Series 1961, No. 37

Issued November 1966

SOIL SURVEY

Monroe County, Mississippi

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

HOW TO USE THIS SOIL SURVEY REPORT

THIS SOIL SURVEY of Monroe County, Miss., will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid managers of forest and woodland; add to soil scientists' knowledge of soils; and help prospective buyers and others in appraising a farm or other tract.

Locating the Soils

At the back of this report is an index map and a soil map consisting of many sheets. On the index map are rectangles numbered to correspond to the sheets on the soil map so that the sheet showing any area can be located easily. On each map sheet, the soil boundaries are outlined and there is a symbol for each kind of soil. 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 the area and a pointer shows where it belongs. For example, an area on the map has the symbol Et. The legend for the set of maps shows that this symbol identifies Eutaw silt loam, deep. That soil and all others mapped in the county are described in the section "Descriptions of the Soils."

Finding Information

In the "Guide to Mapping Units" at the back of this report, the soils are listed in the alphabetic order of their map symbols. This guide shows where to find a description of each soil and a discussion of its capability unit and woodland suitability group. It also shows where to find the acreage of each soil, the yields that can be expected, and information about engineering uses of soils and about wildlife.

Farmers and those who work with farmers can learn about the soils on a farm by reading the description of each soil and of its capability unit and other groupings. A convenient way of doing this is to turn to the soil map and list the soil symbols of a farm, and then to use the "Guide to Mapping Units" in finding the pages where each soil and its groupings are described.

Foresters and others interested in woodland can refer to the subsection "Woodland Management." In that subsection the soils in the county are placed in groups according to their suitability for trees, and the management of each group is discussed.

Game managers, sportsmen, and others concerned with wildlife will find information about the main kinds of wildlife and their food and cover in the subsection "Use of Soils for Wildlife and Fish."

Engineers and builders will find in the subsection "Engineering Applications" tables that give engineering descriptions of the soils in the county; name the soil features that affect engineering practices and structures; and rate the soils according to their suitability for several kinds of engineering work.

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

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Monroe County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "Additional Facts About the County."

* * * * *

Fieldwork for this survey was completed in 1961. Unless otherwise indicated, all statements in the report refer to conditions in the county at the time the survey was in progress. The soil survey of Monroe County, Miss., was made as part of the technical assistance furnished by the Soil Conservation Service to the Monroe County Soil Conservation District.

Cover picture: Herefords grazing bahiagrass on Tilden fine sandy loam, 0 to 2 percent slopes.

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SOIL SURVEY OF MONROE COUNTY, MISSISSIPPI

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UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

MONROE COUNTY is in the northeastern part of Mississippi, adjacent to Alabama (fig. 1). Aberdeen is the county seat. The county is almost square; it is about 28 miles wide and has a land area of about 769 square miles, or 492,160 acres.

Monroe County has a warm, humid climate and abundant rainfall. Winter and spring are the wettest seasons, and fall is the driest. The average yearly rainfall is about 52 inches.

This county is mainly agricultural. The chief crops are cotton, corn, soybeans, and hay. Forest products are important as a secondary source of income. Deep and shallow wells furnish water for household use, and perennial streams, springs, and ponds furnish most of the water for livestock.

The Tombigbee River, the largest stream in the county, flows from north to south and separates the clayey prairie soils in the western third of the county from the sandy Coastal Plain soils in the eastern part.

How This Soil Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Monroe County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug or bored 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 to the rock material that has not been changed much by leaching or by roots of plants.

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. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

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

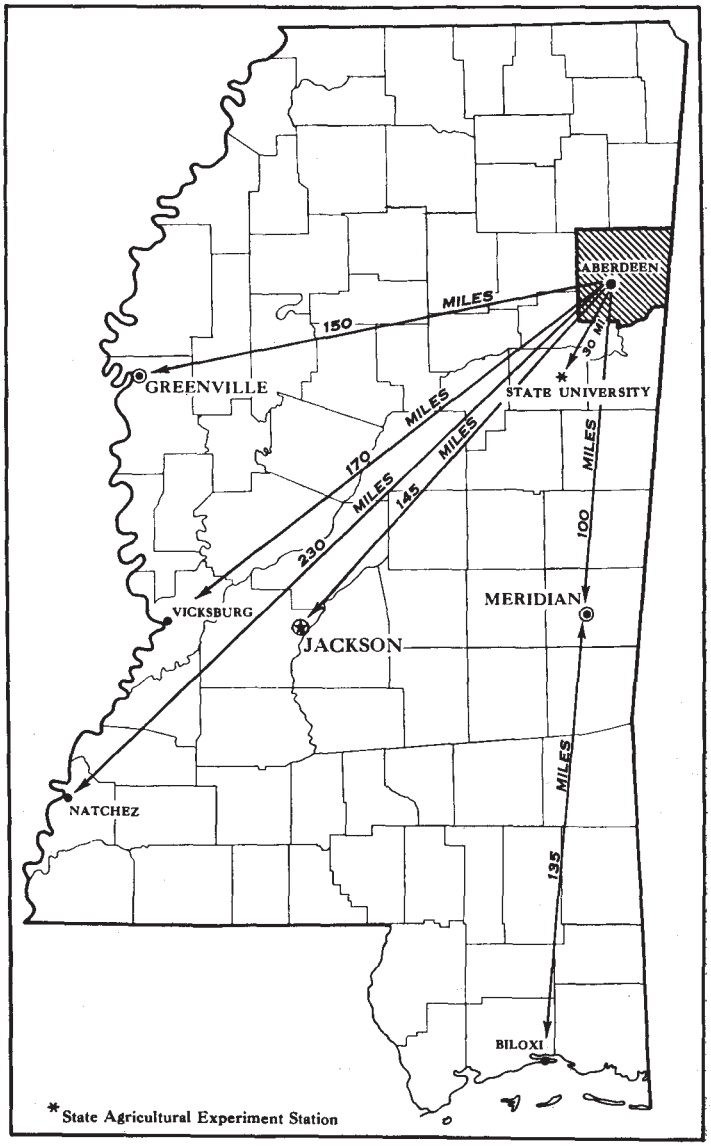

Figure 1.—Location of Monroe County in Mississippi.

was first observed and mapped. Leeper and Tilden, 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 go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Cuthbert silt loam and Cuthbert silty clay loam are two soil types in the Cuthbert series. The difference in texture of their surface layer is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or in some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Cuthbert silt loam, 2 to 5 percent slopes, is one of several phases of Cuthbert silt loam, a soil type that ranges from nearly level to strongly sloping.

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 photographs show woodlands, buildings, field borders, trees, and other details that greatly help in drawing boundaries accurately. The soil map at the back of this report 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 management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. 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 type or soil phase.

In some places it is desirable to show two or more soil types or soil phases, which are similar but do not occur in a regular pattern, as one mapping unit. Such groups are called undifferentiated soil groups. They are named in terms of their constituent soils and connected by "and." Ruston and Cuthbert soils, 12 to 17 percent slopes, is an example of an undifferentiated soil group.

Also, on most soil maps, areas are shown that are so rocky, so shallow, or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land, acid, or Alluvial land, and are called land types rather than soils.

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 soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. 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 a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners.

Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil survey reports. On the basis of yield and practice tables and other data, the soil scientists set up trial groups and test them by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists 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 report shows by colors the seven general soil areas, or soil associations, in Monroe County. A soil association is a pattern of soils that recurs in a characteristic landscape. It consists of a few major soils and several minor ones and is named for the major soils. Any or all of the soils in any one association may also occur in another association, but their patterns will be different.

The kind of soil in any one place cannot be determined on the general soil map, for only the areas covered by the patterns, or soil associations, are shown. The different kinds of soils that make up a soil association are likely to vary in slope, depth, stoniness, drainage, and other characteristics. For this reason the general soil map is not detailed enough for use in planning management for a particular farm or field, but it is useful to people who want a general idea of the soils in the county, who want to compare different parts of the county, or who want to know the location of large areas that are suitable for a certain kind of farming or other land use.

The seven associations in this county are on bottom land, terraces, or upland. Two associations are on bottom land, one along the streams that flow from the prairie section, and the other along the rivers of the Coastal Plain. Of the four associations on upland, one that consists of soils with a fragipan is in the east-central part of the county above the stream terraces of the Tombigbee River, two consist of clayey soils and are in the western part of the county, and one is on narrow ridges and steep side slopes. One association is on the stream terraces of the Tombigbee River.

1. Houston-Brooksville-Vaiden association: Moderately well drained and somewhat poorly drained clayey soils of the upland

This soil association is a broad, nearly level and gently sloping plain that extends in a single area along almost the entire western boundary of the county. This is the section referred to in this report as the prairie section. It has a well-established pattern of creeks and draws with fairly wide bottoms and short, moderately sloping sides. The association occupies about 10 percent of the county.

Moderately well drained Houston soils and somewhat poorly drained Brooksville and Vaiden soils make up about 90 percent of this association, and poorly drained Eutaw and Geiger soils make up the rest. The Houston,

Brooksville, and Vaiden soils have a dark-gray to black silty clay or clay surface layer 6 to 8 inches thick. Their subsoil is clay that ranges from mottled yellowish brown to olive.

The nearly level and gently sloping plain that makes up this association is well suited to cultivation and is farmed extensively. The Houston and Brooksville soils are mostly in row crops, and the Vaiden soils are mostly in pasture. The moderately sloping areas are used for pasture, and the bottom land is used for both crops and pasture.

Some of the larger farms in the county are in this association. The main farm enterprises are growing cotton and raising livestock. The soils respond well to good management and are particularly well suited to cotton, corn, soybeans, and pasture grasses. Most of the acreage suitable for cultivation has been cleared and is farmed.

2. Vaiden-Eutaw association: Somewhat poorly drained and poorly drained soils of the upland that have silt loam or silty clay surface soil and clay subsoil

This association is chiefly a nearly level and gently sloping plain, but it includes steep slopes adjacent to stream bottoms. It occupies about 10 percent of the county and is in two large areas in the western half.

Of this association, about 75 percent is Vaiden soils, 10 percent is Eutaw soils, and 15 percent is minor soils on the steep slopes adjacent to the streams. The Vaiden soils are somewhat poorly drained, and the Eutaw soils are poorly drained. Vaiden and Eutaw soils have a very dark gray to grayish-brown surface layer 6 to 10 inches thick. Their subsoil is mottled clay that ranges from gray to pale yellow or strong brown.

Vaiden soils are suitable for cultivation, but they are used mainly for pasture. Eutaw soils are mainly in pasture and trees. The soils on the steep slopes are used primarily for pasture and trees.

3. Houlka-Leeper-West Point association: Moderately well drained and somewhat poorly drained soils on bottom land along streams flowing from the prairie section

This association consists of three areas of prairie bottom land along the larger tributaries of the county. One area is along James Creek; one is along Mattubby Creek; and the third is along Old Town Creek. The association occupies 5 percent of the county.

Of this association, the Houlka and Leeper soils make up 60 percent, the West Point soils 20 percent, the Catalpa soils 10 percent, and the Una and Tuscumbia soils 10 percent. The Houlka and Leeper soils are somewhat poorly drained and have a gray to dark grayish-brown silty clay surface layer and a grayish-brown to dark-gray clay subsoil. The West Point soils are moderately well drained and have a very dark gray silty clay surface layer and a very dark gray clay subsoil. Catalpa soils are moderately well drained. Their surface layer is dark grayish-brown silty clay, and their subsoil is light olive-brown silty clay. Una and Tuscumbia soils are poorly drained and have a silty clay surface layer and a mottled clay or clay loam subsoil.

About half of this association is used to produce cotton, corn, and soybeans. The rest, except for small areas of trees along streams, is used for pasture. Except for poorly drained areas along drainageways, all of this association is suited to row crops. Flooding is the main hazard, but the floods do not last long, and they seldom damage crops.

4. Ora-Savannah association: Moderately well drained soils of the upland that have fine sandy loam or silt loam surface soil and silt loam or clay loam subsoil, with fragipan

This association consists of broad, nearly level and gently sloping ridges that are dissected by V-shaped creeks, branches, and draws. Moderate and strong slopes border most of these drainageways. The association occupies about 15 percent of the county. It is in a small area in the northwestern part of the county and a large area in the east-central part adjacent to the stream terraces of the Tombigbee River.

The Ora and Savannah soils are on the nearly level and gently sloping ridges and make up about 90 percent of this association. The remaining 10 percent consists of Pheba soils in depressions on the broad ridges. The Ora and Savannah soils are moderately well drained and have a brown or dark grayish-brown surface layer and a brown and yellowish-brown loam and clay loam subsoil. A fragipan occurs at a depth of about 20 inches. Pheba soils are somewhat poorly drained and have a brown or grayish-brown silt loam surface layer and a yellowish-brown silt loam subsoil mottled with gray.

This association is well suited to cultivation and is farmed rather extensively. Most of the farms are less than 160 acres in size and are of the general type. The main cash crops are cotton and corn. The association is well suited to crops commonly grown in the county, but cultivated fields are moderately susceptible to erosion.

5. Myatt-Stough-Tilden association: Poorly drained to moderately well drained soils on nearly level and gently sloping stream terraces

This association consists of stream terraces that lie east of the Tombigbee River in the central part of the county. The association amounts to about 15 percent of the county.

Myatt soils are in the lowest parts of the nearly level terraces and make up about 40 percent of the association. The Stough soils occur in positions similar to those of the Myatt soils and make up about 25 percent of the association. Tilden soils and Prentiss soils amount to 35 percent of the association. The Myatt soils are poorly drained and have a gray or very dark gray fine sandy loam surface layer and a light brownish-gray sandy loam to sandy clay loam subsoil. Stough soils are somewhat poorly drained. They have a surface layer of dark-brown or dark grayish-brown fine sandy loam and a subsoil of yellowish-brown loam. Tilden and Prentiss soils are moderately well drained. Their surface layer is grayish-brown or brown fine sandy loam, and their subsoil is yellowish-red, strong-brown, or brown silt loam or loam.

About 70 percent of this association has been cleared. Most of the acreage is in pasture, but a small part is used for cotton and corn. The low wet areas are in woods. The average farm is less than 160 acres in size. Nearly all of this association is suited to pasture, and the better drained areas can be cultivated. Surface drainage is a major problem in cultivated areas.

6. Bibb-Mantachie-Alluvial land association: Sandy soils on the bottom land of the Coastal Plain

The bottom land that makes up this association is in two areas that range from 1 to 4 miles in width and are flooded several times each year. One area is along the Tombigbee River, and the other is along the Buttahatchie and Sipsey

Rivers. The association amounts to about 20 percent of the county.

Bibb and Mantachie soils make up about 80 percent of this association, and Alluvial land and Iuka soils account for the rest. The Bibb soils are poorly drained, and the Mantachie soils are somewhat poorly drained. Bibb and Mantachie soils have a dark-brown or dark grayish-brown surface layer that varies in texture. Their subsoil is mottled gray, brown, and yellow loam and sandy loam. Alluvial land varies in texture and drainage, and Iuka soils are moderately well drained.

Almost all of this association is in cutover woods, but some small, isolated areas are cultivated. Cultivation is limited by the frequent floods. In most of the association large acreages are privately owned, some of them by lumber companies.

7. Ruston-Cuthbert-Luverne association: Soils on narrow ridges and steep side slopes

This association consists of rough broken areas that are dissected by many streams, branches, and draws. From the gently sloping ridgetops, steep side slopes extend to wet stream bottoms that generally are less than 300 feet wide. The association amounts to 25 percent of the county and is in several areas, mostly in the eastern part.

The Ruston and Cuthbert soils are on both the narrow ridgetops and the steep side slopes and make up 70 percent of the association. The Luverne soils are only on the steep side slopes and make up 30 percent. The Ruston and Luverne soils are well drained, and the Cuthbert soils are moderately well drained. The Ruston, Cuthbert, and Luverne soils have a brownish silt loam or sandy loam surface layer. Their subsoil ranges from yellowish red to dark red in color and from sandy loam to sandy clay in texture. Small areas of Greenville, Ora, and Savannah soils are widely distributed on the ridgetops.

Most of this association is forested. The farms are less than 100 acres in size and consist of pasture on the steeper slopes and small cultivated fields on the ridgetops and the narrow bottoms. Most of the farmers cultivate cotton and corn and raise a few livestock. The association is well suited to pine and hardwood trees. The soils on the ridgetops and bottoms would produce high yields if they were adequately fertilized and limed, but erosion is a hazard on the ridgetops, and the bottoms are subject to flooding.

Descriptions of the Soils

This section describes the soil series (groups of soils) and single soils (mapping units) of Monroe County. The acreage and proportionate extent of each mapping unit are given in table 1.

The procedure in this section is first to describe the soil series, and then the mapping units in that series. Thus, to get full information on any one mapping unit, it is necessary to read the description of that unit and also the description of the soil series to which it belongs. As mentioned in the section "How This Soil Survey Was Made," not all mapping units are members of a soil series. Alluvial land and Terrace escarpments are miscellaneous land types and do not belong to a soil series but, nevertheless, are listed in alphabetic order along with the soil series.

Following the name of each mapping unit, there is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit are the capability unit and the woodland suitability group in which the mapping unit has been placed. The page on which each capability unit is described can be found readily by referring to the "Guide to Mapping Units" at the back of the report.

Soil scientists, engineers, students, and others who want detailed descriptions of soil series should turn to the section "Formation and Classification of Soils." Many terms used in the soil descriptions and other sections of the report are defined in the Glossary.

Alluvial Land (Al)

This mapping unit is in large, wooded areas along the Tombigbee, Buttahatchie, and Sipsey Rivers. Its soil materials range from sand to clay. They are acid or alkaline and moderately well drained to poorly drained. Most areas are on slopes of less than 2 percent, but some areas along streambanks are steeper. Because the land is flooded several times each year, the soils are too nearly inaccessible for orderly examination and mapping.

Hardwoods are well suited to this land. Tupelo-gum and cypress grow well in low, poorly drained meanders of old streams that are filled with water for more than 6 months each year. Growing in poorly drained areas that are flooded for shorter periods are overcup oak, blackgum, water hickory, and bitternut hickory. Between the old meanders and the natural levees are better drained areas suited to water oak, swamp chestnut oak, cherrybark oak, American beech, poplar, maple, and elm. (Capability unit Vw–2; woodland suitability group not assigned)

Bibb Series

The Bibb series consists of nearly level, poorly drained soils that formed in medium-textured, stratified alluvium that washed from the Coastal Plain. These soils are on the flood plain of streams in the eastern part of the county. Their surface layer is dark-brown silt loam, and their subsoil is light-gray to gray loam mottled with yellowish brown. These soils are strongly acid and low in natural fertility and in organic-matter content.

Bibb soils occur with Iuka and Mantachie soils and, in this county, are mapped only in units of undifferentiated Bibb and Mantachie soils. Bibb soils are less well drained than Iuka and Mantachie soils and differ from them in color. The Iuka soils are yellowish brown, and Mantachie soils have a mottled yellowish-brown and gray subsoil.

The native vegetation on Bibb soils was mixed hardwoods, shortleaf pine, and loblolly pine. Most of the acreage is now in cutover hardwoods. These soils are best suited to hardwoods, pines, and pasture.

Bibb and Mantachie soils (Bm).—These soils of the flood plain have a silt loam or fine sandy loam surface layer and a friable loam or sandy loam subsoil. The Bibb soils are poorly drained, and the Mantachie soils are somewhat poorly drained Included in areas mapped as these soils are small areas of moderately well drained Iuka soils. The major horizons in a Bibb soil are—

0 to 4 inches, dark-brown, friable silt loam.
4 to 22 inches, light-gray to gray, friable loam mottled with yellowish brown.
22 to 48 inches, mottled light-gray, gray, and strong-brown, silty clay loam.

TABLE 1.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Soil	Area	Extent	Soil	Area	Extent
	Acres	Percent		Acres	Percent
Alluvial land	14,631	3.0	Kipling silt loam, moderately well drained variant, 2 to 5 percent slopes	206	(1/)
Bibb and Mantachie soils	40,174	8.2	Leaf silt loam	594	0.1
Brooksville silty clay, 0 to 2 percent slopes	3,900	.8	Leeper silty clay	8,258	1.7
Brooksville silty clay, 2 to 5 percent slopes	3,477	.7	Mantachie soils	17,122	3.5
Brooksville silty clay, 2 to 5 percent slopes, eroded	1,777	.4	Mashulaville silt loam	1,454	.3
Cahaba fine sandy loam, 0 to 2 percent slopes	5,473	1.1	Myatt fine sandy loam	23,299	4.7
Cahaba fine sandy loam, 2 to 5 percent slopes, eroded	1,536	.3	Ora fine sandy loam, 2 to 5 percent slopes	7,570	1.5
Cahaba fine sandy loam, 5 to 8 percent slopes, severely eroded	482	(1/)	Ora fine sandy loam, 2 to 5 percent slopes, severely eroded	2,700	.6
Catalpa silty clay	9,505	2.0	Ora fine sandy loam, 5 to 8 percent slopes, eroded	2,547	.5
Cuthbert silt loam, 2 to 5 percent slopes	602	.1	Ora loam, 5 to 8 percent slopes severely eroded	11,276	2.3
Cuthbert silt loam, 5 to 8 percent slopes	2,052	.4	Ora loam, 8 to 12 percent slopes, severely eroded	5,294	1.0
Cuthbert silt loam, 8 to 12 percent slopes, eroded	706	.1	Pheba silt loam, 0 to 2 percent slopes	2,429	.5
Cuthbert silty clay loam, 5 to 8 percent slopes, severely eroded	1,765	.4	Pheba silt loam, 2 to 5 percent slopes	912	.2
Cuthbert silty clay loam, 8 to 12 percent slopes, severely eroded	1,747	.4	Prentiss fine sandy loam, 0 to 2 percent slopes	4,835	1.0
Eustis loamy sand, terrace, 0 to 2 percent slopes	1,247	.3	Prentiss fine sandy loam, 2 to 5 percent slopes	723	.1
Eutaw silt loam, deep	3,735	.8	Prentiss fine sandy loam, 2 to 5 percent slopes, eroded	2,659	.5
Eutaw silty clay, deep	1,306	.3	Ruston fine sandy loam, 0 to 2 percent slopes	273	(1/)
Geiger silt loam	1,206	.3	Ruston fine sandy loam, 2 to 5 percent slopes	3,338	.7
Geiger silty clay	1,170	.2	Ruston fine sandy loam, 2 to 5 percent slopes, severely eroded	1,318	.3
Greenville loam, 0 to 2 percent slopes	1,112	.2	Ruston fine sandy loam, 5 to 8 percent slopes	2,000	.4
Greenville loam, 2 to 5 percent slopes, eroded	723	.1	Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded	776	.2
Greenville clay loam, 2 to 5 percent slopes, severely eroded	794	.2	Ruston and Cuthbert soils, 12 to 17 percent slopes	7,658	1.6
Greenville clay loam, 5 to 8 percent slopes, severely eroded	612	.1	Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded	9,770	2.0
Guin gravelly sandy loam, 5 to 12 percent slopes	605	.1	Ruston and Cuthbert soils, 17 to 45 percent slopes	71,165	14.5
Gullied land, acid	3,770	.8	Ruston and Luverne soils, 8 to 12 percent slopes, eroded	1,029	.2
Gullied land, alkaline	1,653	.3	Ruston and Luverne soils, 8 to 12 percent slopes, severely eroded	994	.2
Houlka silty clay	8,253	1.7	Ruston and Luverne soils, 12 to 17 percent slopes	1,535	.3
Houlka very fine sandy loam, local alluvium	2, 341	.5	Ruston and Luverne soils, 12 to 17 percent slopes, eroded	2,376	.5
Houston clay, 0 to 2 percent slopes	8,088	1.6	Ruston and Luverne soils, 17 to 45 percent slopes	14,946	3.0
Houston clay, 2 to 5 percent slopes	7,876	1.6	Ruston and Luverne soils, 17 to 45 percent slopes, eroded	2,347	.5
Houston clay, 2 to 5 percent slopes, eroded	12,840	2.6	Sandy alluvial land	2,523	.5
Houston clay, 5 to 8 percent slopes, eroded	2,147	.4			
Iuka soils	906	.2			
Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes	918	.2			

See footnote at end of table.

TABLE 1.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Soil	Area	Extent	Soil	Area	Extent
	Acres	Percent		Acres	Percent
Savannah silt loam, 0 to 2 percent slopes	6,653	1.4	Vaiden silt loam, deep, 5 to 8 percent slopes	1,365	0.3
Savannah silt loam, 2 to 5 percent slopes	7,088	1.4	Vaiden silty clay, deep, 0 to 2 percent slopes	4,859	1.0
Stough fine sandy loam	14,843	3.0	Vaiden silty clay, deep, 2 to 5 percent slopes, eroded	7,612	1.5
Sumter silty clay, 2 to 5 percent slopes, severely eroded	535	.1	Vaiden silty clay, deep, 2 to 5 percent slopes, severely eroded	1,994	.4
Sumter silty clay, 5 to 12 percent slopes, severely eroded	4,347	.9	Vaiden silty clay, deep, 5 to 8 percent slopes, eroded	1,729	.4
Terrace escarpments	1,500	.3	Vaiden silty clay, deep, 5 to 8 percent slopes, severely eroded	3,982	.8
Tilden fine sandy loam, 0 to 2 percent slopes	10,944	2.2	Vaiden silty clay, deep, 8 to 12 percent slopes, severely eroded	4,935	1.0
Tilden fine sandy loam, 2 to 5 percent slopes	2,180	.4	Vaiden and Sumter soils, 8 to 17 percent slopes, severely eroded	3,641	.7
Tilden fine sandy loam, 2 to 5 percent slopes, eroded	1,118	.2	West Point silty clay	14,046	2.9
Tilden fine sandy loam, 5 to 8 percent slopes, eroded	1,194	.2	Total	492,160	100.0
Una and Tuscumbia silty clays	5,147	1.0			
Vaiden silt loam, deep, 0 to 2 percent slopes	15,423	3.1			
Vaiden silt loam, deep, 2 to 5 percent slopes	13,970	2.8			

1/ Less than 0.1 percent.

The major horizons in a Mantachie soil are—

0 to 8 inches, dark-brown, friable fine sandy loam.
8 to 19 inches, mottled yellowish-brown and gray, friable sandy loam.
19 to 48 inches, mottled grayish-brown and yellow, friable loam.

Bibb and Mantachie soils are strongly acid and low in natural fertility and in organic-matter content. They respond well to fertilization. Because runoff is slow and the water table is high, V- and W-ditches, field ditches, and laterals are needed to remove excess surface water. Flood damage to crops is severe. The total acreage of these soils is large, and most of it is in trees. A small acreage is in pasture. (Capability unit VIw–1; woodland suitability group 4)

Brooksville Series

The Brooksville series consists of nearly level to gently sloping, somewhat poorly drained soils that formed in thick beds of calcareous material. These soils occur in small to fairly large areas on the upland in the western part of the county. In uneroded areas their surface layer is dark grayish-brown silty clay. Their subsoil is dark grayish brown mottled with yellowish red. These soils are slightly acid, moderate in natural fertility, and low in organic-matter content.

In this county Brooksville soils occur with the Houston and Vaiden soils in nearly level to strongly sloping areas. The Brooksville soils are not so well drained as the Houston soils, and their subsoil is mottled at a depth of 17 inches. The subsoil of the Brooksville soils is very dark grayish brown. The subsoil of the Vaiden soils below a depth of 6 inches, is mottled pale brown, red, and gray.

The native vegetation on Brooksville soils was mixed hardwoods, but most of the acreage has been cleared and is now cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Brooksville silty clay, 0 to 2 percent slopes (BrA).—This somewhat poorly drained soil is on the prairie upland. It has a firm, very dark grayish-brown clay subsoil mottled with yellowish red. The major horizons are—

0 to 17 inches, very dark grayish-brown, friable silty clay.
17 to 28 inches, very dark grayish-brown, firm clay mottled with yellowish red.
28 to 60 inches, mottled olive-brown, firm clay.

The subsoil ranges from 10 to 20 inches in thickness, from very dark grayish brown to olive brown in color, and from clay to silty clay in texture. A few nodules of lime occur at a depth of about 60 inches. The soil is slightly acid, moderate in natural fertility, and low in organic-matter content. Included in some areas mapped as this soil are small areas of Vaiden and Houston soils.

This soil can be cultivated within only a fairly narrow range of moisture content. It responds well to fertilization. Because runoff and infiltration are slow, graded rows and field ditches are needed to remove excess surface

water during wet periods. The total acreage is small, and all of it is cultivated or in pasture. (Capability unit IIw–5; woodland suitability group 10)

Brooksville silty clay, 2 to 5 percent slopes (BrB).—This gently sloping soil has better surface drainage than Brooksville silty clay, 0 to 2 percent slopes, and a thinner surface layer. The surface layer is 6 to 8 inches thick. Included in the areas mapped as this soil are small areas of Vaiden and Houston soils that have a silty clay surface layer.

Although erosion is a moderate hazard, this soil is suited to most of the crops commonly grown in the county. It is used for cultivated crops and for pasture. (Capability unit IIe–4; woodland suitability group 10)

Brooksville silty clay, 2 to 5 percent slopes, eroded (BrB2).—The surface layer of this soil is dark grayish-brown silty clay. It is thinner than the surface layer of Brooksville silty clay, 0 to 2 percent slopes, and is firm instead of friable. The surface layer is 4 to 6 inches thick. In about 25 percent of the acreage, grayish-brown clay from the upper subsoil has been mixed with remnants of the original surface soil. In these areas the subsoil is prominently mottled with red and a few gullies occur. Included in areas mapped as this soil are small areas of Vaiden and Houston soils.

This soil is suited to most crops commonly grown in the county, but in cultivated areas careful management is needed to control erosion. The total acreage is small and is mostly cropped or in pasture. (Capability unit IIe–4; woodland suitability group 10)

Cahaba Series

The Cahaba series consists of nearly level to moderately sloping, well-drained soils that formed in old alluvium. The soils occur in small areas on terraces along the Buttahatchie and Tombigbee Rivers. In uneroded areas the surface layer is dark-brown fine sandy loam. The subsoil is strong-brown loam or sandy loam. These soils are strongly acid and are low in natural fertility and in organic-matter content.

In this county the Cahaba soils occur with the Tilden and Prentiss soils, which have a fragipan and are not so well drained as the Cahaba. Cahaba soils are browner than the Prentiss.

