in the section "General Nature of the County."

Cover picture: **Skip-row cotton on Loring soils, which are in capability units IIe–3 and IIIe–1. Ponds in the background are used to provide water for irrigation, livestock, and recreation.**

Contents

Issued June 1975

SOIL SURVEY OF YAZOO COUNTY, MISSISSIPPI

BY FRANK T. SCOTT, LLOYD B. WALTON, EARLE E. NAIL, AND VERNON H. McGEHEE, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

YAZOO COUNTY is in the west-central part of Mississippi (fig. 1) and occupies a total land area of 938 square miles. Yazoo City, in the central part of the county, is the county seat.

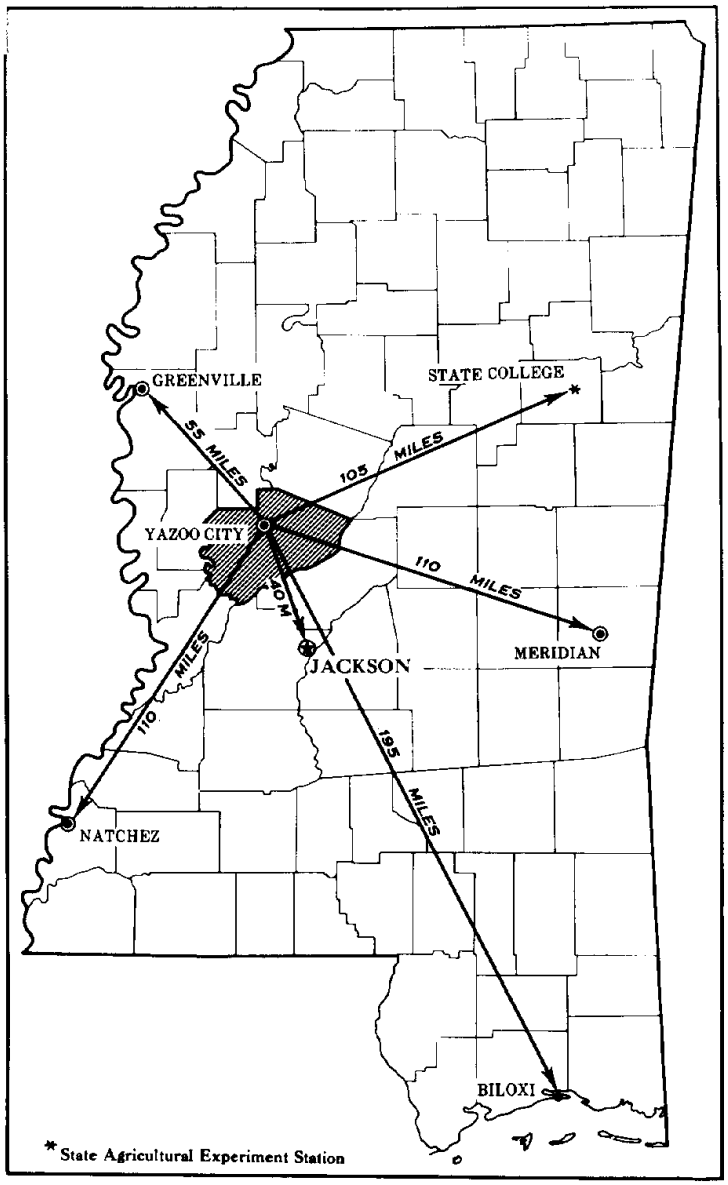

Figure 1.—Location of Yazoo County in Mississippi.

Farming is the main enterprise in this county, but the manufacture of nitrogen fertilizer, farm machinery, cotton clothing, and other articles is also important. Cotton, soybeans, corn, and oats are the main crops. Some livestock is raised.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are in Yazoo County, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes, the size and speed of streams, the kinds of native plants or crops, the kinds of rock, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* and the *soil phase* are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Loring and Dundee, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Memphis silt loam, 2 to 5 percent slopes, eroded, is one of several phases within the Memphis series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photo-

graphs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series. Three such kinds of mapping units are shown on the soil map of Yazoo County: soil complexes, soil associations, and undifferentiated groups.

A soil complex consists of areas of two or more soils, so intermingled or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. The name of a soil complex consists of the names of the dominant soils, joined by a hyphen. Bruno-Morganfield complex is an example.

A soil association is made up of adjacent soils that occur as areas large enough to be shown individually on the soil map but are shown as one unit because the time and effort of delineating them separately cannot be justified. There is a considerable degree of uniformity in pattern and relative extent of the dominant soils, but the soils may differ greatly one from another. The name of an association consists of the names of the dominant soils, joined by a hyphen, Falaya-Vicksburg-Leverett association is an example.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils or of two or more. The name of an undifferentiated group consists of the names of the dominant soils, joined by "and." Sharkey and Forestdale soils is an example.

In most areas surveyed there are places where the soil material is so rocky, so shallow, or so severely eroded that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Gullied land is a land type in Yazoo County.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soil in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments in the same kinds of soil. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way as to be readily useful to different groups of users, among them farmers, managers of woodland, and engineers.

On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others, then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Yazoo County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or similar structure, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect their management.

The seven soil associations in this county are described in the following pages. The terms for texture in the title for several of the associations apply to the surface layer unless otherwise indicated. For example, in the title for association 1, the words "clayey soils" refer to texture of the surface layer.

Soil associations and delineations on the general soil map in this soil survey do not fully agree with those of the general soil maps in adjacent counties published at a different date. Among the counties adjacent to Yazoo County for which soil surveys have been published are Issaquena, Humphreys, Sharkey, and Warren Counties. Differences in the maps are the result of improvements in the classification of soils, particularly of the modifications or refinements in soil series concepts. In addition, more precise and detailed maps are needed because the uses of the general soil maps have expanded in recent years. The more modern maps meet this need. Still another difference is caused by the range in slope that is permitted within associations in different surveys.

1. Sharkey association

Nearly level, poorly drained, clayey soils; on flood plains

This association consists of nearly level soils in the western part of the county. The areas are dissected by meandering depressions.

This association occupies about 9 percent of the county. Sharkey soils make up about 95 percent of the association, and Forestdale soils 5 percent.

Some of the Sharkey soils are on broad flats. Others are in the lower parts of old stream runs or are in depressions. The Sharkey soils are clayey and are poorly drained. They have a surface layer of dark grayish-brown clay about 4 inches thick. The subsoil is grayish clay that is mottled with yellowish brown.

The Forestdale soils are on narrow ridges adjacent to old stream channels.

Soils of this association are suited to field crops and pasture, but drainage is needed to remove excess surface water. About 50 percent of the acreage is wooded, and the rest has been cleared. Most of the cleared areas are used to grow soybeans, small grain, and cotton, but a small acreage is in pasture.

Soils of this association have severe limitations for residential or industrial development because the soils shrink when dry and swell when wet. Cracks form when the soils are dry. Hunting and fishing are available, but the soils have limitations to use for other kinds of recreational development. Trees and plants that provide food and cover for wildlife grow well on these soils.

2. *Sharkey-Forestdale association*

Nearly level, poorly drained soils that have a clayey subsoil; on flood plains and low natural levees

This association consists of nearly level soils in the western part of the county.

This association occupies about 8.5 percent of the county. Sharkey depressional soils and other Sharkey soils make up about 70 percent of the association, and Forestdale soils 25 percent. The remaining 5 percent is soils of minor extent.

The Sharkey soils are on broad flats. They are clayey and poorly drained. They have a surface layer of dark grayish-brown clay and silty clay loam about 4 inches thick. The subsoil is grayish clay that is mottled with yellowish brown.

The poorly drained Forestdale soils are in narrow bands adjacent to old stream channels and on gently sloping ridges. They have a surface layer of brown silty clay loam about 6 inches thick. The subsoil is light brownish-gray or gray silty clay or silty clay loam that is mottled with dark yellowish brown.

The Sharkey depressional soils are in the lower areas of old stream runs and depressions.

The minor soil of this association is the Dundee soil.

Soils of this association are suited to crops and pasture, but drainage is needed to remove excess surface water. About 25 percent of the acreage is wooded, and the rest has been cleared. Most of the cleared areas are used to grow soybeans, cotton, and small grain, but a small acreage is in pasture.

Soils of this association have severe limitations for residential or industrial development because the soils shrink and crack when dry and swell when wet. Hunting and fishing are available, but the soils have severe limitations for other kinds of recreational development. Trees and plants that provide food and cover for wildlife grow well on these soils.

3. *Dundee-Dubbs association*

Nearly level and gently sloping, somewhat poorly drained to well-drained, loamy soils that are high in silt; on old natural levees

This association consists of nearly level to gently sloping soils on old natural levees in the western part of the county. The area is dissected by narrow depressions.

This association occupies about 12 percent of the county. Dundee soils make up about 70 percent of the association and Dubbs soils about 20 percent. The remaining 10 percent is Forestdale soils, Sharkey depressional soils, and Commerce soils.

The Dundee soils are somewhat poorly drained. They have a surface layer of brown silt loam about 9 inches thick. The subsoil is dark grayish-brown silty clay loam that is mottled with shades of brown to a depth of about 28 inches. Below this is grayish-brown silt loam that is mottled with shades of brown.

The Dubbs soils are in slightly higher areas than Dundee soils. They are moderately well drained to well drained soils. They have a surface layer of brown silt loam about 8 inches thick. The subsoil is yellowish-brown silty clay loam to a depth of about 18 inches. Below this is yellowish-brown silt loam that is mottled with gray.

Soils of this association are well suited to cotton, soybeans, small grain, and pasture. Most of the area has been cleared.

Soils of this association have slight to moderate limitations for residential, industrial, and recreational development.

4. *Morganfield-Adler association*

Nearly level, well-drained and moderately well drained, loamy soils that are high in silt; on flood plains

This association consists of nearly level soils on the alluvial flood plain.

This association occupies about 5.5 percent of the county. Morganfield soils make up about 70 percent of the association and Adler soils about 30 percent.

The Morganfield soils are well drained. They have a surface layer of brown silt loam about 7 inches thick. The underlying material is brown to yellowish-brown silt loam.

The moderately well drained Adler soils are in slightly lower areas. They have a surface layer of yellowish-brown silt loam about 9 inches thick. The underlying material consists of brownish silt loam that has grayish mottles and extends to a depth of about 34 inches. Below this is silt loam that is mottled with shades of brown and gray, becoming grayer with increasing depth.

Soils of this association are well suited to cotton, soybeans, small grain, and pasture. Most of the area has been cleared.

Soils of this association have moderate to severe limitations for residential, industrial, and recreational development because of flooding.

5. *Memphis-Natchez association*

Sloping to hilly, well-drained, loamy soils that are high in silt; on uplands

This association consists of sloping to hilly soils on uplands in the central part of the county. Many of the

ridgetops are less than one-eighth mile wide. The sides of the ridges are strongly sloping to steep. The area is broken by intermittent streams and drainageways that form bottoms that are less than one-fourth mile wide.

This association makes up about 33 percent of the county. It is about 50 percent Memphis soils and 30 percent Natchez soils. The remaining 20 percent is soils of minor extent.

Memphis soils are well drained. They have a surface layer of brown silt loam about 3 inches thick. The subsoil is dark-brown silty clay loam to a depth of 20 inches and dark-brown silt loam to a depth of 60 inches or more.

Natchez soils generally are on the middle and lower parts of slopes. They are well drained. They have a surface layer of very dark grayish-brown silt loam, about 3 inches thick, and a subsoil of yellowish-brown silt loam that extends to a depth of about 36 inches. The underlying material is yellowish-brown silt loam that is mottled with gray.

The rest of the association consists of Morganfield and Adler soils; Vaiden soils, calcareous variant; Loring soils; and Gullied land. Morganfield and Adler soils are on narrow flood plains along major streams. Vaiden soils, calcareous variant, are somewhat poorly drained. They are near bluffs and on lower slopes. Loring soils have a fragipan, and in some places the slope is less than 12 percent. In a few areas of Gullied land, soil horizons can no longer be distinguished.

Soils of this association are suited to pasture and woodland. The steep and gullied soils are mostly forested. Areas used for crops and pasture are mainly on ridgetops.

Sheet and gully erosion are limitations in cultivated areas. Some sites are suited to residential or industrial development. There are also sites suitable for hiking, camping, horseback riding, and hunting.

6. *Loring-Calloway-Grenada association*

Nearly level to strongly sloping, moderately well drained and somewhat poorly drained, loamy soils that are high in silt and have a fragipan; on uplands

This association is on gently sloping broad ridgetops in the eastern part of the county. The sides of the ridges are sloping and strongly sloping and are broken by intermittent streams and drainageways that form flood plains. In many places the flood plains are one-fourth mile wide.

This association occupies about 28 percent of the county. Loring soils make up about 60 percent of the association, Calloway soils about 7 percent, and Grenada soils about 5 percent. The remaining 28 percent consists of soils of minor extent.

The Loring soils have a surface layer of brown silt loam about 4 inches thick. The subsoil is dark-brown silt loam to a depth of about 26 inches. Below this is a thick fragipan that is mottled with shades of brown and gray.

The Calloway soils have a surface layer of brown silt loam about 9 inches thick. The subsoil is yellowish-brown silt loam that is mottled with gray. A fragipan of yellowish-brown and gray silt loam is at a depth of about 23 inches.

The Grenada soils have a surface layer of grayish-brown silt loam. The subsoil is yellowish-brown silt loam. A fragipan is at a depth of about 22 inches.

Soils of minor extent in the association are the Leverett, Vicksburg, Morganfield, Adler, Falaya, and Calhoun soils.

Soils of this association are suited to row crops, pasture, and trees. Some of the severely gullied areas are in pine trees. Sheet and gully erosion are limitations to the use of sloping soils in cultivated areas.

Some sites are suited to residential or industrial development. Other sites can be used extensively for camping, hiking, horseback riding, and hunting.

7. *Falaya-Vicksburg-Leverett association*

Nearly level, somewhat poorly drained to well-drained, loamy soils that are high in silt; on flood plains

This association is in the eastern part of the county and consists of nearly level soils along the Big Black River.

This association occupies about 4 percent of the county. The Falaya soils make up about 37 percent of the association, the Vicksburg soils 20 percent, and the Leverett soils 14 percent. The remaining 29 percent is soils of minor extent and consists of Adler and Morganfield soils.

The Falaya soils formed in recent loamy alluvium that contains a large amount of silt. These soils are on flood plains and are somewhat poorly drained. They have a surface layer of brown silt loam about 5 inches thick. The upper part of the subsoil is brown to dark-brown silt loam that is mottled with shades of gray and brown. The lower part of the subsoil is light brown and gray. The underlying material is light gray.

The well-drained Vicksburg soils are in slightly higher areas. The surface layer is dark-brown silt loam. The subsoil is yellowish-brown silt loam that it mottled with gray below a depth of 20 inches.

Leverett soils are moderately well drained. They have a surface layer of brown silt loam about 7 inches thick. The upper part of the subsoil is dark-brown silt loam to a depth of about 26 inches. The next layer is a fragipan of dark-brown silt loam that is mottled with shades of brown and gray in the lower part.

Most of this association is wooded, but a small acreage is in pasture and row crops. Soils of this association have severe limitations to use for row crops because of the frequency and duration of flooding. Hunting and fishing are available, but the soils have severe limitations to use for residential, industrial, and other kinds of recreational developments because of flooding.

Descriptions of the Soils

In this section the soils of Yazoo County are described in detail. The procedure is to describe first the soil series and then the mapping units, or kinds of soil, in that series. Thus, to get full information on any one mapping unit, it is necessary to read both the description of that unit and the description of the soil series to which the unit belongs.

Each soil series description contains a short narrative description of a profile considered representative of the series, and a much more detailed description of the same profile that scientists, engineers, and others can use in making highly technical interpretations. The colors described are for moist soil, unless otherwise noted.

The description of each mapping unit contains suggestions on how the soil can be managed for crops. Other suggestions for managing the soils are given in the sections "Use of the Soils for Woodland" and "Use of the Soils for Wildlife." Behavior of soils used as sites for structures or as material for construction is discussed in the section "Engineering Uses of the Soils."

The approximate acreage and proportionate extent of each soil mapped are shown in table 1. Many of the terms used in the soil descriptions can be found in the Glossary, and more detailed information about the terminology and method of soil mapping can be obtained from the Soil Survey Manual (*5*)[1]. Some terms are defined in the section "How This Survey Was Made." At the back of this soil survey is the "Guide to Mapping Units," which lists the mapping units in the county and shows the capability unit and woodland suitability group in which each mapping unit has been placed.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Acres	Percent
Adler silt loam	17, 130	2. 9
Adler silt loam, clayey subsoil variant	985	. 1
Bruno-Morganfield complex	875	. 1
Calhoun silt loam	5, 775	1. 0
Calloway silt loam, 0 to 2 percent slopes	7, 500	1. 3
Calloway silt loam, 2 to 5 percent slopes	6, 850	1. 2
Commerce silt loam	1, 125	. 2
Dubbs silt loam, 0 to 2 percent slopes	12, 475	2. 1
Dubbs silt loam, 2 to 5 percent slopes	1, 630	. 2
Dundee silt loam, 0 to 2 percent slopes	43, 340	6. 5
Dundee silt loam, 2 to 5 percent slopes	7, 090	1. 2
Dundee silty clay loam, 0 to 2 percent slopes	2, 035	. 3
Dundee silty clay loam, 2 to 5 percent slopes	1, 490	. 2
Falaya silt loam	2, 795	. 5
Falaya-Vicksburg-Leverett association	24, 275	4. 0
Forestdale silt loam	800	. 1
Forestdale silty clay loam	21, 435	3. 5
Grenada silt loam, 0 to 2 percent slopes	4, 080	. 7
Grenada silt loam, 2 to 5 percent slopes, eroded	5, 790	1. 0
Gullied land-Memphis complex, 5 to 30 percent slopes	20, 805	3. 5
Leverett silt loam	6, 655	1. 1
Loring silt loam, 0 to 2 percent slopes	1, 720	. 3
Loring silt loam, 2 to 5 percent slopes, eroded	53, 990	9. 0
Loring silt loam, 5 to 8 percent slopes, eroded	23, 530	4. 0
Loring silt loam, 8 to 12 percent slopes, eroded	23, 070	3. 9
Memphis silt loam, 0 to 2 percent slopes	860	. 1
Memphis silt loam, 2 to 5 percent slopes, eroded	5, 345	. 9
Memphis silt loam, 5 to 8 percent slopes, eroded	18, 010	3. 0
Memphis-Natchez association, hilly	112, 520	19. 2
Morganfield silt loam	48, 990	8. 1
Sharkey clay	60, 790	10. 0
Sharkey clay, depressional	11, 500	1. 9
Sharkey silty clay loam	7, 925	1. 7
Sharkey and Forestdale soils	33, 100	5. 5
Tunica silt loam	565	. 1
Vaiden soils, calcareous variant, 5 to 25 percent slopes, severely eroded	1, 680	. 3
Vicksburg silt loam	1, 790	. 3
Total	600, 320	100. 0

[1] Italic numbers in parentheses refer to Literature Cited, p. 50.

Adler Series

The Adler series consists of nearly level soils that are moderately well drained. These soils formed in loamy sediment that contained a large amount of silt. They are on flood plains.

In a representative profile, the surface layer is yellowish-brown silt loam about 9 inches thick. The underlying material, to a depth of 34 inches, is dominantly brownish silt loam that is mottled with yellowish brown, pale brown, and gray. Below a depth of 34 inches, it is brownish or grayish silt loam that is mottled with brownish or grayish colors. The underlying material becomes more grayish with increasing depth.

Representative profile of Adler silt loam in a cultivated field, 2 miles southeast of Benton High School, one-fourth mile west of Mississippi Highway No. 16, and 130 feet west of Cypress Creek, NW¼SW¼ sec. 17, T. 11 N., R. 1 E.

Ap—0 to 9 inches, yellowish-brown (10YR 5/4) silt loam; weak, medium, subangular blocky structure; friable; few fine roots; few worm casts; slightly acid; abrupt, smooth boundary.

C1—9 to 14 inches, mottled dark grayish-brown (10YR 4/2), yellowish-brown (10YR 5/4), and gray (10YR 6/1) silt loam; structureless; friable; distinct, thin bedding planes; dark reddish-brown stains on peds; slightly acid; clear, smooth boundary.

C2—14 to 19 inches, pale-brown (10YR 6/3) silt loam; common, medium, distinct, yellowish-brown (10YR 5/4) and gray (10YR 6/1) mottles; structureless; friable; distinct, thin bedding planes; slightly acid; clear, smooth boundary.

C3—19 to 34 inches, yellowish-brown (10YR 5/4) silt loam; few, medium, distinct, pale-brown (10YR 6/3) and gray (10YR 6/1) mottles; structureless; friable; distinct bedding planes; few, fine, soft, brown and black accretions; neutral; gradual, smooth boundary.

C4—34 to 42 inches, mottled yellowish-brown (10YR 5/4), grayish-brown (10YR 5/2), and gray (10YR 6/1) silt loam; structureless; friable; distinct bedding planes; few, fine, soft, black accretions; common reddish-brown stains; mildly alkaline; gradual smooth boundary.

C5g—42 to 54 inches, gray (10YR 6/1) silt loam; common, coarse, distinct, dark yellowish-brown (10YR 4/4) mottles; structureless; friable; neutral.

The Ap horizon ranges from yellowish brown to brown or dark grayish brown in color. The upper part of the C horizon is dark grayish brown to brown, pale brown, or yellowish brown and is mottled with grayish or brownish colors. The lower part of the C horizon is mottled with brownish and grayish colors or has a matrix color of gray and few to common brownish mottles. Silt loam is between depths of 10 and 40 inches, and content of sand is less than 15 percent. Bedding planes are visible in the upper 20 inches of the profile, and in places they extend throughout the profile. Reaction throughout the profile ranges from slightly acid to mildly alkaline.

Adler soils are associated with soils of the Adler series, clayey subsoil variant, and with Bruno, Falaya, Leverett, Morganfield, and Vicksburg soils. Adler soils lack the IIB horizon that is typical in the profile of the soils of the Adler series, clayey subsoil variant, and they are less sandy than the Bruno soils. Adler soils are better drained and are less acid than Falaya soils, and they are less acid and lack the fragipan of the Leverett soils. They are more poorly drained than the Morganfield and Vicksburg soils and are less acid than the Vicksburg soils.

Adler silt loam (Ad).—This soil is on flood plains and has slopes of 0 to 2 percent. Included in mapping are small areas of Morganfield silt loam. Also included are small areas of a soil that has a texture similar to that of this Adler soil but that is somewhat poorly drained.

Reaction is slightly acid to mildly alkaline. Permeability is moderate, and the available water capacity is very high. Runoff is slow, and the hazard of erosion is slight to none. This soil is easy to cultivate, but it crusts and packs if left bare. Flooding commonly occurs in winter and early in spring, but it is not a limitation to farming.

This soil is well suited to cotton, soybeans, corn, small grain, and pasture. Most of the acreage is used for row crops (fig. 2). If management is good, row crops can be grown year after year. Proper row arrangement and surface drainage are needed to remove excess surface water. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. (Capability unit IIw–1; woodland suitability group 1o4)

Adler Series, Clayey Subsoil Variant

The Adler series, clayey subsoil variant, consists of nearly level, moderately well drained soils. These soils formed over clayey material in stratified loamy material that contained a large amount of silt. They are on flood plains.

In a representative profile the surface layer is dark grayish brown silt loam about 7 inches thick. This layer is underlain to a depth of about 25 inches by brown to pale-brown silt loam that is mottled with shades of brown and gray. The underlying material to a depth of about 32 inches is gray silty clay loam that is mottled with shades of brown. Between depths of 32 and 50 inches is gray silty clay that is mottled with shades of brown.

Representative profile of Adler silt loam, clayey subsoil variant, 120 feet north of 9th Street drainage ditch and 100 feet east of ball-park fence in Yazoo City, SW¼ NE¼ sec. 28, T. 12 N., R. 2 W.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium, subangular blocky structure; friable; few roots; few worm casts; neutral; clear, wavy boundary.

C1—7 to 14 inches, brown (10YR 5/3) silt loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) and pale-brown (10YR 6/3) mottles; massive; friable; thin bedding planes; few roots; few worm casts; mildly alkaline; clear, smooth boundary.

C2—14 to 25 inches, pale-brown (10YR 6/3) silt loam; common, medium, distinct mottles of grayish brown (10YR 5/2) and yellowish brown (10YR 5/4); massive; friable; thin bedding planes; few roots; few worm casts; mildly alkaline; clear, smooth boundary.

IIB21g—25 to 32 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct mottles of brown (7.5YR 4/4); weak, medium, subangular blocky structure; firm; neutral; clear, smooth boundary.

IIB22g—32 to 50 inches, gray (10YR 6/1) silty clay; common, medium, distinct mottles of brown (7.5YR 4/4); weak, medium, subangular blocky structure; firm; neutral.

Figure 2.—**A field that is farmed on the contour and that will be used for a row crop. The soil is Adler silt loam, which is in capability unit IIw–1.**

The Ap horizon ranges from brown to dark grayish brown or yellowish brown. The C horizon is brown, pale brown, or yellowish brown mottled with shades of brown and gray. The IIB horizon is gray, dark gray, or grayish brown. It is silty clay loam, silty clay, or clay in texture, and the depth to it ranges from 20 to 35 inches. Reaction throughout the profile is neutral to mildly alkaline.

Adler silt loam, clayey subsoil variant, is associated with Adler, Bruno, Falaya, Leverett, and Morganfield soils. It is similar to the soils in the Adler series except that it has a IIB clay horizon. Adler silt loam, clayey subsoil variant, is better drained and less acid than Falaya soils. It is less acid than Leverett soils and lacks a fragipan. It is less well drained than Morganfield soils.

Adler silt loam, clayey subsoil variant (Ae).—This soil is on flood plains. Slopes are 0 to 2 percent.

Included with this soil in mapping are small areas of silty soils 14 inches thick overlying gray clay.

Reaction is neutral to mildly alkaline. Permeability is moderate in the upper part of the soil and slow within the clay layer. The available water capacity is high to very high. Runoff is slow, and the hazard of erosion is slight to none. The soil is easy to cultivate, but it crusts and packs if left bare. Flooding commonly occurs in winter and early in spring, but it seldom damages crops.

This soil is well suited to cotton, soybeans, corn, small grain, and pasture. Most areas are used for row crops or pasture. If management is good, row crops can be grown year after year. Proper row arrangement and surface field ditches are needed to remove excess surface water. (Capability unit IIw–1; woodland suitability group 1o4)

Bruno Series

The Bruno series consist of excessively drained soils that formed in sandy alluvial material. These soils are on flood plains.

In a representative profile the surface layer is brown silt loam about 8 inches thick. The underlying material to a depth of 18 inches is light yellowish-brown loamy fine sand. The next layer is brown silt loam that extends to a depth of about 24 inches. This layer is underlain by light yellowish-brown sand that contains about 10 percent fine-size gravel and extends to a depth of more than 50 inches.

Representative profile of Bruno silt loam in a 15 acre field, 5 miles east of Eden, one-fourth mile northwest of gravel road, and 75 feet east of Techeva Creek, NW¼NE¼ sec. 25, T. 13 N., R. 1 W.

Ap—0 to 8 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; few fine roots; bedding planes; neutral; abrupt, smooth boundary.

C1—8 to 18 inches, light yellowish-brown (10YR 6/4) loamy fine sand; structureless; loose; few fine roots; mildly alkaline; abrupt, smooth boundary.

C2—18 to 24 inches, brown (10YR 4/3) silt loam; structureless; friable; pale-brown (10YR 6/3) bedding planes; mildly alkaline; abrupt, smooth boundary.

C3—24 to 50 inches, light yellowish-brown (10YR 6/4) sand; structureless; loose; 10 percent fine gravel; mildly alkaline.

The Ap horizon ranges from brown to dark grayish brown. It is silt loam to loamy sand or sand. The C horizon is light yellowish brown to brown or yellowish brown. It is loamy fine sand or sand that has thin layers of silt loam. Gravel in the lower part of the C horizon ranges from 0 to 10 percent. Reaction ranges from slightly acid to mildly alkaline.

Bruno soils are associated with Adler soils, Adler soils, clayey subsoil variant, and Morganfield soils, but Bruno soils are coarser textured than these soils. Bruno soils lack the IIB horizon of the Adler soil, clayey subsoil variant.

Bruno-Morganfield complex (Bm).—Areas of soil in this complex are so small and so closely mixed that mapping them separately is impractical. Most of these soils are adjacent to streams or old streambeds. Slopes are 0 to 2 percent where stream channels have filled and overflowed along drainageways. Runoff is slow, and the erosion hazard is slight to none. Flooding frequently occurs on these soils in winter, in spring, and during the growing season.

The Bruno soil occupies about 55 percent of the mapped areas. This soil has the profile described as representative for the series.

The Morganfield soil occupies about 33 percent of the mapped areas. This soil has a surface layer of brown silt loam about 7 inches thick. The next layer is brown silt loam that extends to a depth of 24 inches. The underlying material is yellowish-brown to brown silt loam.

Included with these soils in mapping are small areas of Adler silt loam.

The Bruno and Morganfield soils are slightly acid to mildly alkaline. Permeability is moderate to rapid in the Bruno soil and moderate in the Morganfield soil. The available water capacity is low in the Bruno soil and very high in the Morganfield soil.

Cottonwoods and willows are the major trees on these soils, but a small acreage is idle or in pasture. The Bruno soil is droughty during the dry summer months and is suitable for cottonwood, sweetgum, and most oaks. (Capability unit Vw–1; woodland suitability group 1s5)

Calhoun Series

The Calhoun series consists of poorly drained soils that formed in loamy material that contained a large amount of silt. These soils are in low areas and depressions. Slopes are 0 to 2 percent.

In a representative profile, the surface layer is grayish-brown silt loam about 6 inches thick. The subsurface layer is gray silt loam about 9 inches thick. The upper 23 inches of the subsoil is dominantly gray or light brownish-gray silty clay loam to silt loam in which there are vertical tongues of gray silt. The lower part is grayish-brown silt loam that extends to a depth of 54 inches.

Representative profile of Calhoun silt loam in a 25-acre field, 1¼ miles north of Midway store, one-fourth mile east of gravel road and 300 feet north of field, SW¼NE¼ sec. 10, T. 12 N., R. 1 E.

Ap—0 to 6 inches, grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; very friable; few fine roots; strongly acid; clear, smooth boundary.

A2g—6 to 15 inches, gray (10YR 6/1) silt loam; few, medium, distinct, yellowish-brown (10YR 5/4) and dark-brown (10YR 4/3) mottles; weak, medium, subangular blocky structure; friable; few fine roots; few, fine, brown and black concretions; strongly acid; clear, irregular boundary.

B21tg—15 to 20 inches, light-gray (10YR 7/2) silt loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium and coarse, subangular blocky structure; friable; few fine roots; few, fine and medium, brown and black concretions; patchy clay films on faces of peds; tongues of gray silt 1 inch to 1½ inches wide extending downward; slightly acid; clear, wavy boundary.

B22tg—20 to 30 inches, gray (5Y 6/1) silt loam; moderate, medium and coarse, subangular blocky structure; friable; few patchy clay skins on faces of peds; few black concretions; neutral; gradual, wavy boundary.

B23tg—30 to 38 inches, light brownish-gray (2.5Y 6/2) silty clay loam; weak, medium and coarse, subangular blocky structure; friable; patchy clay films on faces of peds; common, medium, brown and black concretions; few reddish-brown stains; mildly alkaline; gradual, wavy boundary.

B3g—38 to 54 inches, grayish-brown (2.5Y 5/2) silt loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles and faint, light olive-gray (5Y 6/2) mottles; weak, medium, subangular blocky structure; friable; common brown and black concretions; mildly alkaline.

The Ap horizon ranges from grayish-brown to gray. The A2g horizon is dominantly gray and has few to common mottles in shades of brown. The A horizon is 7 to 15 inches thick. The B horizon is silt loam or silty clay loam. Vertical tongues of gray silt, 1 to 2 inches wide, extend through the upper part of it. The upper and middle parts are gray, light gray, or light brownish gray and are mottled with shades of brown in places. The lower part is gray to grayish brown and is mottled with shades of brown or gray.

Fine to medium, brown and black concretions range from few to common throughout the profile. Reaction is slightly acid to strongly acid in the upper part of the solum and is neutral or mildly alkaline in the lower part.

Calhoun soils are associated with Calloway, Grenada, and Loring soils. They are more poorly drained than those soils and lack a fragipan.

Calhoun silt loam (Ca).—This soil is poorly drained. It is in small depressed areas or at the head of drainageways throughout the uplands in the eastern part of the county.

Included with this soil in mapping are small areas of a poorly drained black soil.

Reaction is strongly acid to slightly acid in the upper part of the profile and is neutral to mildly alkaline in the lower part. Permeability is slow, and the available water capacity is very high. Runoff is slow, and the erosion hazard is slight. This soil is easy to cultivate, but it crusts and packs if left bare. In places it is flooded in winter and early in spring. Wetness sometimes delays plowing and planting in spring.

Most of the acreage is cultivated or used for pasture along with adjacent areas. The principal crops are small grain, soybeans, cotton, and corn. Row crops can be grown year after year if the soil is properly drained by graded furrows between rows, and if adequate conservation practices are used. Diversion terraces are effective in intercepting water from nearby hillsides. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. Fertilizer is needed for row crops and pasture. (Capability unit IIIw–1; woodland suitability group 3w9)

Calloway Series

The Calloway series consists of somewhat poorly drained soils that formed in loamy material that contained a large amount of silt. These soils have a fragipan. Slopes are 0 to 5 percent.

In a representative profile the surface layer is brown silt loam about 9 inches thick. The upper 10 inches of the

subsoil is silt loam that is mottled with yellowish brown and light brownish gray. The next layer is gray silt loam about 4 inches thick. Between depths of 23 and 52 inches is a silt loam fragipan that is mottled with yellowish brown and gray.

Representative profile of Calloway silt loam, 2 to 5 percent slopes, in a cultivated field, 2.3 miles northeast of Myrleville, between two forks of Cypress Creek, SE¼ NE¼ sec. 12, T. 10 N., R. 1 W.

Ap1—0 to 4 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; few fine roots; medium acid; gradual, smooth boundary.

Ap2—4 to 9 inches, brown (10YR 4/3) silt loam; many, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, fine, granular structure; friable; few fine roots; medium acid; clear, smooth boundary.

B2—9 to 19 inches, mottled yellowish-brown (10YR 5/4) and light brownish-gray (10YR 6/2) silt loam; weak, fine and medium, subangular blocky structure; friable; few, medium, dark-brown concretions; very strongly acid; gradual, smooth boundary.

A'2—19 to 23 inches, gray (10YR 6/1) silt loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; friable; common voids; slightly compact; very strongly acid; gradual, smooth boundary.

B'x1—23 to 30 inches, yellowish-brown (10YR 5/6) silt loam; many, medium, distinct, gray (10YR 6/1) mottles; weak, medium, prismatic structure parting to weak, medium, subangular blocky structure; firm, compact and brittle; few fine voids; common, medium, dark-brown concretions; polygonal cracks 1 inch to 1½ inches wide filled with gray silty materials; very strongly acid; gradual, wavy boundary.

B'x2—30 to 42 inches, mottled gray (10YR 6/1) and yellowish-brown (10YR 5/6) silt loam; weak, medium, subangular blocky structure; firm, compact and brittle; clay films on faces of peds; dark-brown concretions and stains; polygonal cracks filled with gray silt; strongly acid; gradual, wavy boundary.

B'x3—42 to 52 inches, mottled yellowish-brown (10YR 5/4), gray (10YR 6/1), and brown (10YR 5/3) silt loam; coarse, prismatic structure parting to weak, medium, subangular blocky structure; firm, compact and brittle; few fine voids; clay films on faces of peds; polygonal cracks filled with gray silt; strongly acid.

The Ap horizon is brown, pale brown, or grayish brown and is mottled with brownish colors. The B2 horizon is brown, pale brown, or yellowish brown and is mottled with light brownish gray. The A'2 horizon is gray or light brownish gray and is mottled with brown. The B'x horizon is yellowish brown, brown, or pale brown and mottled with gray, or is mottled in shades of gray and brown. Texture is silt loam or silty clay loam. The number of black and brown concretions ranges from few to common. Reaction throughout the profile ranges from medium acid to very strongly acid, except that in the lower part of the Bx horizon it is slightly acid in places.

Calloway soils are associated with Calhoun, Grenada, Loring, and Memphis soils. They are better drained than the gray Calhoun soils, which lack a fragipan. They are more poorly drained than Grenada and Loring soils, and the Memphis soils, which lack a fragipan.

Calloway silt loam, 0 to 2 percent slopes (ClA).—This soil is somewhat poorly drained. It is in broad areas or adjacent to stream flood plains.

Included with this soil in mapping are small areas of Grenada and Calhoun soils. Grenada soils are in narrow bands or on ridges, and Calhoun soils are in small shallow depressions. Also included are small areas of a somewhat poorly drained soil which lacks a fragipan.

This soil has a surface layer of brown friable silt loam about 5 inches thick. The upper 15 inches of the subsoil is pale brown to brown silt loam that is mottled with gray. The lower part is a thin layer of gray silt loam and, at a depth of about 22 inches, mottled gray and yellowish-brown silt loam to silty clay loam that is compact and brittle.

Reaction throughout the profile is very strongly acid to medium acid. The available water capacity is medium due to the fragipan. Permeability is moderate in the upper part of the subsoil and slow within the fragipan. Runoff is slow, and if the soil is cultivated, the hazard of erosion is slight. This soil is easy to work but it crusts and packs if left bare.

This soil is suited to cotton, soybeans, small grain, other commonly grown crops, and pasture. It is also suited to trees. About 90 percent of the acreage is cultivated or used for pasture, and the rest is in woodland. If management is good, row crops can be grown year after year.

Plowpans can be broken with deep tillage, but wetness may delay tillage early in spring. Flooding occurs in winter, early in spring, and occasionally during the growing season. Drainage is needed to remove excess surface water. (Capability unit IIw–3; woodland suitability group 2w8)

Calloway silt loam, 2 to 5 percent slopes (ClB).—This somewhat poorly drained soil has the profile described as representative for the series. It is in narrow bands on low ridges at the heads of drainageways, and near adjoining stream flood plains in the eastern and central parts of the county.

Included with this soil in mapping are small areas of Grenada soil in narrow bands or on ridges.

Reaction is medium acid or very strongly acid. The available water capacity is medium because of the fragipan. Permeability is moderate in the upper part of the subsoil and slow within the fragipan. Runoff is medium, and if cultivated, the hazard of erosion is severe. This soil is easy to work, but it crusts and packs if left bare.

Row crops can be grown year after year if conservation practices are adequate and fertilizers are applied. This soil is well suited to cotton, soybeans, other row crops, small grain, and pasture. It is also suited to trees. Approximately 85 percent of the acreage is cultivated or used for pasture, and the rest is in woodland.

Diversion terraces are effective in intercepting water from nearby hillsides. Plowpans can be broken with deep tillage. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. (Capability unit IIIe–2; woodland suitability group 2w8)

Commerce Series

The Commerce series consists of somewhat poorly drained soils that formed in loamy Mississippi River alluvium. These soils are on the lower parts of natural levees. Slopes are 0 to 1 percent.

In a representative profile the surface layer is dark grayish-brown silt loam about 7 inches thick. The upper 16 inches of the subsoil is grayish-brown silty clay loam that is mottled with very dark grayish brown and dark yellowish brown. The next layer to a depth of about 30 inches is dark grayish-brown mottled silt loam. The underlying material is silt loam that is dark grayish brown mottled with dark yellowish brown to a depth of 38 inches and mottled yellowish brown, gray, and dark grayish brown to a depth of 50 inches.

Representative profile of Commerce silt loam in a cultivated field 1½ miles west of Holly Bluff, 150 feet north of

paved road at High School, SW¼SE¼ sec. 4, T. 11 N., R. 5 W.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; neutral; abrupt, smooth boundary.

B21—7 to 23 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, very dark grayish brown (10YR 3/2) and dark yellowish-brown (10YR 4/4) mottles; moderate, medium and fine, subangular blocky structure; friable; patchy coats on peds; neutral; clear, smooth boundary.

B22—23 to 30 inches, dark grayish-brown (10YR 4/2) silt loam; common, medium, faint, dark-gray (10YR 4/1) mottles and distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium and fine, subangular blocky structure; friable; neutral; clear, smooth boundary.

C1—30 to 38 inches, dark grayish-brown (10YR 4/2) silt loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; mildly alkaline; clear, smooth boundary.

C2—38 to 50 inches, mottled yellowish-brown (10YR 5/4), gray (10YR 6/1), and dark grayish-brown (10YR 4/2) silt loam; structureless; friable; mildly alkaline.

The Ap horizon ranges from dark grayish brown to brown or grayish brown. The B horizon has a matrix color of dark grayish brown or grayish brown and has few to common mottles that have shades of brown and gray. The C horizon is similar in color to the B horizon or is mottled with shades of gray and brown in places. Texture ranges from silt loam to silty clay loam throughout the profile. Few brown and black concretions are in some profiles. Reaction of the soil ranges from neutral to mildly alkaline.

Commerce soils are associated with Dubbs, Dundee, Forestdale, Sharkey, and Tunica soils. They are more poorly drained and lack the Bt horizon of the Dubbs soils. They are neutral to mildly alkaline whereas Dundee soils are acid and have a Bt horizon. They are better drained and are less acid than Forestdale soils, which have a Bt horizon. They are better drained and are less clayey in the subsoil than Sharkey and Tunica soils.

Commerce silt loam (Co).—This is a somewhat poorly drained soil on the lower parts of natural levees. Slopes are 0 to 1 percent.

Included with this soil in mapping are small areas of Dundee, Tunica, and Sharkey soils.

Reaction is neutral to mildly alkaline. Permeability is moderately slow, and the available water capacity is very high. Surface runoff is slow, and the hazard of erosion is slight. This soil is easy to work.

This soil is well suited to cotton, soybeans, corn, grasses, legumes, and small grain. Most areas have been cleared and are used for crops. If nitrogen fertilizer is applied and adequate conservation practices used, row crops can be grown year after year. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. (Capability unit I–3; woodland suitability group 1w5)

Dubbs Series

The Dubbs series consists of moderately well drained to well-drained soils that formed in loamy material that contained a large amount of silt. These soils border former channels of the Mississippi River and its tributaries. Slopes are 0 to 5 percent.

In a representative profile the surface layer is brown silt loam about 8 inches thick. The subsoil extends to a depth of 58 inches or more. The upper 10 inches of the subsoil is yellowish brown silty clay loam. The next 27 inches is yellowish-brown silt loam that is mottled with shades of gray. The next 13 inches is yellowish brown very fine sandy loam that has gray mottles.

Representative profile of Dubbs loam, in a 400-acre field, 1¼ miles south of Humphreys County line, one-half mile east of Silver Creek and 200 feet west of gravel road, NW¼SW¼ sec. 3, T. 12 N., R. 4 W.

Ap—0 to 8 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; few fine roots; strongly acid; abrupt, smooth boundary.

B21t—8 to 18 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine and medium, subangular blocky structure; friable; few fine roots; few, fine, black concretions; patchy clay films; strongly acid; clear, smooth boundary.

B22t—18 to 24 inches, yellowish-brown (10YR 5/4) silt loam; moderate, fine and medium, subangular blocky structure; friable; few fine roots; few patchy clay films; very strongly acid; clear, smooth boundary.

B23t—24 to 32 inches, yellowish-brown (10YR 5/6) silt loam; common, medium, distinct mottles of light brownish gray (10YR 6/2); moderate, medium, subangular blocky structure; friable; few patchy clay films; few, fine, black concretions; very strongly acid; clear, smooth boundary.

B24t—32 to 45 inches, yellowish-brown (10YR 5/4) silt loam; few, medium, distinct mottles of gray (10YR 6/1); weak, medium, subangular blocky structure; friable; few clay films; few, fine, black concretions; very strongly acid; clear, smooth boundary.

B3—45 to 58 inches, yellowish-brown (10YR 5/4) very fine sandy loam; few, medium, distinct mottles of gray (10YR 6/1); weak, medium, subangular blocky structure; friable; very strongly acid.

The Ap horizon ranges from dark grayish brown to brown. The B2t horizon is dominantly yellowish brown in the upper part but ranges to brown. The B2 horizon is silty clay loam, silt loam, or loam. The B3 horizon is silt loam, loam, or very fine sandy loam. Clay in the upper 20 inches of the B horizon ranges from 20 to 30 percent. Reaction of the entire profile ranges from medium acid to very strongly acid.

Dubbs soils are associated with Commerce, Dundee, Forestdale, and Sharkey soils. They are better drained than Commerce soils, which lack a Bt horizon. They are better drained than Dundee soils, which have matrix colors of dark grayish brown in the Bt horizon. They are better drained and less clayey than the grayish Forestdale soils. They are better drained and have a Bt horizon and a less clayey subsoil than Sharkey soils.

Dubbs silt loam, 0 to 2 percent slopes (DbA).—This soil is moderately well drained to well drained and is on old natural levees. It has the profile described as representative for the series.

Included with this soil in mapping are areas of Sharkey soils in depressions. Also included are small areas of coarser textured soil. The surface layer in about 25 percent of the mapping unit is very fine sandy loam.

Reaction is medium acid to very strongly acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow, and erosion is slight.

Most areas of this soil are cultivated or used for pasture. If nitrogen fertilizer is applied, this soil is suited to row crops and pasture. It is well suited to cotton, corn, soybeans, small grain, and pasture plants.

The soil has good tilth. Plowpans can be broken with deep tillage. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. If management is good, row crops can be grown year after year. (Capability unit I–3; woodland suitability group 2o4)

Dubbs silt loam, 2 to 5 percent slopes (DbB).—This soil is moderately well drained to well drained and is on natural levees.

This soil has a surface layer of brown silt loam about 7 inches thick. The subsoil, to a depth of about 46 inches, is yellowish-brown silt loam. Below this, to a depth of 60 inches, is brown loam to very fine sandy loam that has gray mottles.

Included with this soil in mapping are a few small eroded areas. Also included are small areas of coarser textured soil.

Reaction is medium acid to very strongly acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow to medium. This soil is easy to work.

If nitrogen fertilizer is applied, this soil is suited to crops and pasture. It is well suited to cotton, soybeans, small grain, corn, common grasses, and legumes. Most areas of this soil are cultivated. Crop rows on the contour conserve moisture and control erosion. Plowpans should be broken with deep tillage. If management is good, row crops can be grown year after year. (Capability unit IIe-1; woodland suitability group 2o4)

Dundee Series

The Dundee series consists of somewhat poorly drained soils that formed in loamy material that contained a large amount of silt. These soils are on old natural levees that border former channels of the Mississippi River and its tributaries. Slopes are 0 to 5 percent.

In a representative profile the surface layer is brown silt loam about 9 inches thick. The upper 19 inches of the subsoil is dark grayish-brown silty clay loam that is mottled with shades of brown. The next 14 inches is dark grayish-brown to grayish-brown silt loam that is mottled with shades of brown. The next 15 inches is silt loam that is mottled with shades of brown and gray.

Representative profile of Dundee silt loam, 0 to 2 percent slopes, in a 200-acre field, 7 miles southeast of Holly Bluff, one-fourth mile north of Lake George and 465 feet west of gravel road at storage tank, SE¼NW¼ sec. 5, T. 10 N., R. 4 W.

Ap—0 to 9 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; few fine roots; medium acid; abrupt, smooth boundary.

B21t—9 to 28 inches, dark grayish-brown (10YR 4/2) silty clay loam; few, medium, distinct mottles of brown (10YR 4/3); moderate, fine and medium, subangular blocky structure; friable; few fine roots; few, fine, brown concretions; continuous clay films on most peds; strongly acid; clear, smooth boundary.

B22t—28 to 36 inches, dark grayish-brown (10YR 4/2) silt loam; common, medium, distinct mottles of strong brown (7.5YR 5/6); moderate, fine and medium, subangular blocky structure; friable; continuous clay films on most peds; few, fine, brown and black concretions; strongly acid; clear, smooth boundary.

B23t—36 to 42 inches, grayish-brown (10YR 5/2) silt loam; few, medium, distinct mottles of dark yellowish brown (10YR 4/4); moderate, medium, subangular blocky structure; friable; few patchy clay films; few, fine and medium, brown and black concretions; very strongly acid; clear, smooth boundary.

B3—42 to 57 inches, mottled grayish-brown (10YR 5/2), light brownish-gray (10YR 6/2), and dark yellowish-brown (10YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; few, fine and medium, brown and black concretions; very strongly acid.

The Ap horizon ranges from brown to dark grayish brown. Its texture ranges from silt loam to silty clay loam. The B2t horizon is dark grayish brown or grayish brown. Its texture ranges from silty clay loam to silt loam or clay loam. The B3t horizon is grayish brown or is mottled with shades of gray and brown. Its texture is dominantly silt loam but ranges to very fine sandy loam or silty clay loam. Reaction ranges from medium acid to very strongly acid throughout the profile.

Dundee soils are associated with Commerce, Dubbs, Forestdale, Sharkey, and Tunica soils. They are more acid than Commerce soils, which lack a Bt horizon. They are more poorly drained than Dubbs soils. They are not so gray as Forestdale, Sharkey, and Tunica soils and are less clayey in the subsoil. They have a Bt horizon, which the Sharkey and Tunica soils lack.

Dundee silt loam, 0 to 2 percent slopes (DnA).—This somewhat poorly drained soil is on old natural levees. It has the profile described as representative for the series.

Included with this soil in mapping are areas of poorly drained Sharkey soils in narrow depressions. Also included are a few areas of a soil that has a surface layer of very fine sandy loam.

Reaction is medium acid to very strongly acid. Permeability is moderately slow in the upper part of the subsoil and moderate in the lower part. The available water capacity is very high, runoff is slow, and erosion is slight. This soil is easy to work.

If nitrogen fertilizer is applied and other good management practices are used, this soil is suited to row crops and pasture. It is well suited to cotton, corn, soybeans (fig. 3), small grain, and pasture plants. The native vegetation consists of mixed hardwood canes and shrubs. Most areas are cultivated or used for pasture.

Plowpans should be broken with deep tillage. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. If management is good, row crops can be grown year after year. (Capability unit IIw–2; woodland suitability group 2w5)

Dundee silt loam, 2 to 5 percent slopes (DnB).—This somewhat poorly drained soil is on natural levees in the western part of the county.

Included with this soil in mapping are a few small eroded areas. Also included are a few areas of Sharkey clay, depressional.

This soil has a surface layer of brown silt loam about 5 inches thick. The upper 28 inches of the subsoil is grayish-brown silty clay loam that is mottled with yellowish brown. The next layer, to a depth of about 40 inches, is grayish-

Figure 3.—**Harvesting soybeans on Dundee silt loam, 0 to 2 percent slopes. This soil is in capability unit IIw–2.**

brown silt loam that is mottled with yellowish brown. The underlying material is mottled gray and brown silt loam.

Reaction is medium acid to very strongly acid. Permeability is moderately slow in the upper part of the subsoil and moderate in the lower part. The available water capacity is very high. Runoff is slow to medium, and the hazard of erosion is slight. This soil is easy to work, but plow pans form readily.

If nitrogen fertilizer is applied, this soil is suited to row crops and pasture. It is well suited to cotton, soybeans, small grain, corn, and commonly grown grasses and legumes. Most areas are cultivated. Proper arrangement of crop rows to conserve moisture is an important concern in management. If conservation practices are good, row crops can be grown year after year. (Capability unit IIe–1; woodland suitability group 2w5)

Dundee silty clay loam, 0 to 2 percent slopes (DuA).—This somewhat poorly drained soil is on natural levees.

Included with this soil in mapping are small areas of a better drained soil. Also included are areas of Sharkey soils in narrow depressions.

This soil has a surface layer of dark grayish brown silty clay loam about 6 inches thick. The upper part of the subsoil grades from grayish-brown silty clay loam to grayish-brown silt loam. The lower part, at a depth of about 24 inches, is grayish-brown and light brownish-gray silt loam.

Reaction is medium acid to very strongly acid. Permeability is moderately slow in the upper part of the subsoil and moderate in the lower part. The available water capacity is very high, runoff is slow, and the erosion hazard is slight. The silty clay loam surface layer delays cultivation early in spring. Flooding occurs in low areas in winter and early in spring and occasionally during the growing season. This soil is somewhat difficult to work as it becomes hard and crusty when dry, and sticky when wet.

If nitrogen fertilizer is applied, this soil is suited to row crops and pasture. It is well suited to the commonly grown row crops, among which are cotton, corn, and soybeans, as well as to small grain and pasture plants. The native vegetation consists of mixed hardwoods, canes, and shrubs. Most areas are cultivated or used for pasture. If cultivation practices are good, row crops can be grown year after year. (Capability unit IIw–2; woodland suitability group 2w5)

Dundee silty clay loam, 2 to 5 percent slopes (DuB).—This somewhat poorly drained soil is on natural levees in the western part of the county.

Included with this soil in mapping are a few areas of Sharkey clay, depressional.

This soil has a surface layer of brown silty clay loam about 4 inches thick. The upper part of the subsoil, to a depth of about 26 inches, is grayish-brown silty clay loam that is mottled with yellowish brown. The lower part is light brownish-gray silt loam.

Reaction is very strongly acid to medium acid. Permeability is moderately slow in the upper part of the subsoil and moderate in the lower part. The available water capacity is very high, and runoff is slow to medium. This soil is somewhat difficult to work. It becomes hard and crusty when dry and sticky when wet.