The native vegetation on Cahaba soils was mixed hardwoods, some shortleaf and loblolly pines, and an understory of shrubs and grasses. Most of the acreage has been cleared and is now cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Cahaba fine sandy loam, 0 to 2 percent slopes (CaA).—This well-drained soil on terraces has a friable, dark-brown surface layer and a strong-brown loam subsoil. The major horizons are—

0 to 8 inches, dark-brown, friable fine sandy loam.
8 to 29 inches, dark-brown to strong-brown, friable loam or sandy loam.
29 to 60 inches, strong-brown, very friable loamy sand.

The upper subsoil ranges from dark brown to strong brown in color and from fine sandy loam to loam in texture. The lower subsoil ranges from loamy sand to loam. The soil is strongly acid and low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Tilden and Prentiss soils.

This soil is easily kept in good tilth and responds well to fertilization. In some places graded rows and W-ditches are needed to remove excess surface water. The total acreage of this soil is small and is cultivated or in pasture. (Capability unit I–1; woodland suitability group 1)

Cahaba fine sandy loam, 2 to 5 percent slopes, eroded (CaB2).—The surface layer of this soil is thinner than that of Cahaba fine sandy loam, 0 to 2 percent slopes, and consists of brown, heavy fine sandy loam that has an average thickness of about 5 inches but ranges from 3 to 6 inches in thickness. In about 25 percent of most areas mapped, the surface layer is strong brown and consists chiefly of subsoil material. A few shallow gullies occur in places. Included in areas mapped as this soil are a few areas of Tilden and Prentiss soils.

This soil is suited to many kinds of crops, but in cultivated areas careful management is needed to control erosion. The small total acreage is in cultivated crops and pasture. (Capability unit IIe–1; woodland suitability group 1)

Cahaba fine sandy loam, 5 to 8 percent slopes, severely eroded (CaC3).—This severely eroded soil has lost almost all of its original surface layer of brown fine sandy loam, and its plow layer is strong-brown subsoil material mixed with remnants of the original surface layer. In other respects, this soil is similar to Cahaba fine sandy loam, 0 to 2 percent slopes. Shallow gullies are common, and there are a few deep ones.

This soil is suited to many kinds of crops, but surface runoff causes a moderate to severe hazard of further erosion. Careful management is needed in cultivated areas to control erosion. The total acreage is small and is mainly in pasture. (Capability unit IVe–1; woodland suitability group 1)

Catalpa Series

The Catalpa series consists of nearly level, moderately well drained soils on the flood plain. These soils are in the prairie section of the western part of the county. They formed in alluvium that washed from the Houston, Brooksville, and Sumter soils. Their surface layer is dark grayish-brown silty clay, and their subsoil is olive-brown silty clay. These soils are neutral to alkaline and are moderate in natural fertility and in organic-matter content.

In this county the Catalpa soils occur with the West Point, Houlka, Leeper, and Tuscumbia soils. The Catalpa soils are not so well drained as the West Point soils. They are better drained than the Houlka, Leeper, and Tuscumbia soils and are less mottled in the upper subsoil.

The native vegetation on Catalpa soils was mixed hardwoods and an understory of shrubs, rushes, and grasses. Most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Catalpa silty clay (Cs).—This moderately well drained soil of the flood plain has a friable to firm, olive-brown silty clay subsoil. The major horizons are—

0 to 4 inches, dark grayish-brown, friable silty clay.
4 to 20 inches, olive-brown, friable to firm silty clay.

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20 to 63 inches, mottled brown, friable to firm clay; plastic and sticky when wet.

The mottles in this soil are at a depth of 18 inches or more. The soil is alkaline and is moderate in organic-matter content. Included in areas mapped as this soil are small areas of Leeper, Houlka, and Tuscumbia soils.

This soil is fairly easy to keep in good tilth, and it responds well to fertilization. The slowly permeable, clayey subsoil, however, is sticky when wet and hardens and cracks as it dries. Because runoff and infiltration are slow, graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The fairly large total acreage of this soil is in row crops and pasture. (Capability unit IIw–2; woodland suitability group 13)

Cuthbert Series

The Cuthbert series consists of gently sloping to strongly sloping, moderately well drained soils on narrow ridges and steep side slopes. These soils occur in small areas in the eastern part of the county. They formed in beds of clay containing lenses of sandy material. Uneroded areas have a brown silt loam surface layer. The subsoil is yellowish-red or red silty clay loam or clay. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Cuthbert soils occur with gently sloping to steep Ruston soils. The Cuthbert soils are not so well drained as the Ruston and are finer textured in the subsoil.

The native vegetation on Cuthbert soils was mixed hardwoods and shortleaf and loblolly pines. Most of the acreage is wooded or in pasture. A few areas of these soils can be used occasionally for row crops.

Cuthbert silt loam, 2 to 5 percent slopes (CtB).—This moderately well drained soil of the upland has a friable to firm, yellowish-red to red subsoil of silty clay loam or clay. The major horizons are—

0 to 6 inches, brown to dark-brown, friable silt loam.
6 to 16 inches, yellowish-red to red, friable silty clay loam or clay.
16 to 48 inches, mottled red, strong-brown, and gray, firm silty clay.

The silt loam surface layer of this soil averages about 6 inches in thickness. Rills occur in some places. The soil is strongly acid and low in natural fertility and organic-matter content.

This soil is fairly easy to keep in good tilth and responds fairly well to fertilization. If it is well managed, it is fairly well suited to a few kinds of row crops, but erosion is a moderate hazard in cultivated fields. The soil is best suited to permanent pasture and pine trees. (Capability unit IVe–5; woodland suitability group 2)

Cuthbert silt loam, 5 to 8 percent slopes (CtC).—The surface layer of this sloping soil is only 4 to 6 inches thick and is thinner than that of Cuthbert silt loam, 2 to 5 percent slopes. A few rills occur in some places.

Because of the moderate slopes and moderately rapid surface runoff, the hazard of erosion in cultivated fields is moderate. The slopes, slow permeability, and firm silty clay subsoil limit the productivity of this soil and the kinds of suitable crops. (Capability unit VIe–4; woodland suitability group 2)

Cuthbert silt loam, 8 to 12 percent slopes, eroded (CtD2).—The surface layer of this soil is only 3 to 4 inches thick and is thinner than that of Cuthbert silt loam, 2 to 5 percent slopes. In about 25 percent of most areas mapped, the plow layer extends into the reddish upper subsoil. A few shallow gullies occur in places. Infiltration is slow, and tilth is generally poor. This soil has been cleared and cultivated, but it has reverted to pine trees. (Capability unit VIe–4; woodland suitability group 2)

Cuthbert silty clay loam, 5 to 8 percent slopes, severely eroded (CuC3).—The yellowish-red surface layer of this severely eroded soil is only 4 to 6 inches thick and is thinner than the surface layer of Cuthbert silt loam, 2 to 5 percent slopes. In some places remnants of the original brown silt loam surface layer have been mixed with the silty clay loam subsoil. Shallow gullies are common in most areas of this soil, and a few deep ones have formed.

Tilth is generally poor. Erosion is severe in cultivated fields because infiltration and permeability are slow and surface runoff is rapid. Although this soil has been cleared and cultivated, it is poorly suited to cultivated crops. (Capability unit VIIe–3; woodland suitability group 2)

Cuthbert silty clay loam, 8 to 12 percent slopes, severely eroded (CuD3).—This severely eroded soil is more sloping than Cuthbert silt loam, 2 to 5 percent slopes, and its surface layer consists chiefly of yellowish-red to red silty clay loam from the subsoil. In other respects the two soils are similar. Shallow gullies are common in most areas of the severely eroded soil, and a few deep gullies have formed.

This soil is generally in very poor tilth. Because infiltration and permeability are slow and surface runoff is rapid, the hazard of further erosion is severe if the soil is cultivated. Consequently, this soil is not suited to cultivation and is only fair for pasture. (Capability unit VIIe–3; woodland suitability group 2)

Eustis Series

The Eustis series consists of nearly level, somewhat excessively drained soils that formed in coarse-textured sediments. These soils occur in small areas on terraces along the Buttahatchie and Tombigbee Rivers. Uneroded areas have a dark-brown loamy sand surface layer. The subsoil is dark-brown to yellowish-brown loamy sand. The soils are strongly acid and low in natural fertility and in organic-matter content.

In this county the Eustis soils occur with the nearly level, well drained and moderately well drained Cahaba and Tilden soils. The Eustis soils have a coarser textured subsoil than the Cahaba and Tilden soils and, unlike the Tilden soils, do not have a fragipan.

The native vegetation on Eustis soils was mixed hardwoods, some shortleaf and loblolly pines, and an understory of grass and small shrubs. Most of the acreage has been cleared and is used for truck crops. These soils are suited to most crops commonly grown in the county.

Eustis loamy sand, terrace, 0 to 2 percent slopes (EsA).—This somewhat excessively drained soil on stream terraces has a subsoil of very friable, dark-brown loamy sand. The major horizons are—

0 to 10 inches, brown to dark-brown, loose loamy sand.
10 to 36 inches, dark-brown, very friable loamy sand.
36 to 57 inches, yellowish-brown, very friable loamy sand.

The loamy sand subsoil ranges from 20 to 30 inches in thickness and from yellowish brown to dark brown in color. The soil is strongly acid and low in natural fertility and in organic-matter content. Infiltration and permeability are rapid, and the available water capacity is low. Included in areas mapped as this soil are small areas of Cahaba and Tilden soils.

This soil is easy to keep in good tilth and responds well to frequent, light applications of fertilizer. The small total acreage is mainly in cultivated crops. (Capability unit IIIs–1; woodland suitability group 7)

Eutaw Series

The Eutaw series consists of nearly level, poorly drained soils that formed in thin beds of clay over marl or chalk. These soils generally are in the western part of the county in level or depressional areas. Uneroded areas have a gray to very dark gray silt loam or silty clay surface layer. The subsoil is light-gray clay mottled with brownish yellow. These soils are medium acid, moderate in natural fertility, and low in organic-matter content.

In this county the Eutaw soils occur with the nearly level Vaiden, Brooksville, and Houston soils. The Eutaw soils are more poorly drained and have a grayer subsoil than the Brooksville and Vaiden soils.

The native vegetation on Eutaw soils was mixed hardwoods. Most of the acreage is in forest or pasture. These soils are suited to pasture and trees and to a few kinds of row crops.

Eutaw silty clay, deep (Eu).—This poorly drained soil of the prairie upland has a firm clay subsoil that is mottled with gray. The major horizons are—

0 to 5 inches, very dark gray, friable silty clay.
5 to 58 inches, mottled gray, firm clay.
58 to 67 inches, brownish-yellow clay with gray mottles.

The clay subsoil ranges from gray to light gray. The soil is medium acid, moderate in natural fertility, and low in organic-matter content. Included in areas mapped as this soil are areas of Vaiden soils.

This soil is hard to keep in good tilth. It shrinks and cracks when it dries. Because surface runoff and infiltration are slow, graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The total acreage of this soil is small and is used for trees and pasture. (Capability unit IVw–1; woodland suitability group 10)

Eutaw silt loam, deep (Et).—This soil has a gray, friable silt loam surface layer. Included in some areas mapped as this soil are small areas of Vaiden soils.

This soil is fairly easy to keep in good tilth, but areas that are left bare tend to crust and pack when wet and to shrink and crack when dry. Thus, crop roots may be damaged. Because surface runoff and infiltration are slow, graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The small total acreage of this soil is used for trees and pasture. (Capability unit IVw–1; woodland suitability group 10)

Geiger Series

The Geiger series consists of nearly level, poorly drained soils that formed in alluvium washed from soils of the prairie upland. These soils are in small areas on terraces in the western part of the county. In uneroded areas the surface soil is gray or grayish-brown silty clay or silt loam. The subsoil is mottled gray clay. These soils are medium acid, moderate in natural fertility, and low in organic-matter content.

In this county the Geiger soils adjoin the Eutaw and Vaiden soils in nearly level or depressional areas. Geiger soils are more poorly drained than the Vaiden.

The native vegetation on Geiger soils was mixed hardwoods. Most of the acreage is in trees or pasture. These soils are suited to pasture, to trees, and to some row crops.

Geiger silty clay (Gg).—This poorly drained soil on terraces has a firm subsoil of mottled gray clay. The major horizons are—

0 to 4 inches, gray or grayish-brown, friable silty clay.
4 to 30 inches, mottled gray, firm clay.
30 to 68 inches, gray, firm clay mottled with strong brown.

The clay subsoil ranges from light gray to gray. The soil is medium acid, moderate in natural fertility, and low in organic-matter content. This soil is hard to keep in good tilth. It shrinks and cracks when it dries. Because runoff and infiltration are slow, graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The small total acreage of this soil is in trees and pasture. (Capability unit IVw–1; woodland suitability group 6)

Geiger silt loam (Ge).—This poorly drained soil has a gray, friable silt loam surface layer 5 to 6 inches thick. Its subsoil is mottled, firm clay. The soil is medium acid, moderate in natural fertility, and low in organic-matter content.

Good tilth is difficult to maintain, and roots are damaged when the soil shrinks and cracks as it dries. Because runoff and infiltration are slow, graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The small total acreage of this soil is used for trees and pasture. (Capability unit IVw–1; woodland suitability group 6)

Greenville Series

The Greenville series consists of nearly level to moderately sloping, well-drained soils that formed in sandy clay and clay loam sediments. These soils occur in fairly small areas in the eastern part of the county. Uneroded areas have a dark-brown loam or sandy loam surface layer. The subsoil is dark reddish-brown to dark-red clay loam. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Greenville soils occur on the upland with the nearly level and moderately sloping Ruston and Ora soils. Greenville soils are better drained than the Ora soils and lack the fragipan that occurs in those soils. The Greenville soils have a dark reddish-brown to dark-red subsoil, but the subsoil of the Ruston and Ora soils is strong brown to yellowish red.

The native vegetation of mixed hardwoods and shortleaf and loblolly pines has been cleared, and most of the cleared acreage is cultivated or in pasture. Greenville soils are suited to most crops commonly grown in the county.

Greenville loam, 0 to 2 percent slopes (GrA).—This well-drained soil on uplands has a subsoil of friable, dark

reddish-brown to red clay loam. The major horizons are—

0 to 9 inches, dark-brown to reddish-brown, friable loam.
9 to 31 inches, dark reddish-brown, friable clay loam.
31 to 80 inches, dark reddish-brown to red, friable clay loam to sandy clay loam.

The subsoil ranges from clay loam to sandy clay loam. The soil is strongly acid and low in natural fertility and in organic-matter content. Infiltration and permeability are moderate. Included in mapping this soil are small areas of Ruston and Ora soils.

This soil is easy to keep in good tilth, and it responds well to fertilization. If left bare, however, it tends to crust and pack. Graded rows are needed in some places to remove excess surface water during wet periods. (Capability unit I–2; woodland suitability group 1)

Greenville loam, 2 to 5 percent slopes, eroded (GrB2).—This eroded soil is similar to Greenville loam, 0 to 2 percent slopes, but its plow layer of dark-brown loam is only 4 to 6 inches thick. In about 25 percent of the acreage, plowing has exposed the upper subsoil of reddish-brown loam. Included in areas mapped as this soil are small areas of Ruston and Ora soils.

This soil is suited to many kinds of crops. It responds well to fertilization and is easy to keep in good tilth, but erosion is a moderate hazard. This soil has been cleared, and it is used for cultivated crops and pasture. (Capability unit IIe–3; woodland suitability group 1)

Greenville clay loam, 2 to 5 percent slopes, severely eroded (GnB3).—Most of the original surface layer of this severely eroded soil has been lost, and the plow layer is dark reddish-brown clay loam. In other respects this soil is similar to Greenville loam, 0 to 2 percent slopes. Shallow gullies are common in most areas, and there are a few deep gullies. Included in some areas mapped as this soil are small areas of Ruston and Ora soils.

This soil is suited to many kinds of crops, but careful management is needed to control erosion in cultivated areas. The total acreage is small and is mostly in crops and pasture. (Capability unit IIIe–3; woodland suitability group 1)

Greenville clay loam, 5 to 8 percent slopes, severely eroded (GnC3).—This severely eroded soil is distinguished from Greenville loam, 0 to 2 percent slopes, by its dark reddish-brown clay loam surface layer that consists of remnants of the original loam surface layer mixed with the upper subsoil. Shallow gullies are common, and there are a few deep ones. Included in areas mapped as this soil are small areas of Ruston and Ora soils.

This soil is suited to many kinds of crops, but the erosion hazard is moderate or severe because slopes are moderate and runoff is moderately rapid. Careful management is required in cultivated areas to control erosion. The total acreage is small and is mostly in pasture. (Capability unit IVe–2; woodland suitability group 1)

Guin Series

The soils of the Guin series are moderately sloping to strongly sloping and well drained to excessively drained. These soils occupy short, steep slopes in the eastern part of the county. They are gravelly throughout the profile. The surface layer in uneroded areas is dark grayish-brown gravelly sandy loam. The soils are strongly acid, very low in natural fertility, and low in organic-matter content. The available water capacity is very low.

Guin soils occur with the Ora, Savannah, and Ruston soils in small areas that are mostly wooded.

Guin gravelly sandy loam, 5 to 12 percent slopes (GsD).—This well-drained to excessively drained soil of the upland has a friable, reddish-brown gravelly loam subsoil. The major horizons are—

0 to 5 inches, dark grayish-brown, friable gravelly sandy loam.
5 to 22 inches, reddish-brown, friable gravelly loam.
22 to 50 inches, reddish-brown gravelly sandy loam.

The subsoil ranges from 5 to 15 inches in thickness, from reddish brown to strong brown in color, and from gravelly loam to gravelly sandy loam in texture. Gravel makes up 30 to 90 percent of the subsoil. This soil is strongly acid, very low in natural fertility, and low in organic-matter content. Infiltration and permeability are moderate to rapid, and the available water capacity is low.

This soil has a small total acreage and is suited to pasture and trees. (Capability unit VIs–1; woodland suitability group 7)

Gullied Land, Acid (Gu)

Most of this land is in the eastern part of the county on strong to very steep slopes. Erosion has been so severe that the parent material is exposed. Some areas are made up of a single gully, and others, of an intricate network of small gullies. In some places erosion is no longer active and the gullies are healing over, but in other places the gullies are enlarging.

This land is so severely eroded that almost nothing but parent material remains. The soil material between the gullies is acid and ranges from sand to clay. In only a few places a soil profile remains. Infiltration and permeability are variable, and the available water capacity is low. Runoff is rapid.

This land is suited to pine trees, but yields and management requirements are variable. A well-managed, permanent cover of trees is needed to stabilize erosion and to keep sediment from washing to lower lying areas. Where plant competition is severe, intensive weed-control practices are needed to promote the growth of desirable trees. (Capability unit VIIe–4; woodland suitability group not assigned)

Gullied Land, Alkaline (Gv)

This land generally occurs on strong to very steep slopes in the western part of the county. Erosion is severe, and undisturbed soil profiles remain in only a few places. Some areas are made up of one large gully, and others, of an intricate network of small gullies.

In this severely gullied land, the upper horizons have been destroyed, except in small areas between gullies. The underlying material is acid or alkaline clay. Infiltration and permeability are very slow, and runoff is rapid. The available water capacity is low.

This land should be kept in permanent pasture or in trees. Pasture crops are well suited, but special practices are required if trees are grown. Redcedar is well suited, however, and volunteers readily. (Capability unit VIIe–2; woodland suitability group not assigned)

Houlka Series

The Houlka series consists of nearly level, somewhat poorly drained alluvial soils on the flood plain. These soils are in the western part of the county in alluvium washed from soils on the prairie. Their surface layer is gray or grayish-brown silty clay or very fine sandy loam, and their subsoil is grayish-brown clay mottled with brown. The soils are medium acid and moderate in natural fertility and in organic-matter content.

In this county the Houlka soils occur with the Catalpa, Leeper, Tuscumbia, and Una soils. Houlka soils are not so well drained nor so brown as the Catalpa soils. They are better drained than the Una and Tuscumbia soils, which are in depressions. The Houlka soils resemble the Leeper soils but are acid instead of neutral to alkaline.

The native vegetation on Houlka soils was mixed hardwoods, but most of the acreage has been cleared and is in cultivated crops or in pasture. These soils are suited to most crops commonly grown in the county.

Houlka silty clay (Hc).—This somewhat poorly drained soil on the flood plain has a subsoil of friable to firm, dark grayish-brown clay. The major horizons are—

0 to 8 inches, gray to grayish-brown, friable silty clay.
8 to 14 inches, dark grayish-brown, friable to firm clay mottled with brown.
14 to 60 inches, light brownish-gray, friable to firm clay mottled with dark brown and strong brown.

The depth to mottles ranges from 6 to 18 inches. Acidity is medium, and natural fertility and the organic-matter content are moderate.

This soil responds well to fertilization, but it is difficult to keep in good tilth. It shrinks and cracks when it is dry. Because surface runoff and infiltration are slow, graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The total acreage is fairly large, and most of it is cultivated or in pasture. (Capability unit IIIw–1; woodland suitability group 11)

Houlka very fine sandy loam, local alluvium (Hk).—The sandy material making up the surface layer of this soil washed from adjacent ridges of the Coastal Plain.

This soil responds well to fertilization and other good management, but graded rows and field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The soil is suited to most crops commonly grown in the county. (Capability unit IIIw–1; woodland suitability group 11)

Houston Series

The Houston series consists of nearly level to moderately sloping, moderately well drained soils that formed in marl, chalk, or strongly calcareous clay. These soils occur in fairly large areas on the prairie upland in the western part of the county. Their surface layer is dark-gray clay, and their subsoil is olive clay. Chalk occurs at varying depths but generally is 4 feet or more beneath the surface. The soils are neutral to mildly alkaline and moderate in natural fertility and in organic-matter content.

In this county Houston soils occur with the nearly level to strongly sloping Brooksville and Vaiden soils. The Houston soils are better drained than the Brooksville and Vaiden soils and, unlike the acid Vaiden soils, are neutral to mildy alkaline.

The native vegetation on Houston soils was grass and scattered hardwoods, but most of the acreage is now cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Houston clay, 0 to 2 percent slopes (HoA).—This moderately well drained soil of the upland has a firm, olive clay subsoil. The major horizons are—

0 to 10 inches, dark-gray, firm clay.
10 to 48 inches, olive, firm clay.
48 to 86 inches, mottled olive, firm clay.

The clay extends from the surface to a depth of 3 to 15 feet and is underlain by marl or chalk. The soil is neutral to alkaline and moderate in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Brooksville soils.

This soil is hard to keep in good tilth and can be cultivated within only a narrow range of moisture content. It shrinks and cracks as it dries. It responds well, however, to fertilization. Because surface runoff and infiltration are slow, waterways and graded rows are needed to remove excess surface water during wet periods. The small total acreage of this soil is cultivated or in pasture. (Capability unit IIs–2; woodland suitability group 14)

Houston clay, 2 to 5 percent slopes (HoB).—The surface layer of this soil is very dark gray instead of dark gray and is thinner than that of Houston clay, 0 to 2 percent slopes. The surface layer is only 6 to 8 inches thick. Included in areas mapped as this soil are small areas of Brooksville soils.

This gently sloping soil has good surface drainage, but it is susceptible to moderate erosion and is hard to keep in good titlth. It shrinks and cracks as it dries and can be cultivated within only a narrow range of moisture content. Nevertheless, this soil is suited to many kinds of crops. (Capability unit IIe–2; woodland suitability group 14)

Houston clay, 2 to 5 percent slopes, eroded (HoB2).—The surface layer of this soil is very dark gray instead of dark gray and is thinner than that of Houston clay, 0 to 2 percent slopes. The surface layer is only 4 to 6 inches thick. In 20 to 25 percent of the mapped areas, the plow layer extends into the olive clay subsoil. A few shallow gullies and rills occur. Included in areas mapped as this soil are small areas of Brooksville soils.

This soil is suited to many kinds of crops, but careful management is needed to control erosion. The small total acreage is mainly in cultivated crops and permanent pasture. (Capability unit IIe–2; woodland suitability group 14)

Houston clay, 5 to 8 percent slopes, eroded (HoC2).—The surface layer of this soil is very dark gray instead of dark gray and is thinner than that of Houston clay, 0 to 2 percent slopes. The surface layer is only 4 to 6 inches thick. Included in areas mapped as this soil are small areas of Brooksville and Vaiden soils.

This soil is suited to many kinds of crops. Because surface runoff is rapid on the moderate slopes, the hazard of erosion is moderate or severe. Careful management is needed in cultivated areas to control erosion. The total acreage of this soil is small and is mostly in pasture. (Capability unit IIIe–2; woodland suitability group 14)

Iuka Series

The Iuka series consists of nearly level, moderately well drained soils that formed in medium-textured Coastal Plain alluvium. These soils occur in small areas on the flood plain in the eastern part of the county. Their surface layer is brown to dark-brown silt loam to sandy loam, and their subsoil is yellowish-brown sandy loam that is free of mottles to a depth of at least 18 inches. The soils are strongly acid, moderate to low in natural fertility, and low in organic-matter content.

In this county Iuka soils occur with the nearly level Mantachie and Bibb soils and are better drained and browner than those soils.

The native vegetation was mixed hardwoods and some shortleaf and loblolly pines. Most of the acreage is still wooded, but some areas have been cleared and are in crops and pasture. The soils are suited to most crops commonly grown in the county.

Iuka soils (Iu).—The surface layer of these moderately well drained soils ranges from silt loam to sandy loam. The major horizons are—

0 to 10 inches, brown to dark-brown, friable fine sandy loam.
10 to 20 inches, yellowish-brown, friable sandy loam.
20 to 50 inches, gray to light-gray, friable loam with strong-brown mottles.

These soils are strongly acid, moderate to low in natural fertility, and low in organic-matter content. Infiltration and permeability are moderate. Included in areas mapped as these soils are small areas of Mantachie soils.

Iuka soils are easy to keep in good tilth, but V- and W-ditches are generally needed to remove excess surface water. The small total acreage is mostly wooded. (Capability unit IIw–1; woodland suitability group 9)

Kipling Series

The Kipling series consists of nearly level to gently sloping, moderately well drained soils that formed in old alluvium consisting of mixed acid and alkaline, clayey materials. These soils occur on stream terraces, mainly near Old Town Creek and the Tombigbee River. They are strongly acid or medium acid, low to moderate in natural fertility, and low in organic-matter content.

In this county the Kipling soils occur with the Geiger and Vaiden soils. Kipling soils are better drained than the poorly drained Geiger soils. They resemble the somewhat poorly drained Vaiden soils but are on stream terraces instead of uplands.

The native vegetation on Kipling soils was mixed hardwoods and some shortleaf and loblolly pines. Most of the acreage has been cleared and is cultivated or in pasture. The soils are suited to crops commonly grown in the county.

Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes (KpA).—This moderately well drained soil on stream terraces has a friable, yellowish-brown silty clay loam subsoil. The major horizons are—

0 to 5 inches, brown to dark-brown, friable silt loam.
5 to 27 inches, yellowish-brown, friable silty clay loam.
27 to 60 inches, mottled yellowish-brown, friable clay loam.

Cultivated areas have a dark-brown to grayish-brown plow layer. The subsoil ranges from yellowish brown to dark yellowish brown in color and from silty clay loam to clay loam in texture. The soil is medium acid and low in natural fertility and in organic-matter content. Infiltration and permeability are slow. Included in areas mapped as this soil are small areas of Tilden and Prentiss soils.

This soil is easy to keep in good tilth and responds well to fertilization. Graded rows and waterways are needed, however, to remove surface water. The small total acreage of this soil is mainly cultivated or in pasture. (Capability unit IIs–1; woodland suitability group 3)

Kipling silt loam, moderately well drained variant, 2 to 5 percent slopes (KpB).—This soil is more sloping than Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes. Its surface layer of brown silt loam averages about 5 inches in thickness. A few rills occur in some places. The soil is medium acid and low in natural fertility and in organic-matter content. Infiltration and permeability are slow.

This soil is easy to keep in good tilth and responds well to fertilization, but erosion is a moderate hazard. The soil is suited to most crops commonly grown in the county. (Capability unit IIe–6; woodland suitability group 3)

Leaf Series

The Leaf series consists of nearly level, poorly drained soils that formed in fine-textured old alluvium. These soils are in small areas on low terraces in the eastern part of the county. In uneroded areas the surface layer is grayish-brown to dark-brown silt loam. The subsoil is mottled brownish-gray to yellowish-brown, friable clay loam to clay. These soils are strongly acid and low in natural fertility and in organic-matter content.

Leaf soils occur with the nearly level Kipling, Stough, and Myatt soils. The Leaf soils are not so well drained as the Kipling and Stough soils and are finer textured in the subsoil than the Myatt soils.

The native vegetation on Leaf soils was mixed hardwoods, and most areas remain wooded. Leaf soils are suited to pasture and trees and could be used for row crops occasionally.

Leaf silt loam (Lc).—This poorly drained soil of the stream terraces has a friable subsoil of mottled brownish-gray to yellowish-brown clay loam. The major horizons are—

0 to 3 inches, grayish-brown to brown, friable silt loam.
3 to 20 inches, mottled gray and brown, friable clay loam.
20 to 48 inches, light-gray, friable silty clay loam.

The silt loam surface layer is brownish gray in places. The mottled gray and brown subsoil ranges from clay loam to clay. The soil is strongly acid and low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Stough and Myatt soils.

This soil is easy to keep in good tilth, and it responds to fertilization. Because surface runoff and infiltration are slow, V- and W-ditches and field laterals are needed to remove excess surface water during wet periods. The total acreage of this soil is small, and most of it is wooded. (Capability unit IVw–3; woodland suitability group 5)

Leeper Series

The Leeper series consists of nearly level, somewhat poorly drained soils that formed in mixed acid and alkaline alluvium washed from soils of the prairie upland. These soils are in small areas along streams in the western part of the county. Their surface soil is dark grayish-brown silty clay, and their subsoil is dark-gray clay. The soils are neutral to alkaline and moderate in natural fertility and in organic-matter content.

In this county Leeper soils occur with the Catalpa and Houlka soils on the flood plain. They are not so well drained as Catalpa soils. The Leeper soils are neutral to alkaline, whereas the Houlka soils are medium acid.