If nitrogen fertilizer is applied, this soil is suited to row crops and pasture. It is also suited to cotton, soybeans, small grain, corn, and the common grasses and legumes. Most areas are cultivated. Proper arrangement of crop rows helps to remove excess surface water and control erosion. If conservation practices are good, row crops can be grown year after year. (Capability unit IIe–2; woodland suitability group 2w5)

Falaya Series

The Falaya series consists of nearly level soils. These somewhat poorly drained soils formed in loamy alluvium that contained a large amount of silt that had washed from uplands.

In a representative profile the surface layer is brown silt loam about 5 inches thick. The subsoil is silt loam that extends to a depth of about 42 inches. The upper 14 inches is brown to dark brown and has light brownish-gray and pale-brown mottles. The next 23 inches is light brownish gray to gray and has dark yellowish-brown mottles. The underlying material to a depth of about 58 inches is light-gray silt loam that is mottled with shades of brown.

Representative profile of Falaya silt loam in a cultivated field 1.6 miles southeast of Deasonville, 150 feet north of fence row and 300 feet west of Big Black Woods, NW¼NE¼ sec. 35, T. 11 N., R. 2 E.

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; few, medium, faint, light brownish-gray (10YR 6/2) mottles; weak, medium, subangular blocky structure; friable; few fine roots; few, fine, black concretions; strongly acid; abrupt, smooth boundary.

B21—5 to 14 inches, brown (10YR 5/3) silt loam; common, medium, faint, light brownish-gray (10YR 6/2) and pale-brown (10YR 6/3) mottles; moderate, medium, subangular blocky structure; friable; common, medium, black and brown concretions; few fine roots; few worm casts; strongly acid; clear, smooth boundary.

B22—14 to 19 inches, dark-brown (10YR 4/3) silt loam; common, medium, distinct, pale-brown (10YR 6/3) and light brownish-gray (10YR 6/2) mottles; weak, medium, subangular blocky structure; friable; few, medium, black and brown concretions; few fine roots; many fine pores; strongly acid; clear, smooth boundary.

B23g—19 to 26 inches, light brownish-gray (10YR 6/2) silt loam; few, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few, medium, dark-brown concretions; few fine roots; many fine pores; very strongly acid; gradual, smooth boundary.

B3g—26 to 42 inches, gray (10YR 6/1) silt loam; few, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few, medium, brown and black concretions; few fine roots; very strongly acid; clear, wavy boundary.

Cg—42 to 58 inches, light-gray (10YR 7/1) silt loam; few, medium, distinct, brown (10YR 5/3) mottles; weak; medium, subangular blocky structure; friable; few, fine, black and brown concretions; strongly acid.

The Ap horizon ranges from brown to grayish brown or light brownish gray. The B21 and B22 horizons are yellowish brown, brown, or dark brown and have brownish or grayish mottles. The B and C horizons are silt loam and are 8 to 18 percent clay. The Bg and Cg horizons are light brownish-gray to gray and are mottled with shades of brown. Brown and black concretions are few to common. Reaction of the soil profile is strongly acid or very strongly acid except where the soil has been limed.

Falaya soils are associated with Adler soils, Adler soils, clayey subsoil variant, and Leverett, Morganfield, and Vicksburg soils. They have a B horizon and are more acid than Adler

soils. They lack the IIB horizon of the Adler soils, clayey subsoil variant. They lack the fragipan of Leverett soils. They are more poorly drained than Morganfield and Vicksburg soils and are more acid than Morganfield soils.

Falaya silt loam (Fa).—This somewhat poorly drained soil is on flood plains. It has the profile described as representative for the series. Slopes are 0 to 2 percent.

Reaction is strongly acid to very strongly acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow, and the erosion hazard is slight. This soil is easy to work, but it crusts and packs. Flooding occurs commonly in winter and spring and occasionally during the growing season.

If fertilizer is applied, this soil is suited to row crops and pasture. It is well suited to cotton, corn, soybeans, small grain, and pasture plants. Most areas are cultivated or are used for pasture. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. If conservation practices are good, row crops can be grown year after year. (Capability unit IIw–1; woodland suitability group 1w8)

Falaya-Vicksburg-Leverett association (Fc).—Areas of soils in this mapping unit are mainly dissected by a few drainageways and old stream runs. These soils are on flood plains, and they are flooded for 2 or 3 months during winter and spring. Slopes are 0 to 2 percent. The areas outlined on the map are generally larger and contain a few more inclusions than those of most other mapping units of the county.

Three dominant soils make up about 71 percent of this unit. Falaya soils make up about 37 percent, Vicksburg soils 20 percent, and Leverett soils 14 percent. The remaining 29 percent consists of Adler, Morganfield, and other soils of minor extent.

The pattern and extent of Falaya, Vicksburg, and Leverett soils are fairly uniform throughout the mapping unit. Each area outlined on the map contains these three soils and generally one or more of the soils of minor extent.

The Falaya soil is somewhat poorly drained. The surface layer is grayish-brown silt loam about 5 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is brown silt loam that is mottled with grayish colors. The lower part is gray silt loam that is mottled with brown. Reaction is strongly acid or very strongly acid. The available water capacity is high, and permeability is moderate.

The well-drained Vicksburg soil is in slightly higher areas than the Falaya soil. The surface layer is grayish-brown silt loam about 4 inches thick. The underlying material is brown to yellowish-brown silt loam that is mottled with shades of gray below a depth of 23 inches. Reaction is strongly acid to very strongly acid. The available water capacity is very high, and permeability is moderate.

The moderately well drained Leverett soil is on the older flood plains. The surface layer is brown silt loam about 5 inches thick. The subsoil is brown silt loam that has a fragipan at a depth of about 30 inches. This fragipan is about 18 inches thick and is mottled with shades of brown and gray.

Reaction is strongly acid to very strongly acid. The available water capacity is medium to high. Permeability is moderate in the upper part of the subsoil, and moderately slow within the fragipan.

The soils in this unit are suited to hardwood forest. (Capability unit Vw–1; Falaya part in woodland suitability group 1w8, Vicksburg part in woodland suitability group 1o7, and Leverett part in woodland suitability group 3o7)

Forestdale Series

The Forestdale series consists of poorly drained soils that formed in loamy and clayey Mississippi River alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is brown silty clay loam about 6 inches thick. The subsoil, to a depth of about 32 inches, is light brownish-gray to gray silty clay that is mottled with dark yellowish brown. Below this is gray or mottled gray and yellowish-brown silty clay loam.

Representative profile of Forestdale silty clay loam in a cultivated field 3 miles west of Satartia, one-half mile west of north-south drainage ditch, one-fourth mile east of bend in Lake George, and 300 feet north of field road NW¼SW¼, sec. 22, T. 10 N., R. 4 W.

Ap—0 to 6 inches, brown (10YR 5/3) silty clay loam; weak, medium, subangular blocky structure; firm; few fine roots and charcoal; strongly acid; abrupt, smooth boundary.

B21tg—6 to 14 inches, light brownish-gray (2.5Y 6/2) silty clay; common, fine, dark yellowish-brown mottles; moderate, medium, subangular blocky structure; firm, plastic and sticky; few fine roots and clay films; strongly acid; clear, smooth boundary.

B22tg—14 to 32 inches, gray (10YR 6/1) silty clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; clay films; strongly acid; clear, smooth boundary.

B23g—32 to 40 inches, gray (10YR 6/1) silty clay loam; many, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; friable; patchy clay films; few, fine, black concretions; strongly acid; clear, smooth boundary.

B3g—40 to 52 inches, mottled gray (10YR 6/1) and yellowish-brown (10YR 5/4) silty clay loam; weak, medium, subangular blocky structure; friable; few, fine, black concretions; strongly acid.

The Ap horizon is brown or grayish brown. Its texture is silt loam or silty clay loam. The B2 horizon is dominantly gray to light brownish gray mottled with shades of brown. The upper part of the B horizon is silty clay or silty clay loam. The lower part is silty clay loam to silt loam. Reaction of the entire profile ranges from medium acid to very strongly acid. Brown and black concretions range from none to common.

Forestdale soils are associated with Commerce, Dubbs, Dundee, Sharkey, and Tunica soils. They are grayer below the surface layer and are more clayey than Commerce, Dubbs, and Dundee soils. They are more acid than Sharkey and Tunica soils, which lack a Bt horizon.

Forestdale silt loam (Fo).—This soil is poorly drained. Slopes are 0 to 2 percent.

Included with this soil in mapping are a few areas of Sharkey soils in narrow depressions. Also included are a few areas where the surface layer is silty clay loam.

This soil has a surface layer of brown silt loam about 5 inches thick. The subsoil, to a depth of about 30 inches, ranges from gray silty clay to silty clay loam. The underlying material is gray silt loam.

Reaction is medium acid to very strongly acid. Permeability is very slow in the upper part of the subsoil and slow in the lower part. The available water capacity is high to very high, runoff is slow, and the erosion hazard is

slight. Flooding commonly occurs in winter and in spring, and drainage is needed to remove excess surface water. This soil is somewhat difficult to work because it dries slowly, and wetness may delay tillage early in spring.

This soil is suited to soybeans, small grain, corn, cotton, and commonly grown grasses and legumes. Most areas have been cleared and are used for crops and pasture. If management is good and nitrogen fertilizer is applied, this soil can be used for row crops year after year. (Capability unit IIIw–2; woodland suitability group 1w6)

Forestdale silty clay loam (Fr).—This soil is poorly drained. It has the profile described as representative for the series. Slopes are 0 to 2 percent.

Included with this soil in mapping are Sharkey soils in small level areas and in depressions. Also included are small areas of Dundee soils, and other small areas that have slopes ranging to 5 percent.

Reaction is medium acid to very strongly acid. Permeability is very slow in the upper part of the subsoil and slow in the lower part. The available water capacity is high to very high, runoff is slow, and the erosion hazard is slight. Wetness delays cultivation in spring. Flooding is common in winter and in spring, and drainage is needed to remove excess surface water. This soil is difficult to work as it becomes hard and crusty when dry and sticky when wet.

This soil is suited to soybeans, small grain, cotton, corn, and commonly grown grasses and legumes. Most areas have been cleared and are used for crops and pasture. If management is good and nitrogen fertilizer is applied, this soil can be used for row crops year after year. (Capability unit IIIw–2; woodland suitability group 1w6)

Grenada Series

The Grenada series consists of moderately well drained soils that formed in loamy material that contained a large amount of silt. These soils have a fragipan. Slopes are 0 to 5 percent.

In a representative profile the surface layer is grayish-brown silt loam about 6 inches thick. The subsoil, to a depth of about 19 inches, is yellowish-brown silt loam. Below this is a 3-inch layer of light-gray silt loam. Between depths of 22 and 55 inches is a fragipan of yellowish-brown silt loam to silty clay loam that is mottled with gray.

Representative profile of Grenada silt loam, 0 to 2 percent slopes, in a cotton field 4½ miles west of Pickens, one-fourth mile north of Mississippi Highway 432 and 50 feet east of pasture road, SE¼SW¼ sec. 13, T. 12 N., R. 2 E.

Ap—0 to 6 inches, grayish-brown (10YR 5/2) silt loam; few, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, fine, granular structure; friable; many fine roots; strongly acid; abrupt, smooth boundary.

B2—6 to 19 inches, yellowish-brown (10YR 5/6) silt loam; moderate, medium and fine, subangular blocky structure; friable; many fine roots; many fine pores; few worm casts; strongly acid; clear, smooth boundary.

A'2—19 to 22 inches, light-gray (10YR 7/1) silt loam; few, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium and fine, subangular blocky structure; friable, slightly brittle; strongly acid; clear, smooth boundary.

B'x1—22 to 32 inches, yellowish-brown (10YR 5/8) silt loam; common, medium, distinct, mottles of pale brown (10YR 6/3) and light gray (10YR 7/1); weak, coarse, prismatic structure parting to moderate, fine and medium, subangular blocky structure; firm, compact and brittle; polygonal cracks filled with gray silt extending downward through lower horizons; few patchy clay films; many gray silt coatings between polygons; few, medium, brown and black concretions; strongly acid; clear, wavy boundary.

B'x2—32 to 40 inches, yellowish-brown (10YR 5/6) silt loam; common, medium, distinct mottles of light gray (10YR 7/1) and dark yellowish brown (10YR 4/4); weak, coarse, prismatic structure parting to moderate, medium and fine, subangular blocky structure; firm, compact and brittle; few patchy clay films; few gray silt coats between polygons; many, medium, brown and black concretions; strongly acid; clear, wavy boundary.

B'x3—40 to 55 inches, yellowish-brown (10YR 5/4) silt loam; few, medium, distinct mottles of light gray (10YR 7/1) and dark yellowish brown (10YR 4/4); weak, coarse, prismatic structure parting to weak, medium, subangular blocky structure; firm, slightly brittle and compact; few, fine, brown and black concretions; strongly acid.

The Ap horizon ranges from grayish brown to brown. The B2 horizon is yellowish brown or dark yellowish brown. It is silt loam or light silty clay loam. Clay content between a depth of 10 inches and the upper boundary of the fragipan is 18 to 27 percent. Silt content is 70 to 75 percent, and sand content is less than 10 percent. The A'2 horizon is pale brown to light gray and is distinctly mottled with shades of brown. The Bx horizon has a matrix color of yellowish brown that is mottled with shades of gray and brown, or it is mottled with shades of brown and gray. It is silt loam or silty clay loam. Few to common, fine and medium, brown and black concretions are present throughout the profile in places. Reaction ranges from strongly acid to very strongly acid throughout the profile.

Grenada soils are associated with Calhoun, Calloway, Loring, and Memphis soils. They are better drained than Calhoun soils and have a fragipan. They lack the grayish mottles that are present in the upper 16 inches of the solum of Calloway soils. They have an A'2 horizon, which is lacking in Loring soils. They lack clay films in the B horizon and are more poorly drained than Memphis soils, which lack a fragipan.

Grenada silt loam, 0 to 2 percent slopes (GrA).—This moderately well drained soil is on broad areas near stream flood plains. This soil has the profile described as representative for the series. It has a fragipan.

Included with this soil in mapping are small areas of Loring, Calloway, and Calhoun soils. The Calhoun soils are in small shallow depressions.

This soil is strongly acid to very strongly acid. Permeability is moderate above the fragipan and slow within the fragipan. The available water capacity is medium. Runoff is slow, and the hazard of erosion is slight. This soil is easy to work, but it crusts and packs if left bare. The fragipan restricts the growth of plant roots.

This soil is suited to cotton, corn, soybeans, small grain, and commonly grown grasses and legumes. Approximately 90 percent of the acreage is cultivated or used for pasture, and the rest is in woodland. Wetness delays plowing and planting in spring. Graded rows and surface field ditches are needed to remove excess surface water. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. If management is good, row crops can be grown year after year. (Capability unit IIw–3; woodland suitability group 3o7)

Grenada silt loam, 2 to 5 percent slopes, eroded (GrB2).—This moderately well drained soil is on broad ridges and narrow side slopes near stream flood plains. It has a fragipan.

Included with this soil in mapping are small areas of Loring and Calloway soils.

The surface layer is brown, friable silt loam about 5 inches thick. In places, tilling exposes the upper part of the subsoil. Few small rills and shallow gullies are present in most fields.

The upper part of the subsoil is dark yellowish-brown to yellowish-brown silt loam. At a depth of about 18 inches is a 4 inch layer of gray and pale-brown silt loam. Below this is thick yellowish-brown silt loam that grades to a mottled brown and gray silt loam fragipan. The fragipan is compact and brittle, and it restricts the growth of plant roots.

Reaction is strongly acid to very strongly acid. Permeability is moderate above the fragipan and slow within it. The available water capacity is medium. Runoff is slow to medium, and erosion is a hazard where water concentrates and ground cover has been removed. This soil is easy to work, but it crusts and packs if left bare.

This soil is well suited to cotton, soybeans, small grain, corn, and pasture plants. Trees are also well suited. Approximately 85 percent of the acreage is cultivated or used for pasture, and the rest is in woodland.

If this soil is cultivated and not protected, further erosion is likely. Using a suitable cropping system, cultivating on the contour, stripcropping, terracing, and constructing grassed waterways reduces the speed of runoff and thus helps to control further erosion. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration and also helps control further erosion. If management is good, row crops can be grown year after year. (Capability unit IIe–4; woodland suitability group 3o7)

Gullied Land

In Yazoo County Gullied land is mapped only in a complex with Memphis soils.

Gullied land-Memphis complex, 5 to 30 percent slopes (GuE).—This complex is eroded to the extent that only narrow, isolated areas of the original soil remain between the gullies. The areas are 20 to 200 acres in size. The pattern and extent of the major components of the complex are uniform. Each area of this complex outlined on the soil map contains both Gullied land and the Memphis soil.

Gullied land and the Memphis soil make up about 83 percent of the complex. Gullied land makes up about 60 percent and the Memphis soil about 23 percent. The remaining 17 percent of the complex consists of a Natchez soil on middle or lower slopes, a Loring soil on upper slopes where the gradient is less than 12 percent, and a Morganfield soil in drainageways.

Most of the gullies are 2 to 10 feet deep and are one-fourth of an acre to several acres in size. The soil material that is washed from the gullies is primarily silty, but in a few of the deeper gullies erosion has cut into the underlying sandy material. The soil material washed out of the gullies is being deposited on adjacent stream flood plains. If the sediment is deposited during the growing season, it damages crops and pasture.

The soil material in Gullied land is medium acid to very strongly acid. The texture ranges from silt loam to silty clay loam. Permeability is variable, and the available water capacity is variable. Runoff is rapid.

The Memphis soil in this complex occupies remnants and fingerlike extensions. The acres are 30 to 175 feet wide. The soil is well drained. The surface layer is dark grayish-brown to yellowish-brown silt loam. It is generally a mixture of the subsoil and remnants of the surface layer, but in a few places the surface layer is about 3 inches thick. The subsoil is dark-brown silt loam that grades to dark-brown silty clay loam in the lower part.

The Memphis soil is medium acid to very strongly acid and has very high available water capacity. Permeability is moderate, and runoff is rapid.

Reclaiming areas of this complex for pasture is difficult and generally not practical. The areas are better suited to pine trees than to other uses. (Capability unit VIIe–1; not placed in a woodland suitability group)

Leverett Series

The Leverett series consists of moderately well drained soils that formed in loamy material that contained a large amount of silt. These soils are on flood plains. They have a fragipan. Slopes are 0 to 2 percent.

In a representative profile the surface layer is brown silt loam about 7 inches thick. The upper 19 inches of the subsoil is dark-brown silt loam. The next 22 inches is a dark-brown silt loam fragipan that is mottled with shades of gray and brown in the lower part. The lower 12 inches is pale-brown silt loam that is mottled with dark yellowish brown and gray.

Representative profile of Leverett silt loam in a cultivated field 1.6 miles southeast of Deasonville, one-eighth mile south of gravel road, 75 feet north of telephone pole and 75 feet east of creek ditch, NW¼SW¼, sec. 26, T. 11 N., R. 2 E.

Ap—0 to 7 inches, brown (10YR 5/3) silt loam; common, medium, faint, pale-brown (10YR 6/3) mottles; weak, medium, subangular blocky structure; friable; few fine roots; slightly acid; abrupt, smooth boundary.

B21t—7 to 18 inches, dark-brown (7.5YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; few fine roots; common wormholes; few, fine, black concretions; few, thin, patchy clay films; strongly acid; clear, smooth boundary.

B22t—18 to 26 inches, dark-brown (10YR 4/3) silt loam; weak, medium, subangular blocky structure; friable; few fine and medium roots; few fine voids; slightly brittle; few wormholes; few, fine, black concretions; few, fine, faint, pale-brown silt coats on peds; few, thin, patchy clay films; strongly acid; clear, smooth boundary.

Bx1—26 to 34 inches, dark-brown (10YR 4/3) silt loam; common, medium, distinct, gray (10YR 6/1) and faint, pale-brown (10YR 6/3) mottles; coarse prismatic structure parting to weak, medium, subangular blocky structure; firm, slightly brittle; few, fine, black concretions; patchy clay films; common fine voids; few fine roots along prisms; very strongly acid; clear, wavy boundary.

Bx2—34 to 48 inches, mottled brown (10YR 5/3), pale-brown (10YR 6/3), gray (10YR 6/1), and dark-brown (10YR 4/3) silt loam; weak, very coarse, prismatic structure parting to weak, medium, subangular blocky structure; compact and brittle, firm; common, fine and medium, black concretions; common, fine and medium voids; patchy clay films; very strongly acid; gradual, wavy boundary.

B3—48 to 60 inches, pale-brown (10YR 6/3) silt loam; few, medium, distinct, dark yellowish-brown (10YR 4/4) and gray (10YR 6/1) mottles; weak, medium, subangular blocky structure; friable; common, fine and medium, black concretions; strongly acid.

The Ap horizon ranges from brown to pale brown. The B2t horizon is dark brown to brown. The Bx horizon is dark brown or brown and has grayish and brownish mottles or is mottled with shades of brown and gray. The depth to this horizon ranges from 18 to 36 inches. The B3 horizon is similar to the Bx horizon in color. Reaction of the entire profile is strongly acid or very strongly acid. Brown and black concretions range from few to common.

Leverett soils are associated with Adler soils, Adler soils, clayey subsoil variant, and Falaya, Morganfield, and Vicksburg soils. They have the Bt and Bx horizons which the other soils lack. They lack the IIB horizon of Adler soils, clayey subsoil variant.

Leverett silt loam (le).—This moderately well drained soil is on old flood plains. It has the profile described as representative for the series. This soil has a fragipan. Slopes are 0 to 2 percent.

Included with this soil in mapping are a few areas of Vicksburg and Morganfield soils, and small areas of Falaya soils.

Reaction of the entire profile is strongly acid to very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow within the fragipan. The available water capacity is medium to high. Runoff is slow, and the erosion hazard is slight. This soil is easy to work, but it crusts and packs if left bare.

Flooding occurs in winter and early in spring. Wetness delays plowing and planting in spring. Graded rows and W-ditches remove excess surface water effectively. If fertilizer is applied, this soil is suited to pasture and crops. It is well suited to cotton (fig. 4), soybeans, corn, small grain, and pasture plants. Most areas are cultivated or used for pasture, but a small acreage is still in woodland. If management is good, row crops can be grown year after year. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. (Capability unit IIw–3; woodland suitability group 3o7)

Loring Series

The Loring series consists of moderately well drained soils that have a fragipan. These soils formed in loamy material that contained a large amount of silt. They are on uplands. Slopes are 0 to 12 percent.

In a representative profile, the surface layer is brown silt loam about 4 inches thick. The subsoil is dark-brown silt loam to a depth of about 26 inches. Below this depth is a thick, compact and brittle fragipan that has brownish and grayish mottles.

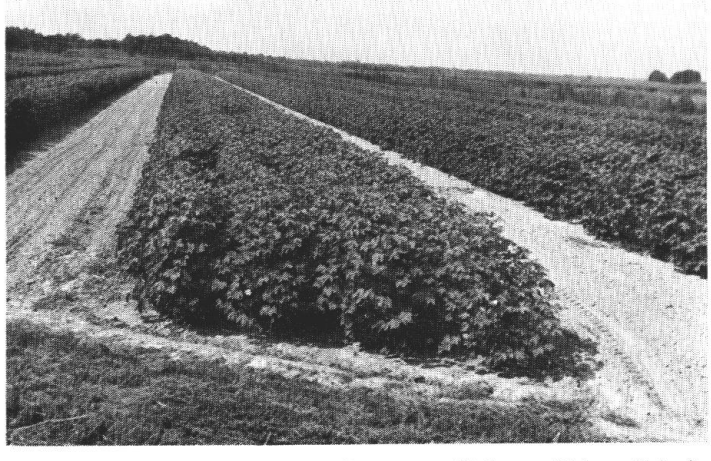

Figure 4.—**Skip-row cotton on Leverett silt loam. This soil is in capability unit IIw–3.**

Representative profile of Loring silt loam, 2 to 5 percent slopes, eroded, 3½ miles west of Pickens, 1 mile south of Mississippi Highway 432, and 108 feet north of Southern National Gas Co. gasline, SW¼SE¼, sec. 24, T 12 N., R. 2 E.

Ap—0 to 4 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable, few fine roots; slightly acid; abrupt, smooth boundary.

B21t—4 to 20 inches, dark-brown (7.5YR 4/4) silt loam; moderate, medium and fine, subangular blocky structure; friable; few fine roots; patchy clay films; strongly acid; clear, smooth boundary.

B22t—20 to 26 inches, dark-brown (7.5YR 4/4) silt loam; common, medium, distinct, pale-brown (10YR 6/3) mottles; moderate, medium and fine, subangular blocky structure; friable; common, fine, black concretions; patchy clay films; very strongly acid; clear, smooth boundary.

Bx1—26 to 36 inches, dark-brown (10YR 4/3) silt loam; common, medium, distinct, pale-brown (10YR 6/3) and light-gray (10YR 7/1) mottles; weak, coarse, prismatic structure parting to moderate, medium and fine, subangular blocky; slightly compact and brittle, firm; few streaks and seams of gray silt; patchy clay films; common, fine and medium, black concretions; very strongly acid; clear, wavy boundary.

Bx2—36 to 46 inches, mottled dark-brown (7.5YR 4/4), pale-brown (10YR 6/3), and light-gray (10YR 7/1) silt loam; weak, coarse, prismatic structure parting to weak, medium and fine, subangular blocky; compact and brittle; few patchy clay films; few, fine, black concretions; very strongly acid; clear, wavy boundary.

Bx3—46 to 60 inches, mottled light-gray (10YR 7/1), very pale brown (10YR 7/4), and dark-brown (10YR 4/3) silt loam; weak, medium, subangular blocky structure; friable, slightly compact and brittle; very strongly acid.

The Ap horizon ranges from brown to grayish brown or light yellowish brown. The B2t horizon is dark brown or strong brown. It is silt loam to silty clay loam in texture. The Bx horizon is dark brown, strong brown, or yellowish brown and has brownish and grayish mottles, or it has mottled colors in shades of brown and gray. The content of black and brown concretions ranges from few to common. Reaction of the entire profile is strongly acid or very strongly acid, except where the surface layer has been limed.

Loring soils are associated with Calhoun, Calloway, Grenada, and Memphis soils. They have a browner B horizon and are better drained than Calhoun and Calloway soils. Unlike Calhoun and Memphis soils, they have a fragipan. They differ from Grenada soils in having a Bt horizon and in not having an A'2 horizon.

In this county the soils classified in the Loring series are outside the defined range for the series in that they are strongly acid or very strongly acid. This difference does not alter their use and management.

Loring silt loam, 0 to 2 percent slopes (loA).—This is a moderately well drained soil on broad ridgetops. It has a fragipan.

Included in mapping are small areas of Calloway, Calhoun, Grenada, and Memphis soils. The Calloway and Calhoun soils are in small shallow depressions.

This soil has a surface layer of light yellowish-brown, friable silt loam about 5 inches thick. The subsoil is dark-brown silt loam to a depth of about 30 inches. Below this is a fragipan, 20 to 40 inches thick, that is dark-brown silt loam mottled with pale brown and gray.

Reaction is strongly acid or very strongly acid. Permeability is moderate above the fragipan but is moderately slow within the fragipan. The available water capacity is

medium to high. Runoff is slow, and the hazard of erosion is slight. This soil is easy to work, but it crusts and packs if left bare.