The native vegetation on Leeper soils was mixed hardwoods, but most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Leeper silty clay (Lp).—This somewhat poorly drained soil on the flood plain has a dark-gray clay subsoil. The major horizons are—

0 to 15 inches, dark grayish-brown, firm silty clay.
15 to 29 inches, dark gray to very dark gray, firm clay.
29 to 62 inches, mottled dark-gray, olive-brown, and yellowish-brown, firm clay.

Cultivated areas have a dark grayish-brown to dark-gray plow layer. The soil is neutral to alkaline and is moderate in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Catalpa and Houston soils.

This soil is hard to keep in good tilth and can be cultivated within only a narrow range of moisture content. Because runoff and infiltration are slow, field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The small total acreage of this soil is cultivated or in pasture. (Capability unit IIIw–1; woodland suitability group 15)

Luverne Series

The Luverne series consists of strongly sloping to very steep, well-drained soils that formed in thick beds of acid sandy loam and sandy clay loam. These soils are in fairly large areas in the eastern part of the county. Their surface layer is brown or pale-brown fine sandy loam, and their subsoil is red or dark-red sandy clay. The soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Luverne soils occur with the Ruston and Greenville soils. Luverne soils are not so fine textured as the Greenville soils and are redder than the Ruston.

Luverne soils are suited to most crops commonly grown in the county.

Because the pattern of Luverne soils and Ruston soils is so intricate, it is not feasible to map the Luverne separately. A profile of a Luverne soil is described in the description of Ruston and Luverne soils, 8 to 12 percent slopes, eroded.

Mantachie Series

The Mantachie series consists of nearly level, somewhat poorly drained soils on the flood plain of streams. These soils formed in medium-textured alluvium. Their surface soil is grayish brown or dark brown and is variable in texture. Their subsoil is mottled brown and gray sandy loam or loam. These soils are slightly acid to strongly acid, moderate in natural fertility, and low in organic-matter content.

In this county Mantachie soils generally are between the nearly level Iuka and Bibb soils. Mantachie soils are less well drained than Iuka soils and are better drained and browner than the Bibb soils.

The native vegetation on Mantachie soils was mixed hardwoods and some shortleaf and loblolly pines. Most of the acreage is still in woods, though the soils are suited to most crops commonly grown in the county.

Mantachie soils (Ma).—These somewhat poorly drained soils of the flood plain vary in the texture of their surface layer. Their subsoil generally is friable sandy loam. The major horizons are—

0 to 8 inches, dark-brown, friable fine sandy loam.
8 to 19 inches, mottled yellowish-brown and gray, friable sandy loam.
19 to 48 inches, mottled gray, brown, and yellowish-brown, friable loam.

In cultivated areas the surface layer is grayish-brown to dark-brown silt loam or sandy loam. The subsoil ranges from loam to sandy loam. The soils are slightly acid to strongly acid, moderate in natural fertility, and low in organic-matter content. Included in areas mapped as these soils are small areas of Iuka and Bibb soils.

Tilth is easy to maintain on Mantachie soils, and the response to fertilization is good. Because runoff is slow, V- and W-ditches and field laterals are needed to remove excess surface water during wet periods. The total acreage of Mantachie soils is fairly large and is mostly wooded. (Capability unit IIw–4; woodland suitability group 4)

Mashulaville Series

The Mashulaville series consists of nearly level or depressional, poorly drained soils that formed in medium-textured Coastal Plain sediments. These soils occur in small upland areas in the eastern part of the county. The lower subsoil is a compact, brittle fragipan. Uneroded areas have a dark grayish-brown silt loam surface layer. At a depth of about 15 inches, the subsoil is mottled gray silt loam. The fragipan is about 13 inches beneath the surface and ranges from 10 to 15 inches in thickness. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county the Mashulaville soils occur with the nearly level and gently sloping Pheba and Savannah soils. The Mashulaville soils are less well drained than the Pheba and Savannah soils and are grayish instead of yellowish.

The native vegetation on Mashulaville soils was mixed hardwoods and shortleaf and loblolly pines. Most of the acreage is still in woods. These soils are suited to pasture and trees and can be used for row crops occasionally.

Mashulaville silt loam (Ms).—This poorly drained soil of the upland generally has a friable, gray silt loam subsoil. The major horizons are—

0 to 5 inches, dark grayish-brown, friable silt loam.
5 to 13 inches, gray, friable silt loam.
13 to 32 inches, mottled gray, friable silty clay loam; compact and brittle.

The subsoil ranges from gray to mottled gray in color and from silt loam to silty clay loam in texture. A fragipan occurs at a depth of 10 to 20 inches. The soil is strongly acid and low in natural fertility and in organic-matter content.

This soil is easy to keep in good tilth, but its fragipan restricts the depth to which roots can grow and thereby limits the moisture available to plants. Because surface runoff and infiltration are slow, V- and W-ditches and field laterals are needed to remove excess water if the soil is used for crops or pasture. (Capability unit IVw–3; woodland suitability group 5)

Myatt Series

The Myatt series consists of nearly level or depressional, poorly drained soils that formed in medium- and fine-textured old alluvium. These soils occur in fairly large areas on terraces in the central and eastern parts of the county. Their surface soil is gray or very dark gray fine sandy loam, and their subsoil is light brownish-gray fine sandy loam to sandy clay loam. Beneath the subsoil the soil is gray, compact silty clay loam. The soils are strongly acid and low in natural fertility and in organic-matter content.

In this county the Myatt soils occur with the Tilden, Prentiss, and Stough soils and are more poorly drained than those soils. They are gray, whereas the Tilden soils are yellowish red or brown, and the Stough and Prentiss soils are yellowish brown.

The native vegetation on Myatt soils was mixed hardwoods and shortleaf and loblolly pines. Most of the acreage is still wooded, though these soils are suited to pasture and trees and can be used for row crops occasionally.

Myatt fine sandy loam (My).—This poorly drained soil on stream terraces has a friable, gray fine sandy loam subsoil. The major horizons are—

0 to 5 inches, very dark gray, friable fine sandy loam.
5 to 10 inches, light brownish-gray, friable fine sandy loam.
10 to 22 inches, gray, friable, compact fine sandy loam.
22 to 63 inches, gray, firm silty clay loam.

The plow layer in cultivated areas is gray or dark-gray silt loam. The subsoil ranges from light gray to gray in color and from fine sandy loam to sandy clay loam in texture. The soil is strongly acid and low in natural fertility and in organic-matter content.

This soil is easy to keep in good tilth and responds well to fertilization, but its compact layer limits the depth to which roots can grow and thereby limits the moisture available to plants. Because runoff and infiltration are slow, V- and W-ditches and field laterals are needed to remove surface water during wet periods. The total acreage of this soil is large; most of it is in forest, but some is in pasture. (Capability unit IVw-3; woodland suitability group 5)

Ora Series

The Ora series consists of gently sloping to strongly sloping, moderately well drained soils that formed in beds of acid sandy loam to clay loam sediments. These soils occur in fairly large upland areas in the eastern part of the county. Their surface soil is grayish-brown or brown fine sandy loam, and their subsoil is strong-brown loam or clay loam. A sandy clay loam fragipan is about 20 to 24 inches below the surface and is 24 inches or more thick. The soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Ora soils occur with the Ruston soils on gentle to strong slopes. They also occur with the nearly level or depressional Savannah and Pheba soils. Because Ora soils have a fragipan, they are not so well drained as the Ruston soils. They are better drained than the Pheba soils and are browner than the Pheba and Savannah soils.

The native vegetation on Ora soils was mixed hardwoods and shortleaf and loblolly pines. Most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most of the crops commonly grown in the county.

Ora fine sandy loam, 2 to 5 percent slopes (OaB).—This moderately well drained soil of the upland has a friable, strong-brown clay loam subsoil. The major horizons are—

0 to 7 inches, brown, friable fine sandy loam.
7 to 23 inches, strong-brown, friable clay loam.
23 to 42 inches, mottled dark-red, friable sandy clay loam that is compact and brittle.
42 to 65 inches, dark-red, friable sandy clay loam with brown mottles.

The subsoil ranges from 15 to 18 inches in thickness, from strong brown to yellowish red in color, and from clay loam to clay in texture. A fragipan occurs at a depth of 20 to 24 inches. The soil is strongly acid and low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Ruston, Savannah, and Pheba soils.

This soil is easy to keep in good tilth and responds well to fertilization. The fragipan, however, limits the depth to which roots can grow and thereby limits the moisture available to plants. The small total acreage of this soil is cultivated or in pasture. (Capability unit IIe–5; woodland suitability group 3)

Ora fine sandy loam, 2 to 5 percent slopes, severely eroded (OaB3).—The surface layer of this eroded soil is thinner than that of Ora fine sandy loam, 2 to 5 percent slopes. The surface layer generally is only 3 to 4 inches thick. In many places the original fine sandy loam surface layer has been lost through erosion, and the plow layer consists mainly of the strong-brown clay loam subsoil. Rills and shallow gullies occur in some places. Included in areas mapped as this soil are small areas of Ruston and Savannah soils.

This soil is suited to the crops commonly grown in the county, but in cultivated areas careful management is needed to control erosion. The small total acreage is mainly in pasture and cultivated crops. (Capability unit IIIe–5; woodland suitability group 3)

Ora fine sandy loam, 5 to 8 percent slopes, eroded (OaC2).—This soil is more sloping and more eroded than Ora fine sandy loam, 2 to 5 percent slopes, and has a thinner surface layer. Its surface layer generally is only 4 to 5 inches thick. In about 25 percent of the acreage, the plow layer extends into the strong-brown upper subsoil. In some places a few shallow gullies occur. (Capability unit IIIe–5; woodland suitability group 3)

Ora loam, 5 to 8 percent slopes, severely eroded (OrC3).—This soil has a strong-brown loam surface layer, instead of a brown fine sandy loam one, but in other

respects it is similar to Ora fine sandy loam, 2 to 5 percent slopes. Erosion has removed most of the original brown fine sandy loam surface layer, and the plow layer consists chiefly of remnants of the surface layer mixed with the strong-brown clay loam subsoil. Rills and shallow gullies are common. Included in areas mapped as this soil are small areas of Ruston soils.

This soil is better suited to pasture and trees than to row crops because erosion is a hazard. In cultivated areas very careful management is needed to control erosion. The fairly large total acreage of this soil is in pasture and trees. (Capability unit IVe–4; woodland suitability group 3)

Ora loam, 8 to 12 percent slopes, severely eroded (OrD3).—Most of the original brown fine sandy loam surface layer has been removed from this soil through erosion, and the plow layer consists chiefly of remnants of the surface layer mixed with the strong-brown clay loam subsoil. In other respects this soil is similar to Ora fine sandy loam, 2 to 5 percent slopes. Rills and shallow gullies are common.

This soil is suited to pasture and trees. Part of the acreage has been cleared and cultivated, but it has reverted to trees. The total acreage is fairly small. (Capability unit VIe–4; woodland suitability group 3)

Pheba Series

The Pheba series consists of nearly level to gently sloping, somewhat poorly drained soils that formed in beds of acid sand, sandy loam, and clay loam. These soils occur in small upland areas in the eastern part of the county. Their surface layer is grayish-brown or brown silt loam, and their subsoil is yellowish-brown silt loam. A loam fragipan occurs at a depth of about 14 to 16 inches and is 24 or more inches thick. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county the Pheba soils occur with the Ruston, Ora, and Savannah soils in nearly level and gently sloping areas and with the Mashulaville soils in nearly level or depressional areas. The Pheba soils have a fragipan and are not so well drained as the Ruston soils, which do not have a fragipan. Pheba soils are better drained than the Mashulaville soils.

The native vegetation on Pheba soils was mixed hardwoods and shortleaf and loblolly pines. Most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Pheba silt loam, 0 to 2 percent slopes (PhA).—This somewhat poorly drained soil of the upland has a friable silt loam upper subsoil that is underlain by a fragipan. The major horizons are—

0 to 5 inches, brown, friable silt loam.
5 to 14 inches, yellowish-brown, friable silt loam.
14 to 47 inches, mottled yellowish-brown and brownish-gray, friable loam that is compact and brittle.
47 to 60 inches, mottled yellow and gray, friable sandy clay loam.

The plow layer of this soil is 4 to 6 inches thick. The upper subsoil ranges from 10 to 12 inches in thickness and is underlain by a fragipan at a depth of 14 to 16 inches. The soil is strongly acid and low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Savannah soils.

This soil is easy to keep in good tilth and responds well to fertilization, but its fragipan restricts the depth to which roots can grow and thereby limits the moisture available to plants. Because surface runoff and infiltration are slow, V- and W-ditches are needed to remove excess surface water during wet periods. The small total acreage is mainly cultivated and in pasture. (Capability unit IIIw–2; woodland suitability group 8)

Pheba silt loam, 2 to 5 percent slopes (PhB).—The surface layer of this soil is 4 to 6 inches thick and is thinner than that of Pheba silt loam, 0 to 2 percent slopes. Included in areas mapped as this soil are small areas of Savannah soils.

This soil is suited to many kinds of crops. It is easy to keep in good tilth and has good surface drainage, but erosion is a moderate hazard. In addition, the fragipan limits the growth of some plants. This soil has been cleared and is used mostly for row crops and pasture. (Capability unit IIIw–2; woodland suitability group 8)

Prentiss Series

The Prentiss series consists of nearly level to gently sloping, moderately well drained soils that have a fragipan. These soils formed in medium-textured old alluvium of the Coastal Plain in fairly large areas in the eastern part of the county. Uneroded areas have a grayish-brown fine sandy loam surface layer. The subsoil, including the fragipan, is yellowish-brown loam. The fragipan is about 20 inches from the surface and is 6 to 18 inches thick. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Prentiss soils occur with the nearly level to gently sloping Tilden, Cahaba, Stough, and Myatt soils. The Prentiss soils are less well drained than the Cahaba soils, which do not have a fragipan. They are better drained and browner than the Stough and Myatt soils but are not so well drained as the Tilden.

The native vegetation on Prentiss soils was mixed hardwoods and shortleaf and loblolly pines. Most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Prentiss fine sandy loam, 0 to 2 percent slopes (PrA).—This moderately well drained soil of the stream terraces has a friable, yellowish-brown loam subsoil that contains a fragipan. The major horizons are—

0 to 9 inches, grayish-brown, friable fine sandy loam.
9 to 22 inches, yellowish-brown, friable loam.
22 to 27 inches, yellowish-brown and brownish-gray, friable loam that is compact and brittle.
27 to 64 inches, mottled yellowish-brown, gray, and brown, friable sandy loam.

In cultivated areas the plow layer is about 6 inches thick. Included with areas mapped as this soil are small areas of Tilden and Stough soils.

This soil responds to fertilization, but its fragipan limits the depth to which roots can grow and thereby limits the moisture available to plants. Because runoff and infiltration are slow, V- and W-ditches are needed to remove excess surface water during wet periods. The total acreage of this soil is small and is mostly in cultivated crops. (Capability unit IIw–3; woodland suitability group 3)

Prentiss fine sandy loam, 2 to 5 percent slopes (PrB).—The grayish-brown plow layer of this gently sloping soil is only 4 to 6 inches thick and is thinner than that of Prentiss fine sandy loam, 0 to 2 percent slopes. Included in areas mapped as this soil are small areas of Stough and Tilden soils.

This soil is suited to many kinds of crops. It is easily kept in good tilth and has good surface drainage, but it is susceptible to moderate erosion. Also, its fragipan limits the penetration of roots and the moisture available to them. The entire acreage of this soil has been cleared and is in cultivated crops and pasture. (Capability unit IIe–5; woodland suitability group 3)

Prentiss fine sandy loam, 2 to 5 percent slopes, eroded (PrB2).—The plow layer of this soil is 4 to 6 inches thick. In about 25 percent of the acreage, yellowish-brown loam from the upper subsoil has been mixed with the original fine sandy loam surface layer. A few shallow gullies have formed. Included in areas mapped as this soil are small areas of Stough and Tilden soils.

This soil is suited to many kinds of crops, but in cultivated areas careful management is needed for controlling erosion. The fragipan limits the penetration of roots and the moisture available to them. The small total acreage of this soil is mainly in crops and pasture. (Capability unit IIe–5; woodland suitability group 3)

Ruston Series

The Ruston series consists of nearly level to very steep, well-drained soils that formed in thick beds of acid sandy loam and sandy clay. These soils occur on upland in small to fairly large areas in the eastern part of the county. In uneroded areas the surface layer is brown or grayish-brown fine sandy loam. The subsoil is strong-brown or yellowish-red loam or sandy loam. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Ruston soils occur with the Greenville and Ora soils on nearly level to strongly sloping upland. They are not so red nor so fine textured as the Greenville soils. Ruston soils are better drained than the Ora soils and lack the fragipan that is characteristic of those soils.

The native vegetation on Ruston soils was mixed hardwoods and shortleaf and loblolly pines. Most of the nearly level to strongly sloping acreage is now cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Ruston fine sandy loam, 0 to 2 percent slopes (RfA).—This well-drained soil of the upland has a friable, yellowish-red subsoil. The major horizons are—

0 to 8 inches, brown, firm fine sandy loam.
8 to 33 inches, yellowish-red, friable loam.
33 to 60 inches, yellowish-red, friable sandy loam.

In cultivated areas the brown fine sandy loam surface layer is 5 to 7 inches thick. The subsoil ranges from strong brown to yellowish red in color and from loam to fine sandy loam in texture. This soil is strongly acid and low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Greenville soils.

This soil is easy to keep in good tilth, and its root zone is not limited in depth. The soil responds well to fertilization, but graded rows are needed in some areas to remove excess surface water during wet periods. The acreage is small, and practically all of it is cultivated. (Capability unit I–1; woodland suitability group 1)

Ruston fine sandy loam, 2 to 5 percent slopes (RfB).—This gently sloping soil has better surface drainage than Ruston fine sandy loam, 0 to 2 percent slopes, and a slightly thinner surface layer. The surface layer is 5 to 7 inches thick. Included in areas mapped as this soil are small areas of Greenville and Ora soils.

This soil is suited to many kinds of crops, but careful management is needed in cultivated areas to control erosion. Good tilth is easy to maintain, and most of the acreage is cultivated. (Capability unit IIe–1; woodland suitability group 1)

Ruston fine sandy loam, 2 to 5 percent slopes, severely eroded (RfB3).—In most places the surface layer of this soil is yellowish-red fine sandy loam that is made up of material from the upper subsoil mixed with remnants of the original surface soil. Shallow gullies are common, and there are a few deep ones. Included in areas mapped as this soil are small areas of Greenville and Ora soils.

This soil is suited to many kinds of crops, but the hazard of further erosion is severe because infiltration is slow and runoff is rapid. In cultivated areas careful management is needed to control erosion. Most of the small acreage of this soil is in pasture and row crops. (Capability unit IIIe–1; woodland suitability group 1)

Ruston fine sandy loam, 5 to 8 percent slopes (RfC).—The surface layer of this sloping soil is 5 to 6 inches thick; it is thinner than that of Ruston fine sandy loam, 0 to 2 percent slopes. A few rills occur in some areas. Included in areas mapped as this soil are small areas of Ora and Greenville soils.

This soil is suited to many kinds of crops, but the hazard of erosion is moderate or severe because runoff is moderately rapid. The acreage of this soil is small and is mostly in pasture or trees. (Capability unit IIIe–1; woodland suitability group 1)

Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded (RfC3).—The surface layer of this soil is yellowish-red fine sandy loam that is made up of material from the upper subsoil mixed with remnants of the original surface soil. Shallow gullies are common, and there are a few deep ones. Included in areas mapped as this soil are small areas of Greenville soils.

This soil is suited to many kinds of crops, but the hazard of further erosion is severe because runoff is rapid. In cultivated areas careful management is needed to control erosion. The total acreage is small, and most of it is in trees and pasture. (Capability unit IVe–1; woodland suitability group 1)

Ruston and Luverne soils, 12 to 17 percent slopes (RtE).—The surface layer of the two soils ranges from grayish brown to brown in color and from 4 to 12 inches in thickness. It varies in texture but is fine sandy loam in many places. The main horizons in the Luverne soil are—

0 to 6 inches, brown, very friable fine sandy loam containing many fine roots.
6 to 12 inches, pale-brown, friable sandy loam containing many fine roots.
12 to 60 inches, dark-red sandy clay to clay containing a few fine and medium roots.

The main horizons in the Ruston soil are—

0 to 8 inches, dark grayish-brown, to brown, friable fine sandy loam containing many to common fine roots.
8 to 32 inches, yellowish-red, friable sandy clay loam containing few fine roots.
32 to 67 inches, red, friable loam with moderate, medium, subangular blocky structure.

These soils are in pines and hardwoods and are suited to those trees and to pasture. A permanent cover of vegetation is needed to control erosion. (Capability unit VIe–1; woodland suitability group 1)

Ruston and Luverne soils, 8 to 12 percent slopes, eroded (RtD2).—The surface layer of these two soils ranges from brown to dark grayish brown and consists mainly of sandy loam 4 to 6 inches thick. Shallow gullies are common, and galled spots occur in about 20 percent of the acreage.

Most of the acreage has been cleared and cultivated, but it has reverted to trees, chiefly pine. These soils are suited to many kinds of crops, but the hazard of further erosion is severe because surface runoff is rapid. In cultivated areas careful management is needed to control erosion. (Capability unit IVe–1; woodland suitability group 1)

Ruston and Luverne soils, 8 to 12 percent slopes, severely eroded (RtD3).—These soils are more severely eroded than Ruston and Luverne soils, 8 to 12 percent slopes, eroded, and their surface layer is yellowish-red to red loam instead of brown to dark grayish-brown sandy loam. In most places there are many shallow gullies and a few deep ones.

Most of the acreage has reverted to trees. Because of the slope and the hazard of further erosion, permanent vegetation is needed. These soils are suited to pasture and trees. Their total acreage in the county is small. (Capability unit VIe–1; woodland suitability group 1)

Ruston and Luverne soils, 12 to 17 percent slopes, eroded (RtE2).—These soils have a brown to red fine sandy loam surface layer 5 to 7 inches thick. The subsoil generally ranges from sandy loam to sandy clay but, in some places, is clay in the lower part. In about 25 percent of the acreage, galled spots and a few shallow gullies occur.

Much of the acreage has been cleared, but it now supports good stands of pines. These soils are suited to pasture and pine trees. A permanent cover of vegetation is needed to control erosion. (Capability unit VIe–1; woodland suitability group 1)

Ruston and Luverne soils, 17 to 45 percent slopes (RtF).—These soils have a dark grayish-brown surface layer that is 8 to 10 inches thick and variable in texture. The soils are best suited to trees and now support stands of pines and hardwoods. A permanent cover of vegetation is needed to increase infiltration and to help control erosion. (Capability unit VIIe–1; woodland suitability group 1)

Ruston and Luverne soils, 17 to 45 percent slopes, eroded (RtF2).—These eroded soils have a grayish-brown to brown surface layer that is 6 or 7 inches thick and variable in texture. About 25 percent of the acreage has galled spots, and a few shallow and deep gullies occur.

These soils are suited to trees. A permanent cover of vegetation is needed to increase infiltration and to help control erosion. (Capability unit VIIe–1; woodland suitability group 1)

Ruston and Cuthbert soils, 12 to 17 percent slopes (RsE).—Because it was not feasible to map these soils separately, they were mapped as one unit. The soils do not occur in a uniform pattern, but most areas mapped contain both soils. The surface layer is about 6 to 8 inches thick and is brown or grayish brown. The subsoil is yellowish-red silty clay loam to mottled silty clay in the Cuthbert soil and is sandy loam to sandy clay loam in the Ruston.

Generally, the soils in this unit are suited to pasture and trees, but the requirements for managing pasture differ. Erosion and the use of equipment are the main hazards in managing these soils as woodland. (Capability unit VIe–1 for Ruston part and VIIe–3 for Cuthbert part; woodland suitability group 1 for Ruston part and 2 for Cuthbert part)

Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (RsE2).—The surface layer of these soils ranges from 4 to 6 inches in thickness. The subsoil ranges from yellowish-red silty clay loam to mottled silty clay in the Cuthbert soil and from sandy loam to sandy clay loam in the Ruston. Most of the acreage has been cleared, and in much of this acreage shallow gullies and firm, clayey galled spots are common.

Generally, the soils in this unit are suited to pasture and pine trees, but the requirements for managing pasture differ. The main hazards in managing woodland are erosion and limitations to the use of equipment. (Capability unit VIe–1 for Ruston part and VIIe–3 for Cuthbert part; woodland suitability group 1 for Ruston part and 2 for Cuthbert part)

Ruston and Cuthbert soils, 17 to 45 percent slopes (RsF).—The surface layer of these soils is variable in texture. It ranges from 6 to 8 inches in thickness and from grayish brown to brown in color. The subsoil ranges from silty clay to silty clay loam in the Cuthbert soil and from sandy loam to sandy clay loam in the Ruston.

The Ruston and the Cuthbert soils in this mapping unit have different management requirements for trees. The degree of slope determines the management for pasture. The soils support good to fair stands of pine. The main hazards in managing woodland are erosion and limitations to the use of equipment. (Capability unit VIe–1 for Ruston part and VIIe–3 for Cuthbert part; woodland suitability group 1 for Ruston part and 2 for Cuthbert part)

Sandy Alluvial Land (Sa)

Sandy alluvial land consists of acid sand and loamy sand that have been deposited by streams so recently that a profile has not had time to develop. This land is frequently flooded. Infiltration and permeability are rapid, and the available water capacity is low. Natural fertility is very low.

This land is wooded and produces good hardwoods. Among the more common trees are sweetgum, American beech, maple, ash, and Shumard, water, white, and swamp chestnut oaks. (Capability unit Vw–1; woodland suitability group not assigned)

Savannah Series

The Savannah series consists of nearly level to gently sloping, moderately well drained soils that have a fragipan and formed in beds of acid sandy loam to clay loam.

These soils are in small upland areas in the eastern part of the county. In uneroded areas the surface soil is grayish-brown silt loam. The subsoil is yellowish-brown silt loam. The loam fragipan occurs at a depth of 18 to 24 inches and is about 20 to 30 inches thick. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county Savannah soils occur with the nearly level to gently sloping Ruston, Ora, and Pheba soils. The Savannah soils are not so well drained as the Ruston soils and, unlike them, have a fragipan. They are yellower than the Ora soils and are better drained than the Pheba.

The native vegetation of mixed hardwoods and shortleaf and loblolly pines has been cleared, and most of the acreage of Savannah soils is cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Savannah silt loam, 0 to 2 percent slopes (SnA).—This moderately well drained soil of the upland has a friable, yellowish-brown silt loam subsoil that contains a loam fragipan. The major horizons are—

0 to 8 inches, grayish-brown, friable silt loam.
8 to 22 inches, yellowish-brown, friable silt loam.
22 to 50 inches, mottled yellowish-brown, brownish-gray, and yellowish-red, friable loam that is compact and brittle.
50 to 70 inches, mottled brown, red, and gray, friable loam.

The depth to the fragipan ranges from 18 to 24 inches. The soil is strongly acid and low in natural fertility and in organic-matter content. Infiltration is moderate to slow. Permeability is moderate above the fragipan but is very slow within it.

This soil is easy to keep in good tilth and responds well to fertilization. The fragipan, however, limits the depth to which roots can grow and thereby limits the moisture available to plants. Because surface runoff is slow and infiltration is moderate to slow, V- and W-ditches are needed to remove excess surface water during wet periods. The total acreage of this soil is fairly small, and most of it is cultivated or in pasture. (Capability unit IIw–3; woodland suitability group 3)

Savannah silt loam, 2 to 5 percent slopes (SnB).—The friable, grayish-brown surface layer of this gently sloping soil is thinner than that of Savannah silt loam, 0 to 2 percent slopes. It is only 6 to 8 inches thick. In some places a few rills occur. Included in areas mapped as this soil are small areas of Pheba and Ora soils.

This soil is suited to many kinds of crops. Because of its slopes, it has good surface drainage but is susceptible to moderate erosion. Most of the acreage has been cleared and is used for cultivated crops, pasture, and trees. (Capability unit IIe–5; woodland suitability group 3)

Stough Series

The Stough series consists of nearly level, somewhat poorly drained soils that have a fragipan and formed in old alluvium washed from the Coastal Plain upland. These soils are in fairly large areas on terraces in the eastern part of the county. Their surface soil is dark-brown or dark grayish-brown fine sandy loam, and their subsoil is yellowish-brown loam that is mottled with gray and brown in the lower part. The fragipan is also loam. It is about 18 inches beneath the surface and is 24 inches or more thick. The soils are slightly acid to strongly acid and low in natural fertility and in organic-matter content.

In this county the Stough soils occur with the Tilden, Prentiss, and Myatt soils. The Stough soils are less brown and more poorly drained than the Tilden and Prentiss soils and are better drained than the Myatt soils.

The native vegetation on Stough soils was mixed hardwoods and shortleaf and longleaf pines. Most of the acreage is in pasture and trees. These soils are suited to pasture and trees and can be planted to a row crop occasionally.

Stough fine sandy loam (St).—This somewhat poorly drained soil of the stream terraces has a friable, yellowish-brown loam subsoil that contains a fragipan. The major horizons are—

0 to 6 inches, dark-brown fine sandy loam.
6 to 18 inches, yellowish-brown, friable loam.
18 to 46 inches, mottled grayish-brown and yellow, friable loam that is compact and brittle.
46 to 62 inches, mottled strong-brown and gray, friable sandy clay loam.

In cultivated areas the surface layer is dark brown to dark grayish brown. The subsoil above the fragipan ranges from 15 to 18 inches in thickness, from mottled yellowish brown to dark yellowish brown in color, and from loam to silt loam in texture. The depth to the fragipan ranges from 15 to 20 inches. The soil is slightly acid to strongly acid in the surface layer. It is low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Myatt and Prentiss soils.

This soil is easily kept in good tilth and responds well to fertilization, but its fragipan limits the depth to which roots can grow and thereby limits the moisture available to plants. Because surface runoff and infiltration are slow, V- and W-ditches are generally needed to remove excess surface water during wet periods. The total acreage is fairly large and is mostly in pasture and trees. (Capability unit IIIw–2; woodland suitability group 8)

Sumter Series

The Sumter series consists of gently sloping to strongly sloping, moderately well drained soils that formed from Selma chalk. These soils are in small upland areas in the western part of the county. They have an olive silty clay surface soil and a pale-yellow silty clay subsoil. The soils are moderately alkaline and moderate in natural fertility and in organic-matter content.

In this county the Sumter soils occur with the gently sloping to strongly sloping Houston, Brooksville, and Vaiden soils. The Sumter soils are lighter colored than the Houston and Brooksville soils. They are better drained than the Brooksville and Vaiden soils and are alkaline instead of acid.

The native vegetation of grass and redcedar has been cleared. Most of the acreage of Sumter soils is in pasture, but these soils are suited to most crops commonly grown in the county.

Sumter silty clay, 2 to 5 percent slopes, severely eroded (SuB3).—This moderately well drained soil of the upland has a friable, pale-yellow silty clay subsoil. The major horizons are—

0 to 5 inches, olive, friable silty clay.
5 to 9 inches, pale-yellow, friable silty clay.

9 to 27 inches, mottled pale-yellow, gray, and olive-gray, friable to firm silty clay to clay.
27 to 82 inches, gray marly clay.

The surface layer of this soil is 4 to 6 inches thick and consists chiefly of olive to pale-yellow silty clay. Shallow gullies are common in most areas mapped, and in some places a few deep gullies occur. The soil is moderately alkaline and moderate in natural fertility and organic-matter content. The available moisture capacity is high. Included in areas mapped as this soil are small areas of Brooksville and Vaiden soils.

This soil is fairly easy to keep in good tilth and responds well to fertilization, but it shrinks and cracks as it dries. Graded rows and terraces are needed. The small total acreage is mainly in pasture. (Capability unit IIIe–2; woodland suitability group 12)

Sumter silty clay, 5 to 12 percent slopes, severely eroded (SuD3).—Because this soil is steeper than Sumter silty clay, 2 to 5 percent slopes, severely eroded, it is more susceptible to further erosion. The surface layer is dominantly olive to pale-yellow silty clay. Shallow gullies are common, and a few deep ones have formed. Included in areas mapped as this soil are small areas of Vaiden soils.

Because of the moderate and strong slopes and the severe hazard of further erosion, this soil is best suited to permanent pasture. It is not suited to other crops. The total acreage is small and is mainly in pasture. (Capability unit VIe–2; woodland suitability group 12).

Terrace Escarpments (Ta)

This land consists of the short, steep breaks bordering stream terraces. On the terraces are Prentiss, Tilden, or Stough soils. The soil material of the breaks, particularly the texture, varies. Small, shallow gullies occur in some places, and large gullies have formed in others.

Terrace escarpments should be kept in permanent pasture or in trees. Pasture is probably the best use. Pines generally are the best suited trees, but management requirements vary from place to place. The competition from other plants is slight to severe. In areas where competition is severe, intensive weed control is needed to help the establishment of the desired species. (Capability unit VIIe–5; woodland suitability group not assigned)

Tilden Series

The Tilden series consists of nearly level to moderately sloping, moderately well drained soils that formed in old alluvium washed from soils of the Coastal Plain upland. These soils are in fairly large areas on terraces in the central and eastern parts of the county. Their surface soil is grayish-brown or brown fine sandy loam, and their subsoil is yellowish-red or brown silt loam. A fine sandy loam fragipan is about 20 inches below the surface and is 20 or more inches thick. These soils are strongly acid and low in natural fertility and in organic-matter content.

In this county the Tilden soils occur with the nearly level to moderately sloping Cahaba, Prentiss, Stough, and Myatt soils. The Tilden soils are not so brown nor so well drained as the Cahaba soils, which do not have a fragipan. Tilden soils are browner than the Prentiss, Stough, and Myatt soils. They are better drained than the Stough and Myatt.

The native vegetation on Tilden soils was mixed hardwoods and some shortleaf and loblolly pines. Most of the acreage is now cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

Tilden fine sandy loam, 0 to 2 percent slopes (TfA).—This moderately well drained soil of the terraces has a friable, brown to yellowish-red silt loam subsoil that contains a fragipan. The major horizons are—

0 to 5 inches, brown, friable fine sandy loam.
5 to 21 inches, brown to yellowish-red, friable silt loam.
21 to 39 inches, mottled brown and gray fine sandy loam that is compact and brittle.
39 to 61 inches, mottled red, gray, and brown, friable clay loam.

In cultivated areas the plow layer is grayish brown instead of brown. The subsoil above the fragipan ranges from 16 to 20 inches in thickness, from strong brown to yellowish red in color, and from loam to silt loam in texture. The depth to the fragipan ranges from 18 to 24 inches. This soil is strongly acid and low in natural fertility and in organic-matter content. Included in areas mapped as this soil are small areas of Prentiss and Cahaba soils.

This soil is easily kept in good tilth and responds well to fertilization. The fragipan, however, limits the depth to which roots can grow and thereby limits the moisture available to plants. Because infiltration and surface runoff are slow, V- and W-ditches are needed to remove surface water during wet periods. The total acreage of this soil is fairly large, and most of it is cultivated or in pasture. (Capability unit IIw–3; woodland suitability group 3)

Tilden fine sandy loam, 2 to 5 percent slopes (TfB).—This moderately well drained soil has a brown surface layer about 5 inches thick and a subsoil of brown to yellowish-red, friable silt loam. A compact layer, or fragipan, occurs at a depth of about 22 inches and consists of mottled brown and gray fine sandy loam. This layer ranges from 12 to 15 inches in thickness and is underlain by mottled red, gray, and brown, friable clay loam. Acidity is strong, and the organic-matter content is low. Included in areas mapped as this soil are small areas of Cahaba soils.

This soil is easy to keep in good tilth and responds well to fertilization, but the fragipan retards the movement of roots and water. Nevertheless, the soil is suited to many kinds of crops and is mostly in row crops or pasture. The total acreage is small. (Capability unit IIe–5; woodland suitability group 3)

Tilden fine sandy loam, 2 to 5 percent slopes, eroded (TfB2).—The brown surface layer of this soil is thinner than that of Tilden fine sandy loam, 0 to 2 percent slopes. The surface layer is 3 to 5 inches thick. In about 20 percent of most areas mapped, the plow layer extends into the dark-brown upper subsoil. A few rills and shallow gullies mark the surface. Included in areas mapped as this soil are small areas of Cahaba and Prentiss soils.

This soil is suited to many kinds of crops, and its small total acreage is mainly cultivated or in pasture. (Capability unit IIe–5; woodland suitability group 3)

Tilden fine sandy loam, 5 to 8 percent slopes, eroded (TfC2).—This eroded soil is distinguished from Tilden fine sandy loam, 0 to 2 percent slopes, by its dominantly yellowish-red heavy fine sandy loam or light fine sandy clay loam surface soil. Erosion has removed most of the

original brown fine sandy loam surface layer, and the plow layer now consists chiefly of remnants of the original surface layer mixed with reddish material from the subsoil. Rills and shallow gullies are common in many areas mapped. Included in areas mapped as this soil are small areas of Cahaba soils.

This soil is suited to many kinds of crops. Because slopes are moderate, however, surface runoff causes a moderate to severe erosion hazard. Careful management is required in cultivated areas to control further erosion. The total acreage is small, and most of it is cultivated or in pasture. (Capability unit IIIe–5; woodland suitability group 3)

Tuscumbia Series

The Tuscumbia series consists of nearly level, poorly drained soils that formed in mixed, acid and calcareous alluvium that was recently deposited. These soils are in fairly small areas on the flood plain. Their surface soil is very dark grayish-brown silty clay, and their subsoil is mottled gray, yellow, and brown clay loam or clay. These soils are neutral to alkaline, moderate in natural fertility, and low in organic-matter content.

In this county the Tuscumbia soils occur with the Catalpa, Houlka, Leeper, Una, and West Point soils. Tuscumbia soils are not so well drained as Catalpa, Houlka, Leeper, and West Point soils and are mottled nearer the surface. Tuscumbia soils are neutral to alkaline, but the Una soils are strongly acid.

The native vegetation on Tuscumbia soils was mixed hardwoods, and most areas remain in woods or are in pasture. The soils are suited to pasture and trees and occasionally could be used for row crops.

In this county Tuscumbia soils are mapped only with Una soils as Una and Tuscumbia silty clays, and in that mapping unit a profile of Tuscumbia silty clay is described.

Una Series

The Una series consists of nearly level, poorly drained soils that formed in mixed, acid and calcareous alluvium that recently washed from soils on the prairie. Una soils are in fairly small areas of the flood plain. Their surface layer is dark grayish-brown silty clay, and their subsoil is mottled gray, brown, and yellowish-red sandy clay loam. These soils are strongly acid, moderate in natural fertility, and low in organic-matter content.

In this county the Una soils occur with the Catalpa, Houlka, Leeper, Tuscumbia, and West Point soils. Una soils are not so well drained as the Catalpa, Houlka, Leeper, and West Point soils and are mottled nearer the surface. Una soils are strongly acid, but the Tuscumbia soils are neutral to alkaline.

The native vegetation on Una soils is mixed hardwoods, and most of the acreage is still in woods or in pasture. The soils are suited to trees and pasture but occasionally could be used for row crops.

In this county Una soils are mapped only with Tuscumbia soils in an undifferentiated unit.

Una and Tuscumbia silty clays (Ut).—These poorly drained soils differ mainly in reaction. The Una soil is strongly acid, and the Tuscumbia soil is neutral to alkaline. These soils have a dark grayish-brown surface layer and a mottled subsoil. The major horizons of the Tuscumbia silty clay are—

0 to 4 inches, very dark grayish-brown, friable silty clay.
4 to 10 inches, gray, friable clay loam mottled with brown and yellowish brown.
10 to 50 inches, mottled gray, yellowish-brown, and strong-brown, firm clay loam to clay.

The major horizons of the Una silty clay are—

0 to 5 inches, dark grayish-brown, friable silty clay.
5 to 20 inches, mottled gray, yellowish-red, and strong-brown, friable sandy clay loam.
20 to 57 inches, mottled gray, yellowish-brown, and yellowish-red, firm clay loam.

These soils are moderate in natural fertility and low in organic-matter content. Included in areas mapped as these soils are small areas of Houlka and Leeper soils.

Although Una and Tuscumbia silty clays are hard to keep in good tilth, they respond to fertilization. Because runoff and infiltration are slow, field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The total acreage of these soils is small and is mostly in pasture or woods. (Capability unit IVw–2; woodland suitability group 16)

Vaiden Series

The Vaiden series consists of nearly level to steep, somewhat poorly drained soils that formed in beds of acid clay over calcareous material. These soils are in fairly large areas on upland in the western part of the county. Uneroded areas have a dark grayish-brown silt loam surface layer. The subsoil is mottled pale-brown, red, and gray clay. These soils are strongly acid, moderate in natural fertility, and low in organic-matter content.

In this county the Vaiden soils occur with the Brooksville, Eutaw, Houston, and Sumter soils. Vaiden soils are lighter colored than the Brooksville and Houston soils and are not so well drained as the Houston. Vaiden soils are better drained than the Eutaw soils and are less gray in the subsoil.

The native vegetation on Vaiden soils was mixed hardwoods, mainly blackjack oak, but there were some shortleaf and loblolly pines. Most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most of the crops commonly grown in the county.

Vaiden silt loam, deep, 0 to 2 percent slopes (VaA).—This somewhat poorly drained soil of the upland has a friable clay subsoil that is mottled with pale brown, red, and gray. The major horizons are—

0 to 6 inches, dark grayish-brown, friable silt loam.
6 to 49 inches, mottled pale-brown, red, and gray, friable clay.
49 to 67 inches, mottled brownish-yellow, yellowish-brown, and brownish-gray, friable clay.

The subsoil ranges from mottled yellow to pale brown in color and from silt loam to clay in texture. The soil is strongly acid, moderate in natural fertility, and low in organic-matter content. Included in areas mapped as this soil are small areas of Brooksville and Eutaw soils.

The silt loam surface layer is easy to keep in good tilth. Because runoff and infiltration are slow, however, graded rows and field ditches are needed to remove excess surface water during wet periods. The total acreage of this soil is fairly large and is mainly cultivated or in pasture. (Capability unit IIIw–3; woodland suitability group 10)

Vaiden silt loam, deep, 2 to 5 percent slopes (VaB).—The surface layer of this soil is only 4 to 5 inches thick and is thinner than that of Vaiden silt loam, deep, 0 to 2 percent slopes. Also it is grayish brown instead of dark grayish brown. Surface drainage is good. Included in areas mapped as this soil are small areas of Brooksville soils.

This soil is suited to many kinds of crops, but careful management is needed to control erosion in cultivated fields. The fairly large acreage is mainly in crops and pasture. (Capability unit IIIe–4; woodland suitability group 10)

Vaiden silt loam, deep, 5 to 8 percent slopes (VaC).—The surface layer of this sloping soil is only 4 or 5 inches thick and is thinner than that of Vaiden silt loam, deep, 0 to 2 percent slopes. Also, it is grayish brown instead of dark grayish brown. Surface drainage is good. Included in areas mapped as this soil are small areas of Sumter soils.

This soil is suited to many kinds of crops. Because of the moderate slopes, however, the hazard of erosion is moderate. In cultivated areas careful management is needed to control erosion. Most of the small total acreage is in pasture. (Capability unit IVe–3; woodland suitability group 10)

Vaiden silty clay, deep, 0 to 2 percent slopes (VdA).—The surface layer of this soil is silty clay instead of silt loam, is only 4 or 5 inches thick, and is grayish brown instead of dark grayish brown. Otherwise, the soil is similar to Vaiden silt loam, deep, 0 to 2 percent slopes.

Tilth is hard to maintain because this soil shrinks and cracks as it dries. (Capability unit IIIw–3; woodland suitability group 10)

Vaiden silty clay, deep, 2 to 5 percent slopes, eroded (VdB2).—This soil is distinguished from Vaiden silt loam, deep, 0 to 2 percent slopes, mainly by its thin, firm surface layer. The surface layer is silty clay only 3 to 4 inches thick. In most cultivated areas plowing has turned up mottled brown clay from the upper subsoil. Shallow gullies are common. Included in areas mapped as this soil are small areas of Brooksville soils.

This soil is suited to the crops commonly grown in the county, but in cultivated areas careful management is required to control erosion. Tilth is difficult to maintain, and the soil can be cultivated within only a narrow range of moisture content. The silty clay surface layer shrinks and cracks as it dries and thereby limits the moisture available to plants. The fairly large acreage of this soil is mainly cultivated or in pasture. (Capability unit IIIe–4; woodland suitability group 10)

Vaiden silty clay, deep, 2 to 5 percent slopes, severely eroded (VdB3).—The surface layer of this severely eroded soil generally is yellowish-brown to strong-brown, firm silty clay that is mottled with gray and red. In other respects this soil is similar to Vaiden silt loam, deep, 0 to 2 percent slopes. Shallow gullies are common in most areas, and in some places a few deep gullies have formed. Included in areas mapped as this soil are small areas of Brooksville soils.

In cultivated areas of this soil, careful management is required to control further erosion. The total acreage is small and is mainly in pasture. (Capability unit IVe–3; woodland suitability group 10)

Vaiden silty clay, deep, 5 to 8 percent slopes, eroded (VdC2).—The surface layer of this soil is silty clay instead of silt loam, is only 3 or 4 inches thick, and is grayish brown and firm instead of dark grayish brown and friable. In other respects this soil is similar to Vaiden silt loam, deep, 0 to 2 percent slopes. In most cultivated areas the surface layer is brownish because plowing has brought up mottled clay from the upper subsoil. Shallow gullies are common, and there are a few deep gullies. Included in areas mapped as this soil are small areas of Sumter soils.

This soil is suited to many kinds of crops. Because slopes are moderate, however, runoff causes a moderate to severe erosion hazard. If the soil is cultivated, careful management is needed to control erosion. The small total acreage is mainly in pasture. (Capability unit IVe–3; woodland suitability group 10)

Vaiden silty clay, deep, 5 to 8 percent slopes, severely eroded (VdC3).—The surface layer of this soil is silty clay instead of silt loam, is only 3 or 4 inches thick, and is yellowish brown to strong brown mottled with gray and red instead of dark grayish brown. In other respects this soil is similar to Vaiden silt loam, deep, 0 to 2 percent slopes. Shallow gullies are common, and deep ones occur in some places. Included in areas mapped as this soil are small areas of Sumter soils.

Because erosion is severe, this soil is of limited use for crops. Permanent vegetation is needed to protect the soil from further erosion. The total acreage is small and is mainly in pasture and trees. (Capability unit VIe–3; woodland suitability group 10)

Vaiden silty clay, deep, 8 to 12 percent slopes, severely eroded (VdD3).—The surface layer of this strongly sloping soil is silty clay instead of silt loam, is only 3 or 4 inches thick, is firm instead of friable, and is yellowish brown to strong brown mottled with gray and red instead of dark grayish brown. In other respects this soil is similar to Vaiden silt loam, deep, 0 to 2 percent slopes. Shallow gullies are common, and some deep ones occur. Included in areas mapped as this soil are small areas of Sumter soils.

The small total acreage of this soil is in pasture and trees and is suited to these uses. Permanent vegetation is needed to control further erosion. (Capability unit VIe–3; woodland suitability group 10)

Vaiden and Sumter soils, 8 to 17 percent slopes, severely eroded (VsE3).—This mapping unit consists of Vaiden and Sumter soils that do not occur in a regular pattern. These soils vary in texture. About 70 percent of the area mapped as these soils is Vaiden soil, and about 30 percent is Sumter soil. These soils are on steep slopes adjacent to stream bottoms.

The surface layer of these soils consists chiefly of yellowish-brown to brown silty clay or clay and is underlain by dark grayish-brown silty clay. The underlying material is mottled with gray and red in the Vaiden soil and with pale yellow in the Sumter soil. Shallow gullies are common in most areas mapped, and a few deep ones occur in some areas. Selma chalk is exposed in some places. These soils are acid to alkaline and vary in organic-matter content and in natural fertility. The available moisture capacity ranges from low to high and depends on the depth to chalk.

The Vaiden and Sumter soils in this mapping unit are both suited to pasture. The Vaiden soil is suited to pine

trees except in areas that have chalk near the surface. (Capability unit VIe–5; woodland suitability group 17)

West Point Series

The West Point series consists of nearly level, moderately well drained soils that formed in calcareous alluvium washed from soils on the prairie. These soils are in fairly large areas on the flood plain in the western part of the county. Their surface layer is very dark gray silty clay, and their subsoil is very dark gray clay. These soils are alkaline, moderate in natural fertility, and high in organic-matter content.

In this county the West Point soils occur with the Catalpa, Houlka, Houston, and Leeper soils. Generally, West Point soils are below the Houston soils near the base of slopes on the flood plain. West Point soils are darker colored than the Catalpa, Houlka, and Leeper soils. They are alkaline, whereas Houlka soils are acid.

The native vegetation on West Point soils was mixed hardwoods, but most of the acreage has been cleared and is cultivated or in pasture. These soils are suited to most crops commonly grown in the county.

West Point silty clay (Wp).—This moderately well drained soil on the flood plain has a friable, very dark gray clay subsoil. The major horizons are—

0 to 7 inches, very dark gray, friable silty clay.
7 to 20 inches, very dark gray, friable clay.
20 to 52 inches, very dark gray, friable clay.

This soil is alkaline, moderate in natural fertility, and high in organic-matter content. Included in areas mapped as this soil are small areas of Catalpa and Leeper soils.

Although this soil responds well to fertilization, it can be cultivated within only a narrow range of moisture content and is somewhat difficult to keep in good tilth. Because runoff and infiltration are slow, field ditches, both mains and laterals, are needed to remove excess surface water during wet periods. The total acreage is large and is entirely in cultivated crops and pasture. (Capability unit IIw–2; woodland suitability group 13)

Use and Management of Soils

This section discusses the use and management of soils for agriculture, in engineering works, as woodland, and for wildlife.

Management of Soils for Agriculture

This subsection is a general guide for managing the soils in Monroe County; it does not suggest specific management for individual soils. For detailed information of that kind, farmers can consult members of the local staff of the Soil Conservation Service or of the Mississippi Agricultural Experiment Station.

The subsection has three main parts. The first part explains capability grouping. In the second part the soils mapped in the county are placed in capability units and the use and management of these units are explained. The third part consists of a table that lists estimated yields of the principal crops at two levels of management.

Capability groups of soils

The capability classification is a grouping of soils that shows, in a general way, how suitable soils are for most kinds of farming. It is a practical grouping based on limitations of the soils, on the risk of damage when they are used, and on the way they respond to management.

In this system all the kinds of soil are grouped at three levels, the capability class, subclass, and unit. Eight capability classes are in the broadest grouping and are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other seven classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise limited that, without major reclamation, they do not produce worthwhile yields of crops, forage, or wood products. No soils in Monroe County are in class VIII.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be as many as four subclasses. The subclass is indicated 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* means 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 only in some parts of the country, indicates 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 or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c* because the soils in it have little or no susceptibility to erosion but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, which are groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally identified by numbers assigned locally, for example, IIe–1 or IIIe–2. The soils in each capability unit have about the same limitations and require about the same management.

Soils are classified in capability classes, subclasses, and units in accordance with the degree and kind of their permanent limitations; but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil; and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows.

Class I. Soils that have few limitations that restrict their use.
(No subclasses)
Capability unit I–1.—Nearly level, well-drained soils that have a fine sandy loam surface layer about 8 to 10 inches thick and a friable loam or sandy loam subsoil.
Capability unit I–2.—Nearly level, well-drained soils that have a friable loam surface layer 8 to 10 inches thick and a friable clay loam subsoil.

Class II. Soils that have some limitations that reduce the choice of plants or require moderate conservation practices.
Subclass IIe. Soils subject to moderate erosion if they are not protected.
Capability unit IIe–1.—Deep, well-drained, gently sloping soils that have a fine sandy loam surface layer and a sandy loam or loam subsoil.
Capability unit IIe–2.—Slightly or moderately eroded, gently sloping soils of the prairie upland that have a clay surface layer and subsoil.
Capability unit IIe–3.—Deep, moderately eroded, gently sloping soils of the upland that have a friable loam surface layer and a clay loam subsoil.
Capability unit IIe–4.—Gently sloping, somewhat poorly drained, slightly or moderately eroded soils that have a friable silty clay surface layer and a clay subsoil.
Capability unit IIe–5.—Moderately well drained, slightly or moderately eroded soils that have a friable silt loam or fine sandy loam surface layer and a friable silt loam or clay loam subsoil; fragipan at a depth of about 20 to 24 inches.
Capability unit IIe–6.—Moderately well drained soils that have a brown silt loam surface layer, a yellowish-brown silty clay loam subsoil, and a moderately thick root zone.
Subclass IIw. Soils that have moderate limitations because of excess water.
Capability unit IIw–1.—Nearly level, moderately well drained, friable alluvial soils.
Capability unit IIw–2.—Moderately well drained, neutral or alkaline alluvial soils that have a silty clay surface layer and a clay subsoil.
Capability unit IIw–3.—Moderately well drained, nearly level soils that have a friable silt loam or fine sandy loam surface layer and a clay loam or silt loam subsoil; fragipan at a depth of about 20 to 24 inches.
Capability unit IIw–4.—Nearly level, somewhat poorly drained, acid alluvial soils that have a friable silt loam to sandy loam surface layer and a sandy loam to loam subsoil.
Capability unit IIw–5.—Nearly level, somewhat poorly drained soils of the prairie upland that have a silty clay surface layer and a clay subsoil.
Subclass IIs. Soils that have moderate limitations of moisture capacity or tilth.
Capability unit IIs–1.—Nearly level, moderately well drained soils that have a friable silt loam surface layer, a silty clay loam subsoil, and a moderately thick root zone.
Capability unit IIs–2.—Nearly level, moderately well drained, neutral or alkaline clay soils of the prairie upland.

Class III. Soils that have severe limitations that reduce the choice of plants, or require special conservation practices, or both.
Subclass IIIe. Soils subject to severe erosion if they are cultivated and not protected.
Capability unit IIIe–1.—Deep, well-drained, slightly to severely eroded soils that have a friable fine sandy loam surface layer and a loam to sandy clay loam subsoil.
Capability unit IIIe–2.—Moderately well drained, neutral or alkaline, moderately eroded or severely eroded soils of the prairie upland that have a clay or silty clay surface layer and a clay subsoil.
Capability unit IIIe–3.—Deep, well-drained, gently sloping soils that are severely eroded and have a clay loam surface layer and a clay loam or silty clay loam subsoil.
Capability unit IIIe–4.—Somewhat poorly drained, gently sloping, acid soils of the prairie upland that have a silty clay or silt loam surface layer and a plastic clay subsoil.
Capability unit IIIe–5.—Moderately well drained, gently sloping and moderately sloping soils that have a friable fine sandy loam surface layer and a friable silt loam or clay loam subsoil; fragipan at a depth of about 20 to 24 inches.
Subclass IIIw. Soils that have severe limitations because of excess water.
Capability unit IIIw–1.—Somewhat poorly drained alluvial soils that have a silty clay or very fine sandy loam surface layer and a clay subsoil.
Capability unit IIIw–2.—Somewhat poorly drained, nearly level and gently sloping soils that have a fine sandy loam or silt loam surface layer and a loam subsoil; fragipan at a depth of about 14 to 18 inches.
Capability unit IIIw–3.—Nearly level, somewhat poorly drained soils of the prairie upland that have a silt loam or silty clay surface layer and a clay subsoil.
Subclass IIIs. Soils that have severe limitations of moisture capacity or tilth.
Capability unit IIIs–1.—Deep, somewhat excessively drained, nearly level soils that have a loamy sand surface soil and subsoil.

Class IV. Soils that have very severe limitations that restrict the choice of plants, require very careful management, or both.
Subclass IVe. Soils subject to very severe erosion if they are cultivated and not protected.

Capability unit IVe–1.—Deep, well-drained, moderately sloping and strongly sloping soils that are moderately eroded or severely eroded and have a friable, loamy surface layer and a subsoil of loam, sandy clay loam, or sandy clay.

Capability unit IVe–2.—Deep, well-drained severely eroded, moderately sloping soils that have a clay loam surface soil and subsoil.

Capability unit IVe–3.—Somewhat poorly drained, gently sloping and moderately sloping, acid soils of the prairie upland that are slightly to severely eroded and have a silt loam or silty clay surface layer and a plastic clay subsoil.

Capability unit IVe–4.—Moderately well drained, severely eroded, moderately sloping soils that have a loam surface layer and a clay loam subsoil.

Capability unit IVe–5.—Moderately well drained soils that have a friable silt loam surface layer, a silty clay loam to clay subsoil, and a shallow root zone.

Subclass IVw. Soils that have very severe limitations for cultivation because of excess water.

Capability unit IVw–1.—Nearly level, poorly drained soils on stream terraces and the prairie upland that have a silty clay or silt loam surface layer and a clay subsoil.

Capability unit IVw–2.—Poorly drained alluvial soils that have a silty clay surface layer and a sandy clay loam, clay loam, or clay subsoil.

Capability unit IVw–3.—Nearly level, poorly drained soils that have a fine sandy loam or silt loam surface layer and a silt loam to clay loam subsoil.

Class V. Soils not likely to erode that have other limitations, impractical to remove without major reclamation, that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass Vw. Soils that are too wet for cultivation and cannot be feasibly drained or protected.

Capability unit Vw–1.—Nearly level, frequently flooded, sandy alluvial soils.

Capability unit Vw–2.—Nearly level, mixed alluvial soils that are variable in texture and drainage.

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

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

Capability unit VIe–1.—Deep, well-drained, strongly sloping and steep soils that are slightly to severely eroded and have a loamy surface layer and a friable loam to sandy clay subsoil.

Capability unit VIe–2.—Moderately well drained, severely eroded, neutral or alkaline soils of the prairie upland that have a silty clay surface layer and subsoil.

Capability unit VIe–3.—Somewhat poorly drained, severely eroded, moderately sloping and strongly sloping, acid soils on the prairie upland.

Capability unit VIe–4.—Moderately well drained, moderately sloping and strongly sloping soils that have a loam or silt loam surface layer and a friable silt loam, silty clay loam, or clay subsoil.

Capability unit VIe–5.—Strongly sloping and steep, somewhat poorly drained and moderately well drained, clayey soils on the prairie upland.

Subclass VIw. Soils severely limited by excess water and generally unsuitable for cultivation.

Capability unit VIw–1.—Nearly level, somewhat poorly drained or poorly drained alluvial soils that are friable and loamy and are susceptible to severe flooding.

Subclass VIs. Soils generally unsuitable for cultivation and limited for other uses by their moisture capacity, stones, or other features.

Capability unit VIs–1.—Deep, somewhat excessively drained, moderately sloping and strongly sloping soils that have a gravelly sandy loam surface layer and a gravelly loam subsoil.

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

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

Capability unit VIIe–1.—Deep, well-drained, very steep soils that have a sandy loam surface layer and a loam to sandy clay subsoil.

Capability unit VIIe–2.—Gullied land that is underlain by alkaline material.

Capability unit VIIe–3.—Moderately well drained, moderately sloping and strongly sloping, severely eroded soils that have a silty clay loam surface layer and a silty clay or silty clay loam subsoil.

Capability unit VIIe–4.—Acid soil material that is eroded into an intricate pattern of gullies.

Capability unit VIIe–5.—Terrace escarpments.

Class VIII. Soils and landforms that, without major reclamation, have limitations that preclude their use for commercial production of plants and restrict their use to recreation, wildlife, water supply, or esthetic purposes. No soils in Monroe County are in class VIII.

Capability units in Monroe County

In this subsection each capability unit is described and the soils in it are listed. Suggestions are given on how to use and manage the soils in each unit. As stated in the explanation of capability grouping, a capability unit consists of soils that are suited to the same crops, require similar management, and produce about the same yields.

CAPABILITY UNIT I–1

Capability unit I–1 consists of deep, slightly eroded, yellowish-red and strong-brown soils of the uplands and stream terraces. The surface layer of these soils is very

friable fine sandy loam 8 to 10 inches thick, and the subsoil is friable loam. Infiltration, permeability, and available moisture capacity are moderate. The soils are medium acid to strongly acid and low in natural fertility and in organic-matter content. They are—

Cahaba fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.

These soils occupy about 1 percent of the county. Almost all of their acreage is cultivated or in pasture.