If adequately limed and fertilized, this soil is well suited to cotton, soybeans, corn, small grain, and pasture plants. Trees are well suited. Approximately 90 percent of the acreage is cultivated or used for pasture, and the rest is in woodland. If management is good, row crops can be grown year after year. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration and helps to maintain tilth. (Capability unit I–1; woodland suitability group 3o7)

Loring silt loam, 2 to 5 percent slopes, eroded (LoB2).—This is a moderately well drained soil on tops and sides of ridges. It has a fragipan. Most areas are marked by shallow gullies and rills. This soil has the profile described as representative for the series.

Included in mapping are small areas of Memphis and Grenada soils. A few severely eroded areas are also included.

Reaction is strongly acid to very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. The available water capacity is medium to high. Runoff is slow to medium, and erosion is a hazard. This soil is easy to work, but if left bare it crusts and packs where water concentrates.

This soil is well suited to cotton, soybeans, corn, small grain, and pasture plants if it is adequately limed and fertilized. It is suited to trees. About 85 percent of the acreage is cultivated or used for pasture. The rest is in woodland. Further erosion is likely where this soil is cultivated and not protected. Row crops can be grown year after year, however, under management that includes a suitable cropping system, cultivating on the contour, stripcropping (fig. 5), terracing, and constructing grassed waterways. These practices reduce the speed of runoff and thus help to control erosion. Leaving shredded crop residue on the surface as a mulch increases rate of infiltration and helps control erosion. (Capability unit IIe–3; woodland suitability group 3o7)

Loring silt loam, 5 to 8 percent slopes, eroded (LoC2).—This is a moderately well drained soil on the tops and sides of ridges. It has a fragipan. Most areas are marked by shallow gullies and rills.

Included in mapping are small areas of Grenada and Memphis soils. A few severely eroded areas are also included.

This soil has a surface layer of grayish-brown silt loam about 4 inches thick. To a depth of about 26 inches, the subsoil is silt loam that grades from yellowish-brown to dark yellowish-brown. Below this is a fragipan, 24 to 36 inches thick, of yellowish-brown silt loam mottled with gray.

Reaction is strongly acid to very strongly acid. Permeability is moderate above the fragipan and moderately slow within the fragipan. The available water capacity is medium to high. Runoff is medium, and erosion is a hazard where water concentrates and ground cover has been removed. This soil is easy to work, but it crusts and packs if left bare.

This soil is suited to cotton, corn, soybeans, small grain, pasture plants, and trees if it is adequately limed and fertilized. About 70 percent of the acreage is cultivated or used for pasture (fig. 6). The rest is in woodland. A suitable cropping system includes using row crops in rotation with close-growing crops, stripcropping, terracing, and constructing grassed waterways. These practices help to control erosion. Leaving shredded crop residue on the surface as a mulch increases rate of infiltration and helps control erosion. (Capability unit IIIe–1; woodland suitability group 3o7)

Loring silt loam, 8 to 12 percent slopes, eroded (LoD2).—This is a moderately well drained soil on ridges and side slopes. It has a fragipan. Included in mapping are small areas of Memphis and Natchez soils. Most fields contain a few rills, shallow gullies, and gall spots.

The surface layer is brown friable silt loam about 4 inches thick. The subsoil is dark-brown silt loam to a depth of about 27 inches. Below this is a fragipan, 22 to 38 inches thick, of dark-brown to strong-brown silt loam. This fragipan has pale-brown and light-gray mottles.

Reaction is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow within the fragipan. The available water capacity is medium to high. Runoff is rapid. Erosion is a hazard if this

Figure 5.—**Crop residue left in a field that is stripcropped and used for cotton and grass. The soil is Loring silt loam, 2 to 5 percent slopes, eroded, which is in capability unit IIe–3.**

Figure 6.—**Cattle grazing dallisgrass and bermudagrass on Loring silt loam, 5 to 8 percent slopes, eroded. This soil is in capability unit IIIe–1.**

soil is cultivated and not protected. Tilth is good, but the soil crusts and packs if left bare.

This soil is suited to cotton, corn, soybeans, small grain, and pasture plants if it is adequately limed and fertilized. It is better suited to pasture and trees. About 50 percent of the acreage is cultivated or used for pasture. The rest is in woodland. Unless good water control practices are used, this soil should be used for perennial plants.

Erosion can be controlled by using a suitable cropping system, tilling on the contour, stripcropping, terracing, and constructing grassed waterways. These practices reduce the speed of runoff. Leaving shredded crop residue on the surface as a mulch increases rate of infiltration and helps control erosion. (Capability unit IVe–1; woodland suitability group 3o7)

Memphis Series

The Memphis series consists of well-drained soils that formed in loamy material that contained a large amount of silt. These soils are on uplands. Slopes are 0 to 30 percent.

In a representative profile the surface layer is brown silt loam about 3 inches thick. The subsoil is dark brown silty clay loam to a depth of about 20 inches. Below this is dark-brown silt loam to a depth of about 65 inches.

Representative profile of Memphis silt loam, 5 to 8 percent slopes, eroded, in a field 3.6 miles southeast of Crupp, 0.3 mile south of intersection of gravel roads, NW¼SE¼ sec. 31, T. 11 N., R. 2 W.

Ap—0 to 3 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; common fine roots; medium acid; abrupt, smooth boundary.

B21t—3 to 20 inches, dark-brown (7.5YR 4/4) silty clay loam; moderate, medium and fine, subangular blocky structure; firm, slightly sticky and plastic; common fine roots; continuous clay films on peds; strongly acid; gradual, smooth boundary.

B22t—20 to 34 inches, dark-brown (7.5YR 4/4) silt loam; friable; few fine roots; patchy clay films on peds; few pale-brown silt coatings between peds and in root channels; strongly acid; clear, smooth boundary.

B3t—34 to 65 inches, dark-brown (7.5YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; few, pale-brown silt coatings on ped faces and in cracks; few, fine, black concretions in lower 10 inches; strongly acid.

The Ap horizon is brown, yellowish brown, or dark grayish brown. The Bt horizon is dark brown or strong brown. It is silt loam or silty clay loam. Clay in the upper 20 inches of the B horizon ranges from 25 to 32 percent. Reaction of the soil ranges from medium acid to very strongly acid except where the surface layer has been limed. The solum ranges from 48 to 72 inches in thickness. Fine, brown and black concretions range from few to common.

Memphis soils are associated with Calloway, Grenada, Loring, and Natchez soils and Vaiden soils, calcareous variant. They are better drained and lack the fragipan of Calloway, Grenada, and Loring soils. They are finer textured in the subsoil and are more acid throughout the profile than Natchez soils. They are better drained and less clayey than Vaiden soils, calcareous variant.

Memphis silt loam, 0 to 2 percent slopes (MeA).—This deep, well-drained soil is on uplands and occurs on broad, smooth ridgetops.

This soil has a surface layer of brown, friable silt loam about 7 inches thick. The subsoil is dark brown silty clay loam that extends to a depth of about 26 inches. Below this is silt loam that extends to a depth of about 70 inches or more.

Included with this soil in mapping are small areas of Loring, Grenada, and Calloway soils. The Calloway soils are in small shallow depressions or at the heads of drainageways.

Reaction is very strongly acid to medium acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow, and if the soil is cultivated the hazard of erosion is slight. This soil is easy to work but it crusts and packs if left bare.

If adequately limed and fertilized, this soil is well suited to cotton, soybeans, corn, small grain, and pasture plants. It is also well suited to trees. Approximately 90 percent of the acreage is cultivated or used for pasture, and the rest is in woodland. If conservation practices are good, row crops can be grown year after year. (Capability unit I–1; woodland suitability group 2o7)

Memphis silt loam, 2 to 5 percent slopes, eroded (MeB2).—This deep, well-drained soil is on uplands and occurs in narrow bands and on sloping ridges. Most fields are marked by shallow gullies and rills.

This soil has a surface layer of brown, friable silt loam about 5 inches thick. The upper 26 inches of the subsoil is dark-brown silty clay loam. Below this is dark-brown silt loam to a depth of about 65 inches or more.

Included with this soil in mapping are small areas of Loring and Grenada soils.

This soil is medium acid to very strongly acid. Permeability is moderate, and the available water capacity is very high. Runoff is slow to medium, and further erosion is a hazard where water concentrates and the ground cover is removed. The soil is easy to work, but it crusts and packs if left bare.

If adequately limed and fertilized, this soil is well suited to cotton, soybeans, small grain, corn, and pasture plants. It is also well suited to trees. Approximately 75 percent of the acreage is cultivated or used for pasture, and the rest is in woodland.

If this soil is cultivated and not protected, further erosion is a hazard. Row crops can be grown year after year, however, under management that includes using a suitable cropping system, cultivating on the contour, stripcropping, terracing, and constructing grassed waterways. These practices reduce the speed of runoff, and thus help to control further erosion. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration and also helps to control erosion. Lime and fertilizer are also needed. (Capability unit IIe–3; woodland suitability group 2o7)

Memphis silt loam, 5 to 8 percent slopes, eroded (MeC2).—This deep, well-drained soil is on uplands on the narrow ridgetops and side slopes. It has the profile described as representative for the series.

Included with this soil in mapping are small areas of Loring soils.

Reaction is very strongly acid to medium acid. Permeability is moderate, and the available water capacity is high. Runoff is medium, and if cultivated the hazard of further erosion is severe. This soil is easy to work, but it crusts and packs if left bare.

If adequately limed and fertilized, this soil is suited to cotton, corn, soybeans, small grain, and pasture plants. It is

suited to trees. Approximately 70 percent of the acreage is cultivated or used for pasture, and the rest is in woodland. If this soil is cultivated and not protected, further erosion is a hazard. A suitable cropping system includes the use of row crops in rotation with close-growing crops. Cultivating on the contour, stripcropping, terracing, and constructing grassed waterways reduce the speed of runoff and thus help to control erosion. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration and also helps to control erosion. (Capability unit IIIe–1; woodland suitability group 2o7)

Memphis-Natchez association, hilly (MnE).—This mapping unit consists of soils on uplands where the landscape is chiefly forested. It is on ridgetops that are narrow and winding and on side slopes that are dissected by many small drainageways. Slopes are 12 to 30 percent. The areas are 100 to 600 acres in size. The areas of this mapping unit generally are larger and contain a few more inclusions than areas of most other mapping units in the county.

The pattern and extent of Memphis and Natchez soils are fairly uniform throughout the mapping unit. Each area contains these two soils and usually one or more of the less extensive soils. Also included are some severely eroded areas that once were cultivated.

The two dominant soils make up about 81 percent of the mapping unit. Memphis soils make up about 44 percent and Natchez soils about 37 percent. The less extensive soils are the Vaiden soils, calcareous variant, on some of the lower slopes near the bluff line, the Adler soils in the alluvial drainageways, and the Loring soils on the narrow tops of ridges.

The well-drained Memphis soil is on the narrow tops of ridges and on the middle and upper side slopes. The surface layer is dark grayish-brown silt loam about 4 inches thick. In areas that have been cleared and cultivated, the surface layer is a mixture of the subsoil and remnants of the original surface layer. The subsoil is dark-brown silt loam to a depth of about 30 inches and strong-brown silt loam to a depth of about 70 inches.

Reaction of the Memphis soil is strongly acid to medium acid in the lower part. The available water capacity is very high, and permeability is moderate.

The well-drained Natchez soil is on the middle and lower side slopes and, in a few places, on the narrow tops of ridges. The surface layer is very dark grayish-brown silt loam about 3 inches thick. The subsurface layer is grayish-brown silt loam about 4 inches thick. The subsoil to a depth of about 36 inches is yellowish-brown silt loam. The underlying material is yellowish-brown silt loam that is mottled with gray to a depth of about 48 inches. Below this layer is light brownish-gray silt loam.

Reaction of the Natchez soil is neutral to moderately alkaline. The available water capacity is very high, and permeability is moderately rapid. Runoff is rapid, and erosion is a very severe hazard if the soil is unprotected.

Soils of this unit are poorly suited to farming and pasture because of their steepness. They are better suited to trees. Most areas are in hardwood forest and pine trees. Most fields contain several small gullies and a few deep ones. Some of the narrow ridges and side slopes are used for pasture. The pasture should not be overgrazed. A permanent plant cover is required at all times to increase the rate of infiltration, reduce runoff, and control erosion. (Capability unit VIe–2; woodland suitability group 2r8)

Morganfield Series

The Morganfield series consists of well-drained soils that formed in loamy alluvium that contained a large amount of silt. These soils are on flood plains. Slopes are 0 to 2 percent.

In a representative profile the surface layer is brown silt loam about 7 inches thick. The underlying material is silt loam that extends to a depth of 58 inches or more. The upper 17 inches is brown, the next 12 inches is yellowish brown mottled with pale brown, and the lower 22 inches is brown.

Representative profile of Morganfield silt loam in a soybean field 6 miles northeast of Yazoo City, 100 feet east of Piney Creek, 450 feet south of gravel road and 300 feet west of the uplands, NW¼NW¼ sec. 8, T. 12 N., R. 1 W.

Ap—0 to 7 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; few fine roots; bedding planes; neutral; abrupt, smooth boundary.

C1—7 to 24 inches, brown (10YR 4/3) silt loam; structureless; friable; few fine roots; few worm casts; bedding planes evident; neutral; clear, smooth boundary.

C2—24 to 36 inches, yellowish-brown (10YR 5/4) silt loam; few, fine, faint mottles of pale brown; structureless; friable; few worm casts; bedding planes evident; mildly alkaline; gradual, smooth boundary.

C3—36 to 58 inches, brown (10YR 5/3) silt loam; structureless; friable; few dark-brown stains; bedding planes evident; mildly alkaline.

The Ap horizon is brown, yellowish brown, or very dark grayish brown. The C horizon has a matrix color of brown, yellowish brown, or pale brown. In some profiles the lower part of the C horizon has mottles of gray that are few to many. Reaction is slightly acid to mildly alkaline.

Morganfield soils are associated with Adler soils, Adler soils, clayey subsoil variant, and Bruno, Falaya, Leverett, and Vicksburg soils. They are better drained than Adler and Falaya soils, and they lack the IIB horizon of the Adler soils, clayey subsoil variant. They are more silty than the sandy Bruno soils and lack the Bx horizon of the Leverett soils. They are slightly acid to mildly alkaline, but the Vicksburg soils are strongly acid or very strongly acid.

Morganfield silt loam (Mo).—This well-drained soil is on alluvial flood plains in the central part of the county. It has the profile described as representative for the series. Slopes are 0 to 2 percent.

Included with this soil in mapping are small lower areas of Adler soils, and other small areas that have a surface layer of silty clay. Also included are few areas of a Natchez-like soil on colluvial fans adjacent to the Bluff Hills.

Reaction is slightly acid to mildly alkaline. Permeability is moderate, and the available water capacity is very high. Runoff is slow, and the hazard of erosion is slight to none. This soil has good tilth, but it crusts.

This soil is well suited to cotton, soybeans, corn, small grain, and pasture plants. Most areas are cultivated or are used for pasture (fig. 7). If conservation practices are good, row crops can be grown year after year. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration. (Capability unit I–2; woodland suitability group 1o4)

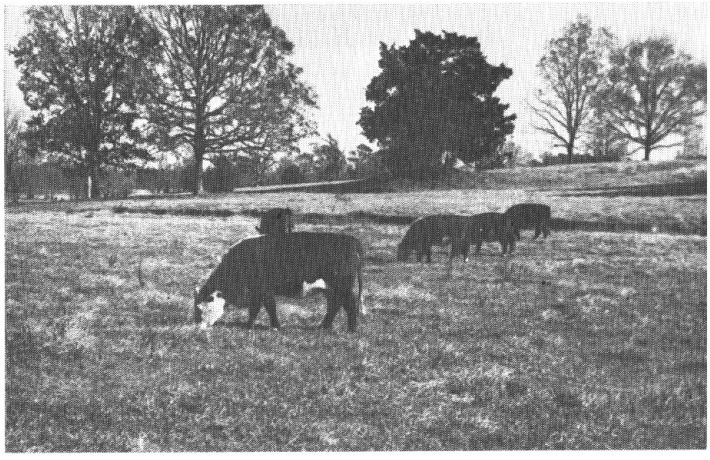

Figure 7.—**Registered Hereford cattle grazing fescue and bermudagrass on Morganfield silt loam. This soil is in capability unit I–2.**

Natchez Series

The Natchez series consists of deep, well-drained soils that formed in loamy material that contained a large amount of silt. These soils are on uplands. Slopes are 12 to 30 percent.

In a representative profile the surface layer is very dark grayish-brown silt loam about 3 inches thick. The subsurface layer is grayish-brown silt loam about 4 inches thick. The subsoil, to a depth of about 36 inches, is yellowish-brown silt loam. The underlying material is yellowish-brown silt loam mottled with gray and extends to a depth of about 48 inches. Below this is light brownish-gray silt loam.

Representative profile of Natchez silt loam in a forested area 4½ miles north of Yazoo City on U.S. Route 49E., and 300 feet east of the north-south gravel road, NE¼ SW¼ sec. 2, T. 12 N., R. 2 W.

A1—0 to 3 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine, granular structure; friable; many fine roots; many worm casts; mildly alkaline; clear, smooth boundary.

A2—3 to 7 inches, grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; friable; many fine and medium roots; many worm casts; mildly alkaline; clear, smooth boundary.

B1—7 to 22 inches, yellowish-brown (10YR 5/4) silt loam; weak, medium, subangular blocky structure; friable; many fine and medium roots; few fine snail shells and calcium carbonate concretions; mildly alkaline; gradual, smooth boundary.

B2—22 to 36 inches, yellowish-brown (10YR 5/6) silt loam; weak, medium, subangular blocky structure; friable; many fine and medium roots; common fine snail shells and calcium carbonate films, threads, and concretions; mildly alkaline; calcareous; clear, smooth boundary.

C1—36 to 48 inches, yellowish-brown (10YR 5/4) silt loam; common, fine, distinct, gray (10YR 6/1), calcareous spots on peds; structureless; friable; common fine roots; many fine calcium carbonate concretions; moderately alkaline; calcareous; clear, smooth boundary.

C2—48 to 57 inches, light brownish-gray (10YR 6/2) silt loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; structureless; friable; few, fine, distinct, dark-brown concretions; mildly alkaline; calcareous.

The A1 horizon ranges from very dark grayish brown to dark grayish brown. The B horizon is yellowish brown or brown. The C horizon is yellowish brown to light brownish gray. The B and C horizons are silt loam in texture and are 8 to 18 percent clay. Calcium carbonate concretions are few to many in the lower part of the B and C horizons. Reaction ranges from neutral to moderately alkaline.

Natchez soils are associated with Memphis soils and Vaiden soils, calcareous variant. They have a B horizon that lacks the clay accumulation of Memphis soils. They are well drained and contain a large amount of silt in the B horizon, whereas the Vaiden soils are somewhat poorly drained and have a clayey B horizon.

Sharkey Series

The Sharkey series consists of poorly drained soils that formed in clayey alluvium deposited by the Mississippi River. Slopes are 1 percent or less.

In a representative profile the surface layer is dark grayish-brown clay about 4 inches thick. The subsoil, to a depth of 32 inches, is gray clay that is mottled with yellowish brown. The underlying material is olive-gray clay that is mottled with yellowish brown and extends to a depth of 50 inches or more.

Representative profile of Sharkey clay in a field 10 miles northwest of Yazoo City, 2¾ miles south of U.S. Route 49W., down the west levee, one-fourth mile west of the west levee, and 90 feet west of bend in gravel road, NE¼ NE¼ sec. 23, T. 12 N., R. 4 W.

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) clay; weak, medium, subangular blocky structure; very firm, plastic and sticky; few fine and coarse roots; medium acid; abrupt, smooth boundary.

B21g—4 to 10 inches, gray (10YR 6/1) clay; many, medium, distinct mottles of yellowish brown (10YR 5/4); moderate, medium subangular blocky structure; very firm, very plastic; few fine and coarse roots; very strongly acid; clear, smooth boundary.

B22g—10 to 24 inches, gray (10YR 6/1) clay; common, medium, distinct mottles of yellowish brown (10YR 5/4); moderate, medium, subangular blocky structure; very firm, very plastic; few fine roots; strongly acid; clear, smooth boundary.

B23g—24 to 32 inches, gray (5Y 5/1) clay; few, medium, distinct mottles of yellowish brown (10YR 5/4); moderate, medium, subangular blocky structure; very firm, very plastic; few slickensides that do not intersect; medium acid; clear, smooth boundary.

Cg—32 to 50 inches, olive-gray (5Y 5/2) clay; few, medium, distinct mottles of yellowish brown (10YR 5/4); massive; firm, very plastic; few, fine, black concretions; common, fine, white crystals; few slickensides; neutral.

The Ap horizon ranges from dark grayish brown to very dark grayish brown and is 3 to 6 inches thick. It is clay to silty clay loam. The Bg and Cg horizons are gray to dark gray. Mottles in shades of brown and yellow are few to many. More than 60 percent of the mass between the Ap horizon and a depth of 30 inches is gray to dark gray and mottled with shades of brown and yellow. The number of brown and black concretions ranges from few to many. Calcium carbonate concretions are in some profiles at a depth of about 30 inches. Reaction of the soil is medium acid to very strongly acid in the upper part of the solum and increases to neutral or mildly alkaline in the lower part.

Sharkey soils are associated with Commerce, Dubbs, Dundee, Forestdale, and Tunica soils. They are poorly drained and more clayey than Commerce, Dubbs, and Dundee soils. They are finer textured, less acid, and lack the Bt horizon of the Forestdale soils. They lack the underlying loamy C horizon of the Tunica soils.

In this county, the soils named for the Sharkey series are more acid in the upper part of the solum than is within the defined range for the series, but this difference does not significantly alter their use and management.

Sharkey silty clay loam (Sa).—This is a nearly level, poorly drained soil. Slopes are 1 percent or less.

The surface layer is dark grayish-brown silty clay loam about 5 inches thick. The subsoil is gray clay that is mottled with yellowish brown or brown to a depth of 31 inches or more. The underlying material is gray clay that is mottled with yellowish brown and extends to a depth of 50 inches or more.

Included with this soil in mapping are small areas of silt loam, and a few small gently sloping areas in which the slopes are as much as 3 percent.

Reaction is medium acid to very strongly acid in the upper part of the subsoil and becomes neutral to mildly alkaline in the underlying material. Permeability is very slow, and the available water capacity is high. Runoff is slow, and the hazard of erosion is slight. This soil is difficult to work because it is plastic and sticky when wet and hard when dry. It shrinks and cracks when dry and swells when wet. Flooding occurs in winter and early in spring and occasionally during the growing season.

If a nitrogen fertilizer is applied, this soil is suited to commonly grown crops, grain sorghum, soybeans, small grain, and cotton. The native vegetation consists of mixed hardwoods, canes, and shrubs. Approximately 95 percent of the acreage is used for cultivated crops or pasture, and the rest is in hardwoods. If management is good, row crops can be grown year after year. (Capability unit IIIw–2; woodland suitability group 2w6)

Sharkey clay (Sc).—This is a level to nearly level, poorly drained soil. It has the profile described as representative for the series. Slopes are 1 percent or less.

Included with this soil in mapping are small areas in which slopes are as much as 3 percent. Also included are small areas of Forestdale soils and areas that have a silty clay loam surface.

Reaction is medium acid to very strongly acid in the upper part of the subsoil and becomes neutral or mildly alkaline in the underlying material. Permeability is very slow, runoff is slow, and the hazard of erosion is slight. The available water capacity is high. This soil is difficult to manage. Clay texture and wetness delay tillage operations early in spring. The soil is very plastic and sticky when wet. It shrinks and cracks when dry and swells when wet. Flooding sometimes occurs in winter and spring and, in some low areas, during the growing season.

If a nitrogen fertilizer is applied, this soil is suited to commonly grown crops, soybeans, small grain, and cotton. Drainage is needed if the soil is cultivated. The native vegetation consists of mixed hardwoods, canes, and shrubs. Approximately 95 percent of the acreage is used for cultivated crops or pasture. If water control measures are adequate, row crops can be grown year after year. Crop residue should be returned to the soil to improve tilth. (Capability unit IIIw–2; woodland suitability group 2w6)

Sharkey clay, depressional (Sd).—This is a poorly drained soil in depressions. These depressions are 75 to 225 feet wide and as much as 2 miles long. Slopes are 1 percent or less.

This soil has a surface layer of dark grayish-brown clay about 3 inches thick. The subsoil, about 40 to 50 inches thick, is gray clay that is mottled with shades of brown.

Reaction is very strongly acid in the upper part of the subsoil and neutral or mildly alkaline in the lower part. Permeability is very slow, and the available water capacity is high. Runoff is slow, and the hazard of erosion is slight. This soil is difficult to manage. It swells when wet, and shrinks and cracks when dry. The depressional position and clay texture delay cultivation early in spring because of wetness. Flooding occurs in winter, spring, and during the growing season.

This soil is suited to soybeans, oats, and pasture. Some hardwoods are also suited. The native vegetation consists of mixed hardwoods, canes, and shrubs. About 85 percent of the acreage is used for cultivated crops or pasture, and the rest is in hardwoods. A nitrogen fertilizer and adequate drainage that removes excess surface water are needed for row crops and pasture. Suitable crops can be grown year after year if adequate water control measures are used. Crop residue should be returned to the soil to improve tilth. V-shaped and W-shaped ditches with large drainage ditches for outlets are used. (Capability unit IVw–1; woodland suitability group 3w6)

Sharkey and Forestdale soils (Sf).—The soils in this unit are in large wooded areas in the western part of the county. Slopes range from 0 to 1 percent. The heavy forest cover and long periods of flooding in many areas made it impractical to map these soils separately. The areas range from 200 to 3,000 acres in size. Any given area may be all Sharkey soils; Sharkey and Forestdale soils; or Sharkey, Forestdale, and Dundee soils.

Two dominant soils make up about 90 percent of the unit. Sharkey soils make up about 60 percent and Forestdale soils about 30 percent. The remaining 10 percent consists of the somewhat poorly drained Dundee soil on higher ridges.

The poorly drained Sharkey soil is in nearly level areas and in depressions. It has a surface layer of dark grayish-brown clay about 4 inches thick. The subsoil is gray clay to a depth of 55 inches or more.

The Sharkey soil is very strongly acid in the upper part of the subsoil and becomes neutral to mildly alkaline at a depth of about 32 inches. Permeability is very slow, and the available water capacity is high. Runoff is slow. This soil is very plastic and sticky when wet. It shrinks and cracks when dry and swells when wet.

The poorly drained Forestdale soil generally is on narrow to moderately wide ridges. The surface layer is brown silty clay loam about 4 inches thick. The subsoil, to a depth of 32 inches, is light brownish-gray to gray silty clay. Below this is gray silty clay loam that is mottled with shades of brown.

The Forestdale soil is medium acid to very strongly acid, and the available water capacity is high to very high. Permeability is very slow, and runoff is slow.