The soils of this unit are suited to small grain and row crops and, under good management, produce high yields of oats, wheat, rye, cotton (fig. 2), corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, wild winter peas, vetch, annual lespedeza, white clover, and crimson clover. Suitable grasses are bermudagrass, tall fescue, dallisgrass, and sudangrass. Peaches, pecans, apples, and pears are grown mostly in home orchards and produce fairly high yields. Pine trees grow well.

These soils can be row cropped continuously if cover crops are seeded to protect the soils after harvest. Also suitable is a crop sequence of a row crop and a small grain with or without a legume, or of a row crop and perennial grasses or legumes, or a mixture of these.

Applications of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Even under good management organic matter is depleted at a moderately rapid rate, but the supply can be maintained by managing crop residues well and including a close-growing or a soil-improving crop in the cropping system.

Good tilth is easily maintained, but a hardened layer, or plowpan, forms directly below the plow layer if a moldboard plow is used consistently. The pan can be broken up by tilling deeply or by seeding deep-rooted legumes.

In cultivated areas surface runoff is not rapid enough to cause erosion, but in some places graded rows are needed to remove excess water from the surface during wet periods. These soils can be irrigated by sprinklers.

Figure 2.—**Cotton on Cahaba fine sandy loam, 0 to 2 percent slopes. Capability unit I–1.**

CAPABILITY UNIT I–2

Greenville loam, 0 to 2 percent slopes, is the only soil in capability unit I–2. It is a deep, well-drained soil of the upland that is slightly eroded and dark reddish brown. The surface layer is friable loam 8 to 10 inches thick, and the subsoil is friable clay loam. Infiltration and permeability are moderate, and available moisture capacity is moderate to high. The soil is medium acid to strongly acid and low in organic-matter content and in natural fertility.

This soil occupies less than 1 percent of the county. Almost all of the acreage is cultivated or in pasture.

The soil in this unit is suited to small grain and row crops and, under good management, produces high yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, annual lespedeza, vetch, wild winter peas, and crimson clover. Suitable grasses are bermudagrass, tall fescue, dallisgrass, johnsongrass, and sudangrass. Apples, peaches, pears, and pecans are grown mostly in home orchards and produce high yields. Pine trees are well suited.

This soil can be row cropped continuously if cover crops are seeded to protect the soil after harvest. Also suitable is a crop sequence of a row crop and a small grain with or without a legume, or of a row crop and perennial grasses or legumes, or a mixture of these.

CAPABILITY UNIT IIe–1

Capability unit IIe–1 consists of deep, well-drained, yellowish-red and strong-brown soils of the uplands and stream terraces. These soils are slightly eroded and moderately eroded. The surface layer is friable fine sandy loam 4 to 6 inches thick, and the subsoil is friable loam or sandy loam. Infiltration, permeability, and available moisture capacity are moderate. The soils are medium acid to strongly acid and low in organic-matter content and in natural fertility. They are—

Cahaba fine sandy loam, 2 to 5 percent slopes, eroded.
Ruston fine sandy loam, 2 to 5 percent slopes.

These soils occupy about 1 percent of the county. About 75 percent of their acreage is cultivated, 20 percent is pastured, and 5 percent is wooded.

The soils of this unit are suited to small grain and row crops and, under good management, produce high yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, annual lespedeza, wild winter peas, vetch, and crimson clover. Suitable grasses are bermudagrass, tall fescue, dallisgrass, bahiagrass, johnsongrass, and sudangrass. Peaches, apples, pears, and pecans are grown mostly in home orchards and produce good yields. Pine trees grow well.

These soils can be row cropped continuously if cover crops are seeded to protect the soils after harvest. Also suitable is a crop sequence of (1) row crops followed by small grain with or without a legume; (2) row crops followed by perennial grasses or legumes, or both; and (3) perennial grasses or legumes, or a mixture of both, rotated with small grain.

Applications of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes.

These soils are generally in good tilth that is easily maintained. The supply of organic matter, however, should be maintained by managing crop residues well and including a soil-improving crop in the cropping system. Crusting and packing of the soil can be reduced by shredding crop residues and leaving them on the surface as a mulch. Seedbeds should be prepared in spring.

Surface runoff is the chief hazard in cultivated fields. In fields of row crops a water-disposal system is needed that provides terraces, vegetated waterways, and graded rows. Roads should be located on dividing ridges or parallel to the terraces. These soils are suitable for sprinkler irrigation.

CAPABILITY UNIT IIe–2

Capability unit IIe–2 consists of slightly and moderately eroded, moderately well drained, dark-gray soils of the prairie upland. The surface layer of these soils is friable clay 10 to 12 inches thick. The subsoil is clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. Natural fertility and the content of organic matter are moderate. These soils shrink and crack when they are dry. They are neutral to alkaline. The soils in this unit are—

Houston clay, 2 to 5 percent slopes.
Houston clay, 2 to 5 percent slopes, eroded.

These soils occupy about 4 percent of the county. Much of their acreage is cultivated, and some is in pasture.

The soils in this unit are suited to small grain and row crops and, under good management, produce high yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are wild winter peas, vetch, black medic, sweetclover, and white clover. Suitable grasses are bermudagrass, johnsongrass, dallisgrass, bahiagrass, and tall fescue.

These soils can be row cropped continuously if cover crops are seeded to protect the soils after the harvest. Also suitable is a crop sequence of a row crop and a small grain with or without a legume, or of a small grain and perennial grasses or legumes, or a mixture of these.

Added phosphorus is needed for all row crops and permanent pasture, and added nitrogen is needed for all nonlegumes. The supply of organic matter should be maintained by managing crop residues well and by including close-growing or soil-improving crops in the cropping system. The crop residues should be shredded and left on the surface as a mulch.

Surface runoff is the chief hazard in cultivated fields. In fields of row crops a water-disposal system is needed. Terraces, vegetated waterways, and graded rows are useful in reducing runoff, as are crop residues shredded on the surface. Roads should be located on dividing ridges or parallel to the terraces. These soils are suitable for sprinkler irrigation.

CAPABILITY UNIT IIe–3

Only Greenville loam, 2 to 5 percent slopes, eroded, is in capability unit IIe–3. It is on uplands and is red, deep, well drained, and moderately eroded. The surface layer is friable loam 4 to 6 inches thick, and the subsoil is friable clay loam. Infiltration and permeability are moderate, and available moisture capacity is moderate to high. The soil is low in organic-matter content and in natural fertility.

This soil occupies about 1 percent of the county. Most of its acreage is cultivated, but some is used for pasture.

The soil in this unit is suited to small grain and row crops and, under good management, produces good yields of oats, wheat, barley, rye, cotton, corn, soybeans, grain sorghum, and truck crops. Legumes that grow well are annual lespedeza, sericea lespedeza, vetch, and wild winter peas. Suitable grasses are bermudagrass, tall fescue, dallisgrass, bahiagrass, sudangrass, and johnsongrass. Apples, peaches, pears, and pecans are grown in home orchards and produce good yields. Pine trees grow well.

This soil can be row cropped continuously if runoff is controlled and cover crops are seeded to protect the soil after harvest. Also suitable is a crop sequence of (1) a row crop and a small grain with or without a legume; (2) a row crop and perennial grasses or legumes, or a mixture of these; or (3) a small grain and perennial grasses.

Additions of a complete fertilizer and lime are needed for high yields of all crops and pasture, and additional nitrogen is needed for all nonlegumes. The content of organic matter can be maintained by managing crop residues well and by including a soil-improving crop in the cropping system.

Good tilth is easy to maintain. Crusting and packing of the soil can be prevented by shredding the crop residues and leaving them on the surface as a mulch.

The erosion hazard resulting from the moderate runoff can be lessened by a suitable cropping system and by water-control practices that reduce and slow down runoff and safely dispose of water. Grassed waterways and graded rows dispose of water safely, and on long slopes, terraces help to control the loss of soil.

CAPABILITY UNIT IIe–4

Capability unit IIe–4 consists of dark-gray, somewhat poorly drained soils of the prairie upland. These soils are slightly eroded or moderately eroded. The surface layer is friable silty clay 4 to 6 inches thick. The subsoil is clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. The soils are low in organic-matter content but moderate in natural fertility. They shrink and crack as they dry. They are—

Brooksville silty clay, 2 to 5 percent slopes.
Brooksville silty clay, 2 to 5 percent slopes, eroded.

These soils occupy about 1 percent of the county. Most of their acreage is cultivated, but some is in pasture.

The soils of this unit are suited to small grain and row crops and, under good management, produce good yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, black medic, wild winter peas, white clover, sweetclover, and alfalfa. Suitable grasses are bermudagrass, johnsongrass, dallisgrass, bahiagrass, and tall fescue. Peaches, apples, pears, and pecans produce fair yields if special management is practiced.

These soils can be row cropped continuously if runoff is controlled and cover crops are seeded to protect the

soils after harvest. Also suitable is a crop sequence of a row crop and a small grain with or without a legume, or of a small grain and perennial grasses or legumes, or a mixture of these.

Applications of phosphorus are needed for all row crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. The content of organic matter can be maintained by including close-growing or soil-improving crops in the cropping sequence and by managing crop residues well. Shredding crop residues and leaving them on the surface helps to maintain organic matter.

The erosion hazard resulting from the moderate runoff can be lessened by a suitable cropping system and by water-control practices that reduce and slow down runoff and safely dispose of water. Shredded crop residues on the surface slow down runoff. Grassed waterways and graded rows dispose of water safely, and on long slopes, terraces help to control the loss of soil.

CAPABILITY UNIT IIe–5

Capability unit IIe–5 consists of moderately well drained, slightly or moderately eroded, yellow and brown soils of the uplands and stream terraces. The surface layer of these soils is friable silt loam or fine sandy loam 4 to 5 inches thick. The subsoil consists of friable silt loam or clay loam and a mottled sandy loam or loam fragipan at a depth of about 20 to 24 inches. Infiltration and permeability are moderate above the pan and are slow within it. The available moisture capacity is moderate. These soils are low in organic-matter content and in natural fertility. They are—

Ora fine sandy loam, 2 to 5 percent slopes.
Prentiss fine sandy loam, 2 to 5 percent slopes.
Prentiss fine sandy loam, 2 to 5 percent slopes, eroded.
Savannah silt loam, 2 to 5 percent slopes.
Tilden fine sandy loam, 2 to 5 percent slopes.
Tilden fine sandy loam, 2 to 5 percent slopes, eroded.

These soils occupy about 4 percent of the county. Most of their acreage is cultivated or in pasture, but a small part is wooded.

If the level of management is high, these soils produce good yields of all crops and pasture plants grown in the area. Suitable crops are cotton, corn, soybeans, grain sorghum, and small grain. Legumes that grow well are wild winter peas, annual lespedeza, sericea lespedeza, crimson clover, vetch, and white clover. Suitable grasses are sudangrass, Coastal bermudagrass, common bermudagrass, and tall fescue. Pine trees grow well. Yields of corn and other summer annuals vary greatly from year to year and depend on the amount of rain that falls during the growing season.

Applications of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes.

Good tilth is easily maintained, but a plowpan forms if a moldboard plow is used consistently. The plowpan can be broken up by tilling deeply or by seeding a deep-rooted legume.

Erosion is a moderate hazard, but it can be controlled by using a suitable cropping system and water-control practices that reduce and slow down runoff. Close-growing crops should be grown about half the time. A suitable cropping system is 2 years of a small grain, each followed by lespedeza, and then 2 years of row crops. Contour tillage, sodded waterways, and terraces are effective in controlling runoff and loss of soil.

CAPABILITY UNIT IIe–6

The only soil in capability unit IIe–6 is Kipling silt loam, moderately well drained variant, 2 to 5 percent slopes. This moderately well drained soil of the upland has a brown silt loam surface layer about 5 inches thick. The subsoil is yellowish-brown silty clay loam. Infiltration and permeability are slow, and available moisture capacity is moderate. The organic-matter content is low, and natural fertility is moderate. This acid soil crusts and packs when it is bare.

The soil in this unit occupies less than 1 percent of the county. Most of its acreage is cultivated or in pasture, but small areas are wooded.

This soil is suited to row crops and small grain and, under good management, produces good yields of cotton, corn, soybeans, grain sorghum, oats, wheat, rye, and barley. Legumes that grow well are wild winter peas, vetch, annual lespedeza, sericea lespedeza, and white clover. Tall fescue, bermudagrass, dallisgrass, and bahiagrass are suitable grasses. Pecans and pears produce fairly good yields, and pine trees grow well.

If runoff is controlled, this soil can be row cropped continuously. Also suitable is a cropping system consisting of row crops and perennial grasses.

Applications of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by using close-growing and soil-improving crops and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained, but a plowpan forms directly below the plow layer if a moldboard plow is used consistently. The pan can be broken up by tilling deeply or by seeding deep-rooted legumes. Shredded crop residues on the surface help to reduce crusting and packing, as well as to increase organic matter. Seedbeds should be prepared in spring.

The erosion hazard caused by the moderate runoff can be lessened by using a suitable cropping sequence and water-control practices.

CAPABILITY UNIT IIw–1

Only the mapping unit Iuka soils is in capability unit IIw–1. These soils are alluvial, nearly level, and moderately well drained. Their surface soil is friable and variable in texture. The subsoil is friable, yellowish-brown sandy loam that, in some places, is mottled below a depth of 18 inches. Infiltration, permeability, and available moisture capacity are moderate. These soils are medium acid, low in organic-matter content, and moderate in natural fertility.

These soils occupy less than 1 percent of the county.

The soils of this unit are suited to small grain and row crops and, if well managed, produce good yields of oats, wheat, barley, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are wild winter peas, vetch, crimson clover, annual lespedeza, and white clover. Suitable grasses are bermudagrass, dallisgrass, bahiagrass, sudangrass, and tall fescue. Pine trees and suitable hardwoods grow well.

Row crops can be grown continuously if cover crops are seeded to protect the soils after harvest. Also suitable is a crop sequence consisting of row crops and perennial grasses.

Applications of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter should be maintained by seeding close-growing crops or soil-improving crops and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained. The soils can be cultivated and prepared for seeding within a wide range of moisture content. If a plowpan forms, it can be broken up by tilling deeply or by seeding deep-rooted legumes. Shredded crop residues on the surface reduce crusting and packing.

These soils produce good yields if surface water is removed by V- and W-ditches, field laterals, and graded rows. In some places diversions are needed to carry away water that runs off adjacent hillsides. The soils can be irrigated by sprinklers.

CAPABILITY UNIT IIw-2

Capability unit IIw-2 consists of brown to black soils that are alluvial, moderately well drained, and neutral or alkaline. The surface layer of these soils is friable silty clay. The subsoil is clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. The soils are moderate in organic-matter content and in natural fertility. They are—

Catalpa silty clay.
West Point silty clay.

These soils occupy about 5 percent of the county. Most of their acreage is cultivated or in pasture.

The soils of this unit are suited to small grain and row crops and, under good management, produce good yields of oats, wheat, barley, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, annual lespedeza, black medic, wild winter peas, white clover, and sweetclover. Bermudagrass, dallisgrass, bahiagrass, johnsongrass, and tall fescue grow well.

These soils can be row cropped continuously if cover crops are seeded to protect the soils after harvest. Also suitable is a crop sequence consisting of row crops and perennial grasses.

Additions of phosphorus are generally needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. The organic-matter content can be maintained by seeding close-growing or soil-improving crops and by managing the crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is fairly easy to maintain on these soils. Except in areas where flooding and scouring are severe, seedbeds should be prepared in fall so that the soil can settle before planting. Planting is sometimes delayed in spring because of wetness.

Yields are good on these soils if surface water is removed by graded rows, V- and W-ditches, and field laterals. Diversion terraces are needed to divert water from adjacent hillsides (fig. 3). These soils can be irrigated by sprinklers.

Figure 3.—**Diversion terraces built to protect Catalpa silty clay against runoff from an adjacent hillside. Capability unit IIw-2.**

CAPABILITY UNIT IIw-3

Capability unit IIw-3 consists of moderately well drained, slightly eroded, yellow and brown soils of the uplands and stream terraces. The surface layer of these soils is friable silt loam or fine sandy loam 6 to 8 inches thick. The subsoil consists of friable silt loam or clay loam and a mottled sandy loam fragipan at a depth of about 20 to 24 inches. Infiltration is moderate, and permeability is moderate above the fragipan and very slow within it. The available moisture capacity is moderate. The soils are medium acid to strongly acid and low in organic-matter content and in natural fertility. They are—

Prentiss fine sandy loam, 0 to 2 percent slopes.
Savannah silt loam, 0 to 2 percent slopes.
Tilden fine sandy loam, 0 to 2 percent slopes.

These soils occupy about 5 percent of the county. About 75 percent of their acreage is used for row crops and pasture.

The soils of this unit are suited to small grain and row crops and, under good management, produce good yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are annual lespedeza, sericea lespedeza, wild winter peas, vetch, and white clover. Suitable grasses are bermudagrass, dallisgrass, bahiagrass, and tall fescue. Yields of peaches, apples, pears, and pecans are fairly good. Pine trees grow well.

These soils can be row cropped continuously if cover crops are seeded to protect the soils after harvest. Also suitable is a crop sequence consisting of row crops and perennial grasses.

Additions of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by seeding close-growing and soil-improving crops and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained, but a hardened layer, or plowpan, forms directly below the plow layer if a mold-

board plow is used consistently. The pan can be broken up by tilling deeply or by seeding deep-rooted legumes. Shredded crop residues on the surface help to prevent crusting and packing.

Because these soils are nearly level, surface water is a slight hazard during wet periods. Generally, excess water can be removed by V- and W-ditches (fig. 4). These soils are suitable for sprinkler irrigation.

Figure 4.—V-ditch in Tilden fine sandy loam, 0 to 2 percent slopes. Capability unit IIw–3.

CAPABILITY UNIT IIw–4

Only Mantachie soils are in capability unit IIw–4. These soils are alluvial, nearly level, somewhat poorly drained, and acid. Their surface soil is friable silt loam to sandy loam, and their subsoil is friable, mottled yellowish-brown and gray sandy loam to loam. Infiltration, permeability, and available moisture capacity are moderate. These soils are low in organic-matter content and are moderate in natural fertility. They tend to crust and pack if left bare.

These soils occupy about 4 percent of the county.

The soils of this unit are well suited to corn, soybeans, and grain sorghum. Suitable grasses are bermudagrass, bahiagrass, dallisgrass, and tall fescue. Legumes that grow well are wild winter peas, lespedeza, white clover, and red clover. These soils are poorly suited to orchard fruits. Pine trees and suitable hardwoods grow well.

These soils can be row cropped continuously if cover crops are seeded to protect the soils after harvest. Also suitable is a crop sequence consisting of row crops and perennial grasses.

Additions of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by seeding close-growing or soil-improving crops and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Although good tilth is easily maintained, a plowpan forms readily. This pan can be broken up by deep plowing or by seeding deep-rooted legumes.

Flooding and the somewhat poor drainage are the main limitations to use of these soils. The excess water can be removed by well-arranged crop rows and by drainage ditches. Land leveling may be needed in some rough areas. These soils are suitable for sprinkler irrigation.

CAPABILITY UNIT IIw–5

Brooksville silty clay, 0 to 2 percent slopes, is the only soil in capability unit IIw–5. It is a somewhat poorly drained, slightly eroded soil of the nearly level prairie upland. The surface layer of friable, dark grayish-brown silty clay is 8 to 10 inches thick. The subsoil is dark grayish-brown clay that is firm when dry and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. The soil is medium acid, low in organic-matter content, and moderate in natural fertility.

This soil occupies less than 1 percent of the county. About half of its acreage is cultivated, and the rest is in pasture.

The soil in this unit is suited to small grain and row crops and, under good management, produces high yields of oats, wheat, barley, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, annual lespedeza, wild winter peas, black medic, sweetclover, and white clover. Suitable grasses are bermudagrass, dallisgass, johnsongrass, bahiagrass, and tall fescue.

This soil can be row cropped continuously if cover crops are seeded to protect the soil after harvest. Also suitable is a crop sequence consisting of row crops and perennial grasses.

Additions of phosphorus and lime are needed for all crops and permanent pasture. Organic matter should be maintained by seeding close-growing or soil-improving crops in the crop sequence and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is fairly easy to maintain, but this soil can be tilled within only a fairly narrow range of moisture content. Except in areas susceptible to erosion, seedbeds should be prepared in fall to permit the soil to weather and settle before planting.

During wet periods surface water should be removed by well-arranged rows, waterways, and field ditches. The soil is suitable for sprinkler irrigation.

CAPABILITY UNIT IIs–1

Only Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes, is in capability unit IIs–1. It is on uplands and is moderately well drained and slightly eroded. Its surface soil is friable, dark-brown silt loam 5 to 8 inches thick, and its subsoil is friable to firm silty clay loam. Infiltration and permeability are slow, and available moisture capacity is moderate. This soil is medium acid to strongly acid, low in organic-matter content, and moderate in natural fertility. It crusts and packs if left bare.

The soil in this unit occupies less than 1 percent of the county. Most of its acreage is cultivated or in pasture, but some is wooded.

The soil is suited to small grain and row crops and produces good yields of oats, wheat, rye, barley, cotton, corn, soybeans, and grain sorghum. Suitable legumes are wild winter peas, vetch, sericea lespedeza, annual lespe-

deza, and white clover. Grasses that grow well are tall fescue, bermudagrass, dallisgrass, bahiagrass, and johnsongrass. Pecans are fairly well suited, and pine trees grow well.

This soil can be row cropped continuously if cover crops are seeded to protect it after harvest. Also suitable is a crop sequence consisting of row crops and perennial grasses.

Additions of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by including close-growing or soil-improving crops in the crop sequence and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained in this soil, but a plowpan is formed below the plow layer if a moldboard plow is used consistently. The pan can be broken up by tilling deeply and by growing deep-rooted legumes. Shredded crop residues on the surface reduce crusting and packing. Because surface water is a hazard, crop rows should be arranged well and waterways should be kept in growing plants.

CAPABILITY UNIT IIs–2

The only soil in capability unit IIs–2 is Houston clay, 0 to 2 percent slopes. It is on the prairie upland and is moderately well drained and neutral or alkaline. The surface soil is friable, dark-gray clay. The subsoil is clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. The soil is low to moderate in organic-matter content and high in natural fertility.

This soil occupies about 2 percent of the county. Most of it is cultivated; the rest is in pasture.

The soil in this unit is suited to small grain and row crops and, under good management, produces high yields of oats, wheat, rye, cotton, soybeans, and grain sorghum. Well-suited legumes are wild winter peas, black medic, sweetclover, and white clover. Bermudagrass, dallisgrass, bahiagrass, johnsongrass, and tall fescue grow well.

This soil can be row cropped continuously if cover crops are seeded to protect it after harvest. Also, row crops can be grown in a sequence with perennial grasses.

Additions of phosphorus are needed for all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by seeding close-growing or soil-improving crops and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

This soil is fairly easy to keep in good tilth, but it can be cultivated within only a somewhat narrow range of moisture content. Seedbeds should be prepared in fall so that the soil has time to weather and settle. Planting is delayed at times in spring because the soil dries slowly. Well-arranged crop rows and waterways kept in growing plants are needed to remove surface water during wet periods.

CAPABILITY UNIT IIIe–1

Capability unit IIIe–1 consists of deep, well-drained, yellowish-red and red soils. These soils occur on upland and are slightly eroded and severely eroded. The surface layer is friable fine sandy loam, and the subsoil is friable loam to sandy clay loam. Infiltration, permeability, and available moisture capacity are moderate. The soils are low in natural fertility and in organic-matter content. They are—

Ruston fine sandy loam, 2 to 5 percent slopes, severely eroded.
Ruston fine sandy loam, 5 to 8 percent slopes.

These soils occupy about 1 percent of the county. More than half of their acreage is forest, and the rest is used for crops and pasture.

The soils of this unit are suited to row crops and small grain and, under good management, produce good yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are sericea lespedeza, annual lespedeza, wild winter peas, vetch, and crimson clover. Suitable grasses are bermudagrass, bahiagrass, dallisgrass, johnsongrass, and tall fescue. Pears, apples, peaches, and pecans are grown in home orchards and produce fairly high yields. Many truck crops and nursery crops grow well on these soils.

The erosion hazard is moderate on these soils and can be controlled by using cropping systems and water-control practices that reduce and slow down runoff. Close-growing crops are needed on these soils about half the time. A suitable cropping system is 2 years of a small grain, each followed by lespedeza, and then 2 years of row crops. Runoff and soil losses can be controlled by tilling on the contour, sodding waterways, and constructing terraces.

If yields of crops and permanent pasture are to be high, applications of a complete fertilizer and lime are needed for all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Even under good management, the supply of organic matter is depleted at a moderately rapid rate, but this supply can be maintained by using soil-improving crops and by managing the crop residues well. The crop residues should be shredded and left on the surface as a mulch.

These soils are generally in good tilth that can be easily maintained, and they can be cultivated within a wide range of moisture content. Spring is the best time for preparing seedbeds. Although a plowpan forms in these soils, the pan can be broken up by tilling deeply or by planting deep-rooted legumes. Shredded crop residues on the surface reduce crusting and packing. Roads should be located on dividing ridges or parallel to the terraces. These soils are suitable for sprinkler irrigation.

CAPABILITY UNIT IIIe–2

Capability unit IIIe–2 consists of moderately well-drained, eroded and severely eroded, neutral or alkaline soils of the prairie upland. The surface layer is friable, dark-gray to olive silty clay or clay. The subsoil is olive to pale-yellow clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. The soils are low to moderate in organic-matter content and moderate in natural fertility. They shrink and crack when dry. They are—

Houston clay, 5 to 8 percent slopes, eroded.
Sumter silty clay, 2 to 5 percent slopes, severely eroded.

These soils occupy less than 1 percent of the county. About half of their acreage is cultivated, and the rest is in pasture.

The soils in this unit are suited to small grain and row crops and, under good management, produce good yields

of oats, wheat, rye, barley, cotton, soybeans, and grain sorghum. Suitable grasses are bermudagrass, johnsongrass, dallisgrass, bahiagrass, and tall fescue. Well-suited legumes are black medic, white clover, sweetclover, and wild winter peas.

Erosion is a problem, but it can be controlled by using a suitable cropping system and water-control practices that reduce and slow down runoff. Close-growing crops should be grown about half the time. A suitable cropping system is 2 years of a small grain, each followed by annual lespedeza, and then 2 years of row crops. Contour tillage, sodded waterways, and terraces are effective in controlling runoff and loss of soil.

Additions of phosphorus are needed for all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by seeding close-growing or soil-improving crops and by managing crop residues well. If crop residues are shredded and left on the surface as a mulch, they help to reduce runoff and to maintain organic matter.

These clayey soils are hard to keep in good tilth and can be cultivated within only a narrow range of moisture content. Planting is delayed at times in spring because the soils dry out slowly.

CAPABILITY UNIT IIIe–3

Only Greenville clay loam, 2 to 5 percent slopes, severely eroded, is in capability unit IIIe–3. It is a red soil on upland and is deep, well drained, and severely eroded. The surface soil is friable clay loam 3 to 4 inches thick, and the subsoil is friable clay loam or silty clay loam. Infiltration is slow, permeability is moderate to slow, and available moisture capacity is moderate to high. The soil is medium acid to strongly acid and low in organic-matter content and in natural fertility.

This soil occupies less than 1 percent of the county. About half of its acreage is cultivated, and the rest is in pasture.

The soil in this unit is suited to small grain and row crops and, if well managed, produces good yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Grasses that grow well are bermudagrass, johnsongrass, dallisgrass, bahiagrass, and tall fescue. Well-suited legumes are wild winter peas, vetch, sericea lespedeza, annual lespedeza, and crimson clover. Apples, peaches, pears, and pecans are grown mainly in home orchards and produce fairly high yields. Many truck crops and nursery crops grow well.

Erosion is a problem, but it can be controlled by using a suitable cropping system and water-control practices that reduce and slow down runoff. Close-growing crops should be grown about half the time. A suitable cropping system is 2 years of a small grain, each followed by annual lespedeza, and then 2 years of row crops. Contour tillage, sodded waterways, and terraces are effective in controlling runoff and soil loss. Roads should be located on dividing ridges or parallel to the terraces.

Additions of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter is depleted at a moderately rapid rate, even if management is good, but it can be maintained by including soil-improving crops in the cropping system and by managing crop residues well. The crop residue should be shredded and left on the surface as a mulch.

This soil is fairly easy to keep in good tilth, and it can be cultivated within a wide range of moisture content. A plowpan is likely to form, but it can be partly broken up by tilling deeply or by growing deep-rooted legumes. Shredded crop residues on the surface reduce crusting and packing. The soil is suitable for sprinkler irrigation.

CAPABILITY UNIT IIIe–4

Capability unit IIIe–4 consists of somewhat poorly drained, acid soils of the prairie upland. The surface soil is friable silt loam or silty clay 3 to 4 inches thick. The subsoil is mottled clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. The soils are low in organic-matter content and moderate in natural fertility. They are—

Vaiden silt loam, deep, 2 to 5 percent slopes.
Vaiden silty clay, deep, 2 to 5 percent slopes, eroded.

These soils occupy about 4 percent of the county. Most of their acreage is used for pasture and cultivated crops, but about 25 percent is wooded.

The soils of this unit are not suited to many kinds of crops, but they are suited to oats, rye, wheat, soybeans, and grain sorghum. Well-suited grasses are bermudagrass, dallisgrass, johnsongrass, and bahiagrass. Suitable legumes are sericea lespedeza, annual lespedeza, wild winter peas, and vetch. Pine trees and some hardwoods grow well.

Erosion is a moderate hazard, but it can be controlled by a suitable cropping system and by water-control practices that reduce and slow down runoff. Close-growing crops should be grown about half the time. A suitable cropping system is 2 years of a small grain, each followed by lespedeza, and then 2 years of row crops. Contour tillage, sodded waterways, and terraces are effective in controlling runoff and loss of soil.

Additions of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. The content of organic matter can be maintained by managing crop residues well and by including in the cropping system close-growing crops that improve and conserve the soil. If the crop residues are shredded and left on the surface as a mulch, they help to reduce runoff and to maintain organic matter.

Good tilth is hard to maintain on the Vaiden silty clay, and both soils in this unit can be cultivated within only a fairly narrow range of moisture content. Planting in spring is delayed at times because the soils dry out slowly.

CAPABILITY UNIT IIIe–5

Capability unit IIIe–5 consists of moderately deep, moderately eroded or severely eroded, brown soils of the uplands and stream terraces. The surface layer of these soils is friable fine sandy loam 4 to 5 inches thick. The subsoil consists of friable silt loam or clay loam and a fragipan that occurs at a depth of 20 to 24 inches. Infiltration is moderate, and permeability is moderate above the fragipan and slow within it. The available moisture capacity is moderate. These soils are medium acid to

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strongly acid and low in organic-matter content and in natural fertility. They are—

Ora fine sandy loam, 2 to 5 percent slopes, severely eroded.
Ora fine sandy loam, 5 to 8 percent slopes, eroded.
Tilden fine sandy loam, 5 to 8 percent slopes, eroded.

These soils occupy less than 2 percent of the county. More than half of their acreage is in forest, and the rest is in pasture or cultivated crops.

The soils of this unit are suited to small grain and row crops and, under good management, produce good yields of oats, rye, wheat, barley, cotton, corn, soybeans, and grain sorghum. Suitable grasses are bermudagrass, dallisgrass, bahiagrass, and tall fescue. Legumes that grow well are wild winter peas, vetch, sericea lespedeza, annual lespedeza, and white clover. Peaches, apples, pears, and pecans produce fair yields in home orchards. Pine trees grow well.

Because these soils are susceptible to further erosion, they should be kept in close-growing crops 2 years out of 3, and practices should be used to control runoff. A suitable cropping system is 4 years of sod crops and 2 years of row crops. Surface runoff in cultivated fields can be controlled by building terraces, grassing the waterways, tilling on the contour, and other practices. Roads should be located on dividing ridges or parallel to the terraces.

Additions of a complete fertilizer and lime are needed for good yields of all row crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Even under good management, organic matter is depleted at a moderately rapid rate, but it can be maintained by including close-growing or soil-improving crops in the cropping system and by good management of crop residues. The crop residues should be shredded and left on the surface as a mulch.

These soils are fairly easy to keep in good tilth, and they can be cultivated within a fairly wide range of moisture content. A plowpan is formed, however, if a moldboard plow is used consistently. The pan can be broken up by tilling deeply and by growing deep-rooted legumes. Shredded crop residues on the surface help prevent packing and crusting.

CAPABILITY UNIT IIIw–1

Capability unit IIIw–1 consists of gray, somewhat poorly drained alluvial soils. The surface soil is friable very fine sandy loam or silty clay. The subsoil is mottled grayish-brown clay that is friable when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. These soils are acid to alkaline and are moderate in organic-matter content and in natural fertility. They shrink and crack when dry. They are—

Houlka silty clay.
Houlka very fine sandy loam, local alluvium.
Leeper silty clay.

These soils occupy about 4 percent of the county. Most of their acreage is cultivated or in pasture, but a small part is wooded.

The soils of this unit are suited to small grain and row crops and, under good management, produce high yields of oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Suitable legumes are wild winter peas, vetch, lespedeza, and white clover. Grasses that grow well are bermudagrass, johnsongrass, dallisgrass, bahiagrass, and tall fescue. Pine trees grow well on the medium acid Houlka soils, and suitable hardwoods grow well on both Houlka and Leeper soils.

Row crops can be grown on these soils continuously, or they can be grown in a cropping system with grasses, legumes, or a mixture of grasses and legumes.

Additions of phosphorus are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by managing crop residues well and by including close-growing or soil-improving crops in the cropping system.

Surface water and flooding are the main hazards on these soils. Unless flooding and scouring are severe, it is best to prepare seedbeds in fall so that the beds can settle before planting. Planting is delayed at times in spring because the soils are wet. Excess water can be removed from the surface by V- and W-ditches, field laterals, and graded rows. In some places diversion terraces are needed to divert water that flows from nearby hills.

CAPABILITY UNIT IIIw–2

Capability unit IIIw–2 consists of somewhat poorly drained, slightly eroded soils on uplands and stream terraces. The surface layer of these soils is friable fine sandy loam and silt loam 6 to 8 inches thick. The subsoil consists of friable, yellowish-brown loam that is mottled with brown and gray, and of a fragipan that occurs at a depth of about 14 to 18 inches. Infiltration is slow. Permeability is moderate above the pan and slow within it. Available moisture capacity is moderate to low. These soils are strongly acid and low in organic-matter content and in natural fertility. They are—

Pheba silt loam, 0 to 2 percent slopes.
Pheba silt loam, 2 to 5 percent slopes.
Stough fine sandy loam.

These soils occupy about 4 percent of the county. Most of their acreage is in pasture and cultivated crops, but about a fourth is wooded.

The soils in this unit are poorly suited to cotton, corn, soybeans, and other row crops, but under good management they produce good yields of oats, wheat, and rye. Suitable legumes are vetch, lespedeza, and white clover, and suitable grasses are bermudagrass, dallisgrass, bahiagrass, tall fescue, and sudangrass. Pine trees grow well (fig. 5).

Additions of a complete fertilizer and lime are needed for high yields of all crops and pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by managing crop residues well and by seeding close-growing or soil-improving crops in the cropping system. The crop residues should be shredded and left on the surface as a mulch.

Because of the fragipan, these soils are waterlogged during wet periods, particularly in winter and early in spring, and are droughty during dry periods in summer. V- and W-ditches, field laterals, and graded rows can be used for drainage. Shredded crop residues on the surface help to prevent crusting and to reduce runoff, as well as to maintain organic matter.

Figure 5.—Slash pine on Stough fine sandy loam. Capability unit IIIw–2.

CAPABILITY UNIT IIIw–3

Capability unit IIIw–3 consists of nearly level, somewhat poorly drained soils of the prairie upland. The surface soil is friable silt loam and silty clay. The subsoil is mottled yellow clay that is firm when moist and sticky and plastic when wet. Infiltration and permeability are slow, and available moisture capacity is high. These soils are medium acid to strongly acid, low in organic-matter content, and moderate in natural fertility. They shrink and crack as they dry. They are—

Vaiden silt loam, deep, 0 to 2 percent slopes.
Vaiden silty clay, deep, 0 to 2 percent slopes.

These soils occupy about 4 percent of the county. Most of their acreage is used for pasture.

The soils of this unit are suited to oats, wheat, soybeans, and grain sorghum, but they are poorly suited to cotton and corn. Suitable legumes are vetch, wild winter peas, annual lespedeza, and sericea lespedeza. Bermudagrass, johnsongrass, bahiagrass, and tall fescue are suitable grasses.

Row crops can be grown on these soils continuously, or they can be grown in a cropping system with grasses, legumes, or a mixture of grasses and legumes.

Additions of a complete fertilizer and lime are required for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by seeding close-growing or soil-improving crops in the cropping system and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is somewhat easier to maintain on the Vaiden silt loam than on the Vaiden silty clay. Both soils can be cultivated within only a narrow range of moisture content. Planting is delayed at times in spring because these soils dry out slowly. The excess surface water can be removed by V- and W-ditches, field laterals, and graded rows. Shredded crop residues on the surface help to prevent packing and to increase infiltration.

CAPABILITY UNIT IIIs–1

The only soil in capability unit IIIs–1 is Eustis loamy sand, terrace, 0 to 2 percent slopes. It is on nearly level stream terraces and is deep, somewhat excessively drained, and acid. The surface layer and subsoil are dark-brown loamy sand. The surface layer is structureless, and the subsoil varies in structure and is very friable. Infiltration and permeability are rapid, and available moisture capacity is low. This soil is strongly acid and low in organic-matter content and in natural fertility.

This soil occupies less than 1 percent of the county. More than half its acreage is cultivated, and the rest is wooded.

The soil in this unit is suited to oats, wheat, rye, cotton, soybeans, grain sorghum, and truck crops. Suitable grasses and legumes are bermudagrass, bahiagrass, crimson clover, vetch, and sericea lespedeza. Pine trees grow well.

Row crops can be grown continuously, or they can be grown in a cropping system with perennial grasses, legumes, or a mixture of grasses and legumes.

Additions of a complete fertilizer and lime are needed for all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Fertilizer should be added in light, frequent applications because it leaches out rapidly. Organic matter can be maintained by including close-growing and soil-improving crops in the cropping system and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained. Although this soil is somewhat excessively drained, rows arranged to control water and grassed waterways are needed to dispose of excess water when rainfall is heavy.

CAPABILITY UNIT IVe–1

Capability unit IVe–1 consists of deep, well-drained, moderately eroded and severely eroded soils of the uplands and stream terraces. The surface layer of these soils is mainly friable, brown fine sandy loam 3 to 5 inches thick. The subsoil is friable, brown, red, and yellowish-red loam, sandy clay loam, or sandy clay. Infiltration, permeability, and available moisture capacity are moderate. These soils are medium acid to strongly acid and low in organic-matter content and in natural fertility. They are—

Cahaba fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ruston and Luverne soils, 8 to 12 percent slopes, eroded.

These soils occupy less than 1 percent of the county and are mostly wooded.

Under good management the soils of this unit are suited to oats, wheat, rye, barley, cotton, corn, soybeans, grain sorghum, truck crops, and nursery crops. Well-suited legumes are wild winter peas, vetch, lespedeza, sericea lespedeza, and crimson clover. Suitable grasses are bermudagrass, bahiagrass, johnsongrass, dallisgrass, sudangrass, and tall fescue. Peaches, pears, apples, and pecans produce fairly well in home orchards. Pine trees grow well.

The erosion hazard is so severe that close-growing crops or sod crops should be grown at least 3 years out of 4. A suitable crop sequence is 3 years of perennial grasses and 1 year of a row crop. Also suitable is 2 years of grasses

or legumes, or a mixture of them, 1 year of a small grain, and 1 year of a row crop.

Additions of a complete fertilizer and lime are needed for high yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by growing soil-improving crops in the crop sequence and by managing crop residues well. The residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained in these soils, except where the surface soil has eroded away and the plow layer is mainly material from the subsoil. Erosion, the chief hazard in cultivated fields, can be controlled by tilling on the contour, terracing, and grassing the waterways. Shredded crop residues on the surface also help to control erosion. These soils can be cultivated within a wide range of moisture content, but a plowpan is likely to form if a moldboard plow is used consistently. This pan can be broken up by tilling deeply or by growing a deep-rooted legume.

CAPABILITY UNIT IVe–2

Only Greenville clay loam, 5 to 8 percent slopes, severely eroded, is in capability unit IVe–2. It is a deep, well-drained, red soil on upland. The surface layer and subsoil are friable, reddish-brown clay loam. The surface layer is only 2 to 3 inches thick. Infiltration is slow to moderate, permeability is moderate, and available moisture capacity is moderate to high. This soil is low in organic-matter content and in natural fertility. It tends to crust and pack if left bare.

This soil occupies less than 1 percent of the county. It is used chiefly for cultivated crops and pasture.

Under good management this soil is suited to oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are wild winter peas, vetch, crimson clover, and lespedeza. Suitable grasses are bermudagrass, dallisgrass, bahiagrass, johnsongrass, sudangrass, and tall fescue. Peaches, pears, apples, and pecans are suitable in home orchards. Pine trees grow well.

The erosion hazard is so great on this soil that close-growing crops or sod crops should be grown at least 3 years out of 4. A suitable crop sequence is 3 years of perennial grasses and 1 year of a row crop.

Additions of a complete fertilizer and lime are needed for good yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by including soil-improving crops in the cropping system and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

This soil is easily kept in good tilth, and it can be cultivated within a fairly wide range of moisture content. A plowpan is likely to form, but it can be broken up by tilling deeply or by growing a deep-rooted legume.

Erosion resulting from runoff is the chief hazard in cultivated areas. Erosion can be controlled by tilling on the contour, building terraces, and keeping waterways in growing plants. Shredded crop residues on the surface increase infiltration and reduce erosion. Roads should be located on the dividing ridges or parallel to the terraces.

CAPABILITY UNIT IVe–3

Capability unit IVe–3 consists of somewhat poorly drained, slightly to severely eroded, yellow soils of the prairie upland. The surface layer of these soils is friable, grayish-brown silt loam or silty clay. The subsoil is mottled yellow clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is moderate. These soils are strongly acid, low in organic-matter content, and moderate in natural fertility. They shrink and crack as they dry. In this unit are—

Vaiden silt loam, deep, 5 to 8 percent slopes.
Vaiden silty clay, deep, 5 to 8 percent slopes, eroded.
Vaiden silty clay, deep, 2 to 5 percent slopes, severely eroded.

These soils occupy about 1 percent of the county and are mainly in pasture.

The soils of this unit are only fairly well suited to oats, rye, wheat, soybeans, and grain sorghum. Suitable legumes are wild winter peas, vetch, annual lespedeza, and sericea lespedeza. Grasses that grow well are bermudagrass, dallisgrass, johnsongrass, and bahiagrass. Pine trees are also suitable.

The erosion hazard is so great that these soils should be kept in close-growing crops 3 years out of 4. A suitable crop sequence is perennial grasses for 6 years and row crops for 2 years.

Additions of a complete fertilizer and lime are needed for good yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by using sod crops in the cropping system and by managing crop residues well. The residues should be shredded and left on the surface as a mulch.

Good tilth is fairly easy to maintain in the Vaiden silt loam but is difficult to maintain in the Vaiden silty clays. All the soils in this unit can be cultivated within only a narrow range of moisture content. Shredded crop residues on the surface help to reduce runoff and erosion. Also effective in controlling erosion are tilling on the contour, sodding the waterways, and terracing the long slopes. Roads should be located on the dividing ridges or parallel to the terraces.

CAPABILITY UNIT IVe–4

The only soil in capability unit IVe-4 is Ora loam, 5 to 8 percent slopes, severely eroded. It is on upland and is brown, moderately well drained, and severely eroded. The surface layer is friable, brown loam 3 to 4 inches thick. The subsoil consists of friable, strong-brown clay loam and a fragipan that occurs at a depth of about 20 inches. Infiltration is slow, and permeability is moderate above the pan and slow within it. Available moisture capacity is moderate. The soil is medium acid to strongly acid and low in organic-matter content and in natural fertility.

This soil occupies less than 3 percent of the county.

The soil in this unit is suited to oats, wheat, rye, cotton, corn, soybeans, and grain sorghum. Legumes that grow well are wild winter peas, vetch, annual lespedeza, sericea lespedeza, and white clover. Suitable grasses are bermudagrass, dallisgrass, bahiagrass, sudangrass, and tall fescue. Pine trees grow well.

The erosion hazard is so great on this soil that close-growing crops should be grown at least 3 years out of 4. A suitable crop sequence is 6 years of perennial grasses and 2 years of row crops.

Additions of a complete fertilizer and lime are needed for good yields of all crops and permanent pasture, and

additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by planting close-growing or soil-improving crops and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Good tilth is easily maintained on this soil, but runoff is a hazard in cultivated fields. Shredded crop residues on the surface increase infiltration and decrease runoff and erosion. Erosion is also controlled by tilling on the contour, constructing terraces, and grassing the waterways. Roads should be located on the dividing ridges or parallel to the terraces.

CAPABILITY UNIT IVe–5

Only Cuthbert silt loam, 2 to 5 percent slopes, is in capability unit IVe–5. This soil is on upland and is yellowish red and moderately well drained. Its surface layer is friable, brown silt loam 3 to 5 inches thick, and its subsoil is yellowish-red, friable silty clay loam to clay. Infiltration and permeability are slow, and available moisture capacity is moderate. The soil is strongly acid and is low in organic-matter content and in natural fertility.

This soil occupies less than 1 percent of the county and is mainly wooded.

Bermudagrass and bahiagrass are suited to the soil in this unit, and wild winter peas, lespedeza, and white clover are suitable legumes. Pine trees grow well.

The erosion hazard is so severe that close-growing crops should be grown at least 3 years out of 4. A suitable crop sequence is perennial grasses for 6 years and a row crop for 1 year.

Additions of a complete fertilizer and lime are needed for good yields of all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by including close-growing or soil-improving crops in the cropping system and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch.

Erosion resulting from rapid runoff is the chief hazard in cultivated areas. The crop residues on the surface decrease runoff and erosion. Other effective practices are tilling on the contour, building terraces, and grassing waterways. Roads should be located on dividing ridges or parallel to the terraces.

CAPABILITY UNIT IVw–1

Capability unit IVw-1 consists of nearly level, poorly drained, gray soils on stream terraces and the prairie upland. The surface layer of these soils is friable silt loam or silty clay. The subsoil is mottled gray clay that is friable when moist and sticky or plastic when wet. Infiltration and permeability are slow, and available moisture capacity generally is high. These soils are medium acid to strongly acid, low in organic-matter content, and moderate in natural fertility. They shrink and crack as they dry. In the unit are—

Eutaw silt loam, deep.
Eutaw silty clay, deep.
Geiger silt loam.
Geiger silty clay.

These soils occupy less than 2 percent of the county. About half their acreage has been cleared and is in pasture.

The soils of this unit are not suited to many crops, but oats, wheat, rye, soybeans, and grain sorghum grow fairly well. Bermudagrass, johnsongrass, dallisgrass, bahiagrass, and tall fescue are suitable grasses, and wild winter peas, lespedeza, and white clover are suitable legumes. Pine trees are productive.

If these soils are drained by V- and W-ditches, field laterals, and graded rows, they can be row cropped continuously. Also suitable is a crop sequence consisting of a small grain and row crops.

Additions of a complete fertilizer and lime are needed for all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by including close-growing or soil-improving crops in the cropping system and by managing crop residues well. The residues should be shredded and left on the surface as a mulch.

Maintaining good tilth is easy on the silt loams but is difficult on the silty clays. At times in spring, planting is delayed because the soils dry out slowly. All the soils can be cultivated within only a narrow range of moisture content.

CAPABILITY UNIT IVw–2

Only Una and Tuscumbia silty clays are in capability unit IVw–2. These alluvial soils are nearly level, poorly drained, and acid to alkaline. The surface layer is friable, dark grayish-brown silty clay. The subsoil is mottled gray sandy clay loam, clay loam, or clay that is friable to firm when moist and plastic or sticky when wet. Infiltration and permeability are slow, and available moisture capacity is high. These soils are low in organic-matter content and moderate in natural fertility. They shrink and crack as they dry.

These soils occupy about 1 percent of the county. Most of their acreage is in pasture.

The soils of this unit are suited to only a few crops, among them corn, soybeans, grain sorghum, oats, wheat, and rye. Bermudagrass, johnsongrass, dallisgrass, and tall fescue are suitable grasses, and wild winter peas, white clover, and lespedeza are suitable legumes.

If these soils are adequately drained, they can be row cropped continuously. Also suitable is a crop sequence of small grain and row crops.

Additions of phosphorus and potash are needed for all row crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter can be maintained by using sod crops in the cropping system and by managing crop residues well. The residues should be shredded and left on the surface as a mulch.

Flooding is likely on these soils, and when it occurs, damage to crops is slight or moderate. Diversion terraces are needed to divert water from adjacent hillsides. Drainage can be hastened by V- and W-ditches, field laterals, and properly arranged crop rows. Where flooding and scouring are not severe, seedbeds should be prepared in spring so that the beds have time to settle.

CAPABILITY UNIT IVw–3

Capability unit IVw–3 consists of poorly drained, slightly eroded, gray soils of the nearly level uplands and stream terraces. The surface layer of these soils is friable silt loam or fine sandy loam, and the subsoil is friable, mottled gray silt loam to clay loam. Infiltration is slow. Permeability is moderate in the upper subsoil but is very slow in the lower subsoil. The available moisture capacity is moderate to low. These soils are low in organic-matter

content and in natural fertility. They crust and pack when left bare. In this unit are—

Leaf silt loam.
Mashulaville silt loam.
Myatt fine sandy loam.

These soils occupy about 5 percent of the county. Most of their acreage is in forest.

Because these soils are wet in winter and droughty in summer, they are not well suited to corn, grain sorghum, and other row crops. They are used chiefly for wood crops and pasture. Bermudagrass, tall fescue, dallisgrass, and bahiagrass are well suited grasses, and wild winter peas and white clover are suitable legumes. Pine trees and selected hardwoods grow well.

Additions of a complete fertilizer and lime are needed for all crops and permanent pasture, and additional nitrogen is needed for all nonlegumes. Organic matter should be maintained by including close-growing or soil-improving crops in the cropping system and by managing crop residues well. The crop residues should be shredded and left on the surface as a mulch. In addition to maintaining organic matter, the crop residues increase infiltration and reduce packing.

In these soils, water at or near the surface is a problem. Drainage can be hastened by V- and W-ditches, field laterals, and graded rows.

CAPABILITY UNIT Vw–1

Only Sandy alluvial land is in capability unit Vw–1. It consists of acid sand and loamy sand that have been deposited by streams so recently that soil horizons have not had time to develop. The land is frequently flooded. Infiltration and permeability are rapid, and available moisture capacity is low. Natural fertility is very low.

This capability unit occupies less than 1 percent of the county and is now in woods, which is its best use. Hardwoods are best suited, but some areas can be used for pasture. Bermudagrass is the best suited pasture plant.

CAPABILITY UNIT Vw–2

Only Alluvial land is in capability unit Vw–2. The soil materials in this mapping unit are stratified and range from sand to clay. They are moderately well drained to poorly drained and are frequently flooded. Infiltration is slow to moderate, permeability is slow, and available moisture capacity is moderate. Organic matter and natural fertility are low.

This capability unit occupies about 3 percent of the county. Almost all of its acreage is in hardwoods, which are well suited. Because of the frequent flooding, row crops and pasture do not grow well.

CAPABILITY UNIT VIe–1

Capability unit VIe–1 consists of deep, well-drained, brown and red soils on upland. These soils are strongly sloping to steep and are slightly to severely eroded. Erosion is severe on 8 to 12 percent slopes and is slight or moderate on 12 to 45 percent slopes. The surface layer of these soils is friable, brown loam or fine sandy loam. The subsoil is friable loam to sandy clay. Infiltration, permeability, and available moisture capacity are moderate. These soils are low in organic-matter content and in natural fertility. They are—

Ruston and Cuthbert soils, 12 to 17 percent slopes (Ruston part).
Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (Ruston part).
Ruston and Cuthbert soils, 17 to 45 percent slopes (Ruston part).
Ruston and Luverne soils, 8 to 12 percent slopes, severely eroded.
Ruston and Luverne soils, 12 to 17 percent slopes.
Ruston and Luverne soils, 12 to 17 percent slopes, eroded.

These soils occupy about 14 percent of the county. About 85 percent of their acreage is wooded, and the rest is pastured.

Permanent vegetation is needed on these soils to protect them from further erosion and to increase infiltration. Suitable pasture plants are bermudagrass, bahiagrass, dallisgrass, sudangrass, vetch, wild winter peas, crimson clover, and lespedeza. Pecan trees growing in sod produce well, and pine trees are well suited.

Additions of a complete fertilizer and lime are needed for pasture plants. The pasture should not be overgrazed.

CAPABILITY UNIT VIe–2

Sumter silty clay, 5 to 12 percent slopes, severely eroded, is the only soil in capability unit VIe–2. It is on the prairie upland and is moderately well drained, severely eroded, and neutral or alkaline. The surface layer is friable, olive silty clay. The subsoil is yellow silty clay that is friable when moist and plastic and sticky when wet. Infiltration and permeability are slow, and available moisture capacity is moderate to high. This soil is low in organic-matter content and moderate in natural fertility.

The soil in this unit occupies less than 1 percent of the county. Its entire acreage is in pasture.

Because this soil is strongly sloping and susceptible to erosion, it should be kept in pasture. Growing plants help to protect the soil from further erosion, for they increase infiltration and decrease runoff. Suitable grasses are bermudagrass, dallisgrass, johnsongrass, bahiagrass, and tall fescue. Wild winter peas, black medic, and white clover are suitable legumes.

Additions of phosphorus are needed for all pasture plants, and additional nitrogen is needed for all nonlegumes.

CAPABILITY UNIT VIe–3

Capability unit VIe–3 consists of somewhat poorly drained, severely eroded, acid soils on the prairie upland. The surface layer of these soils is grayish-brown, friable silty clay. The subsoil is mottled clay that is firm when moist and plastic and sticky when wet. Infiltration and permeability are slow. Available moisture capacity is low to moderate. These soils are low in organic-matter content and moderate in natural fertility. They shrink and crack when dry. In this unit are—

Vaiden silty clay, deep, 5 to 8 percent slopes, severely eroded.
Vaiden silty clay, deep, 8 to 12 percent slopes, severely eroded.

These soils occupy less than 2 percent of the county. Most of their acreage is wooded.

The soils in this unit are best suited to pasture and pine trees. Growing plants are needed to protect the soils from further erosion and to reduce runoff. Bermudagrass, johnsongras, and bahiagrass are suitable grasses, and wild winter peas and lespedeza are suitable legumes.

Additions of a complete fertilizer and lime are needed for pasture plants. The pasture should not be overgrazed.

CAPABILITY UNIT VIe-4

Capability unit VIe–4 consists of moderately well drained, brown and red soils on slightly to severely eroded upland. The surface layer is friable, brown silt loam or loam, and the subsoil is friable silt loam, silty clay loam, or clay. Infiltration and permeability are slow, and available moisture capacity is moderate to low. These soils are strongly acid and are low in organic-matter content and in natural fertility. They are—

Cuthbert silt loam, 5 to 8 percent slopes.
Cuthbert silt loam, 8 to 12 percent slopes, eroded.
Ora loam, 8 to 12 percent slopes, severely eroded.

These soils occupy less than 2 percent of the county. Their entire acreage is wooded.

The soils in this unit are suitable for pasture and trees. They should be kept in growing plants so that erosion is controlled and infiltration is increased. Bermudagrass and bahiagrass are suitable grasses, and wild winter peas, lespedeza, and white clover are suitable legumes. Pine trees grow well.

Additions of a complete fertilizer and lime are needed for pasture plants. The pasture should not be overgrazed, and trees should be protected from fire and overgrazing.

CAPABILITY UNIT VIe-5

Only Vaiden and Sumter soils, 8 to 17 percent slopes, severely eroded, are in capability unit VIe–5. These soils are intermingled, but not in a regular pattern. Their surface layer ranges from silt loam to clay, and their subsoil is clay. Infiltration and permeability are slow, and available moisture capacity is low to moderate. These soils are acid or alkaline and variable in organic-matter content and in natural fertility.

The soils in this unit occupy less than 1 percent of the county. About half their acreage is pastured, and half is wooded.

These soils are suited to about the same uses, but the acid areas are not suited to black medic. Although the soils differ in profile characteristics, they have about the same susceptibility to erosion and are managed in about the same way. They should be kept in growing plants so that infiltration is increased and runoff and erosion are decreased.

Additions of phosphorus and potash are needed for all pasture plants, and additional nitrogen is needed for nonlegumes. The pasture should not be overgrazed.

CAPABILITY UNIT VIw-1

Only Bibb and Mantachie soils are in capability unit VIw–1; the Bibb soils are the more extensive. The soils in this unit are alluvial, nearly level, and poorly drained or somewhat poorly drained. They are severely damaged by flooding. The surface layer is friable silt loam to fine sandy loam, and the subsoil is friable silty clay loam to loam. Infiltration and permeability are slow, and available moisture capacity is low to moderate. These soils are slightly acid to strongly acid and low in organic-matter content and in natural fertility.

These soils occupy about 8 percent of the county.

The soils in this unit are suited only to pasture and trees. Suitable grasses are bermudagrass, dallisgrass, ryegrass, tall fescue, and rescuegrass, and suitable legumes are wild winter peas, white clover, and annual lespedeza.

Additions of a complete fertilizer and lime are needed for all kinds of permanent pasture, and additional nitrogen is needed for all nonlegumes.

Excess surface water and flooding are the chief hazards on these soils. A complete water-disposal system is needed that provides graded rows, V- and W-ditches, and field laterals. In some places diversion terraces are needed to carry away water that runs off adjacent hillsides.

CAPABILITY UNIT VIs-1

Guin gravelly sandy loam, 5 to 12 percent slopes, is the only soil in capability unit VIs-1. It is a somewhat excessively drained, acid soil on moderately eroded upland. The surface layer is friable, grayish-brown gravelly sandy loam. The subsoil is reddish-brown gravelly loam over beds of gravel. Infiltration and permeability are moderate to rapid, and available moisture capacity is low. The soil is low in organic-matter content and in natural fertility.

This soil occupies less than 1 percent of the county. Most of its acreage is wooded.

The soil in this unit is poorly suited to most grasses and should be kept in trees. Keeping the soil in growing plants protects it from erosion and increases the infiltration rate. Trees should be protected from fire and overgrazing. If this soil is used for pasture, additions of a complete fertilizer are needed. The pasture should not be overgrazed.

CAPABILITY UNIT VIIe-1

Capability unit VIIe–1 consists of deep, well-drained, brown and red soils on slightly to severely eroded upland. The surface layer of these soils is friable sandy loam, and the subsoil is friable loam to sandy clay. Infiltration, permeability, and available moisture capacity are moderate. The soils are medium acid to strongly acid and low in organic-matter content and in natural fertility. They are—

Ruston and Luverne soils, 17 to 45 percent slopes.
Ruston and Luverne soils, 17 to 45 percent slopes, eroded.

These soils occupy about 4 percent of the county. Nearly all of their acreage is wooded.

The soils of this unit are suited to trees. Keeping the soils in permanent vegetation decreases runoff, increases infiltration, and protects against erosion. Woodland should be protected from fire and overgrazing.

CAPABILITY UNIT VIIe-2

Only Gullied land, alkaline, is in capability unit VIIe–2. This mapping unit is so severely gullied that soil profiles have been destroyed except in small areas between gullies. The underlying material is chiefly alkaline clay. Infiltration and permeability are slow, and available moisture capacity is low.

This land occupies less than 1 percent of the county. It is used for pasture and trees.

Pasture and cedar trees are the best uses for this land. A well-managed cover of trees or pasture is needed to keep the soil material from being washed to lower areas (fig. 6). Woodland should be protected from fire and harmful grazing.

Figure 6.—Trees partly protect this Gullied land, alkaline. Capability unit VIIe–2.

CAPABILITY UNIT VIIe–3.