Because they are wet for long periods, these soils are suited to wetland hardwoods. It is impractical to use these soils for crops without major reclamation to control flooding. (Capability unit Vw–1; Sharkey part in woodland suitability group 2w6; Forestdale part in woodland suitability group 1w6)

Tunica Series

The Tunica series consists of poorly drained soils that formed in clayey alluvium over loamy alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown silt loam about 7 inches thick. The subsoil to a depth of about 32 inches is dark-gray silty clay that is mottled with shades of brown. The underlying material is gray silty clay loam that is mottled with shades of brown to a depth of about 38 inches. The lowermost layer is gray silt loam to a depth of 55 inches or more.

Representative profile of Tunica silt loam in a cultivated field 3½ miles north of Holly Bluff, three-fourths mile west of Mississippi Highway 16, and one-fourth mile east of Sharkey County line, NW¼NW¼ sec. 22, T. 12 N., R. 5 W.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; few fine roots; medium acid; abrupt, smooth boundary.

B21g—7 to 28 inches, dark-gray (10YR 4/1) silty clay; few, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; neutral; clear, smooth boundary.

B22g—28 to 32 inches, dark-gray (10YR 4/1) silty clay; common, medium, distinct, light olive-brown (2.5Y 5/4) and yellowish-brown (10YR 5/4) mottles; moderate, medium, subangular blocky structure; firm; slightly acid; clear, smooth boundary.

IIC1g—32 to 38 inches, gray (10YR 5/1) silty clay loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; firm; neutral; clear, smooth boundary.

IIIC2g—38 to 55 inches, gray (10YR 5/1) silt loam; structureless; friable; neutral.

The Ap horizon is dark grayish brown or grayish brown. The B2g horizon is dark gray or gray and has few to common mottles in shades of brown. It is clay or silty clay. The Cg horizon is similar in color to the B2 horizon. It is silty clay loam or silt loam. Reaction ranges from medium acid to mildly alkaline throughout the profile.

Tunica soils are associated with Commerce, Dundee, Forestdale, and Sharkey soils. They are finer textured in the B horizon than Commerce and Dundee soils. They are less acid than Forestdale soils and lack the Bt horizon of Dundee and Forestdale soils. They have a loamy C horizon, which is lacking in Sharkey soils.

Tunica silt loam (Tu).—This is a nearly level, poorly drained soil. It has the profile described as representative for the series. Slopes are 0 to 2 percent.

Reaction is medium acid to mildly alkaline. Permeability is very slow in the upper part of the subsoil and moderately slow to moderate in the lower part. The available water capacity is high to very high. Runoff is slow, and the hazard of erosion is slight. Wetness delays cultivation early in spring. Flooding may occur in winter and early in spring, and occasionally during the growing season in low-lying areas. Drainage is needed to remove excess surface water.

This soil is suited to cotton, soybeans, small grain, corn, hay, and pasture. Under good management that includes drainage, applications of nitrogen, and use of crop residue on the surface, these soils can be used for row crops year after year. (Capability unit IIIw–2; woodland suitability group 2w6)

Vaiden Series, Calcareous Variant

The Vaiden series, calcareous variant, consists of somewhat poorly drained soils formed in the clayey material of the uplands. Slopes range from 5 to 25 percent. These soils differ from typical Vaiden soils by being calcareous throughout.

In a representative profile the surface layer is dark grayish-brown silt loam about 3 inches thick. The upper 7 inches of the subsoil is yellow silty clay that is mottled with shades of yellow and gray. The lower 11 inches is very pale brown clay that is mottled in shades of brown. The underlying material to a depth of 60 inches is light-gray clay that is mottled with yellowish brown.

Representative profile of a Vaiden soil, calcareous variant, in a vacant lot in Yazoo City, 510 feet east of Grady Avenue at Ninth Street, NE¼SE¼ sec. 28, T. 12 N., R. 2 W.

Ap—0 to 3 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium, subangular blocky structure; friable; neutral; abrupt, smooth boundary.

B2—3 to 10 inches, yellow (10YR 7/6) silty clay; few, medium, distinct, brownish-yellow (10YR 6/6) and light-gray (10YR 7/2) mottles; weak, medium, subangular blocky structure; firm; mixing with material from Ap horizon; few, fine, white concretions; mildly alkaline; calcareous; clear, smooth boundary.

B3—10 to 21 inches, very pale brown (10YR 7/3) clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; mildly alkaline; calcareous; clear, smooth boundary.

C1g—21 to 32 inches, light-gray (10YR 7/2) clay; few coarse, distinct, brownish-yellow (10YR 6/6) mottles; moderate, medium, subangular blocky structure; firm; common slickensides; few white splotches; moderately alkaline; calcareous; clear, smooth boundary.

C2g—32 to 38 inches, light-gray (2.5Y 7/2) clay; common, medium, distinct, brownish-yellow (10YR 6/6) mottles; moderate, medium, subangular blocky structure; firm; common slickensides; common white concretions; moderately alkaline; calcareous; clear, smooth, boundary.

C3g—38 to 45 inches, light-gray (10YR 7/1) clay; few, medium, distinct, yellowish-brown (10YR 5/4) and dark yellowish-brown (10YR 4/4) mottles; moderate, medium, angular and subangular blocky structure; firm; common white concretions; moderately alkaline; calcareous; clear, smooth boundary.

C4g—45 to 60 inches, mottled light-gray (10YR 7/1), brownish-yellow (10YR 6/6), and yellowish-brown (10YR 5/6) clay; moderate, medium, angular and subangular blocky structure; firm; common white concretions; moderately alkaline; calcareous.

The Ap horizon ranges from dark grayish brown to grayish brown or very dark grayish brown. It ranges from silt loam to silty clay. The B horizon is yellow, yellowish brown, or very pale brown and has few to common mottles in shades of gray and brown. It ranges from silty clay to clay. The Cg horizon is dominantly light gray or gray and has few to common mottles in shades of brown and yellow. Reaction is neutral to moderately alkaline.

Soils of the Vaiden series, calcareous variant, are near the bluff line and are associated with Memphis and Natchez soils. They are more poorly drained and more clayey than Memphis and Natchez soils.

Vaiden soils, calcareous variant, 5 to 25 percent slopes, severely eroded (VaE3).—These soils are near the bluff line, chiefly on the middle and lower part of the western slopes. Many shallow and common deep gullies occur throughout the complex. Calcareous variants of the Vaiden series occupy about 75 to 85 percent of mapped areas. Texture of the surface layer ranges from silt loam to silty clay. These soils shrink and crack when dry and swell when wet.

Included with this soil in mapping are small areas that have a silt cap 14 to 26 inches thick over gray clay. Also included are small areas of Memphis and Natchez soils.

Permeability is very slow. The available water capacity is high. Surface runoff is rapid, and the hazard of further

erosion is severe. This soil is neutral to moderately alkaline in reaction.

This soil generally is not suited to row crops but is fairly well suited to pasture. It is poorly suited to most trees except cedar and bois d'arc (Osage-orange). A cover of perennial plants is needed to reduce the speed of runoff and to help control further erosion. (Capability unit VIe-1; woodland suitability group 4c9)

Vicksburg Series

The Vicksburg series consists of well-drained soils on flood plains. These soils formed in loamy alluvium that is high in silt. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark-brown silt loam about 6 inches thick. The subsoil, to a depth of about 31 inches, is yellowish-brown silt loam that is mottled with pale brown in the lower part. Below this, to a depth of 55 inches or more, it is yellowish brown silt loam that is mottled with shades of gray and brown.

Representative profile of Vicksburg silt loam in a cultivated field 4 miles northwest of Midway, 3 miles south of the Holmes County line and 75 feet south of Techeva Creek, NW¼NW¼ sec. 5, T. 12 N., R. 1 E.

Ap—0 to 6 inches, dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; few fine roots; strongly acid; abrupt, smooth boundary.

B21—6 to 22 inches, yellowish-brown (10YR 5/4) silt loam; weak, medium, subangular blocky structure; friable; strongly acid; clear, smooth boundary.

B22—22 to 31 inches, yellowish-brown (10YR 5/4) silt loam; common, fine, distinct, pale-brown mottles; weak, fine and medium, subangular blocky structure; friable; strongly acid; gradual, smooth boundary.

B3—31 to 55 inches, yellowish-brown (10YR 5/4) silt loam; many, medium, distinct, light-gray (10YR 7/2) and pale-brown (10YR 6/3) mottles; weak, fine and medium, subangular blocky structure; friable; strongly acid.

The Ap horizon ranges from dark brown to grayish brown. The B horizon is yellowish brown, brown, or dark brown. Gray mottles are below a depth of 20 inches in places. Clay content of the soil ranges from 15 to 18 percent. Reaction is strongly acid to very strongly acid throughout the profile.

Vicksburg soils are associated with Adler, Falaya, Leverett, and Morganfield soils. They are browner and more acid than Adler soils, and lack the grayish mottles within 20 inches of the surface. They are better drained than Falaya soils. They lack the Bx horizon of the Leverett soils. They are more acid than Morganfield soils.

In this county the soils named for the series have a weaker structure in the B horizon than is within the defined range for the series. They also lack the bedding planes. These differences do not alter their use and management.

Vicksburg silt loam (Vc).—This is a well-drained soil on flood plains. Slopes are 0 to 2 percent.

Included with this soil in mapping are small areas of Morganfield and Leverett soils.

This soil is very strongly acid to strongly acid. Permeability is moderate. The available water capacity is high. Runoff and the hazard of erosion are slight. The soil has good tilth but will crust.

If good conservation practices are employed this soil can be used continuously for row crops. Leaving shredded crop residue on the surface as a mulch increases the rate of infiltration and helps to maintain tilth. Most of the acreage of this soil is cultivated or used for pasture. If fertilizers are used, this soil is suited to pasture and row crops. Cotton, soybeans, corn, small grain, and pasture plants are well suited to this soil. (Capability unit I–2; woodland suitability group 1o7)

Use and Management of the Soils

This section discusses general management of soils used for crops and pasture and gives facts about uses of the soils as woodland and for wildlife habitat. It also discusses uses of the soils for engineering purposes and for town and country planning.

General Management for Crops and Pasture [2]

This section discusses general practices of managing soils for crops and tame pasture and explains the system of capability classification used by the Soil Conservation Service. It also provides a table that shows estimated yields of principal crops and pasture plants under a high level of management.

Management practices that apply to most soils used for crops in Yazoo County are—

1. Use of such needed water-control measures as contouring, stripcropping, terraces, and grassed waterways on sloping soils, and adequate drainage of soils on bottom lands.
2. Proper use of lime and fertilizer.
3. Use of a conservation cropping system and proper use of crop residue to help control erosion, increase organic matter, improve soil tilth, increase the rate of water infiltration in the soil, and reduce soil crusting.
4. Use of such good tillage practices as varying depth of plowing, use of chisel plows, and minimum tillage to prevent formation of a plowpan.

The acreage in pasture and hay in the delta area of this county has decreased during the past 10 years. Pasture in the hill section is an important land use. Such perennial grasses as Coastal bermudagrass, common lespedeza, and bahiagrass are used for warm-season grazing and forage production. Tall fescue and such winter legumes as white clover, wild winter peas, and crimson clover are used for grazing in winter. Annual ryegrass, small grain, and millet provide special grazing for dairy cattle and for beef calves.

The principal pasture management practices are—

1. Use of adequate fertilizer and lime.
2. Use of a proper stocking rate to avoid overgrazing.
3. Rotation grazing for more efficient use of forage.
4. Use of grass-legume mixtures to improve the quality of forage.
5. Control of weeds to reduce competition for moisture and plant nutrients.

Capability grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The group does not take into

[2] HERMAN S. SAUCIER, conservation agronomist, Soil Conservation Service, helped to prepare this section.

account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forest trees or engineering.

In the capability system, the kinds of soil are grouped at three levels: the capability class, the subclass, and the unit. These are discussed in the following paragraphs.

Capability Classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

Capability Subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, 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* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c* used in only some parts of the United States but not in Yazoo County, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by *w*, *s*, and *c*, because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife habitat, or recreation.

Capability Units are soil groups within the subclasses. The soils in one capability unit are 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 for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe–4 or IIIe–2. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

In the following paragraphs, the eight capability classes, the subclasses used in the capability grouping, and the capability units represented in Yazoo County are described. Suggestions for the use and management of the soils are not given under the descriptions of the capability units but are given under the descriptions of the mapping units in the section "Descriptions of the Soils." Names of soils in each capability unit can be found by referring to the 'Guide to Mapping Units" at the back of this survey.

Class I soils have few limitations that restrict their use. (No subclasses.)

- Capability unit I–1.—Well drained and moderately well drained loamy soils that are high in content of silt and have slopes of 0 to 2 percent; on uplands.
- Capability unit I–2.—Well-drained loamy soils that are high in content of silt; crops on these soils are subject to little or no damage from flooding; on flood plains.
- Capability unit I–3.—Somewhat poorly drained and well-drained loamy soils that are high in content of silt; crops on these soils are subject to little or no damage from flooding; on old natural terraces.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

- Capability subclass IIe.—Soils subject to moderate erosion if they are not protected.
  - Capability unit IIe–1.—Well-drained and somewhat poorly drained loamy soils that are high in content of silt and have slopes of 2 to 5 percent; on old natural terraces.
  - Capability unit IIe–2.—Somewhat poorly drained loamy soils that are high in content of silt and have slopes of 2 to 5 percent; on old natural terraces.
  - Capability unit IIe–3.—Well drained and moderately well drained loamy soils that are high in content of silt and have slopes of 2 to 5 percent; on uplands.
  - Capability unit IIe–4.—Moderately well drained loamy soils that are high in content of silt, have a fragipan, and have slopes of 2 to 5 percent; on uplands.
- Capability subclass IIw.—Soils that have moderate limitations because of excess water.
  - Capability unit IIw–1.—Moderately well drained and somewhat poorly drained, dominantly loamy soils that are high in content of silt; crops on these soils are subject to moderate damage from flooding.
  - Capability unit IIw–2.—Somewhat poorly drained loamy soils that are high in content of silt and have slopes of 0 to 2 percent; on old natural terraces.
  - Capability unit IIw–3.—Moderately well drained and somewhat poorly drained loamy soils that are high in content of silt, have a fragipan, and have slopes of 0 to 2 percent; on old flood plains and in areas near stream flood plains.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

- Capability subclass IIIe.—Soils subject to severe erosion if they are cultivated and not protected.
  - Capability unit IIIe–1.—Well drained and moderately well drained loamy soils that are high in content of silt and have slopes of 5 to 8 percent; on uplands.
  - Capability unit IIIe–2.—Somewhat poorly drained loamy soils that are high in content of

silt, have a fragipan, and have slopes of 2 to 5 percent; on uplands.

Capability subclass IIIw.—Soils that have severe limitations because of excess water.

Capability unit IIIw–1.—Somewhat poorly drained and poorly drained loamy soils that are high in content of silt and have slopes of 0 to 5 percent.

Capability unit IIIw-2.—Poorly drained soils that have a clayey subsoil; crops on these soils are subject to moderate to severe damage from flooding.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Capability subclass IVe.—Soils subject to severe erosion if they are cultivated and not protected.

Capability unit IVe–1.—Moderately well drained loamy soils that are high in content of silt and have slopes of 8 to 12 percent; on uplands.

Capability subclass IVw.—Soils that have very severe limitations for cultivation because of excess water.

Capability unit IVw–1.—Poorly drained clayey soils in depressions; crops on these soils are subject to very severe damage from flooding.

Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, woodland, or wildlife habitat.

Capability subclass Vw.—Soils that have limitations that restrict the kind of plants that can be grown and that prevent normal tillage of cultivated crops; frequently overflowed by streams.

Capability unit Vw–1.—Poorly drained to well-drained soils subject to frequent overflow and used dominantly as woodland.

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, woodland, or wildlife habitat.

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

Capability unit VIe–1.—Somewhat poorly drained soils that have a clayey subsoil and have slopes of 5 to 25 percent; on uplands.

Capability unit VIe–2.—Well-drained loamy soils that are high in content of silt and have slopes of 12 to 30 percent; on uplands.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture, woodland, or wildlife habitat.

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

Capability unit VIIe–1.—Well-drained loamy soils that are high in content of silt and are so severely eroded that the areas are mostly an intricate pattern of gullies.

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, water supply, or esthetic purposes. (None in Yazoo County.)

Estimated yields

Table 2 gives estimated yields of commonly grown crops under a high level of management on unirrigated soils. High level management consists of applying fertilizer and lime according to the results of soil tests; tilling properly and using crop residue; planting recommended varieties of crops; using a suitable cropping system; and applying other practices that conserve the soil and increase crop production. The practices needed vary for different soils, but if the preceding general practices are followed, and the management suggested in the section "Descriptions of the Soils" is applied, the yields in table 2 can be expected.

Estimated yields are based on estimates by agronomists, soil scientists, and others who have had much experience with crops and soils of this county. Data on yields obtained in experiments were adjusted to reflect the combined influence of slope and management. If such data were not available, estimates were made using available information for similar soils.

Estimates are not given for those soils that are not suited to a specific crop. They are also not given for crops not commonly grown in the county or for crops grown only on a small acreage.

Use of the Soils for Woodland [3]

This section contains interpretations of the soils for use and management of woodland. These interpretations provide information about the establishment, growth, management, and harvesting of wood crops from the soils of Yazoo County.

Foresters and soil scientists gathered information from soil-woodland studies and recorded the measurements by soil taxonomic units. Where woodland was not available, estimates of productivity were obtained from observing trees growing on a similar soil.

Each soil taxonomic unit was rated as to species, potential productivity, potential erosion hazard, equipment limitations and seedling mortality. Where two or more soil taxonomic units have similar ratings, they were combined to form a woodland suitability group.

Woodland suitability groups

To assist owners in planning the management of their woodland, the soils of Yazoo County have been placed in woodland suitability groups. Each group is made up of soils that have about the same suitability for wood crops, that require about the same management, and that have about the same potential productivity. The "Guide to Mapping Units" at the back of this survey shows the woodland suitability group for each mapping unit in the county. Gullied land-Memphis complex, 5 to 30 percent slopes, is not in a woodland suitability group because the soil materials are extremely variable.

Woodland suitability groups are designated or identified by symbols consisting of two Arabic numerals and one lowercase letter, as follows:

[3] ROBERT GRIGSBY, woodland conservationist, Soil Conservation Service, assisted in writing this section.

TABLE 2.—*Estimated average yields per acre of the principal crops under a high level of management*

[Absence of yield indicates crop is not commonly grown on the soil or that data were not available for an estimate]

Soil	Cotton (lint)	Corn	Soybeans	Oats	Wheat	Pasture			Hay	
						Common bermudagrass	Fescue or fescue and legume	Coastal bermudagrass	Common bermudagrass	Lespedeza
	Lb.	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*A.U.M.*[1]	*A.U.M.*[1]	*A.U.M.*[1]	*Tons*	*Tons*
Adler silt loam	775	90	35	75	50	9.0	10.0	12.2	5.0	2.0
Adler silt loam, clayey subsoil variant	765	85	35	70	50	9.0	10.0	12.1	5.0	2.0
Bruno-Morganfield complex						5.0		5.5	2.0	
Calhoun silt loam	425	45	25	50	30	6.0	6.0		2.5	
Calloway silt loam, 0 to 2 percent slopes	550	75	30	50	30	6.0	8.0	9.0	3.2	1.8
Calloway silt loam, 2 to 5 percent slopes	550	75	30	55	30	6.0	8.0	9.2	3.2	1.8
Commerce silt loam	800	95	35	60	50	8.1	10.0	10.5	4.5	1.8
Dubbs silt loam, 0 to 2 percent slopes	875	90	35	60	40	9.0	10.0	10.0	5.0	2.0
Dubbs silt loam, 2 to 5 percent slopes	775	80	35	55	40	9.0	9.5	9.8	5.0	1.8
Dundee silt loam, 0 to 2 percent slopes	750	88	35	55	37	9.0	10.0	10.0	5.0	2.0
Dundee silt loam, 2 to 5 percent slopes	725	80	30	55	37	9.6	9.5	9.7	5.0	1.8
Dundee silty clay loam, 0 to 2 percent slopes	650	60	30	55	35	9.4	9.3	9.0	5.0	1.8
Dundee silty clay loam, 2 to 5 percent slopes	625	50	25	55	35	9.0	9.2	9.0	5.0	1.8
Falaya silt loam	650	90	40	55	30	7.1	9.0	10.0	3.5	2.0
Falaya-Vicksburg-Leverett association										
Forestdale silt loam	600	55	30	55	35	8.0	9.5	8.5	4.5	1.5
Forestdale silty clay loam	550	50	35	50	35	7.5	9.0	8.0	4.5	1.2
Grenada silt loam, 0 to 2 percent slopes	600	85	35	65	35	7.5	8.0	9.5	3.0	1.8
Grenada silt loam, 2 to 5 percent slopes, eroded	600	80	35	60	30	7.0	7.5	9.0	3.0	1.7
Gullied land-Memphis complex, 5 to 30 percent slopes										
Leverett silt loam	800	85	40	75	35	7.5	9.0	11.5	4.5	2.0
Loring silt loam, 0 to 2 percent slopes	750	85	35	70	40	8.0	8.3	10.0	4.0	2.0
Loring silt loam, 2 to 5 percent slopes, eroded	735	80	32	70	35	7.8	8.0	9.6	4.0	2.0
Loring silt loam, 5 to 8 percent slopes, eroded	650	75	30	67	30	7.2	7.6	9.0	4.0	2.0
Loring silt loam, 8 to 12 percent slopes, eroded	550	60	25	60	30	7.0	7.1	8.5	3.5	1.5
Memphis silt loam, 0 to 2 percent slopes	775	95	35	75	40	6.1	8.0	9.5	4.1	2.0
Memphis silt loam, 2 to 5 percent slopes, eroded	750	90	32	72	38	5.8	7.8	9.2	4.0	2.0
Memphis silt loam, 5 to 8 percent slopes, eroded	675	80	28	70	35	5.6	7.2	9.0	4.0	2.0
Memphis-Natchez association, hilly										
Morganfield silt loam	950	120	45	75	38	9.5	11.5	12.0	5.0	2.0
Sharkey silty clay loam	550		35	50	32	7.0	9.0	8.1	3.5	1.5
Sharkey clay	500		35	45	30	7.0	8.5	8.1	3.5	1.5
Sharkey clay, depressional			30	30			7.5			
Sharkey and Forestdale soils										
Tunica silt loam	600	50	40	55	30	7.0	8.5	9.5	3.5	1.5
Vaiden soils, calcareous variant, 5 to 25 percent slopes, severely eroded										
Vicksburg silt loam	800	115	40	75	40	9.5	10.0	12.0	5.0	2.0

[1] Animal-unit-months is the number of months in 1 year that 1 acre will provide grazing for 1 cow, steer, or horse; 5 hogs; or 7 sheep or goats without damage to the pasture.

The first part of the symbol is an Arabic numeral that indicates the woodland suitability class. It expresses site quality by use of numerals ranging from 1 to 3. Class 1 soils have the highest productivity, followed by classes 2 and 3. This classification is based on the average site index of one or more indicator forest types or tree species.

The second part of the symbol is a lowercase letter that indicates the suitability subclass. It refers to soil properties that cause moderate to severe hazards or limitations in woodland use or management, as follows:

Subclass w (excessive wetness). The soils are wet either seasonally or the year around, and this causes significant limitations for woodland use or management. Wetness is caused by restricted drainage, high water table, or the hazard of overflow to a degree that affects either development or management of the stand.

Subclass d (restricted rooting depth). The soils are shallow to hard rock, a hardpan, or other layers that interfere with root growth.

Subclass c (clayey soils). The soils have clay in the upper part of the profile that interferes with woodland use and management.

Subclass s (sandy soils). The soils have little or no subsoil, and they have moderate to severe restrictions or limitations to woodland use and management. Such soils are low in available plant nutrients, are low in available water capacity, and impose limitations on the use of equipment.

Subclass r (steep or sloping soils). Restrictions or limitations are caused only by slope or steepness.

Subclass o (slight limitations or none). These are soils that have no significant restrictions or limitations to woodland use or management.

The third part of the symbol is an Arabic numeral that indicates the degree of hazards or limitations that affect management and the general kind of trees to which the soils are suited. The hazards or limitations referred to here are erosion, equipment restrictions, and seedling mortality. Numerals in this position have the following meanings:

The numeral 1 means that the soils have no limitations or only slight limitations that affect management and that they are better suited to needleleaf trees.

The numeral 2 means that the soils have one or more moderate limitations that affect management and that they are better suited to needleleaf trees.

The numeral 3 means that the soils have one or more severe limitations that affect management and that they are better suited to needleleaf trees.

The numeral 4 means that the soils have no limitations or only slight limitations that affect management and that they are better to broadleaf trees.

The numeral 5 means that the soils have one or more moderate limitations that affect management and that they are better suited to broadleaf trees.

The numeral 6 means that the soils have one or more severe limitations that affect management and that they are better suited to broadleaf trees.

The numeral 7 means that the soils have no limitations or only slight limitations that affect management and that they are better suited to either needleleaf or broadleaf trees.

The numeral 8 means that the soils have one or more moderate limitations that affect management and that they are better suited to either needleleaf or broadleaf trees.

The numeral 9 means that the soils have one or more severe limitations that affect management and that they are better suited to either needleleaf or broadleaf trees.

Table 3 describes each woodland suitability group according to the kinds of soils in the group, the potential productivity (site index), and the management hazards. The column heads are explained in the following paragraphs.

Potential soil productivity refers to the capability of the soil to produce wood crops. The best indicator of soil productivity is the height to which the tallest trees will grow in a stated number of years. The height in feet at a given age is called site index. A grouping of site indexes is called site class. For all species of trees growing in Yazoo County, except cottonwood and sycamore, the site index is based on the average height in feet of the dominant and codominant trees at the age of 50 years. For cottonwood the site index is measured at the age of 30 years, and for sycamore at the age of 35 years. Site indexes were determined from soil-woodland correlated studies and published research on tree growth.

The soils in each woodland suitability group are subject to soil-related hazards or have limitations that affect management. These hazards or limitations are rated as slight, moderate, or severe. Explanations of these ratings are given in the following paragraphs.

Erosion hazard refers to the potential hazard of soil losses in well-managed woodland. The hazard is slight if expected soil losses are small. It is moderate if some soil losses are expected and care is needed during logging and construction to reduce soil losses. It is severe if special methods of operation are necessary for preventing excessive soil losses.

Restrictions on the use of equipment is rated on the basis of soil characteristics that restrict or prohibit the use of equipment commonly used in tending and harvesting the trees. Slight means there is no restriction in the kind of equipment or in the time of year it is used; moderate means that use of equipment is restricted for less than 3 months of the year; and severe means that special equipment is needed and its use is restricted for more than 3 months of the year.

Seedling mortality refers to the expected degree of mortality of planted seedlings as influenced by kinds of soil when plant competition is not a limiting factor. A rating of slight indicates an expected loss of less than 25 percent of the planted seedlings; moderate indicates an expected loss of 25 to 50 percent of the seedlings; and severe indicates an expected loss of more than 50 percent. Special preparation of the site is needed before planting for soils rated severe and for most soils rated moderate.

Use of the Soils for Wildlife [4]

Wildlife is related to soils through an indirect relationship with plants. Wildlife species are associated with given types of plant communities, which, in turn, are directly related to particular kind of soils. The use of this three-way relationship determines soil interpretations for wildlife.

Many different types of plants that provide food, cover, and protection for many wildlife species are produced on the soils of Yazoo County. The use of a tract of land and its suitability determine the types and amounts of food and cover plants that are available for wildlife, and this in turn affects the presence and abundance of a given kind of wildlife.

Wildlife areas

Yazoo County has three well-defined geographic areas that have an effect on the population of wildlife. These areas are described as follows: The western third of the county is occupied by soil associations 1, 2, 3, and 4 in which the soils formed in Mississippi River alluvium. Because

[4] RAMON L. CALLAHAN, biologist, Soil Conservation Service, assisted in writing this section.

TABLE 3.—*Potential productivity and management hazards by woodland suitability groups of soils*

An asterisk in the first column indicates that at least one mapping unit in this group is made up of two or more kinds of soil, which may have different properties and productivity. For this reason the reader should follow carefully the instructions for referring to another group in this column]

Woodland suitability group and description of soils	Potential soil productivity		Erosion hazard	Restriction on use of equipment	Seedling mortality	Species suitable for planting
	Preferred woodland species	Site index				
Group 1o4: Well drained and moderately well drained soils on flood plains; moderate permeability; high to very high available water capacity. Ad, Ae, Mo.	Green ash Cottonwood Cherrybark oak Nuttall oak Sweetgum	90 110 110 100 110	Slight	Slight	Slight	Black walnut, cottonwood, pecan, sycamore.
Group 1o7: Well-drained soils on flood plains; moderate permeability; very high available water capacity. Vc.	Green ash Cottonwood Cherrybark oak Nuttall oak Willow oak Loblolly pine Sweetgum	90 105 100 95 100 89 98	Slight	Slight	Slight	Green ash, cottonwood, cherrybark oak, Nuttall oak, Shumard oak, swamp chestnut oak, loblolly pine, sweetgum, American sycamore, yellow-poplar.
Group 1s5: Excessively drained soils on flood plains; moderate to rapid permeability; low available water capacity. Bm.	Cottonwood Cherrybark oak Water oak Willow oak Sweetgum	105 116 105 88 113	Slight	Moderate	Moderate	Cottonwood, cherrybark oak, Shumard oak, swamp chestnut oak, water oak, willow oak, sweetgum, American sycamore, yellow-poplar.
Group 1w5: Somewhat poorly drained soils on lower part of natural levees; moderately slow permeability; very high available water capacity. Co.	Green ash Cottonwood Nuttall oak Water oak	80 119 90 109	Slight	Moderate	Slight	Green ash, cottonwood, Nuttall oak, water oak, sycamore.
Group 1w6: Poorly drained soils formed in loamy and clayey Mississippi River alluvium; very slow permeability in upper part of subsoil, slow permeability in lower part; high to very high available water capacity. Fo, Fr.	Cottonwood Cherrybark oak Nuttall oak Water oak Willow oak Sweetgum	100 94 99 90 94 100	Slight	Severe	Moderate.	Cottonwood, charrybark oak, Nuttall oak, willow oak, sycamore, sweetgum.
Group 1w8: Somewhat poorly drained soils on flood plains; moderate permeability; very high available water capacity. *Fa, Fc. For Leverett part of Fc, see group 3o7; for Vicksburg part of Fc, see group 1o7.	Green ash Cottonwood Cherrybark oak Nuttall oak Water oak Willow oak Loblolly pine	92 110 102 109 102 99 96	Slight	Moderate.	Slight	Green ash, cottonwood, cherrybark oak, Nuttall oak, swamp chestnut oak, water oak, willow oak, sweetgum, American sycamore, yellow-poplar.
Group 2o4: Well-drained soils on old natural levees; moderate permeability; very high available water capacity. DbA, DbB.	Cottonwood Cherrybark oak Nuttall oak Water oak Sweetgum	100 95 90 90 95	Slight	Slight	Slight	Cottonwood, sweetgum, sycamore, yellow-poplar.
Group 2o7: Well-drained soils on uplands; moderate permeability; very high available water capacity. MeA, MeB2, MeC2.	Cherrybark oak Water oak Willow oak Loblolly pine Shortleaf pine Sweetgum Black walnut Yellow-poplar	100 90 90 87 75 90 87 103	Slight	Slight	Slight	Cherrybark oak, Shumard oak, southern red oak, white oak, willow oak, loblolly pine, shortleaf pine, sweetgum, black walnut.

TABLE 3.—*Potential productivity and management hazards by woodland suitability groups of soils*—Continued

Woodland suitability group and description of soils	Potential soil productivity		Erosion hazard	Restriction on use of equipment	Seedling mortality	Species suitable for planting
	Preferred woodland species	Site index				
Group 2r8: Well-drained soils on uplands; moderate to moderately rapid permeability; very high available water capacity. MnE.	Cottonwood Loblolly pine Sweetgum	108 90 105	Moderate	Moderate	Slight	Loblolly pine, yellow-poplar.
Group 2w5: Somewhat poorly drained soils on natural levees; moderately slow permeability in upper part of subsoil, moderate permeability in lower part; very high available water capacity. DnA, DnB, DuA, DuB.	Cottonwood Cherrybark oak Nuttall oak Water oak Willow oak Sweetgum	100 103 94 94 100 98	Slight	Moderate	Slight	Green ash, cottonwood, cherrybark oak, Nuttall oak, Shumard oak, water oak, willow oak, sweetgum, sycamore, yellow-poplar.
Group 2w6: Poorly drained soils on level and nearly level areas; very slow permeability; high to very high available water capacity. *Sa, Sc, Sf, Tu. For Forestdale part of Sf, see group 1w6.	Green ash Cottonwood Cherrybark oak Nuttall oak Water oak Willow oak Sweetgum	85 100 90 90 92 88 91	Slight	Severe	Moderate.	Cottonwood, cherrybark oak, Nuttall oak, Shumard oak, water oak, sweetgum, sycamore, pecan.
Group 2w8: Somewhat poorly drained soils that have a fragipan; moderate permeability in upper part of subsoil; slow permeability within fragipan; medium available water capacity. ClA, ClB.	Green ash or white ash. Cherrybark oak Water oak Loblolly pine Shortleaf pine Sweetgum	68 78 82 95 85 86	Slight	Moderate.	Slight	Green ash or white ash, cherrybark oak, Nuttall oak, Shumard oak, water oak, willow oak, loblolly pine, sweetgum, yellow-poplar.
Group 3o7: Moderately well drained soils that have a fragipan; moderate permeability above fragipan; moderately slow to slow permeability within fragipan; medium to high available water capacity. GrA, GrB2, Le, LoA, LoB2, LoC2, LoD2.	Loblolly pine Shortleaf pine Sweetgum	84 77 78	Slight	Slight	Slight	Loblolly pine, shortleaf pine, sweetgum.
Group 3w6: Poorly drained soil in depressional areas subject to overflow; very slow permeability; high available water capacity. Sd.	Green ash Cottonwood Cherrybark oak Water oak Willow oak Sweetgum	70 90 80 80 80 80	Slight	Severe	Severe	Green ash, baldcypress, cottonwood, Nuttall oak, sweetgum.
Group 3w9: Poorly drained soils; slow permeability; very high available water capacity. Ca.	Loblolly pine	80	Slight	Severe	Moderate in most places. Severe in depressions.	Cherrybark oak, loblolly pine, sweetgum.
Group 4c9: Somewhat poorly drained, calcareous, upland soils; very slow permeability; medium available water capacity. VaE3.	Eastern redcedar	45	Moderate.	Moderate.	Moderate to severe.	Eastern redcedar, Osage-orange.

terrain and soil characteristics are suitable, this area is farmed intensively with row crops. It has a history of high carrying capacity for all kinds of native wildlife. Modern farming practices have altered this carrying capacity drastically. The soils in this part of Yazoo County are well suited to plant associations that produce high populations of native game and fish.

The middle third of the county consists of soil association 5. Because the soils are steep, the association is practically all in woodland. Hardwood species predominate. Soil association 5 generally is suited to a variety of wildlife food and cover plants. Woodland wildlife populations are moderately high in this area.

In the eastern third of the county, land use forms a mixed pattern of cropland and woodland. Soil associations 6 and 7 are in this part of the county. Fields are smaller than those in the western part, and more wildlife cover is available. This area supports good populations of dove, rabbit, and quail, and in some areas the population of deer is large. In the wooded tracts, squirrels are abundant. The soils generally are suited to the production of food and cover plants for wildlife.

Yazoo County has many nongame species of wildlife. Furbearers are abundant along the three major rivers and their tributaries. Songbirds are abundant in all parts of the county.

The potential for game fish in this county is excellent. There are 3,000 ponds as large as 5 acres (fig. 8), 497 ponds of 5 to 20 acres, and 126 lakes of more than 20 acres in area. Gunfish, bass, and catfish are the major game fish in the lakes. Many of the existing waters need restocking. For almost all of them, fertilizer or lime or both is needed to increase the production of fish.

In addition to the lakes and ponds there are many miles of river fishing along the Big Black, Sunflower, and Yazoo Rivers.

Habitat requirements

Table 4 rates the suitability of all soils mapped in the county for seven elements of wildlife habitat and for three kinds of wildlife. The elements are described as follows:

Grasses and legumes are plants that furnish food and cover for wildlife. The rating reflects the suitability of the soils to produce various grasses and legumes. Examples are tall fescue, clover, shrub lespedeza, annual lespedeza, soybeans, ryegrass, lovegrass, and kudzu.

Grain and seed crops are primarily agricultural crops that provide food for wildlife. The rating reflects the suitability of the soil, under good management, to produce crops. Examples are corn, dove proso millet, browntop-millet, wheat, and oats.

Wild herbaceous plants are native or introduced perennial plants that furnish food and cover to game species. The rating reflects the suitability of the soil to grow these plants under natural conditions using little or no management. Examples are pokeweed, tickclover, ragweed, and doveweed.

Wetland food and cover plants are wild herbaceous plants and trees primarily associated with wet areas. Examples are rushes, sedges, smartweed, cattails, water tupelo, swamp tupelo, baldcypress, and Carolina ash. The rating reflects the suitability of the soil to produce these plants under natural conditions.

Hardwood trees and shrubs are trees and shrubs, including vines, that produce fruit, buds, nuts, and foliage used by wildlife for both food and cover. Examples are oaks, hickory, grapes, autumn olive, pyracantha, dogwood, poplar, and multiflora rose. The rating is for the suitability of the soil to grow plants of this type. Management is not reflected in the rating, although it may be needed and applied .

Needleleaf trees are primarily pines. Cover is the main benefit provided to wildlife by these, although pine seeds are used as food to some extent. The rating reflects the suitability of the soil to produce these plants under natural conditions.

Shallow water development refers to the suitability of the soil for the development of shallow ponds or flooded areas. In most cases, a great deal of management is required to create or improve this habitat component. This component deviates somewhat from the direct relationship of soils to plants to wildlife. It is listed because it is of primary importance to many kinds of wildlife.

The different kinds of wildlife to be expected or to manage for on a given soil are defined as follows:

Open-land wildlife consists of birds and mammals generally associated with forest edges or open areas. Typical examples are mourning doves, quail, red fox, cottontail rabbit, and many kinds of songbirds Areas of open-land are also important to woodland wildlife, and this interrelationship should be considered when planning a management program of any kind.

Woodland wildlife frequent mainly areas of woodland. Examples are deer, swamp rabbit, bobcat, and squirrel.

Wetland wildlife consists of birds and mammals that live mainly in swamps, marshes, or ponds. Examples are muskrat, mink, raccoon, redwing blackbird, and duck.

The soils are rated at four levels of suitability for the creation, maintenance, or improvement of seven habitat components. Ratings used are well suited, suited, poorly suited, and unsuited, depending on the severity of limitations of a given soil. Soil properties such as depth, drainage, and slope were considered when making these ratings. The ratings are explained in the following paragraphs.

Well suited means that the plant associations that make up favorable wildlife habitat are easily created, improved, and maintained by either native or planted vegetation,

Figure 8.—**Farm pond that is used for fishing and that provides water for livestock. The soil is Memphis silt loam, 5 to 8 percent slopes, eroded, which is in capability unit IIIe-1.**

TABLE 4.—*Suitability of soils for*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil, which may this

Soil series and map symbols	Elements of wildlife habitat			
	Grasses and legumes	Grain and seed crops	Wild herbaceous plants	Wetland food and cover plants
Adler: Ad	Well suited	Well suited	Well suited	Poorly suited
Adler, clayey subsoil variant: Ae	Well suited	Well suited	Well suited	Poorly suited
*Bruno: Bm For Morganfield part, see Morganfield series.	Poorly suited	Poorly suited	Poorly suited	Unsuited
Calhoun: Ca	Suited	Poorly suited	Suited	Suited
Calloway:				
ClA	Suited	Suited	Well suited	Suited
ClB	Suited	Suited	Well suited	Poorly suited
Commerce: Co	Well suited	Well suited	Well suited	Suited
Dubbs:				
DbA	Well suited	Well suited	Well suited	Poorly suited
DbB	Well suited	Well suited	Well suited	Unsuited
Dundee:				
DnA, DuA	Well suited	Well suited	Well suited	Suited
DnB, DuB	Well suited	Well suited	Well suited	Poorly suited
*Falaya: Fa, Fc For Vicksburg part of Fc, see Vicksburg series; for Leverett part of Fc, see Leverett series.	Well suited	Well suited	Well suited	Suited
Forestdale: Fo, Fr	Suited	Suited	Well suited	Well suited
Grenada: GrA, GrB2	Suited	Suited	Well suited	Poorly suited
*Gullied land: GuE. Properties too variable to rate. For Memphis part, see Memphis series.				
Leverett: Le	Well suited	Well suited	Well suited	Poorly suited
Loring:				
LoA, LoB2	Well suited	Well suited	Well suited	Poorly suited
LoC2, LoD2	Suited	Suited	Well suited	Unsuited
Memphis:				
MeA	Well suited	Well suited	Well suited	Unsuited
MeB2, MeC2	Well suited	Well suited	Well suited	Unsuited
MnE	Well suited	Unsuited	Well suited	Unsuited
Morganfield: Mo	Well suited	Well suited	Well suited	Poorly suited
Natchez: Mapped only with Memphis soils as part of MnE.				
*Sharkey:				
Sa, Sc, Sf	Suited	Suited	Suited	Well suited
Sd For Forestdale part of Sf, see Forestdale series.	Poorly suited	Poorly suited	Poorly suited	Well suited
Tunica: Tu	Suited	Suited	Well suited	Well suited
Vaiden, calcareous variant: VaE3	Suited	Poorly suited	Poorly suited	Unsuited
Vicksburg: Vc	Well suited	Well suited	Well suited	Poorly suited

wildlife habitat and kinds of wildlife

have different suitabilities for wildlife. For this reason the reader should follow carefully the instructions for referring to other series in column]

Elements of wildlife habitat—Continued			Kinds of wildlife		
Hardwood trees and shrubs	Needleleaf trees	Shallow water development	Open-land	Woodland	Wetland
Well suited	Poorly suited	Suited	Well suited	Well suited	Poorly suited.
Well suited	Poorly suited	Well suited	Well suited	Well suited	Poorly suited.
Well suited	Poorly suited	Unsuited	Poorly suited	Well suited	Unsuited.
Suited	Suited	Well suited	Suited	Suited	Suited.
Suited	Suited	Well suited	Suited	Suited	Suited.
Suited	Suited	Suited	Suited	Suited	Poorly suited.
Well suited	Poorly suited	Well suited	Well suited	Well suited	Suited.
Well suited	Suited	Poorly suited	Well suited	Well suited	Poorly suited.
Well suited	Suited	Poorly suited	Well suited	Well suited	Unsuited.
Well suited	Suited	Suited	Well suited	Well suited	Suited.
Well suited	Suited	Suited	Well suited	Well suited	Poorly suited.
Well suited	Well suited	Well suited	Well suited	Well suited	Suited.
Well suited	Suited	Well suited	Suited	Well suited	Well suited.
Well suited	Suited	Suited	Suited	Well suited	Poorly suited.
Well suited	Suited	Suited	Well suited	Well suited	Poorly suited.
Well suited	Suited	Poorly suited	Well suited	Well suited	Poorly suited.
Well suited	Suited	Unsuited	Suited	Well suited	Unsuited.
Well suited	Well suited	Poorly suited	Well suited	Well suited	Unsuited.
Well suited	Well suited	Unsuited	Well suited	Well suited	Unsuited.
Well suited	Suited	Unsuited	Suited	Well suited	Unsuited.
Well suited	Poorly suited	Well suited	Well suited	Well suited	Poorly suited.
Well suited	Poorly suited	Well suited	Suited	Well suited	Well suited.
Suited	Poorly suited	Well suited	Poorly suited	Suited	Suited.
Well suited	Poorly suited	Well suited	Suited	Well suited	Well suited.
Poorly suited	Poorly suited	Unsuited	Poorly suited	Unsuited	Unsuited.
Well suited	Well suited	Suited	Well suited	Well suited	Poorly suited.

that there are few or no limitations, and that satisfactory results can be expected.

Suited means that good wildlife habitat can be created, improved, and maintained in most places, that there may be moderate limitations, and that frequent attention may be necessary for good results.

Poorly suited indicates that wildlife habitat can be created and maintained in some places, that there may be severe limitations generally, that maintenance and management could be expensive, and that results may be unpredictable.

Unsuited means that it is generally impractical to create or maintain wildlife habitat that will produce satisfactory results.

Engineering Uses of the Soils [5]

This section is useful to those who need information about soils used as structural material or as foundation upon which structures are built. Among those who can benefit from this section are planning commissions, town and city managers, land developers, engineers, contractors, and farmers.

Among properties of soils highly important in engineering are permeability, strength, compaction characteristics, soil drainage condition, shrink-swell potential, grain size, plasticity, and soil reaction. Also important are depth to the water table, depth to bedrock, and soil slope. These properties, in various degrees and combinations, affect construction and maintenance of roads, airports, pipelines, foundations for small buildings, irrigation systems, ponds and small dams, and systems for disposal of sewage and refuse.

Information in this section of the soil survey can be helpful to those who—

1. Select potential residential, industrial, commercial, and recreational areas.
2. Evaluate alternate routes for roads, highways, pipelines, and underground cables.
3. Seek sources of gravel, sand, or clay.
4. Plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for controlling water and conserving soil.
5. Correlate performance of structures already built with properties of the kinds of soil on which they are built, for the purpose of predicting performance of structures on the same or similar kinds of soil in other locations.
6. Predict the trafficability of soils for cross-country movement of vehicles and construction equipment.
7. Develop preliminary estimates pertinent to construction in a particular area.

Most of the information in this section is presented in tables. Table 5 shows several estimated soil properties significant to engineering, and table 6 shows interpretations for various engineering uses. No Bureau of Public Roads test data on representative soils of Yazoo County are presented, but such data for similar soils have been published in soil surveys for adjoining counties.

The information in tables 5 and 6, together with the soil map and other parts of this publication, can be used to make other useful interpretations in addition to those given, and it also can be used to make other useful maps.

This information, however, does not eliminate need for further investigations at sites selected for engineering works, especially works that involve heavy loads or that require excavations to depths greater than those shown in the tables, generally depths greater than 6 feet. Also, inspection of some sites, especially the small ones, is needed because many delineated areas of a given soil mapping unit may contain small areas of other kinds of soil that have strongly contrasting properties and different suitabilities or limitations for soil engineering.

Some of the terms used in this soil survey have special meaning to soil scientists that is not known to all engineers. The Glossary defines many of these terms commonly used in soil science.

Engineering classification systems

The two systems most commonly used in classifying samples of soils for engineering are the Unified system (*7*) used by the SCS engineers, Department of Defense, and others, and the AASHO system (*1*) adopted by the American Association of State Highway Officials.

In the Unified system, soils are classified according to particle-size distribution, plasticity, liquid limit, and organic matter. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes are designated by symbols for both classes; for example, ML–CL.

The AASHO system is used to classify soils according to those properties that affect use in highway construction and maintenance. In this system, a soil is placed in one of seven basic groups ranging from A–1 through A–7 on the basis of grain-size distribution, liquid limit, and plasticity index. In group A–1 are gravelly soils of high bearing strength, or the best soils for subgrade (foundation). At the other extreme, in group A–7, are clay soils that have low strength when wet and that are the poorest soils for subgrade. Where laboratory data are available to justify a further breakdown, the A–1, A–2, and A–7 groups are divided as follows: A–1–a, A–1–b, A–2–4, A–2–5, A–2–6, A–2–7, A–7–5, and A–7–6. As additional refinement, the engineering value of a soil material can be indicated by a group index number. Group indexes range from 0 for the best material to 20 or more for the poorest. Both the estimated Unified and the estimated AASHO classifications are given in table 5 for all the soils mapped in Yazoo County.

Estimated soil properties

Table 5 gives the estimated engineering classification and some of the estimated properties of the soils in Yazoo County. In some soils a range is given for both the AASHO and the Unified systems because each soil has a defined range of properties. Depth to bedrock is not shown in table 5, because bedrock is generally at a depth well beyond the depth to which most of the soils were checked in field mapping.

In the column headed "Percentage passing sieve," estimates are given for the percentage of soil material passing the different sieve sizes.

[5] JOEL G. PAYNE, agricultural engineer, helped prepare this section.

Permeability in table 5 relates only to the movement of water downward through an undisturbed and uncompacted soil. It does not include lateral seepage. The estimates are based on structure and porosity of the soil. Plowpans, surface crusts, and other properties resulting from the use of the soils are not considered. Permeability ought to be considered when selecting soil material to be used for fill. To a large degree, permeability determines the effectiveness of open ditches and tile drains for removing excess water and the effectiveness of septic tank fields for disposing of effluent. It is also important where irrigation is planned.

Available water capacity is expressed in table 5 in inches per inch of soil depth. It is the amount of water available to plants when the soil is wet to field capacity and all free water has drained away.

In the column headed "Reaction," the degree of acidity or alkalinity is expressed in pH values. The pH of a neutral soil is 7.0, and that of an acid soil is less than 7.0. The pH of an alkaline soil is more than 7.0.

The rating for shrink-swell potential indicates how much a soil changes in volume as its moisture content changes. This rating is based on tests for volume change that were made on similar soils in adjacent counties, or it is based on observations of other properties of the soils. In general, soils classified as CH and A–7 have a high shrink-swell potential. Silt loams that contain a small amount of nonplastic to slightly plastic fines have a low shrink-swell potential.

Engineering interpretations of soils

Table 6 contains information useful to engineers and others who plan to use soil material in construction of roads, farm facilities, drainage systems, and irrigation systems. Detrimental or undesirable features are emphasized; but important desirable features are also named. The ratings and other interpretations in this table are based on estimated properties of the soils in table 5.

The suitability of the soils as a source of sand and gravel was not rated in table 6. All soils in the county, except the Bruno soils, are unsuitable as a source of sand. The Bruno soils are a fair to good source of sand for use as aggregate for concrete. None of the soils are a suitable source of gravel within the depth described. Some local areas of Memphis and Natchez soils are underlain by gravel suitable for road surfacing and as aggregate for concrete at a depth of 15 to 30 feet.

Topsoil is a term used to designate a fertile soil or soil material, ordinarily rich in organic matter, used as a topdressing for lawns, gardens, and roadbanks. The ratings are good, fair, and poor and indicate suitability for such use. Normally, only the surface layer is removed for use as topsoil, but other layers can be suitable. The surface layer of the Adler and Morganfield soils is a good source of topsoil.

Road fill is material used for building up road grades and is the material that supports the base layers. The ratings of good, fair, and poor indicate performance of soil material moved from borrow areas for these purposes. Suitability for road fill depends on the texture, plasticity, shrink-swell potential, traffic-supporting capacity, erodibility, and compaction characteristics of the soil. Clayey soils that have high or very high shrink-swell potential, such as the Sharkey, Forestdale, Tunica, and Vaiden soils, are poor road-fill material.

Highway location is influenced by features of the undisturbed soil that affect construction and maintenance of highways. Some of the soil features that affect the location of highways are drainage, plasticity or workability of the soil material when it is wet, and the flooding hazard.

Extensive use has been made of farm ponds for supplying water for livestock, for producing fish, for recreation, for wildlife habitat, and for other farm purposes. The reservoir area of a farm pond is affected mainly by loss of water from seepage, and the soil features named in table 6 are those that influence such seepage. Sharkey clay is a good soil for the reservoir area.

Dam-type ponds are established by constructing an embankment across a water course or natural basin. The soil features of both the subsoil and the substratum are important in the construction of pond embankments. Important features that affect the suitability of soil material for this purpose are strength and stability, shrink-swell potential, compactibility, seepage, and the hazard of erosion. When used in embankments, Falaya, Calhoun, and some other soils have fair slope stability, which is the resistance of the embankment to failure by sliding where the embankment impounds water. Sharkey soil is not as good for embankments as it is for reservoir areas because it allows some seepage near the ground line as a result of the high compressibility and very high shrink-swell potential.

A complete agricultural drainage system is essential for most of the soils on flood plains in Yazoo County if those soils are to be used more efficiently. Much work has been done to improve the drainage of areas used for farming, but many additional improvements are needed. Soil features affecting agricultural drainage are topography, depth to water table, permeability, susceptibility to flooding, and availability of outlets.

Features affecting the use of soils for irrigation are shown in table 6. The effectiveness of irrigation water largely depends on the rate that water moves into and through the soil and on the available water capacity of the soil.

Among the soil features considered for terraces and diversions are uniformity, length, and steepness of slope; depth to fragipan or other unfavorable material; texture; permeability; and susceptibility to erosion. A terrace is an earthen embankment, or a ridge and channel, constructed across the slope for the purpose of collecting runoff and transporting it at a nonerosive velocity to a protected outlet. A diversion is a graded or excavated channel that has a supporting ridge on the lower side constructed across a slope at a controlled grade. The purpose of a diversion is to divert water from areas where it is in excess to sites where it can be used beneficially or disposed of safely.

Waterways refer to grassed waterways or outlets, and they must be vegetated to suitable grass. Among the features considered are erodibility, available water capacity, slope, kind of soil material, and suitability of the soil for establishing, growing, and maintaining a cover of plants. Waterways are used to direct water safely down gentle slopes into a level or nearly level ditch. Grassed waterways are constructed to carry off excess water that is discharged from terraces, diversions, and other areas.