Capability unit VIIe–3 consists of moderately well drained, yellowish-red soils on severely eroded upland. The surface layer of these soils is friable silty clay loam 1 to 2 inches thick, and the subsoil is friable silty clay loam or silty clay. Infiltration and permeability are slow, and available moisture capacity is moderate. These soils are low in organic-matter content and in natural fertility. They are—

Cuthbert silty clay loam, 5 to 8 percent slopes, severely eroded.
Cuthbert silty clay loam, 8 to 12 percent slopes, severely eroded.
Ruston and Cuthbert soils, 12 to 17 percent slopes (Cuthbert part).
Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (Cuthbert part).
Ruston and Cuthbert soils, 17 to 45 percent slopes (Cuthbert part).

These soils occupy about 9 percent of the county.

The soils in this unit are well suited to pine trees and should be kept wooded. The trees increase infiltration and help to protect the soils from erosion. Protection from fire and unrestricted grazing is needed.

CAPABILITY UNIT VIIe–4

Only Gullied land, acid, is in capability unit VIIe–4. It consists of areas of acid sand to clay that have been gullied in intricate patterns. Infiltration and permeability are variable. Runoff is rapid, and available moisture capacity is low.

This land occupies less than 1 percent of the county and is wooded. A well-managed, permanent cover of trees is needed to stabilize erosion and to keep soil material from washing to lower areas. Pine trees are suited, but they should be protected from fire and from overgrazing.

CAPABILITY UNIT VIIe–5

Only Terrace escarpments is in capability unit VIIe–5. This mapping unit consists of short, steep breaks on stream terraces and is gullied.

This capability unit occupies less than 1 percent of the county and is best used for pasture. Pine trees are suited, but their management varies from place to place, and intensive weed control is needed where competition from other plants is severe.

Estimated yields

Table 2 (pages 40 to 43) lists estimated average yields per acre for the principal crops grown in Monroe County. The yields in columns A are those to be expected under common management, or that practiced by most farmers in the county. The yields in columns B are those to be expected under improved management. For yields in columns A, or common management, the practices are as follows: (1) the amount of fertilizer added is normally not sufficient to produce maximum yields; (2) lime and green-manure crops are seldom used; (3) row crops are grown continuously over a long period; (4) runoff is not controlled, and loss of soil material and plant nutrients is not kept to a minimum; (5) improved crop varieties and adapted seed are not always used; (6) overgrazing is common; and (7) weeds, insects, and diseases are not adequately controlled.

Under improved management, or that required to get yields in columns B, the practices are these: (1) fertilizer and lime are added according to the needs indicated by soil tests; (2) cropping systems suggested in the descriptions of the capability units are followed; (3) water is used or disposed of by terraces, grassed waterways, field borders, contour cultivation, and artificial drainage; (4) seedbeds are prepared and seeded properly; (5) good crop varieties and plant mixtures are used at proper planting rates; (6) diseases, insects, and undesirable plants are controlled; and (7) grazing is regulated.

Engineering Applications [1]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, and building foundations and of structures for water storage, erosion control, drainage, and sewage disposal. Among the soil properties that the engineer considers most important are permeability to water, strength against shearing, consolidation characteristics, texture, plasticity, and pH. Also important are topography and the depth to unconsolidated material. The information in this report can be used to—

1. Make soil and land-use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils that will aid in planning agricultural drainage systems, farm ponds, irrigation systems, terraces, waterways, and diversion terraces.
3. Make preliminary evaluations of soils and ground conditions that will aid in selecting sites for highways and airports, and in planning detailed investigations of the selected sites.
4. Locate probable sources of gravel, sand, and other construction material.

[1] By M. W. HAYNES, agricultural engineer, Soil Conservation Service.

5. Correlate performance of engineering structures with the soils and thus develop information that will be useful in designing and maintaining the structures.
6. Determine the suitability of the soils for cross-country movement of vehicles and construction equipment.
7. Supplement information obtained from other published maps and reports and from aerial photographs for the purpose of making soil maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates pertinent to structures in a particular area.

With the use of the soil map for identification, the engineering interpretations in this section can be useful for many purposes. It should be emphasized that they may not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads and where the excavations are deeper than the depths of layers here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

Most information in this subsection is in tables 3, 4, and 5 beginning on pages 44, 46, and 60. Additional information is in the sections "Descriptions of the Soils" and "Formation and Classification of Soils." Some terms used by soil scientists may be unfamiliar to engineers; others may have a special meaning in soil science. These are defined in the Glossary at the end of the report.

Engineering classification of soils

Two systems are used by engineers in classifying soils. One is that approved by the American Association of State Highway Officials (AASHO) (*1*),[2] and the other (Unified) was developed by the Corps of Engineers (*17*). Both systems are used in this report.

Most highway engineers classify soil materials according to the AASHO system (*1*, *10*). In this system all soil materials are classified in seven principal groups. The groups range from A–1, consisting of gravelly soils of high bearing capacity, to A–7, consisting of clay soils having low strength when wet. A–1 materials are the best for road subgrade, and A–7 materials are the poorest. To further classify the soil materials within each group, the relative engineering value of the soil material is indicated by a group index number. These numbers range from 0 for the best materials to 20 for the poorest. The group index number is shown in parentheses following the soil group symbol in table 3.

Some engineers prefer to use the Unified soil classification system (*10*, *17*). In this system soils are identified according to their texture, plasticity, and performance as construction materials. Soil materials are identified as coarse grained (eight classes), fine grained (six classes), or highly organic. The classification of the soils according to the Unified system is given in tables 3 and 4.

Soil test data

To help evaluate the soils for engineering purposes, soil samples from nine profiles of four principal soil series were tested by standard procedures (*1*, *17*). The test data are given in table 3 and were used as a basis for estimating the physical and chemical properties shown in table 4. The engineering soil classifications in table 3 are based on data obtained by analyses of grain size and by tests to determine the liquid limit and plasticity index of the soils. Grain sizes were obtained by combined sieve and hydrometer methods.

The test to determine liquid limit and plastic limit measures the effect of water on the consistence of soil material. As the moisture content of a clayey soil increases, the material changes from a semisolid to a plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. Some silty and sandy soils are nonplastic and do not become plastic at any moisture content.

In table 3 are also shown moisture-density, or compaction, data for tested soils. If soil material is compacted at successively higher content of moisture, assuming that the compactive effort remains the same, the density of the compacted material will increase until the optimum moisture content is reached. After that, the density decreases with an increase in moisture content. The highest dry density obtained in compaction tests is termed maximum density. Moisture-density data are important in earthwork, for generally a soil material is most stable when it is compacted to maximum density at its optimum moisture content.

Interpretation of engineering properties

Table 4 gives a brief description of the soils in the county and estimates of the soil properties that apply to engineering.

The rates for permeability in table 4 were estimated for undisturbed soil in place. The estimates were based on studies of soil structure and porosity and were compared with tests on permeability of undisturbed cores consisting of similar soil material.

Available moisture capacity is given in table 4 in inches per inch of soil depth and is approximately the amount of moisture that can be held in the soil available to plants.

It is the numerical difference between the percentage of moisture in the soil at field capacity and that in the soil at the time plants wilt. Moisture at field capacity is at about one-third atmosphere of tension in silty and clayey soils and at about one-tenth atmosphere of tension in sandy soils. Moisture at the wilting point is at about 15 atmospheres of tension.

Most soils in this county are acid and range from pH 4 to 6.5. But the Catalpa, Houston, Leeper, Sumter, Tuscumbia, and West Point soils are alkaline and range from pH 7 to 9.

The shrink-swell potential is an indication of volume change to be expected in soil material with changes in moisture content. As the moisture decreases, the soil shrinks, and as the moisture increases, the soil swells. Shrink-swell potential is based on volume-change tests or on observation of other physical properties or characteristics of the soil.

[2] Italic numbers in parentheses refer to Literature Cited, page 122.

766–808—66——4

TABLE 2.--ESTIMATED AVERAGE ACRE YIELDS OF THE PRINCIPAL CROPS UNDER TWO LEVELS OF MANAGEMENT

[Yields in columns A are those obtained under common management; those in columns B are to be expected under improved management. Absence of yield indicates crop is not commonly grown on the soil]

Soil	Cotton		Corn		Oats		Soybeans		Pasture mixture					
									Common bermudagrass and legumes		Bahiagrass and legumes		Fescue and legumes	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	Lb.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/
Alluvial land	---	---	---	---	---	---	---	---	2/85	2/155	---	---	2/---	2/---
Bibb and Mantachie soils	---	---	---	---	---	---	---	---	2/81	2/153	---	---	2/84	2/174
Brooksville silty clay, 0 to 2 percent slopes	425	625	45	60	60	80	20	25	87	135	129	213	132	162
Brooksville silty clay, 2 to 5 percent slopes	425	625	45	60	60	80	20	25	87	135	129	213	132	162
Brooksville silty clay, 2 to 5 percent slopes, eroded	400	550	40	50	50	70	15	20	75	105	120	147	102	132
Cahaba fine sandy loam, 0 to 2 percent slopes	550	700	50	75	50	75	20	27	84	144	105	207	---	---
Cahaba fine sandy loam 2 to 5 percent slopes, eroded	550	700	50	75	50	75	20	27	84	144	105	207	---	---
Cahaba fine sandy loam, 5 to 8 percent slopes, severely eroded	---	---	---	---	---	---	---	---	75	130	95	190	---	---
Catalpa silty clay	550	750	75	90	---	---	25	32	87	135	---	---	132	162
Cuthbert silt loam, 2 to 5 percent slopes	---	---	---	---	---	---	---	---	84	138	105	165	---	---
Cuthbert silt loam, 5 to 8 percent slopes	---	---	---	---	---	---	---	---	84	138	105	165	---	---
Cuthbert silt loam, 8 to 12 percent slopes, eroded	---	---	---	---	---	---	---	---	84	138	105	165	---	---
Cuthbert silty clay loam, 5 to 8 percent slopes, severely eroded	---	---	---	---	---	---	---	---	82	117	87	141	---	---
Cuthbert silty clay loam, 8 to 12 percent slopes, severely eroded	---	---	---	---	---	---	---	---	82	117	87	141	---	---
Eustis loamy sand, terrace, 0 to 2 percent slopes	---	---	---	---	30	50	---	---	78	111	132	168	---	---
Eutaw silt loam, deep	---	---	---	---	---	---	---	---	87	135	120	210	132	162
Eutaw silty clay, deep	---	---	---	---	---	---	---	---	87	135	120	210	132	162
Geiger silt loam	---	---	---	---	---	---	---	---	87	135	120	210	132	162
Geiger silty clay	---	---	---	---	---	---	---	---	87	135	120	210	132	162
Greenville loam, 0 to 2 percent slopes	550	800	40	65	50	75	20	30	84	144	105	207	---	---
Greenville loam, 2 to 5 percent slopes, eroded	550	750	40	65	50	75	20	30	84	144	105	207	---	---

Greenville clay loam, 2 to 5 percent slopes, severely eroded	450	600	35	60	50	75	20	30	75	130	95	190	---	---
Greenville clay loam, 5 to 8 percent slopes, severely eroded	400	550	---	---	40	60	---	---	75	130	95	190	---	---
Guin gravelly sandy loam, 5 to 12 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gullied land, acid	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gullied land, alkaline	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Houlka silty clay	500	650	60	75	---	---	18	25	87	135	---	---	132	162
Houlka very fine sandy loam, local alluvium	500	650	60	75	---	---	18	25	87	135	---	---	132	162
Houston clay, 0 to 2 percent slopes	500	700	45	60	60	80	20	30	87	135	---	---	132	162
Houston clay, 2 to 5 percent slopes	500	700	45	60	60	80	20	30	87	135	---	---	132	162
Houston clay, 2 to 5 percent slopes, eroded	400	550	---	---	50	70	15	20	87	135	---	---	132	162
Houston clay, 5 to 8 percent slopes, eroded	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Iuka soils	700	850	60	75	---	---	20	30	120	213	216	315	129	267
Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes	450	550	---	---	35	55	20	28	87	135	129	213	132	162
Kipling silt loam, moderately well drained variant, 2 to 5 percent slopes	450	550	---	---	35	55	20	28	87	135	129	213	132	162
Leaf silt loam	---	---	---	---	---	---	---	---	84	138	105	165	---	---
Leeper silty clay	500	650	65	75	---	---	18	25	87	135	---	---	132	162
Mantachie soils	450	600	55	70	---	---	15	20	120	213	216	315	129	267
Mashulaville silt loam	---	---	---	---	---	---	---	---	72	117	---	---	---	---
Myatt fine sandy loam	---	---	---	---	---	---	---	---	72	117	87	141	---	---
Ora fine sandy loam, 2 to 5 percent slopes	450	600	40	60	50	80	15	22	84	141	126	201	111	180
Ora fine sandy loam, 2 to 5 percent slopes, severely eroded	350	500	35	50	40	65	15	20	66	108	84	141	---	---
Ora fine sandy loam, 5 to 8 percent slopes, eroded	350	500	30	45	30	55	15	20	84	141	126	201	---	---
Ora loam, 5 to 8 percent slopes, severely eroded	350	450	---	---	---	---	---	---	66	108	84	141	---	---
Ora loam, 8 to 12 percent slopes, severely eroded	---	---	---	---	---	---	---	---	66	108	84	141	---	---
Pheba silt loam, 0 to 2 percent slopes	300	450	40	60	50	80	15	22	84	138	105	165	150	200
Pheba silt loam, 2 to 5 percent slopes	300	450	40	60	50	80	15	22	84	138	105	165	150	200
Prentiss fine sandy loam, 0 to 2 percent slopes	450	600	40	60	50	80	15	22	84	141	126	201	140	190

See footnotes at end of table.

TABLE 2.--ESTIMATED AVERAGE ACRE YIELDS OF THE PRINCIPAL CROPS UNDER TWO LEVELS OF MANAGEMENT--Continued

Soil	Cotton		Corn		Oats		Soybeans		Pasture mixture					
									Common bermudagrass and legumes		Bahiagrass and legumes		Fescue and legumes	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	Lb.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/	Cow-acre-days 1/
Prentiss fine sandy loam, 2 to 5 percent slopes	450	600	40	60	50	80	15	22	84	141	126	201	111	207
Prentiss fine sandy loam, 2 to 5 percent slopes, eroded	450	600	40	60	50	80	15	22	84	141	126	201	111	207
Ruston fine sandy loam, 0 to 2 percent slopes	550	700	40	65	50	75	20	27	84	144	105	207	---	---
Ruston fine sandy loam, 2 to 5 percent slopes	550	700	40	65	50	75	20	27	84	144	105	207	---	---
Ruston fine sandy loam, 2 to 5 percent slopes, severely eroded	525	675	35	60	50	75	20	27	75	130	95	190	---	---
Ruston fine sandy loam, 5 to 8 percent slopes	525	675	35	60	50	75	---	---	84	144	105	207	---	---
Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded	500	650	---	---	40	60	---	---	75	130	95	190	---	---
Ruston and Luverne soils, 8 to 12 percent slopes, eroded	---	---	---	---	---	---	---	---	2/ 84	2/ 144	2/ 105	2/ 207	---	---
Ruston and Luverne soils, 8 to 12 percent slopes, severely eroded	---	---	---	---	---	---	---	---	2/ 75	2/ 130	2/ 84	2/ 162	---	---
Ruston and Luverne soils, 12 to 17 percent slopes	---	---	---	---	---	---	---	---	2/ 85	2/ 140	2/ 105	2/ 210	---	---
Ruston and Luverne soils, 12 to 17 percent slopes, eroded	---	---	---	---	---	---	---	---	2/ 80	2/ 135	2/ 95	2/ 200	---	---
Ruston and Luverne soils, 17 to 45 percent slopes	---	---	---	---	---	---	---	---	2/ 75	2/ 130	2/ 95	2/ 200	---	---
Ruston and Luverne soils, 17 to 45 percent slopes, eroded	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ruston and Cuthbert soils, 12 to 17 percent slopes	---	---	---	---	---	---	---	---	2/ 75	2/ 130	2/ 95	2/ 195	---	---
Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded	---	---	---	---	---	---	---	---	2/ 65	2/ 110	2/ 85	2/ 180	---	---
Ruston and Cuthbert soils, 17 to 45 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Sandy alluvial land	---	---	---	---	---	---	---	---	2/ 60	2/ 120	---	---	---	---
Savannah silt loam, 0 to 2 percent slopes	450	600	40	60	50	80	15	22	84	141	126	201	111	207

Savannah silt loam, 2 to 5 percent slopes	450	600	40	60	50	80	15	22	84	141	126	201	111	207
Stough fine sandy loam	300	450	40	60	50	80	15	22	84	138	105	162	150	200
Sumter silty clay, 2 to 5 percent slopes, severely eroded	---	---	---	---	40	60	---	---	65	105	---	---	102	132
Sumter silty clay, 5 to 12 percent slopes, severely eroded	---	---	---	---	---	---	---	---	65	105	---	---	102	132
Terrace escarpments	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tilden fine sandy loam, 0 to 2 percent slopes	450	600	40	60	50	80	17	22	84	141	126	201	111	207
Tilden fine sandy loam, 2 to 5 percent slopes	450	600	40	60	50	80	17	22	84	141	126	201	111	207
Tilden fine sandy loam, 2 to 5 percent slopes, eroded	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tilden fine sandy loam, 5 to 8 percent slopes, eroded	300	450	30	45	50	70	15	20	84	141	126	201	---	---
Una and Tuscumbia silty clays	---	---	---	---	---	---	---	---	2/ 87	2/ 135	---	---	2/ 132	2/ 162
Vaiden silt loam, deep, 0 to 2 percent slopes	450	550	---	---	35	55	20	28	87	135	129	213	132	162
Vaiden silt loam, deep, 2 to 5 percent slopes	450	550	---	---	35	55	20	28	87	135	129	213	132	162
Vaiden silt loam, deep, 5 to 8 percent slopes	450	550	---	---	35	55	20	28	87	135	129	213	---	---
Vaiden silty clay, deep, 0 to 2 percent slopes	450	550	---	---	35	55	20	28	87	135	129	213	132	162
Vaiden silty clay, deep, 2 to 5 percent slopes, eroded	450	550	---	---	35	55	20	28	87	135	129	213	132	162
Vaiden silty clay, deep, 2 to 5 percent slopes, severely eroded	---	---	---	---	---	---	---	---	65	105	120	147	102	132
Vaiden silty clay, deep, 5 to 8 percent slopes, eroded	---	---	---	---	---	---	---	---	87	135	129	213	---	---
Vaiden silty clay, deep, 5 to 8 percent slopes, severely eroded	---	---	---	---	---	---	---	---	65	105	120	147	---	---
Vaiden silty clay, deep, 8 to 12 percent slopes, severely eroded	---	---	---	---	---	---	---	---	65	105	120	147	---	---
Vaiden and Sumter soils, 8 to 17 percent slopes, severely eroded	---	---	---	---	---	---	---	---	2/ 65	2/ 105	---	---	---	---
West Point silty clay	550	750	75	90	40	60	25	32	87	135	---	---	132	162

1/ Cow-acre-days is the number of days in a year that one animal unit (one cow, steer, or horse; five hogs; seven sheep; or seven goats) can graze 1 acre without injury to the pasture.

2/ Yields vary widely because the soils have variable characteristics.

TABLE 3.--ENGINEERING TEST DATA FOR SOIL

[Tests performed by the Mississippi State Highway Department in cooperation with Bureau of Public Roads
Samples that have the report number prefixed by "S" were tested by

Soil name and location	Parent material	Miss. Report No.	Depth	Horizon	Moisture-density data 1/	
					Maximum dry density	Optimum moisture
			Inches		Lb. per cu. ft.	Percent
Eutaw silty clay loam, deep:						
NW¼NE¼ sec. 7, T. 15 S., R. 7 E.	Acid clay over marl.	S 33673	1-5	A2-----	96	23
		S 33674	21-41	B22g---	93	26
		S 33675	58-72	C1-----	99	23
NW¼NE¼ sec. 4, T. 16 S., R. 7 E.	Acid clay over marl.	S 33676	5-11	B1-----	97	22
		S 33677	27-37	B22g---	96	23
		S 33678	53-65	C1-----	98	23
Greenville silt loam:						
SE¼NW¼ sec. 4, T. 13 S., R. 18 W.	Fine-textured coastal plain deposits.	402245	10-23	B21----	110	17
		402246	37-50	B31----	108	18
NE¼NW¼ sec. 8, T. 13 S. R. 18 W.	Fine-textured coastal plain deposits.	402247	9-21	B21----	110	16
		402248	48-61	B31----	110	16
Ora silt loam:						
SE¼SE¼ sec. 5, T. 13 S., R. 18 W.	Sandy coastal plain deposits.	402249	7-19	B21----	111	16
		402250	23-35	B3m1---	108	17
		402251	42-53	CL-----	114	15
SW¼SW¼ sec. 18, T. 12 S., R. 9 E.	Sandy coastal plain deposits.	402252	7-19	B21----	114	15
		402253	27-37	B3m2---	111	15
		402254	37-49	C1-----	110	15
Vaiden silt loam, deep:						
SE¼SW¼ sec. 33, T. 15 S., R. 6 E.	Marly clay.	S 33679	0-4	Ap-----	102	19
		S 33680	12-19	B22----	95	25
		S 33681	49-58	C1-----	99	24
NE¼SW¼ sec. 4, T. 14 S., R. 6 E.	Marly clay.	S 33682	3-8	B21----	101	21
		S 33683	13-27	B23----	99	22
		S 33684	62-72	C2-----	105	21
SE¼NE¼ sec. 8, T. 15 S., R. 6 E.	Acid clay over Selma chalk.	S 33685	0-3	A1-----	108	18
		S 33686	8-17	B22----	91	27
		S 33687	45-61	C1-----	95	26

1/ Based on AASHO Designation: T 99-57, Method A (1).

2/ Mechanical analyses according to AASHO Designation: T 88-57 (1). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method, and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In

SAMPLES TAKEN FROM NINE SOIL PROFILES

in accordance with standard procedures of the American Association of State Highway Officials (AASHO) (1) the Bureau of Public Roads. Dashed lines indicate absence of data]

Shrinkage factors			Mechanical analyses 2/									Classification	
			Percentage of fraction passing sieve--			Percentage smaller than--				Liquid limit	Plasticity index		
Limit	Ratio	Volumetric change	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.			AASHO	Unified 3/
		Percent											
--	---	---	100	99	96	92	71	49	43	61	29	A-7-5(20)-	MH-CH.
--	---	---	---	--	99	96	72	56	51	84	50	A-7-5(20)-	CH.
--	---	---	---	--	99	97	84	65	59	78	48	A-7-5(20)-	CH.
--	---	---	---	100	96	93	74	52	48	60	29	A-7-5(20)-	MH-CH.
--	---	---	---	100	97	95	75	56	53	70	39	A-7-5(20)-	CH.
--	---	---	---	---	98	97	85	66	60	76	45	A-7-5(20)-	CH.
15	1.81	44	100	99	84	82	67	37	29	40	24	A-6(14)---	CL.
14	1.80	46	100	99	74	72	61	41	35	40	24	A-6(13)---	CL.
14	1.84	46	100	99	81	79	63	36	29	40	25	A-6(14)---	CL.
14	1.80	40	100	98	64	62	52	38	32	37	22	A-6(11)---	CL.
13	1.83	43	100	98	76	73	57	33	27	36	21	A-6(12)---	CL.
14	1.80	40	100	98	73	70	56	37	31	38	19	A-6(11)---	CL.
14	1.79	38	100	97	63	60	50	33	28	36	19	A-6(9)----	CL.
14	1.82	30	---	100	68	66	52	31	24	31	15	A-6(9)----	CL.
12	1.82	45	---	100	60	58	49	34	30	39	17	A-6(8)----	CL.
14	1.81	41	---	100	56	55	48	36	30	38	17	A-6(7)----	CL.
--	---	---	100	97	92	90	62	30	24	38	12	A-6(9)----	ML-CL.
--	---	---	100	99	98	97	84	59	53	71	39	A-7-5(20)-	MH-CH.
--	---	---	---	100	98	98	85	65	59	81	50	A-7-5(20)-	CH.
--	---	---	100	99	96	95	73	47	42	53	26	A-7-6(17)-	MH-CH.
--	---	---	100	99	96	94	78	54	48	64	35	A-7-6(20)-	CH.
--	---	---	100	99	96	94	78	54	49	60	34	A-7-6(20)-	CH.
--	---	---	100	99	91	89	66	32	27	36	13	A-6(9)---	ML-CL.
--	---	---	100	99	98	97	83	65	58	81	41	A-7-5(20)-	MH.
--	---	---	---	--	99	98	81	62	57	79	44	A-7-5(20)-	MH-CH.

the SCS soil survey procedure, the fine material is analyzed by the pipette method, and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analyses data used in this table are not suitable for naming textural classes of soils.

3/ The Soil Conservation Service and the Mississippi State Highway Department have agreed to consider that all soils having plasticity indexes within two points of the A-line are to be given a borderline classification. An example of borderline classification obtained by this use is MH-CH.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name 1/	Description of soil and site	Depth from surface	USDA texture
			Inches	
Al	Alluvial land.	About 3 feet of sandy loam to silty clay on flood plains of streams.	0-36	Sandy loam to silty clay.
Bm	Bibb and Mantachie soils (Bibb part).	About 2 feet of silt loam or loam over silty clay loam; recently deposited alluvium; poorly drained.	0-4 4-22 22-48	Silt loam---- Loam--------- Silty clay loam.
BrA	Brooksville silty clay, 0 to 2 percent slopes.	About 4 feet of silty clay derived from thin beds of clay; on uplands; seasonally high water table at depth of less than 2 feet; somewhat poorly drained.	0-10 10-17 17-28 28-39 39-60+	Silty clay--- Clay--------- Clay--------- Clay--------- Clay---------
BrB	Brooksville silty clay, 2 to 5 percent slopes.			
BrB2	Brooksville silty clay, 2 to 5 percent slopes, eroded.			
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes.	About 3½ feet of fine sandy loam to loam underlain by loamy sand; on terraces; derived from old Coastal Plain alluvium; seasonally high water table at depth of 10 feet; well drained.	0-8 8-14 14-29 29-42 42-60+	Fine sandy loam. Sandy loam---- Loam---------- Sandy loam---- Loamy sand----
CaB2	Cahaba fine sandy loam, 2 to 5 percent slopes, eroded.			
CaC3	Cahaba fine sandy loam, 5 to 8 percent slopes, severely eroded.			
Cs	Catalpa silty clay.	About 3 feet of silty clay over clay; on first bottoms; derived from recent fine-textured alluvium; seasonally high water table at depth of less than 2 feet; moderately well drained.	0-4 4-14 14-20 20-36 36-43 43-63+	Silty clay---- Silty clay---- Silty clay---- Silty clay---- Clay--------- Clay---------
CtB	Cuthbert silt loam, 2 to 5 percent slopes.	About 5 to 8 inches of silt loam or sandy loam underlain by 3 feet of silty clay; underlying beds of clay contain lenses of sand; seasonally high water table at depth of 10 feet; moderately well drained.	0-6 6-16 16-26 26-48+	Silt loam----- Silty clay loam. Silty clay---- Silty clay----
CtC	Cuthbert silt loam, 5 to 8 percent slopes.			
CtD2	Cuthbert silt loam, 8 to 12 percent slopes, eroded.			
CuC3	Cuthbert silty clay loam, 5 to 8 percent slopes, severely eroded.			
CuD3	Cuthbert silty clay loam, 8 to 12 percent slopes, severely eroded.			
RsE	Ruston and Cuthbert soils, 12 to 17 percent slopes (Cuthbert part).			
RsE2	Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (Cuthbert part).			
RsF	Ruston and Cuthbert soils, 17 to 45 percent slopes (Cuthbert part).			

See footnotes at end of table.