TABLE 5.—*Estimated soil properties*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil, which may
first column

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification
			USDA texture
	Inches	*Inches*	
Adler: Ad	20	0–54	Silt loam
Adler, clayey subsoil variant: Ae	20	0–25	Silt loam
		25–32	Silty clay loam
		32–50	Silty clay
*Bruno: Bm	[2] 40+	0–8	Silt loam
For Morganfield part, see Morganfield series.		8–18	Loamy fine sand
		18–24	Silt loam
		24–50	Sand
Calhoun: Ca	([3])	0–15	Silt loam
		15–30	Silt loam
		30–38	Silty clay loam
		38–54	Silt loam
Calloway: ClA, ClB	12	0–9	Silt loam
		9–19	Silt loam
		19–23	Silt loam
		23–52	Silt loam
Commerce: Co	12	0–7	Silt loam
		7–23	Silty clay loam
		23–50	Silt loam
Dubbs: DbA, DbB	36+	0–8	Silt loam
		8–18	Slity clay loam
		18–45	Silt loam
		45–58	Very fine sandy loam
Dundee: DnA, DnB, DuA, DuB	12	0–9	Silt loam
		9–28	Silty clay loam
		28–57	Silt loam
*Falaya: Fa, Fc	[2] 12	0–58	Silt loam
For Vicksburg part of Fc, see Vicksburg series. For Leverett part of Fc, see Leverett series.			
Forestdale: Fo, Fr	([3])	0–6	Silty clay loam
		6–32	Silty clay
		32–52	Silty clay loam
Grenada: GrA, GrB2	20	0–22	Silt loam
		22–40	Silt loam
		40–55	Silt loam
*Gullied land: GuE.			
Properties too variable for valid estimates. For Memphis part, see Memphis series.			
Leverett: Le	20	0–26	Silt loam
		26–48	Silt loam
		48–60	Silt loam
Loring: LoA, LoB2, LoC2, LoD2	26	0–4	Silt loam
		4–26	Silt loam
		26–60	Silt loam
*Memphis: MeA, MeB2, MeC2, MnE	60+	0–3	Silt loam
For Natchez part of MnE, see Natchez series.		3–20	Silty clay loam
		20–65	Silt loam
Morganfield: Mo	[2] 36+	0–58	Silt loam

See footnotes at **end of table.**

significant to engineering

have different properties. For this reason the reader should follow carefully the instructions for referring to other series that appear in the of this table]

Classification—Continued		Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 40 (0.42 mm.) [1]	No. 200 (0.074 mm.)				
				In. per hr.	*In. per in. of soil*	*pH value*	
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 1–7. 8	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 6–7. 8	Low.
CL	A–6	95–100	85–100	0. 2–0. 63	0. 18–0. 21	6. 6–7. 8	Moderate.
CH	A–7	95–100	95–100	0. 06–0. 20	0. 17–0. 20	6. 6–7. 8	High.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 1–7. 8	Low.
SM	A–2	65–80	20–35	6. 3–20. 0	0. 05–0. 10	6. 1–7. 8	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 1–7. 8	Low.
SM	A–2	50–75	15–25	6. 3–20. 0	0. 03–0. 06	6. 1–7. 8	Low.
ML	A–4	95–100	85–95	0. 63–2. 0	0. 21–0. 23	5. 1–6. 5	Low.
CL, ML	A–6 or A–4	95–100	85–100	0. 2–0. 63	0. 20–0. 23	6. 6–7. 8	Moderate.
CL	A–6	95–100	85–100	0. 06–0. 2	0. 21–0. 23	6. 6–7. 8	Moderate.
CL, ML	A–6 or A–4	95–100	85–100	0. 2–0. 63	0. 20–0. 23	6. 6–7. 8	Moderate.
ML	A–4	95–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
CL, ML	A–6	95–100	85–100	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Moderate.
ML	A–4	95–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
CL	A–6	95–100	85–100	0. 06–0. 20	0. 10–0. 13	4. 5–6. 0	Moderate.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 6–7. 8	Low.
CL	A–6	95–100	85–100	0. 2–0. 63	0. 19–0. 22	6. 6–7. 8	Moderate.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 6–7. 8	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
CL	A–6	95–100	85–100	0. 63–2. 0	0. 20–0. 21	4. 5–6. 0	Moderate to low.
CL, ML	A–6	90–100	85–100	0. 63–2. 0	0. 20–0. 22	4. 5–6. 0	Low.
ML	A–4	85–95	50–65	0. 63–2. 0	0. 10–0. 15	4. 5–6. 0	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
CL	A–6	95–100	85–100	0. 2–0. 63	0. 19–0. 22	4. 5–6. 0	Moderate.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–5. 5	Low.
CL	A–6	95–100	85–100	0. 2–0. 63	0. 19–0. 22	4. 5–6. 0	Moderate.
CH	A–7	95–100	95–100	<0. 06	0. 17–0. 19	4. 5–6. 0	High.
CL	A–6	95–100	85–100	0. 06–2. 0	0. 19–0. 22	4. 5–6. 0	Moderate.
ML	A–4	95–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–5. 5	Low.
CL, ML	A–6	95–100	85–100	0. 06–0. 20	0. 10–0. 13	4. 5–5. 5	Moderate.
ML	A–4	95–100	85–95	0. 06–0. 20	0. 10–0. 13	4. 5–5. 5	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 19–0. 23	4. 5–5. 5	Low.
ML	A–4	90–100	85–95	0. 2–0. 63	0. 15–0. 18	4. 5–5. 5	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 19–0. 21	4. 5–5. 5	Low.
ML	A–4	95–100	90–100	0. 63–2. 0	0. 20–0. 23	4. 5–5. 5	Low.
CL, ML	A–6	95–100	90–100	0. 63–2. 0	0. 19–0. 22	4. 5–5. 5	Moderate.
ML	A–4	95–100	90–100	0. 20–0. 63	0. 12–0. 15	4. 5–5. 5	Low.
ML	A–4	95–100	90–100	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
CL	A–6	95–100	90–100	0. 63–2. 0	0. 19–0. 22	4. 5–6. 0	Moderate.
ML	A–4	95–100	90–100	0. 63–2. 0	0. 20–0. 23	4. 5–6. 0	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	6. 1–7. 8	Low.

TABLE 5.—*Estimated soil properties*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification
			USDA texture
Natchez Mapped only with Memphis soils.	*Inches* 60+	*Inches* 0–57	Slit loam
*Sharkey: Sa, Sc, Sd, Sf For Forestdale part of Sf, see Forestdale series.	(3)	0–50	Clay
Tunica: Tu	(3)	0–7 7–32 32–38 38–55	Silt loam Silty clay Silty clay loam Silt loam
Vaiden, calcareous variant: VaE3	12	0–3 3–60	Silt loam Silt clay or clay
Vicksburg: Vc	[2] 36+	0–55	Silt loam

[1] 100 percent of all samples passed the No. 4 and the No. 10 sieves.
[2] Soil subject to flooding.

TABLE 6.—*Interpretations of*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soils, which may

Soil series and map symbols	Suitability as source of—		Soil features affecting—	
	Topsoil	Road fill	Highway location	Farm ponds Reservoir area
Adler: Ad	Good	Fair: easily eroded	On flood plains; subject to flooding.	Moderate permeability; possible seepage.
Adler, clayey subsoil variant: Ae.	Good in upper part of subsoil; poor in lower part; clayey texture.	Fair in upper part of subsoil; poor in lower part; easily eroded; high shrink-swell potential.	On flood plains; subject to flooding; high shrink-swell potential in lower part of subsoil.	Slow permeability; slow seepage rate.
*Bruno: Bm For Morganfield part, see Morganfield series.	Poor: sandy texture	Good	On flood plains; subject to flooding.	High seepage rate
Calhoun: Ca	Fair: excessive wetness.	Fair: fair traffic-supporting capacity.	Seasonal high water table; side slopes easily eroded; some areas subject to flooding.	Slow seepage rate
Calloway: ClA, ClB	Good	Fair: wetness; fair traffic-supporting capacity.	Fair traffic-supporting capacity; wetness.	Slow seepage rate
Commerce: Co	Fair to good: texture	Fair: easily eroded; fair traffic-supporting capacity.	Fair traffic-supporting capacity; on flood plains; subject to flooding.	Slow to moderate seepage.

significant to engineering—Continued

Classification—Continued		Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 40 (0.42 mm.) [1]	No. 200 (0.074 mm.)				
				In. per hr.	*In. per in. of soil*	*pH value*	
ML	A–4	95–100	85–95	2. 0–6. 3	0. 20–0. 23	6. 6–8. 4	Low.
CH	A–7	90–100	85–100	<0. 06	0. 16–0. 19	4. 5–7. 8	Very high.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	5. 6–7. 8	Low.
CH	A–7	90–100	85–100	<0. 06	0. 15–0. 19	5. 6–7. 8	High.
CL	A–6	90–100	85–100	0. 2–0. 63	0. 19–0. 22	5. 6–7. 8	Moderate.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 19–0. 22	5. 6–7. 8	Low.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 22	6. 6–7. 8	Low.
CH	A–7	90–100	95–100	<0. 06	0. 15–0. 18	6. 6–7. 8	Very high.
ML	A–4	90–100	85–95	0. 63–2. 0	0. 20–0. 23	4. 5–5. 5	Low.

[3] At surface.

engineering properties of soils

have different properties. For this reaon the reader should follow carefully the instructions for referring to other series in the first column

Soil features affecting—Continued				
Farm ponds—Con.	Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Embankment				
Fair slope stability; hazard of piping.	Modreately well drained; surface drainage needed.	Very high available water capacity.	Nearly level; subject to flooding.	Very high available water capacity; produces good sod.
Upper part of subsoil has fair slope stability; lower part of subsoil cracks when dry.	Moderately well drained; surface drainage needed.	High or very high available water capacity.	Nearly level; subject to flooding; soil properties favorable.	High or very high available water capacity; produces good sod.
Fair slope stability; possible seepage.	Excessively drained; subject to flooding.	Moderately rapid permeability; low available water capacity.	Nearly level; subject to flooding.	Low available water capacity.
Fair slope stability; subject to piping.	Poor drainage; surface drainage needed.	Slow permeability	Nearly level; no erosion hazard.	Sod difficult to establish in places; very high available water capacity.
Fair slope stability	Somewhat poorly drained; surface drainage needed.	Moderate permeability above fragipan; slow permeability in fragipan; medium available water capacity.	Soil properties favorable	Moderate to shallow root zone; sod difficult to establish in fragipan.
Easily eroded; medium compressibility.	Somewhat poorly drained; surface drainage needed.	Very high available water capacity.	Nearly level; subject to flooding.	Very high available water capacity; produces good sod.

TABLE 6.—*Interpretations of engineering*

Soil series and map symbols	Suitability as source of—		Soil features affecting—	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Dubbs: DbA, DbB	Good to fair: texture	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity.	Possible seepage; moderate permeability.
Dundee: DnA, DnB, DuA, DuB	Fair: texture	Fair: wetness; fair traffic-supporting capacity.	Fair traffic-supporting capacity; wetness.	Moderate permeability; possible seepage.
*Falaya: Fa, Fc. For Vicksburg part of Fc, see Vicksburg series; for Leverett part of Fc, see Leverett series.	Good	Fair: easily eroded; fair traffic-supporting capacity.	High water table; fair traffic-supporting capacity; subject to flooding.	Moderate permeability; possible seepage
Forestdale: Fo, Fr	Poor: texture and wetness.	Poor: moderate to high shrink-swell potential; wetness.	High water table; high shrink-swell potential; wetness.	Slow seepage rate
Grenada: GrA, GrB2	Good	Fair: fair traffic-supporting capacity.	Fragipan impedes internal drainage; fair traffic-supporting capacity.	Slow seepage rate
*Gullied land: GuE, Properties too variable for valid interpretation. For Memphis part, see Memphis series.				
Leverett: Le	Good	Fair: easily eroded; fair traffic-supporting capacity.	Fair traffic-supporting capacity.	Moderately slow permeability; slow seepage rate.
Loring: LoA, LoB2, LoC2, LoD2.	Fair: texture	Fair: easily eroded; fair traffic-supporting capacity.	Fair traffic-supporting capacity.	Moderately slow permeability; slow seepage rate.
*Memphis: MeA, MeB2, MeC2, MnE. For Natchez part of MnE, see Natchez series.	Fair: texture	Fair: easily eroded; fair traffic-supporting capacity.	Fair traffic-supporting capacity.	Moderate permeability; possible seepage.
Morganfield: Mo	Good	Fair: fair traffic-supporting capacity; easily eroded.	Subject to flooding	Moderate permeability; possible seepage.
Natchez. Mapped only with Memphis soils.	Fair to good: texture.	Fair: easily eroded; fair traffic-supporting capacity.	Hilly; easily eroded	Moderately rapid permeability; seepage.
*Sharkey: Sa, Sc, Sd, Sf. For Forestdale part of Sf, see Forestdale series.	Poor: clayey texture	Poor: very high shrink-swell potential.	High water table; clayey; very high shrink-swell potential.	Very slow permeability.
Tunica: Tu	Poor: clayey texture	Poor: clayey; high shrink-swell potential.	High shrink-swell potential; wetness.	Less than 3 feet to moderately permeable material.

properties of soils—Continued

Soil features affecting—Continued				
Farm ponds—Con. Embankment	Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Fair slope stability	Well drained	Very high available water capacity; moderate permeability.	Soil properties favorable	Very high available water capacity; produces good sod.
Fair slope stability; fair resistance to piping.	Somewhat poorly drained; surface drainage needed.	Moderately slow permeability.	Soil properties favorable	Very high available; water capacity; produces good sod.
Fair slope stability	Somewhat poorly drained; surface drainage needed.	Very high available water capacity.	Nearly level; subject to flooding.	Very high available water capacity; produces good sod.
Good slope stability; slight to medium compressibility.	Poorly drained; surface drainage needed.	Very slow permeability; high or very high available water capacity.	Nearly level; no erosion hazard.	High or very high available water capacity; produces good sod.
Fair slope stability	Moderately well drained; surface drainage needed in nearly level areas.	Medium available water capacity.	Soil properties favorable	Medium available water capacity; produces good sod except in fragipan zone.
Fair slope stability; easily eroded.	Moderately well drained; surface drainage needed.	High or medium available water capacity.	Nearly level; no erosion hazard.	High or medium available water capacity; produces good sod.
Fair slope stability; easily eroded.	Moderately well drained; surface drainage needed in nearly level areas.	High to medium available water capacity.	Soil properties favorable	High or medium available water capacity; produces good sod; easily eroded.
Fair slope stability; easily eroded.	Well drained	Very high available water capacity.	Soil properties favorable; nearly level or moderate slopes.	Very high available water capacity; easily eroded; produces good sod.
Fair slope stability; hazard of piping.	Well drained	Very high available water capacity.	Nearly level; subject to flooding.	Very high available water capacity; produces good sod.
Fair slope stability; easily eroded.	Slopes; well drained	Very high available water capacity.	Erosion hazard; slopes	Very high available water capacity; easily eroded; produces good sod.
High compressibility; fair slope stability.	Poorly drained	Cracks when dry; high initial intake rate decreases as soil becomes moist.	Nearly level; clayey subsoil.	Nearly level; clay texture; produces good sod.
Upper part of subsoil cracks when dry; high compressibility.	Poorly drained	High or very high available water capacity.	Nearly level; clayey subsoil.	High or very high available water capacity; produces good sod.

478-793—75——4

TABLE 6.—*Interpretations of engineering*

Soil series and map symbols	Suitability as source of—		Soil features affecting—	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Vaiden, calcareous variant: VaE3.	Poor: clayey texture	Poor: clayey below surface layer; very high shrink-swell potential.	Very high shrink-swell potential; slope.	Very slow permeability.
Vicksburg: Vc	Good	Fair: easily eroded; fair traffic-supporting capacity.	Subject to flooding	Moderate permeability; possible seepage.

Use of the Soils for Town and Country Planning [6]

This section describes properties and characteristics of the soils of Yazoo County for town and country planning. This information was prepared for use by planners, builders, developers, landscape architects, present and potential landowners, and others interested in this growing use of soils.

Yazoo County has favorable potential for future development. It is the largest county in Mississippi, has a variety of natural resources, and has definite possibilities for recreational development. In Yazoo County are parts of three large rivers—the Big Black, the Yazoo, and the Sunflower Rivers. In addition some of the best fishing in the delta, several water-sport lakes, and many excellent sites for reservoirs are in the hill part of this county.

The rural population of Yazoo County and adjoining counties has been declining since 1950, but the population of cities and towns in these counties and of other important towns within a 50-mile radius is growing. This trend is expected to continue. Jackson, the State capital, has a population of more than 250,000 and is within 50 miles of most of Yazoo County. The demand for rural subdivision and development and for recreational facilities is expected to steadily increase.

In selecting an area for town or country development, the suitability of the soils for each of the several activities or facilities must be evaluated. Some of the more common characteristics of soils that affect town and country planning are texture, depth, acidity, slope, permeability, depth to rock and to water table, and the hazard of flooding. The degree and kind of limitation of the soils of Yazoo County for specific uses in town and country planning are shown in table 7. This information is intended for use as a guide in selecting sites for development. An intensive onsite investigation, however, should be made of any area under consideration for development before completing final plans or beginning construction.

[6] GEORGE W. YEATES, staff conservationist, Soil Conservation Service, assisted in writing this section.

The relative degrees of limitation have meanings as follows: Slight indicates that there is little or no significant soil limitation to the stated use. Moderate means that the soil limitation is significant but that it can be overcome by planning and engineering requiring moderate investment. Severe means the soil limitation can be overcome only by intensive planning and engineering requiring a considerable extra cost.

The uses shown in table 7 and soil properties that can limit such uses are described in the paragraphs that follow.

Dwellings are not more than three stories high and are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil for dwellings are those that relate to capacity to support load and resist settlement under load, and that relate to ease of excavation. Soil properties that affect capacity to support load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness, slope, depth to bedrock, and content of stones and rocks.

Sewage lagoons are shallow ponds constructed to hold sewage within a depth of 2 to 5 feet long enough for bacteria to decompose the solids. A lagoon has a nearly level floor, and sides, or embankments, of compacted soil material. The assumption is made that the embankment is compacted to medium density and the pond is protected from flooding. Properties are considered that affect the pond floor and the embankment. Those that affect the pond floor are permeability, organic matter, and slope, and if the floor needs to be leveled, depth to bedrock becomes important. The soil properties that affect the embankment are the engineering properties of the embankment material as interpreted from the Unified soil classification and the amounts of stones, if any, that influence the ease of excavation and compaction of the embankment material.

Septic tank filter fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material between depths of 18 inches and 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent and construction and operation of the system. Properties that affect absorption are permeability, depth to water table or rock, and susceptibility to flooding. Slope is a soil property

properties of soils—Continued

Soil features affecting—Continued				
Farm ponds—Con. Embankment	Agricultural drainage	Irrigation	Terraces and diversions	Waterways
High compressibility; cracks when dry.	Slopes	Cracks when dry; high initial intake rate.	Erosion hazard; slope	Clay texture; produces fair to good sod.
Fair; slope stability; hazard of piping.	Well drained	Very high available water capacity.	Nearly level; subject to flooding.	Very high available water capacity; produces good sod.

that affects difficulty of layout and construction and also the risk of soil erosion, lateral seepage, and downslope flow of effluent. Large rocks or boulders increase construction costs. The use of septic tanks generally requires the approval of the local Health Department or Air and Water Pollution Commission.

Camp areas are used intensively for tents and small camp trailers and the accompanying activities of outdoor living. Little preparation of the site is required, other than shaping and leveling for tent and parking areas. Camp areas are subject to heavy foot traffic and limited vehicular traffic. For this use soils should have mild slopes, good drainage, a surface free of rocks and coarse fragments, freedom from flooding during periods of heavy use, and a surface that is firm after rains but not dusty when dry.

Picnic areas are attractive natural or landscaped tracts used primarily for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most of the vehicular traffic, however, is confined to access roads. Well suited soils are firm when wet but not dusty when dry; are free of flooding during the season of use; and do not have slopes or stoniness that greatly increase the cost of leveling the sites or of building access roads.

Playgrounds are areas used intensively for baseball, football, badminton, and similar organized games. Soils suitable for this use need to withstand intensive foot traffic. Well suited soils have a nearly level surface free of coarse fragments and rock outcrops, good drainage, freedom from flooding during periods of heavy use, and a surface that is firm after rains but not dusty when dry. If grading and leveling are required, depth to rock is important.

Paths and trails are used for local and cross-country travel by foot or horseback. Design and layout should require little or no cutting and filling. Well suited soils are at least moderately well drained, are firm when wet but not dusty when dry, are flooded not more than once during the season of use, and have slopes of less than 15 percent. There are few or no rocks or stones on the surface.

Local roads and streets, as rated in table 7, have an all-weather surface expected to carry automobile traffic all year. They have a subgrade of underlying soil material; a base consisting of gravel, crushed rock, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. These roads are graded to shed water and have ordinary provisions for drainage. They are built mainly from soil at hand, and most cuts and fills are less than 6 feet deep.

Soil properties that most affect design and construction of roads and streets are load supporting capacity and stability of the subgrade, and the workability and quantity of cut and fill material available. The AASHO and Unified classifications of the soil material, and also the shrink-swell potential, indicate traffic-supporting capacity. Wetness and flooding affect stability of the material. Slope, depth to hard rock, content of stones and rocks, and wetness affect ease of excavation and amount of cut and fill needed to reach an even grade.

Formation and Classification of the Soils

This section has three main parts. The first describes the five major factors of soil formation; the second, the processes involved in the differentiation of soil horizons; and the third, the system of classifying soils. Also in the third part, the soils of Yazoo County are placed in some categories of the current system of soil classification.

Factors of Soil Formation

Soil is the product of the interaction of the five major factors of soil formation. They are climate, plants and animals (especially plants), parent material, relief, and time.

Climate

The climate of Yazoo County is the humid, warm-temperate, and continental type. Winters are mild and generally have short periods of freezing weather. Summers are fairly hot, and occasionally the temperatures are more than 100° F.

TABLE 7.—*Degree and kind of soil limitations for*

[An asterisk in the first column indicates that at least one mapping unit in the series is made up of two or more kinds of soil, which may the first column

Soil series and map symbols	Dwellings [1]	Sewage lagoons	Septic tank filter fields
Adler: Ad	Severe: subject to flooding	Moderate: moderate permeability.	Severe: subject to flooding; seasonal high water table.
Adler, clayey subsoil variant: Ae.	Severe: subject to flooding	Moderate: probable flood damage to embankment.	Severe: subject to flooding; seasonal high water table.
Bruno: Bm	Severe: subject to flooding	Severe: moderate or rapid permeability.	Severe: subject to flooding
Calhoun: Ca	Severe: high water table; wetness.	Slight	Severe: high water table; slow permeability.
Calloway: ClA	Severe: subject to ponding	Slight	Severe: high water table; slow permeability in fragipan.
ClB	Moderate: wetness	Moderate: slope	Severe: high water table; slow permeability in fragipan.
Commerce: Co	Moderate: wetness	Slight	Severe: moderately slow permeability; high water table.
Dubbs: DbA	Moderate: moderate bearing strength.	Moderate: moderate permeability.	Slight to moderate: moderate permeability.
DbB	Moderate: moderate bearing strength.	Moderate: slope; moderate permeability.	Slight to moderate: moderate permeability.
Dundee: DnA	Moderate: moderate bearing strength; seasonal high water table.	Moderate: moderate permeability.	Severe: seasonal high water table.
DnB	Moderate: moderate bearing strength; seasonal high water table.	Moderate: moderate permeability; slope.	Severe: seasonal high water table.
DuA	Moderate: moderate bearing strength; seasonal high water table.	Moderate: moderate permeability.	Severe: seasonal high water table.
DuB	Moderate: moderate bearing strength; seasonal high water table.	Moderate: moderate permeability; slope.	Severe: seasonal high water table.
Falaya: Fa	Severe: subject to flooding	Moderate: moderate permeability.	Severe: seasonal high water table; subject to flooding.
Fc	Severe: flooding hazard	Moderate: moderate permeability.	Severe: flooding hazard
Forestdale: Fo	Severe: seasonal high water table; high shrink-swell potential.	Slight	Severe: seasonal high water table; very slow permeability.
Fr	Severe: seasonal high water table; high shrink-swell potential.	Slight	Severe: seasonal high water table; very slow permeability.

See footnote at end of table.

stated uses in town and country planning

have different properties and limitations. For this reason the reader should follow carefully the instructions for referring to other series in of this table]

Camp areas	Picnic areas	Playgrounds	Paths and trails	Local roads and streets
Moderate: wetness	Slight	Moderate: subject to flooding about once in 2 years during season of use.	Moderate: subject to occasional flooding.	Severe: subject to flooding.
Moderate: wetness	Slight	Moderate: subject to flooding about once in 2 years during season of use.	Moderate: subject to occasional flooding.	Severe: subject to flooding.
Severe: subject to flooding.	Severe: subject to flooding.	Severe: subject to flooding.	Severe: subject to flooding.	Severe: subject to flooding.
Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness; high water table.
Moderate: wetness	Moderate: wetness	Moderate: wetness; fair trafficability.	Moderate: wetness	Severe: high water table; fair traffic-supporting capacity.
Moderate: wetness	Moderate: wetness	Moderate: wetness; slope.	Moderate: wetness	Severe: high water table.
Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness.
Slight	Slight	Slight	Slight	Moderate: fair traffic-supporting capacity.
Slight	Slight	Moderate: slope	Slight	Moderate: fair traffic-supporting capacity.
Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: seasonal high water table; fair traffic-supporting capacity.
Moderate: wetness	Moderate: wetness	Moderate: wetness; slope.	Moderate: wetness	Moderate: seasonal high water table; fair traffic-supporting capacity.
Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: seasonal high water table; fair traffic-supporting capacity.
Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: slope	Moderate: seasonal high water table; fair traffic-supporting capacity.
Severe: wetness; subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: wetness; subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: subject to flooding; seasonal high water table.
Severe: flooding hazard.	Severe: flooding hazard.	Severe: flooding hazard.	Severe: flooding hazard.	Severe: flooding hazard.
Severe: wetness; very slow permeability.	Severe: wetness	Severe: wetness; very slow permeability	Severe: wetness	Severe: seasonal high water table; high shrink-swell potential.
Severe: wetness; very slow permeability.	Severe: wetness	Severe: wetness; very slow permeability.	Severe: wetness	Severe: seasonal high water table; high shrink-swell potential.

TABLE 7.—*Degree and kind of soil limitations for*

Soil series and map symbols	Dwellings [1]	Sewage lagoons	Septic tank filter fields
Grenada:			
GrA	Moderate: seasonal high water table.	Slight	Severe: slow permeability in fragipan.
GrB2	Moderate: seasonal high water table.	Moderate: slope	Severe: slow permeability in fragipan.
*Gullied land: GuE. Properties too variable for estimates. For Memphis part, see Memphis series.			
Leverett: Le	Moderate: seasonal high water table.	Slight	Severe: moderately slow permeability in fragipan.
Loring:			
LoA	Moderate: moderate bearing strength.	Slight	Severe: moderately slow permeability in fragipan.
LoB2	Moderate: moderate bearing strength.	Moderate: slope	Severe: moderately slow permeability in fragipan.
LoC2	Moderate: moderate bearing strength; slope.	Moderate: slope	Severe: moderately slow permeability in fragipan.
LoD2	Moderate: slope; moderate bearing strength.	Severe: slope	Severe: moderately slow permeability in fragipan.
Memphis:			
MeA	Moderate: moderate bearing strength.	Moderate: moderate permeability.	Slight
MeB2	Moderate: moderate bearing strength.	Moderate: moderate permeability; slope.	Slight
MeC2	Moderate: moderate bearing strength.	Moderate: slope	Moderate: slope
MnE	Severe: slope	Severe: slope	Severe: slope
Morganfield: Mo	Severe: subject to flooding	Moderate: moderate permeability.	Severe: subject to flooding
Natchez. Mapped only with Memphis soils.			
*Sharkey:			
Sa	Severe: very high shrink-swell potential; seasonal high water table.	Slight	Severe: very slow permeability; seasonal high water table.
Sc	Severe: very high shrink-swell potential; subject to flooding.	Slight	Severe: very slow permeability; seasonal high water table.
Sd	Severe: very high shrink-swell potential; subject to flooding.	Slight	Severe: very slow permeability; seasonal high water table.
Sf. For Forestdale part, see Fr unit of Forestdale series.	Severe: very high shrink-swell potential.	Slight	Severe: very slow permeability; seasonal high water table; wetness.

See footnote at end of table.

stated uses in town and country planning—Continued

Camp areas	Picnic areas	Playgrounds	Paths and trails	Local roads and streets
Slight	Slight	Moderate: slow permeability in fragipan.	Slight	Moderate: seasonal high water table; fair traffic-supporting capacity.
Slight	Slight	Moderate: slope; slow permeability in fragipan.	Slight	Moderate: seasonal high water table; fair traffic-supporting capacity.
Slight	Slight	Moderate: moderately slow permeability in fragipan.	Slight	Moderate: seasonal high water table; fair traffic-supporting capacity.
Slight	Slight	Slight	Slight	Moderate: fair traffic-supporting capacity.
Slight	Slight	Moderate: slope	Slight	Moderate: fair traffic-supporting capacity.
Slight	Slight	Severe: slope	Slight	Moderate: fair traffic-supporting capacity; slope.
Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: fair traffic-supporting capacity; slope.
Slight	Slight	Slight	Slight	Moderate: fair traffic-supporting capacity.
Slight	Slight	Slight	Slight	Moderate: fair traffic-supporting capacity.
Slight	Slight	Severe: slope	Slight	Moderate: fair traffic-supporting capacity.
Severe: slope	Severe: slope	Severe: slope	Moderate to severe: slope.	Severe: slope.
Slight	Slight	Moderate: subject to flooding about once in 2 years during season of use.	Slight	Severe: subject to flooding.
Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: very high shrink-swell potential; subject to flooding.
Severe: subject to flooding; wetness; surface layer is clayey.	Severe: subject to flooding; wetness; subsoil is clayey.	Severe: subject to flooding; wetness; surface layer is clayey.	Severe: subject to flooding; wetness; surface layer is clayey.	Severe: subject to flooding; very high shrink-swell potential.
Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; very high shrink-swell potential.
Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; wetness.	Severe: subject to flooding; very high to high shrink-swell potential.

TABLE 7.—*Degree and kind of soil limitations for*

Soil series and map symbols	Dwellings[1]	Sewage lagoons	Septic tank filter fields
Tunica: Tu	Severe: seasonal high water table; high shrink-swell potential.	Moderate: moderate permeability below a depth of 30 to 48 inches.	Severe: seasonal high water table.
Vaiden, calcareous variant: VaE3	Severe: very high shrink-swell potential.	Severe: slope	Severe: very slow permeability; slope.
Vicksburg: Vc	Severe: subject to flooding	Moderate: moderate permeability.	Severe: subject to flooding

[1] Engineers and others should not apply specific values to the estimates given for bearing strength of soils.

These features of climate favor rapid chemical reaction. When rainfall is heavy late in winter and early in spring, soils are leached of soluble materials. Little organic matter accumulates in the soils.

Climate is fairly uniform throughout the county. It is not a major factor in producing differences in the soils. Normal average temperature and rainfall for Yazoo County are given in the section "General Nature of the County."

Plants and animals

Plants, animals, insects, bacteria, and fungi are important in the formation of soils. The kinds of organisms are determined by the climate, parent material, and relief. Gains in organic matter and nitrogen in the soil, gains or losses in plant nutrients, and changes in structure and porosity are some of the changes caused by living organisms.

Vegetation, hardwood and pine, has affected soil formation in Yazoo County more than other living organisms. The native vegetation on the hills in the county was chiefly hickory, red maple, red oak, white oak, and shortleaf pine. On the delta and well-drained soils of bottom lands in the hilly areas were ash, basswood, linden, beech, and other lowland hardwoods. On the poorly drained soils of bottom lands were cypress, cottonwood, and sweetgum. Cypress, willow, sycamore, and water oak grew on the clay soils in the delta.

Parent material

Parent material is the unconsolidated mass from which a soil develops. It determines the limits of the chemical and mineralogical composition of the soil. In Yazoo County the parent material consists of Mississippi River alluvium and loess. The soils of the delta, in the western part of the county, formed in Mississippi River alluvium.

Bordering the past and present stream channels are low ridges called natural levees. These levees are highest next to the channels and slope gradually away from it because water loses its velocity as it overspreads the streambanks. When the water slows down it first drops sand, then silt, and finally clay particles. These soils on the levees are somewhat poorly drained to well drained. Examples are Dubbs and Dundee soils.

Beyond the natural levees, in the low flat areas, is the clay sediment that dropped from slowly moving or still water. Sharkey soils formed in this kind of material. They are very slowly permeable and poorly drained.

Along drainageways throughout the uplands, adjacent to the bluff hills, and along streams coming out of the loess hills, soils formed in alluvium deposited by streams. Examples of these soils are the Morganfield, Adler, and Vicksburg soils. These soils have a weakly developed profile, and they still receive new deposits of soil material. The Leverett soils are examples of soils that have distinct horizons. They are on the older flood plains.

Memphis, Loring, Grenada, and Calloway are silty soils that also have distinct horizons. They formed in loess on uplands.

Relief

Relief or topography affects the formation of soils through its influence on drainage, erosion, plant cover, and soil temperature.

The soils in Yazoo County range in slope from 0 to 30 percent. In the western part of the county are nearly level to gently sloping soils that formed in Mississippi River alluvium. The areas in which these soils occur are characterized by low parallel ridges 200 to 400 feet wide and by depressions that seldom exceed 150 feet in width.

The eastern and central parts of the county are dissected by narrow ridgetops and narrow drainageways and by a broad flood plain. Soils on the side slopes of the ridges are sloping to very steep, and those on the flood plain are nearly level. Soils in the drainageways formed in alluvium.

Time

A long time generally is required for formation of soils that have distinct horizons. The differences in length of time that the parent material has been in place therefore are commonly reflected in the degree of development of the soil profile.

The Morganfield soils are examples of young soils that lack profile development. They have formed in loamy material high in content of silt and are on flood plains. Stratifications or bedding planes are evident. Memphis soils are examples of older loamy soils that formed on uplands. They are high in content of silt and have distinct horizons.

Soils of the Dundee series are examples of older soils that formed in alluvium and that have distinct soil horizons.

stated uses in town and country planning—Continued

Camp areas	Picnic areas	Playgrounds	Paths and trails	Local roads and streets
Severe: wetness; very slow permeability.	Severe: wetness	Severe: wetness; very slow permeability.	Severe: wetness	Severe: high shrink-swell potential; seasonal high water table.
Severe: very slow permeability.	Severe: wetness; slope	Severe: slope; very slow permeability.	Moderate: slope; wetness.	Severe: very high shrink-swell potential; slope.
Slight	Slight	Moderate: subject to flooding about once in 2 years.	Slight	Severe: subject to flooding.

Processes of Soil Horizon Differentiation

Several processes were involved in the formation of soil horizons in the soils of Yazoo County. These are accumulations of organic matter, leaching of calcium carbonates and bases, reduction and transfer of iron, and formation and translocation of silicate clay minerals. In most soils more than one of these processes have been active in the development of horizons.

Accumulation of organic matter in the upper profile to form an A1 horizon has been important. The soils of Yazoo County are low in content of organic matter.

Leaching of carbonates and bases has occurred in nearly all of the soils. Soil scientists generally are agreed that leaching of bases in soils normally precedes translocation of silicate clay minerals. Most of the soils of the county are moderately to strongly leached, and this has contributed to the development of horizons.

Reduction and transfer of iron, a process called gleying, is evident in the poorly drained and very poorly drained soils of the county. The gray color in the subsoil horizons indicates the reduction and loss of iron. Some horizons contain reddish-brown mottles and concretions, indicating segregation of iron.

In some soils of Yazoo County, the translocation of clay minerals has contributed to the development of soil horizons. The eluviated A2 horizon, above the B horizon, is lower in content of clay and generally lighter in color. The B horizon generally has an accumulation of clay (clay films) in pores and on ped surfaces. These soils were probably leached of carbonates and soluble salts to a considerable extent before translocation of silicate clays took place. Leaching of bases and translocation of silicate clays are among the more important processes in horizon differentiation in the soils of Yazoo County. Soils of the Dundee series are examples of soils having an accumulation of translocated silicate clays in the B horizon in the form of clay films.

Classification of the Soils

Classification consists of an orderly grouping of soils according to a system designed to make it easier to remember soil characteristics and interrelationships. Classification is useful in organizing and applying the results of experience and research.

Soils are placed in narrow classes for discussion in detailed soil surveys and for application of knowledge within farms and fields. The many thousands of narrow classes are then grouped into progressively fewer and broader classes in successively higher categories, so that information can be applied to large geographic areas.

Two systems of classifying soils have been used in the United States in recent years. The older system was adopted in 1938 (*2*) and revised later (*4*). The system currently used by the National Cooperative Soil Survey was developed in the early sixties (*6*) and was adopted in 1965 (*3*) and supplemented in March 1967 and in September 1968. The system is under continual study. Readers interested in the development of the system should refer to the latest literature.

The current system of classification has six categories. Beginning with the most inclusive, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. The criteria for classification are soil properties that are observable or measurable, but the properties are selected so that soils of similar genesis are grouped together. The placement of some soil series in the current system of classification, particularly in families, may change as more precise information becomes available.

Table 8 shows the classification of each soil series of the county by family, subgroup, and order, according to the current system.

ORDER.—Soils are grouped into orders according to properties that seem to have resulted from the same processes acting to about the same degree on the parent material. Ten soil orders are recognized in the current system: Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The properties used to differentiate the soil orders are those that tend to give broad climatic groupings of soils. Two exceptions, Entisols and Histosols, occur in many different climates.

Four of the ten soil orders occur in Yazoo County: Entisols, Vertisols, Inceptisols, and Alfisols. Entisols are recent soils in which there has been little, if any, horizon development. Vertisols are soils in which natural churning or inversion of soil material takes place, mainly through the swelling and shrinking of clays. Inceptisols occur on young land surfaces. Alfisols have a clay-enriched B horizon and a base saturation of more than 35 percent.

TABLE 8.—*Soil series classified according to the current system of classification*

Series	Family	Subgroup	Order
Adler	Coarse-silty, mixed, nonacid, thermic	Aquic Udifluvents	Entisols.
Adler, clayey subsoil variant	Coarse-silty over clayey, mixed, nonacid, thermic	Aquic Udifluvents	Entisols.
Bruno	Sandy, mixed, thermic	Typic Udifluvents	Entisols.
Calhoun	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols.
Calloway	Fine-silty, mixed, thermic	Glossaquic Fragiudalfs	Alfisols.
Commerce	Fine-silty, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Dubbs	Fine-silty, mixed, thermic	Typic Hapludalfs	Alfisols.
Dundee	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Falaya	Coarse-silty, mixed, acid, thermic	Aeric Fluvaquents	Entisols.
Forestdale	Fine, montmorillonitic, thermic	Typic Ochraqualfs	Alfisols.
Grenada	Fine-silty, mixed, thermic	Glossic Fragiudalfs	Alfisols.
Leverett	Coarse-silty, mixed, thermic	Typic Fragiudalfs	Alfisols.
Loring [1]	Fine-silty, mixed, thermic	Typic Fragiudalfs	Alfisols.
Memphis	Fine-silty, mixed, thermic	Typic Hapludalfs	Alfisols.
Morganfield	Coarse-silty, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Natchez	Coarse-silty, mixed, thermic	Typic Eutrochrepts	Inceptisols.
Sharkey [2]	Very fine, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic.	Vertic Haplaquepts	Inceptisols.
Vaiden, calcareous variant	Very fine, montmorillonitic, thermic	Aquentic Chromuderts	Vertisols.
Vicksburg [3]	Coarse-silty, mixed, acid, thermic	Typic Udifluvents	Entisols.

[1] These soils are taxadjuncts to the Loring series. They are outside the defined range for the series in that they are strongly acid or very strongly acid. Otherwise they are similar in morphology, behavior, and use.

[2] These soils are taxadjuncts to the Sharkey series. They are outside the defined range for the series in that they are too acid in the upper part of the profile. Otherwise they are similar in morphology behavior, and use.

[3] These soils are taxadjuncts to the Vicksburg series because they lack bedding planes. Otherwise they are similar in morphology, behavior, and use.

SUBORDER.—Each order is divided into suborders, primarily on the basis of soil characteristics that seem to produce classes with the greatest genetic similarity. The soil properties used are mainly those that reflect either the presence or absence of waterlogging or differences in climate or vegetation. The climatic range of the suborders is narrower than that of the orders.

GREAT GROUP.—Each suborder is divided into great groups on the basis of uniformity in the kinds and sequence of major horizons and soil features. The horizons considered are those in which clay, iron, or humus has accumulated and those that have pans that interfere with growth of roots or movement of water. The features considered are the self-mulching properties of clays, soil temperature, chemical composition (mainly calcium, magnesium, sodium, and potassium), and the like.

SUBGROUP.—Each great group is divided into subgroups, one representing the central (typic) segment of the group and other subgroups, called intergrades, that have properties of one great group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside the range of any other great group, suborder, or order.

FAMILY.—Families are established within a subgroup primarily on the basis of properties that affect the growth of plants or the behavior of soils when used for engineering purposes. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence.

SERIES.—The series is a group of soils having major horizons that, except for texture of the surface layer, are similar in important characteristics and in arrangement in the profile.

General Nature of the County

This section briefly describes the development of Yazoo County and discusses the climate, physiography, relief, and drainage. It also gives facts about farming. Agricultural statistics are from records of the U.S. Bureau of the Census.

Yazoo County was organized January 21, 1823, from territory acquired by the United States from the Choctaw Indians in 1820. Its original limits included the present counties of Washington, Holmes, Issaquena and Sharkey, and parts of the counties of Madison and Sunflower. In 1918 it made its last donation of territory to the new county of Humphreys and was reduced to its present size of 938 square miles. The county was named for the Yazoo Indians who lived along the Yazoo River.

In 1960 the population of the county was 31,653. Yazoo City is the county seat.

Farming is the main enterprise, but several industries are in the county. Among these are manufacturers of nitrogen fertilizer, cotton products, clothing, farm machinery, livestock feeders, and paper bags. An oil refinery and a grain port are also in the county.

Railroad freight lines and State and Federal highways, including Interstate Highway No. 55, cross the county.

Climate

The climate of Yazoo County is governed by the subtropical latitude, the large land mass to the north, the warm water of the Gulf of Mexico to the south, and the prevailing southerly winds. In summer the weather is predominantly warm and moist, but occasionally the wind shifts to the west or north and the weather becomes hot and dry. In winter warm, moist weather alternates with

cold, dry weather. Cold spells seldom last more than 2 or 3 days. Precipitation generally accompanies the changes in weather. Table 9 gives facts about temperatures and precipitation for Yazoo County.

The average length of the growing season is 229 days in Yazoo County. Because some crops are more tolerant of low temperatures than others, the average dates on which temperatures of 20°, 24°, 28°, and 32° F. last occur in spring and those on which they first occur in fall are important to growers and shippers of farm commodities. The occurrence of these critical temperatures is shown in table 10, together with the length of time between dates.

TABLE 9.—*Temperature and precipitation data*

[Period of record 1959–1968]

Month	Temperature				Precipitation
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average total
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—	
	°F.	°F.	°F.	°F.	*Inches*
January	55	34	76	14	4. 7
February	59	38	71	19	5. 7
March	64	47	78	26	5. 2
April	77	54	87	36	5. 5
May	84	60	92	45	4. 2
June	90	68	96	57	3. 6
July	92	70	98	61	4. 5
August	91	69	97	57	4. 1
September	85	62	94	45	3. 3
October	77	51	81	31	2. 8
November	68	43	82	25	4. 2
December	57	36	77	16	6. 4
Year	75	53			54. 2

TABLE 10.—*Average dates of last freezing temperature in spring and first in fall and time between dates*

Temperature	Average date of—		Time between dates
	Last occurrence in spring	First occurrence in fall	
°F.			*Days*
20	January 27	December 17	323
24	February 16	December 6	293
28	March 1	November 23	267
32	March 21	November 4	229

Winter and spring are the wettest seasons, and summer and fall are the driest, but differences between the amount of precipitation received in winter and spring and that received in summer and fall are small. October is the driest month, and December is the wettest. Precipitation in winter and spring is commonly in the form of prolonged rain. Summer and fall precipitation generally is in the form of scattered thundershowers. Local droughts result if thundershowers bypass a specific area time after time. On the other hand, 3 inches or more of precipitation may occur in a 24-hour period in any month and cause local flash floods.

A measurable amount of snow is unusual.

Physiography, Relief, and Drainage

Yazoo County consists of two areas. From east to west these areas are deep loess and delta. The loessial area in the eastern part of the county is about 20 miles wide. The soils in this area formed from a mantle of loess 4 to 40 feet thick over Coastal Plain material. It is thicker at the western edge and is progressively thinner toward the east. This area is dissected by alluvial drainageways and terraces. Side slopes are sloping to steep, and tops are gently sloping to sloping.

The delta is about 13 miles wide. The soils range from silt loam to clay. Relief is nearly level to gently sloping. The western one-third, or delta area, of the county is in the Yazoo-Sunflower drainage basin. The chief tributaries of the Yazoo-Sunflower River are: Silver Creek, Panther Creek, Lake George, Techeva Creek, Piney Creek, Short Creek, and O'Neil Creek, all flowing in a westerly direction.

The eastern two-thirds of the county is in the Big Black River Basin. Its main tributaries are: Big Cypress Creek, Ellison Creek, Bowie Creek, Little Cypress Creek, Walesheba Creek, and Beaver Creek, all flowing generally southward. Also 24 water retarding structures, 541 desilting dams, and grade control structures have been constructed to check the flow of water and sediment on the alluvial flood plain.

Farming

The Choctaw Indians, who once inhabited Yazoo County, were chiefly hunters, but they grew corn, pumpkins, melons, and beans for food.

Cotton was grown extensively in the early 1800's. It was shipped from ports on the Yazoo River to New Orleans and Memphis. Although cotton is still a principal cash crop, some of the acreage formerly in cotton is now in soybeans, small grain, and corn. Livestock and pasture also are important.

The acreage of principal crops in 1964 was as follows: Cotton harvested 41,728; soybeans harvested for beans 38,940; corn for all purposes 15,632; wheat harvested 5,562; oats harvested for grain 5,664; sorghum for all purposes 1,190; lespedeza cut for hay 1,983; other hay cut 4,650.

The numbers of livestock on farms in 1964 were as follows: Cattle and calves 50,615, hogs and pigs 15,823, sheep and lambs 674, and chickens 35,102.

The number of farms in 1964 was 1,515, and the average size was 289.7 acres. Full owners operated 564, part owners 324, managers 14, and tenants 613.

Literature Cited

(1) AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS.
1970. STANDARD SPECIFICATIONS FOR HIGHWAY MATERIALS AND METHODS OF SAMPLING AND TESTING. Ed. 10, 2 v., illus., Washington, D.C.

(2) BALDWIN, MARK, KELLOGG, CHARLES E., and THORP, JAMES.
1938. SOIL CLASSIFICATION. U.S. Dept. Agr, Ybk., pp. 979–1001, illus.

(3) SIMONSON, ROY W.
1962. SOIL CLASSIFICATION IN THE UNITED STATES. Science 137: 1027–1034.

(4) THORP, JAMES, and SMITH, GUY D.
1949. HIGHER CATEGORIES OF SOIL CLASSIFICATION: ORDER SUBORDER, AND GREAT SOIL GROUPS. Soil Sci. 67: 117–126.

(5) UNITED STATES DEPARTMENT OF AGRICULTURE.
1951. SOIL SURVEY MANUAL. U.S. Dept. Agr. Handbook 18, 503 pp., illus.

(6) ———
1960. SOIL CLASSIFICATION, A COMPREHENSIVE SYSTEM, 7TH APPROXIMATION. 265 pp., illus. [Supplements issued in March 1967 and September 1968]

(7) UNITED STATES DEPARTMENT OF DEFENSE.
1968. UNIFIED SOIL CLASSIFICATION SYSTEM FOR ROADS, AIRFIELDS, EMBANKMENTS AND FOUNDATIONS. MIL-STD-619B, 30 pp., illus.

Glossary

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Bedding plane. The plane or surface that separates the individual thin layers or beds of sediment.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrations of compounds, or of soil grains cemented together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under slight pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Contour farming. Plowing, cultivating, planting, and harvesting in rows that are at right angles to the natural direction of the slope or that are parallel to terrace grade.

Diversion, or diversion terrace. A ridge of earth, generally a terrace, that is built to divert runoff from its natural course and, thus, to protect areas downslope from the effects of such runoff.

Fertility, soil. The quality of a soil that enables it to provide compounds in adequate amounts and in proper balance, for the growth of specified plants, when other growth factors, such as light, moisture, temperature, and the physical condition of the soil are favorable.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented. When dry, it is hard or very hard and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyed" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons.

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residue.

A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these; (2) by prismatic or blocky structure; (3) by redder or stronger colors than the A horizon; or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like

that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Leaching. The removal of soluble materials from soils or other material by percolating water.

Loess. Fine-grained material, dominantly of silt-sized particles, that has been deposited by wind.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineralogical, and biological properties of the various horizons, and their thickness and arrangement in the soil profile.

Mottling, soil. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural soil drainage. Refers to the conditions of frequency and duration of periods of saturation or partial saturation that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural soil drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B horizon and the C horizon.

Somewhat poorly drained soils are wet for significant periods but not all the time, and some soils commonly have mottlings below 6 to 16 inches, in the lower A horizon and in the B and C horizons.

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Percolation. The downward movement of water through the soil.

Permanent pasture. Pasture that is on the soil for a long time, in contrast to rotation pasture, which is on the soil only a year or two because it is grown in rotation with other crops.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Relief. The elevations or inequalities of a land surface, considered collectively.

Row arrangement. Arrangement of crop rows across the slope at a gradient that causes runoff to flow at a nonerosive velocity.

Runoff (hydraulics). The part of the precipitation upon a drainage area that is discharged from the area in stream channels. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. Individual rock or mineral fragments in soils having diameters ranging from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002) millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil variant. A soil having properties sufficiently different from those of other known soils to suggest establising a new soil series, but a soil of such limited known area that creation of a new series is not believed to be justified.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. Technically, the part of the soil below the solum.

Surface layer. A term used in nontechnical soil descriptions for one or more layers above the subsoil. Includes A horizon and part of B horizon; has no depth limit.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil. A presumed fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland (geology). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and the soil series to which it belongs. Management for crops and pasture is described under the mapping units, and additional information is provided in the section "General Management for Crops and Pasture." Other information is given in tables as follows:

Acreage and extent, table 1, p. 5.
Estimated yields, table 2, p. 25.
Productivity and management of soils by woodland suitability groups, table 3, p. 27.
Soil suitability for wildlife, table 4, p. 30.
Engineering uses of the soils, tables 5 and 6, pp. 34 through 41.
Town and country planning, table 7, p. 42.

Map symbol	Mapping unit	Described on page	Capability unit	Woodland suitability group
			Symbol	Number
Ad	Adler silt loam	5	IIw-1	1o4
Ac	Adler silt loam, clayey subsoil variant	6	IIw-1	1o4
Bm	Bruno-Morganfield complex	7	Vw-1	1s5
Ca	Calhoun silt loam	7	IIIw-1	3w9
ClA	Calloway silt loam, 0 to 2 percent slopes	8	IIw-3	2w8
ClB	Calloway silt loam, 2 to 5 percent slopes	8	IIIe-2	2w8
Co	Commerce silt loam	9	I-3	1w5
DbA	Dubbs silt loam, 0 to 2 percent slopes	9	I-3	2o4
DbB	Dubbs silt loam, 2 to 5 percent slopes	9	IIe-1	2o4
DnA	Dundee silt loam, 0 to 2 percent slopes	10	IIw-2	2w5
DnB	Dundee silt loam, 2 to 5 percent slopes	10	IIe-1	2w5
DuA	Dundee silty clay loam, 0 to 2 percent slopes	11	IIw-2	2w5
DuB	Dundee silty clay loam, 2 to 5 percent slopes	11	IIe-2	2w5
Fa	Falaya silt loam	12	IIw-1	1w8
Fc	Falaya-Vicksburg-Leverett association	12		
	Falaya part	--	Vw-1	1w8
	Vicksburg part	--	Vw-1	1o7
	Leverett part	--	Vw-1	3o7
Fo	Forestdale silt loam	12	IIIw-2	1w6
Fr	Forestdale silty clay loam	13	IIIw-2	1w6
GrA	Grenada silt loam, 0 to 2 percent slopes	13	IIw-3	3o7
GrB2	Grenada silt loam, 2 to 5 percent slopes, eroded	13	IIe-4	3o7
GuE	Gullied land-Memphis complex, 5 to 30 percent slopes	14	VIIe-1	---
Le	Leverett silt loam	15	IIw-3	3o7
LoA	Loring silt loam, 0 to 2 percent slopes	15	I-1	3o7
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	16	IIe-3	3o7
LoC2	Loring silt loam, 5 to 8 percent slopes, eroded	16	IIIe-1	3o7
LoD2	Loring silt loam, 8 to 12 percent slopes, eroded	16	IVe-1	3o7
MeA	Memphis silt loam, 0 to 2 percent slopes	17	I-1	2o7
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded	17	IIe-3	2o7
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded	17	IIIe-1	2o7
MnE	Memphis-Natchez association, hilly	18	VIe-2	2r8
Mo	Morganfield silt loam	18	I-2	1o4
Sa	Sharkey silty clay loam	20	IIIw-2	2w6
Sc	Sharkey clay	20	IIIw-2	2w6
Sd	Sharkey clay, depressional	20	IVw-1	3w6
Sf	Sharkey and Forestdale soils	20		
	Sharkey part	--	Vw-1	2w6
	Forestdale part	--	Vw-1	1w6
Tu	Tunica silt loam	21	IIIw-2	2w6
VaE3	Vaiden soils, calcareous variant, 5 to 25 percent slopes, severely eroded	21	VIe-1	4c9
Vc	Vicksburg silt loam	22	I-2	1o7

NRCS Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.