AND ESTIMATED PHYSICAL PROPERTIES

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)	Inches per hour	Inches per inch of soil	pH	
(2/)-------	(2/)-----	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/).
ML---------	A-4------	100	100	60-70	0.80-2.50	0.18	5.1-5.5	Low.
ML---------	A-4------	100	100	55-70	0.80-2.50	.16	5.1-5.5	Low.
ML-CL------	A-4------	100	100	80-95	0.05-0.20	.23	5.1-5.5	Moderate to low.
CH---------	A-7------	100	100	80-90	0.50-0.20	.21	5.5-5.6	Moderate.
CH---------	A-7------	100	100	80-90	0.00-0.05	.24	5.5-5.6	Moderate to high.
CH---------	A-7------	100	100	80-90	0.00-0.05	.24	5.5-5.6	Moderate to high.
CH---------	A-7------	100	100	80-90	0.00-0.05	.24	5.5-5.6	Moderate to high.
CH---------	A-7------	100	100	80-90	0.00-0.05	.25	5.5-5.6	Moderate to high.
ML---------	A-4------	100	100	50-60	0.80-2.50	.13	5.1-5.5	Low.
SM---------	A-4------	100	100	40-50	2.50-5.00	.14	5.1-5.5	Low.
ML-CL------	A-4------	100	100	60-70	0.80-2.50	.16	5.1-5.5	Low.
SM---------	A-4------	100	100	40-50	2.50-5.00	.14	5.1-5.5	Low.
SM---------	A-2------	100	100	15-25	5.00-10.00	.06	5.1-5.5	Low.
CH---------	A-7------	100	100	85-95	0.50-0.02	.26	7.5-8.4	Moderate to high.
CH---------	A-7------	100	100	85-95	0.50-0.02	.26	7.5-8.4	High.
CH---------	A-7------	100	100	85-95	0.50-0.26	.26	7.5-8.4	High.
CH---------	A-7------	100	100	85-95	0.00-0.05	.25	7.5-8.4	Moderate to high.
CH---------	A-7------	100	100	85-95	0.00-0.05	.25	7.5-8.4	High.
CH---------	A-7------	100	100	85-95	0.00-0.05	.25	7.5-8.4	High.
ML---------	A-4------	100	100	60-70	0.80-2.50	.18	5.1-5.5	Low.
CL---------	A-4------	100	100	85-95	0.20-0.80	.16	5.1-5.5	Low to moderate.
CH---------	A-4 or A-6.	100	100	85-95	0.05-0.20	.20	5.1-5.5	Moderate to high.
CH---------	A-7------	100	100	85-95	0.05-0.20	.20	5.1-5.5	Moderate to high.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name [1/]	Description of soil and site	Depth from surface	USDA texture
			Inches	
EsA	Eustis loamy sand, terrace, 0 to 2 percent slopes.	Five feet or more of loamy sand underlain by sand; on terraces; derived from old Coastal Plain alluvium; seasonally high water table at depth of 10 feet; excessively drained.	0-10 10-14 14-36 36-57	Loamy sand-- Loamy sand-- Loamy sand-- Loamy sand--
Et Eu	Eutaw silt loam, deep. Eutaw silty clay, deep.	About 4 to 6 inches of silt loam or silty clay underlain by 4 to 5 feet of clay; on uplands; derived from thin beds of clay over marl or chalk; seasonally high water table at depth of 2 feet or less; somewhat poorly drained.	0-1 1-5 5-9 9-21 21-41 41-58 58-67	Silty clay-- Silty clay loam. Silty clay-- Clay-------- Clay-------- Clay-------- Clay--------
Ga Gg	Geiger silt loam. Geiger silty clay.	About 1½ feet of silty clay underlain by clay; derived from old alluvium; seasonally high water table at depth of less than 1 foot; poorly drained.	0-4 4-17 17-30 30-68+	Silty clay-- Silty clay-- Clay-------- Clay--------
GrA GrB2 GnB3 GnC3	Greenville loam, 0 to 2 percent slopes. Greenville loam, 2 to 5 percent slopes, eroded. Greenville clay loam, 2 to 5 percent slopes, severely eroded. Greenville clay loam, 5 to 8 percent slopes, severely eroded.	About 6 inches of loam underlain by 5 feet of clay loam; on uplands; derived from sandy clay and clay loam; seasonally high water table at depth of 10 feet; well drained.	0-6 6-9 9-21 21-35 35-61 61-80	Loam-------- Loam-------- Clay loam--- Clay loam--- Clay loam--- Sandy clay loam.
GsD	Guin gravelly sandy loam, 5 to 12 percent slopes.	About 6 inches of gravelly sandy loam over gravelly loam or gravelly sandy loam; gravel increases in volume with depth; derived from gravelly Coastal Plain sediments; seasonally high water table at depth of 10 feet or more; well drained.	0-5 5-22 22-50	Gravelly sandy loam. Gravelly loam. Gravelly sandy loam.
Hc Hk	Houlka silty clay. Houlka very fine sandy loam, local alluvium.	About 6 inches of silty clay underlain by 5 feet of clay; on bottom lands; derived from recent alluvium; seasonally high water table at depth of less than 2 feet; somewhat poorly drained.	0-8 8-14 14-38 38-60	Silty clay-- Clay-------- Clay-------- Clay--------
HoA HoB HoB2 HoC2	Houston clay, 0 to 2 percent slopes. Houston clay, 2 to 5 percent slopes. Houston clay, 2 to 5 percent slopes, eroded. Houston clay, 5 to 8 percent slopes, eroded.	About 4 to 6 feet of clay underlain by chalk; on uplands; derived from Selma chalk or clay; seasonally high water table at depth of 3 feet or less; moderately well drained.	0-10 10-26 26-48 48-86	Clay-------- Clay-------- Clay-------- Clay--------

See footnotes at end of table.

AND ESTIMATED PHYSICAL PROPERTIES--Continued

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	Inches per inch of soil	pH	
SM-------	A-2-----	100	100	15-25	5.00-10.00	0.06	5.1-5.5	Low.
SM-------	A-2-----	100	100	15-25	5.00-10.00	.06	5.1-5.5	Low.
SM-------	A-2-----	100	100	15-25	5.00-10.00	.06	5.1-5.5	Low.
SM-------	A-2-----	100	100	15-25	5.00-10.00	.06	5.1-515	Low.
CH-------	A-7-----	100	100	96	0.80-2.50	.24	4.5-5.0	High.
CH-------	A-7-----	100	100	96	0.20-0.80	.24	4.5-5.0	Moderate to high.
CH-------	A-7-----	100	100	96	0.00-0.05	.29	4.5-5.0	High.
CH-------	A-7-----	100	100	96	0.00-0.05	.29	4.5-5.0	High.
CH-------	A-7-----	100	100	99	0.00-0.05	.29	4.5-5.0	High.
CH-------	A-7-----	100	100	98	0.00-0.05	.29	4.5-5.0	High.
CH-------	A-7-----	100	100	99	0.00-0.05	.29	4.5-5.0	High.
CH-------	A-7-----	100	100	85-95	0.05-0.20	.21	5.5-6.0	Moderate to high.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.22	4.0-5.0	Moderate to high.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.22	4.0-5.0	High.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.25	4.0-5.0	High.
CL-------	A-6-----	100	100	60-70	0.80-2.50	.16	5.1-5.7	Low.
CL-------	A-6-----	100	100	60-70	0.80-2.50	.20	5.1-5.7	Low.
CL-------	A-6-----	100	100	75-85	0.20-0.80	.20	5.1-5.5	Low to moderate.
CL-------	A-6-----	100	100	75-85	0.20-0.80	.20	5.1-5.5	Low to moderate.
CL-------	A-6-----	100	100	75-85	0.20-0.80	.20	5.1-5.7	Low.
SC-------	A-6-----	100	100	40-50	0.80-2.50	.16	5.1-5.7	Moderate.
GM-------	A-2-----	>80	>50	>25	0.50-5.00	.10	5.1-5.5	Low.
SM-------	A-2-----	>80	>50	>25	0.80-2.50	.13	5.1-5.5	Low.
GM-------	A-2-----	80	50	25	2.50-5.00	.07	5.1-5.5	Low.
CH-------	A-7-----	100	100	85-95	0.05-0.20	.26	6.0-6.5	Moderate to high.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.26	6.0-6.5	High.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.22	6.0-6.5	High.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.22	6.0-6.5	High.
CH-------	A-7-----	100	100	93	0.05-0.02	.21	6.5-8.0	High.
CH-------	A-7-----	100	100	98	0.00-0.05	.24	6.5-8.0	High.
CH-------	A-7-----	100	100	96	0.00-0.05	.25	6.5-8.0	High.
CH-------	A-7-----	100	100	99	0.00-0.05	.25	7.5-8.4	High.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name [1/]	Description of soil and site	Depth from surface	USDA texture
			Inches	
Iu	Iuka soils.	About 2 feet of fine sandy loam underlain by stratified sandy loam and silt loam; on first bottoms; derived from recent alluvium; seasonally high water table at depth of 2 feet; moderately well drained.	0-10 10-20 20-50	Fine sandy loam. Sandy loam-- Loam--------
KpA KpB	Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes. Kipling silt loam, moderately well drained variant, 2 to 5 percent slopes.	About 6 inches of loam underlain by 3 feet of silty clay; on terraces; derived from old Coastal Plain alluvium; seasonally high water table at depth of 4 feet or more; moderately well drained.	0-5 5-11 11-18 18-27 27-31 31-60+	Loam-------- Silty clay loam. Silty clay loam. Loam-------- Silty clay loam. Clay loam---
La	Leaf silt loam.	About 2 feet of silt loam and clay loam over silty clay loam underlain by stratified silty clay and clay; on terraces; derived from old alluvium; seasonally high water table at surface; poorly drained.	0-3 3-20 20-48+	Silt loam--- Clay loam--- Silty clay loam.
Lp	Leeper silty clay.	About 1 foot of silty clay underlain by 4 feet or more of clay; on terraces; derived from recent alluvium; seasonally high water table at depth of 1 to 2 feet; somewhat poorly drained.	0-12 12-15 15-29 29-62	Silty clay-- Clay-------- Clay-------- Clay--------
Ma	Mantachie soils.	About 2 feet of fine sandy loam or silt loam underlain by stratified sandy loam, silt loam, and sandy clay loam; on first bottoms; derived from recent alluvium; seasonally high water table at depth of less than 2 feet; somewhat poorly drained.	0-8 8-19 19-48	Fine sandy loam. Sandy loam-- Loam--------
Ms	Mashulaville silt loam.	About 2 feet of silt loam underlain by silty clay loam; fragipan at depth of 10 to 15 inches impedes drainage; on uplands; derived from unconsolidated sand and clay; seasonally high water table at surface or at depth of 1 foot; poorly drained.	0-5 5-13 13-20 20-32 32-62	Silt loam--- Silt loam--- Silt loam--- Silty clay loam. Loam--------

See footnotes at end of table.

AND ESTIMATED PHYSICAL PROPERTIES--Continued

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)	Inches per hour	Inches per inch of soil	pH	
ML-------	A-4----	100	100	50-60	0.80-2.50	0.13	5.1-5.5	Low.
SM-------	A-4----	100	100	40-50	0.80-2.50	.14	5.1-5.5	Low.
ML-CL or CL.	A-4----	100	100	60-70	0.80-2.50	.16	5.1-5.5	Low.
ML-CL or CL.	A-4 to A-6.	100	100	60-70	0.80-2.50	.16	5.1-5.5	Low.
CL-------	A-6 or A-7.	100	100	85-95	0.20-0.80	.21	4.8-5.4	Moderate.
CL-------	A-6 or A-7.	100	100	85-95	0.20-0.80	.20	5.1-5.5	Moderate.
ML-CL or CL.	A-6 or A-7.	100	100	55-70	0.80-2.50	.17	5.1-5.5	Low.
CL-------	A-6 or A-7.	100	100	85-95	0.20-0.80	.23	5.1-5.5	Moderate.
CL-------	A-6 or A-7.	100	100	65-75	0.20-0.80	.21	5.1-5.5	Low to moderate.
ML-------	A-4----	100	100	60-70	0.80-2.50	.19	5.0-5.5	Low.
CL-------	A-6----	100	100	70-80	0.20-0.80	.20	4.8-5.2	Moderate.
CL-------	A-6----	100	100	85-95	0.05-0.20	.22	5.0-5.5	Moderate.
CH-------	A-7----	100	100	80-90	0.05-0.20	.28	7.0-8.0	Moderate to high.
CH-------	A-7----	100	100	80-95	0.05-0.20	.28	7.0-8.0	High.
CH-------	A-7----	100	100	80-95	0.00-0.05	.27	7.5-8.4	High.
CH-------	A-7----	100	100	80-95	0.00-0.05	.27	7.5-8.4	High.
ML-------	A-4----	100	100	50-60	0.80-2.50	.13	5.1-5.5	Low to moderate.
SM to CL-	A-4----	100	100	45-55	0.80-2.50	.13	5.1-5.5	Moderate.
CL-------	A-4 to A-6.	100	100	60-70	0.80-2.50	.17	5.1-5.5	Moderate.
ML-CL----	A-4----	100	100	70-80	0.80-2.50	.20	4.8-5.5	Low.
ML-CL----	A-4----	100	100	70-80	0.80-2.50	.20	4.8-5.5	Low.
ML-CL----	A-4----	100	100	70-80	0.05-0.20	.05	4.8-5.5	Low.
CL-------	A-6 or A-7.	100	100	85-95	0.05-0.20	.16	5.0-5.5	Moderate.
CL-------	A-4 to A-6.	100	100	60-70	0.80-2.50	.17	5.0-5.5	Low.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name [1/]	Description of soil and site	Depth from surface	USDA texture
			Inches	
My	Myatt fine sandy loam.	About 5 inches of fine sandy loam underlain by 5 inches of sandy clay loam; fragipan at depth of 10 to 22 inches impedes drainage; 22 to 63 inches +, firm silty clay loam; on terraces; derived from old Coastal Plain alluvium; seasonally high water table at surface or at depth of 1 foot; poorly drained.	0-5 5-10 10-17 17-22 22-63	Fine sandy loam. Sandy clay loam. Fine sandy loam. Loam------- Silty clay loam.
OaB	Ora fine sandy loam, 2 to 5 percent slopes.	About 7 inches of fine sandy loam over about 2 feet of clay loam underlain by sandy clay loam fragipan about 1½ feet thick; on uplands; derived from beds of sand and clay; seasonally high water table at depth of 10 feet; moderately well drained.	0-7 7-19 19-23 23-35 35-42 42-53 53-65	Fine sandy loam. Clay loam-- Clay loam-- Sandy clay loam. Sandy clay loam. Sandy clay loam. Sandy clay loam.
OaB3	Ora fine sandy loam, 2 to 5 percent slopes, severely eroded.			
OaC2	Ora fine sandy loam, 5 to 8 percent slopes, eroded.			
OrC3	Ora loam, 5 to 8 percent slopes, severely eroded.			
OrD3	Ora loam, 8 to 12 percent slopes, severely eroded.			
PhA	Pheba silt loam, 0 to 2 percent slopes.	About 14 to 18 inches of silt loam over a fragipan of loam or sandy loam that is 2½ to 3 feet thick and impedes drainage; derived from unconsolidated acid sandy loam to clay loam; seasonally high water table at depth of less than 2 feet; somewhat poorly drained.	0-5 5-14 14-23 23-33 33-47 47-60+	Silt loam-- Silt loam-- Loam------- Loam------- Loam------- Sandy clay loam.
PhB	Pheba silt loam, 2 to 5 percent slopes.			
PrA	Prentiss fine sandy loam, 0 to 2 percent slopes.	About 18 to 24 inches of fine sandy loam or silt loam over a fragipan of loam or sandy loam that is variable in thickness; derived from old Coastal Plain alluvium; seasonally high water table at depth of 2 to 2½ feet; moderately well drained.	0-9 9-14 14-22 22-27 27-64	Fine sandy loam. Loam------- Loam------- Loam------- Sandy loam-
PrB	Prentiss fine sandy loam, 2 to 5 percent slopes.			
PrB2	Prentiss fine sandy loam, 2 to 5 percent slopes, eroded.			

See footnotes at end of table.

AND ESTIMATED PHYSICAL PROPERTIES--Continued

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)	Inches per hour	Inches per inch of soil	pH	
ML-------	A-4-----	100	100	50-60	0.80-2.50	0.13	5.1-5.5	Low.
CL to CH-	A-6 or A-7.	100	100	55-65	0.80-2.50	.15	5.1-5.5	Moderate.
ML-------	A-4-----	100	100	50-60	0.80-2.50	.13	5.1-5.5	Low.
ML-CL or CL.	A-4-----	100	100	60-70	0.05-0.20	.05	5.1-5.5	Low.
CL-------	A-6-----	100	100	85-95	0.20-2.50	.20	5.1-5.5	Moderate.
ML-CL----	A-4-----	100	100	50-60	0.80-2.50	.13	5.1-5.5	Low.
CL-------	A-6-----	100	100	76+	0.80-2.50	.13	5.1-5.5	Low to moderate.
CL-------	A-6-----	100	100	76+	0.80-2.50	.16	5.1-5.5	Low to moderate.
ML-CL----	A-6-----	100	100	73+	0.05-0.20	.05	5.1-5.5	Moderate.
ML-CL----	A-6-----	100	100	73+	0.05-0.20	.05	5.1-5.5	Moderate.
ML-CL----	A-6-----	100	100	63+	0.20-0.80	.18	5.1-5.5	Moderate.
ML-CL----	A-6-----	100	100	56+	0.20-0.80	.18	5.1-5.5	Moderate.
ML-------	A-4-----	100	100	70-80	0.80-2.50	.18	4.5-5.5	Low.
ML-------	A-4-----	100	100	70-80	0.80-2.50	.18	4.5-5.5	Low.
ML-------	A-4 to A-6.	100	100	60-70	0.05-0.20	.05	4.5-5.5	Low.
CL-------	A-4 to A-6.	100	100	60-70	0.00-0.50	.05	4.5-5.5	Low.
CL-------	A-4 to A-6.	100	100	60-70	0.05-0.20	.50	4.5-5.5	Low.
SC to CL-	A-6-----	100	100	45-55	0.20-0.80	.16	4.5-5.5	Moderate.
ML-CL----	A-4-----	100	100	53+	0.80-2.50	.13	5.1-5.5	Low.
ML-CL----	A-4-----	100	100	53+	0.80-2.50	.16	5.1-5.5	Low.
ML-CL----	A-6-----	100	100	66+	0.05-0.20	.16	5.1-5.5	Low.
ML-CL----	A-6-----	100	100	62+	0.00-0.05	.06	5.1-5.5	Low to moderate.
CL-------	A-7-----	100	100	61+	0.80-2.50	.13	5.1-5.5	Moderate.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name [1/]	Description of soil and site	Depth from surface	USDA texture
			Inches	
RfA	Ruston fine sandy loam, 0 to 2 percent slopes.	About 6 to 12 inches of fine sandy loam to loamy sand over 3 to 4 feet of sandy loam to sandy clay loam; on uplands; derived from thick beds of loamy sand to sandy clay; seasonally high water table at depth of 10 feet or more; well drained.	0-8	Fine sandy loam.
RfB	Ruston fine sandy loam, 2 to 5 percent slopes.		8-20	Loam-------
RfB3	Ruston fine sandy loam, 2 to 5 percent slopes, severely eroded.		20-33	Loam-------
RfC	Ruston fine sandy loam, 5 to 8 percent slopes.		33-60	Sandy loam-
RfC3	Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.			
RsE	Ruston and Cuthbert soils, 12 to 17 percent slopes (Ruston part).			
RsE2	Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (Ruston part).			
RsF	Ruston and Cuthbert soils, 17 to 45 percent slopes (Ruston part).			
RtD2	Ruston and Luverne soils, 8 to 12 percent slopes, eroded.	About 6 to 12 inches of fine sandy loam to loamy sand over 3 to 4 feet of sandy loam to sandy clay loam; on uplands; derived from thick beds of loamy sand to sandy clay; seasonally high water table at depth of 10 feet or more; well drained.	0-8	Fine sandy loam.
RtD3	Ruston and Luverne soils, 8 to 12 percent slopes, severely eroded.		8-20	Loam-------
RtE	Ruston and Luverne soils, 12 to 17 percent slopes.		20-33	Loam-------
RtE2	Ruston and Luverne soils, 12 to 17 percent slopes, eroded.		33-60	Sandy loam-
RtF	Ruston and Luverne soils, 17 to 45 percent slopes.			
RtF2	Ruston and Luverne soils, 17 to 45 percent slopes, eroded.			
Sa	Sandy alluvial land.	About 3 to 4 feet of stratified soil material that is variable in texture; on flood plains.	0-36	Loamy sand to silty clay.
SnA	Savannah silt loam, 0 to 2 percent slopes.	About 18 to 20 inches of silt loam on silt loam to sandy loam fragipan 2 to 3 feet thick that impedes drainage; on uplands; derived from beds of sandy loam to sandy clay loam; seasonally high water table at depth of 2 to 3 feet; moderately well drained.	0-8	Silt loam--
SnB	Savannah silt loam, 2 to 5 percent slopes.		8-12	Silt loam--
			12-22	Silt loam--
			22-30	Loam-------
			30-50	Loam-------
			50-70	Loam-------
St	Stough fine sandy loam.	About 15 to 18 inches of loam or silt loam on loam fragipan 2 to 2½ feet thick; on terraces; derived from old Coastal Plain alluvium; seasonally high water table at depth of ½ to 1 foot; somewhat poorly drained.	0-6	Loam-------
			6-12	Silt loam--
			12-18	Loam-------
			18-26	Loam-------
			26-46	Loam-------
			46-62	Sandy clay

See footnotes at end of table.

AND ESTIMATED PHYSICAL PROPERTIES--Continued

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	Inches per inch of soil	pH	
ML-------	A-4-----	100	100	50-60	0.80-2.50	0.13	5.1-5.5	Low.
ML to CL-	A-6-----	100	100	55-65	0.80-2.50	.16	5.1-5.5	Low.
ML to CL-	A-6-----	100	100	55-65	0.80-2.50	.16	5.1-5.5	Low.
SM-------	A-4-----	100	100	40-50	0.80-2.50	.13	5.1-5.5	Low.
ML-------	A-4-----	100	100	50-60	0.80-2.50	.13	5.1-5.5	Low.
ML to CL-	A-6-----	100	100	55-65	0.80-2.50	.16	5.1-5.5	Low.
ML to CL-	A-6-----	100	100	55-65	0.80-2.50	.16	5.1-5.5	Low.
SM-------	A-4-----	100	100	40-50	0.80-2.50	.13	5.1-5.5	Low.
(2/)-----	(2/)----	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/).
ML-CL----	A-4-----	100	100	70-80	0.80-2.50	.18	5.0-5.5	Low.
ML-CL----	A-4-----	100	100	70-80	0.80-2.50	.18	5.0-5.5	Low.
ML-CL----	A-4-----	100	100	70-80	0.05-0.20	.20	5.0-5.5	Low.
ML-------	A-4-----	100	100	60-70	0.00-0.05	.06	5.0-5.5	Low.
ML-------	A-4-----	100	100	60-70	0.00-0.05	.06	5.0-5.5	Low.
ML-------	A-4-----	100	100	60-70	0.20-0.80	.16	5.0-5.5	Low.
CL-------	A-4-----	100	100	55-65	0.80-2.50	.15	5.1-5.5	Low.
ML-CL----	A-4-----	100	100	60-70	0.20-0.80	.16	5.1-5.5	Low to moderate.
SM-------	A-4-----	100	100	55-65	0.20-0.80	.16	5.1-5.5	Low.
CL-------	A-6-----	100	100	55-65	0.20-0.80	.16	5.1-5.5	Low.
CL-------	A-6-----	100	100	55-65	0.05-0.20	.14	5.1-5.5	Low.
SC-------	A-6-----	100	100	40-50	0.05-0.20	.14	5.1-5.5	Moderate.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name 1/	Description of soil and site	Depth from surface	USDA texture
			Inches	
SuB3	Sumter silty clay, 2 to 5 percent slopes, severely eroded.	About 3 to 6 inches of silty clay to clay over about 20 inches of silty clay; on uplands; derived from chalk, marl, or calcareous clay; marl or chalk at depth of 20 to 27 inches; moderately well drained.	0-5	Silty clay-
			5-9	Silty clay-
SuD3	Sumter silty clay, 5 to 12 percent slopes, severely eroded.		9-14	Silty clay-
			14-22	Silty clay-
			22-27	Clay-------
			27-42	Marly clay-
TfA	Tilden fine sandy loam, 0 to 2 percent slopes.	About 2 feet of silt loam on sandy loam fragipan 1½ to 3 feet thick; on terraces; derived from old Coastal Plain alluvium; seasonally high water table at depth of 2½ to 3 feet; moderately well drained.	0-5	Silt loam--
			5-11	Silt loam--
TfB	Tilden fine sandy loam, 2 to 5 percent slopes.		11-21	Silt loam--
TfB2	Tilden fine sandy loam, 2 to 5 percent slopes, eroded.		21-39	Fine sandy loam.
TfC2	Tilden fine sandy loam, 5 to 8 percent slopes, eroded.		39-61	Clay loam--
Ut	Tuscumbia silty clay.	About 3 to 4 feet of clay, silty clay, or clay loam on stratified sand and clay; on bottom lands; derived from recent alluvium; seasonally high water table at surface; poorly drained.	0-4	Silty clay-
			4-10	Clay loam--
			10-50	Clay loam or clay.
Ut	Una silty clay.	About 3 to 4 feet of clay, silty clay, or sandy clay on stratified sand and clay; on first bottoms; derived from recent alluvium; seasonally high water table at surface; poorly drained.	0-5	Silty clay-
			5-20	Sandy clay loam.
			20-57	Clay loam--
VaA	Vaiden silt loam, deep, 0 to 2 percent slopes.	About 6 to 12 inches of silt loam or silty clay over 4 to 5 feet of clay; on uplands; formed in beds of clay over calcareous material; seasonally high water table at depth of 0 to 3 feet; somewhat poorly drained.	0-4	Silt loam--
VaB	Vaiden silt loam, deep, 2 to 5 percent slopes.		4-6	Silt loam--
VaC	Vaiden silt loam, deep, 5 to 8 percent slopes.		6-12	Silty clay- or clay.
VdA	Vaiden silty clay, deep, 0 to 2 percent slopes.		12-19	Clay-------
			19-35	Clay-------
VdB2	Vaiden silty clay, deep, 2 to 5 percent slopes, eroded.		35-49	Clay-------
			49-58	Clay-------
VdB3	Vaiden silty clay, deep, 2 to 5 percent slopes, severely eroded.		58-67	Clay-------
VdC2	Vaiden silty clay, deep, 5 to 8 percent slopes, eroded.			
VdC3	Vaiden silty clay, deep, 5 to 8 percent slopes, severely eroded.			
VdD3	Vaiden silty clay, deep, 8 to 12 percent slopes, severely eroded.			
VsE3	Vaiden and Sumter soils, 8 to 17 percent slopes, severely eroded.			

See footnotes at end of table.

AND ESTIMATED PHYSICAL PROPERTIES--Continued

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)	Inches per hour	Inches per inch of soil	pH	
CH-------	A-7-----	100	100	85-95	0.02-0.05	0.26	7.5-8.4	High.
CH-------	A-7-----	100	100	85-95	0.02-0.05	.26	8.4-9.0	High.
CH-------	A-7-----	100	100	85-95	0.02-0.05	.19	8.4-9.0	High.
CH-------	A-7-----	100	100	85-95	0.02-0.05	.19	8.4-9.0	High.
CH-------	A-7-----	100	100	85-95	0.02-0.05	.19	8.4-9.0	High.
CH-------	A-7-----	100	100	85-95	0.00-0.05	.19	8.4-9.0	High.
ML-------	A-4-----	100	100	60-70	0.80-2.50	.18	5.1-5.5	Low.
ML-CL----	A-4-----	100	100	70-80	0.80-2.50	.18	5.1-5.5	Low.
ML-CL to CL.	A-4-----	100	100	70-80	0.80-2.50	.18	5.1-5.5	Low.
ML-------	A-4-----	100	100	50-60	0.00-0.20	.06	5.1-5.5	Low.
CL-------	A-6-----	100	100	70-80	0.20-0.80	.18	5.1-5.5	Low to moderate.
CH-------	A-7-----	100	100	85-95	0.05-0.02	.25	7.5-8.4	High.
CH-------	A-7-----	100	100	70-80	0.05-0.20	.25	7.5-8.4	High.
CH-------	A-7-----	100	100	75-85	0.05-0.20	.24	7.5-8.4	High.
CH-------	A-7-----	100	100	90-100	0.05-0.02	.24	5.5-6.0	High.
CL-------	A-6-----	100	100	50-60	0.00-0.05	.21	5.5-6.0	Moderate.
CL-------	A-7-----	100	100	70-80	0.00-0.05	.21	5.5-6.0	Moderate.
ML-CL----	A-6-----	100	100	90-100	0.05-0.02	.25	5.0-6.0	Moderate to high.
ML-CL----	A-6-----	100	100	90-100	0.05-0.02	.25	5.0-6.0	Moderate to high.
CH-------	A-7-----	100	100	95-100	0.00-0.05	.28	4.5-5.5	High.
CH-------	A-7-----	100	100	95-100	0.00-0.05	.28	4.5-5.5	High.
CH-------	A-7-----	100	100	95-100	0.00-0.05	.28	4.5-5.5	High.
CH-------	A-7-----	100	100	95-100	0.00-0.05	.28	4.5-5.5	High.
CH-------	A-7-----	100	100	95-100	0.00-0.05	.28	5.0-7.5	High.
CH-------	A-7-----	100	100	95-100	0.00-0.05	.28	5.0-7.5	High.

TABLE 4.--BRIEF DESCRIPTION OF THE SOILS

Map symbol	Soil name [1]	Description of soil and site	Depth from surface	USDA texture
			Inches	
Wp	West Point silty clay.	About 3 to 4 feet of silty clay or clay derived from calcareous local alluvium from prairie soils; on first bottoms; seasonally high water table at depth of less than 2 feet; moderately well drained.	0-7	Silty clay-
			7-20	Clay-------
			20-26	Clay-------
			26-43	Clay-------
			43-52	Clay-------

[1] Gullied land, acid (Gu); Gullied land, alkaline (Gv); and Terrace escarpments (Ta) have been omitted from this table.

Table 5 gives estimates of the suitability and limitations of the soils for highway construction and for construction engineering. The estimates are based on the description of the soils and their properties given in table 4, on the test data in table 3, and on field experience. Undesirable physical properties and poor drainage cause most soil problems in highway construction.

The suitability of soils as topsoil is important in planning earthen structures. Topsoil is needed for growing plants that control erosion on embankments, road shoulders, ditches, and cut slopes.

Many soils in Monroe County have a high water table. For this reason underdrains and surface drains should be provided in areas used for roads or other structures.

A fragipan, or compact layer of silt and fines, is near the surface in the Mashulaville, Myatt, Pheba, Savannah, Stough, and Tilden soils. Because this layer impedes drainage, its effects should be considered in designing engineering structures. Also important in engineering is the presence of slowly permeable subsurface layers that are plastic and have a high shrink-swell potential. These plastic layers occur in the Catalpa, Eutaw, Geiger, Houlka, Houston, Leaf, Leeper, Tuscumbia, Una, Vaiden, and West Point soils.

Marl or chalk occurs at a depth of 20 inches in the Sumter soils, at 6 feet in the Brooksville, Eutaw, Houston, and Vaiden soils, and at 10 feet or more in the Catalpa, Geiger, Houlka, Leeper, Tuscumbia, Una, and West Point soils.

Commercial quantities of sand and gravel clean enough for use in concrete are in the Guin soils and in deposits of alluvium on the bottoms along the Tombigbee and Buttahatchie Rivers. Clean sand and gravel occur also in some areas of the Cahaba, Prentiss, Tilden, and Stough soils. Some areas of the Eustis, Ora, and Ruston soils are too clayey to be used for aggregate in concrete but are possible sources of material suitable for use in the subbase and base courses of pavement and for surfacing county roads.

Most soils in the western part of the county are underlain by heavy clay. They are unstable when wet and, consequently, are not suited to use of heavy construction equipment. Drainage is difficult because permeability is slow and wide areas of woods border the major outlets. V-ditches are needed in some places to remove excess surface water (fig. 7). Irrigating by sprinklers and through furrows is practical on selected soils in the county.

Woodland Management [3]

Stands of shortleaf and loblolly pines once forested the upland in the eastern part of Monroe County. In the western part post oak and some loblolly pine grew on the upland, and mainly gum, oak, maple, ash, and yellow-poplar grew on the bottom land. By 1900 most of the original timber had been cut. The upland reseeded naturally to loblolly and shortleaf pines, and the bottom

[3] Prepared by T. D. ALLEN, woodland conservationist, Soil Conservation Service.

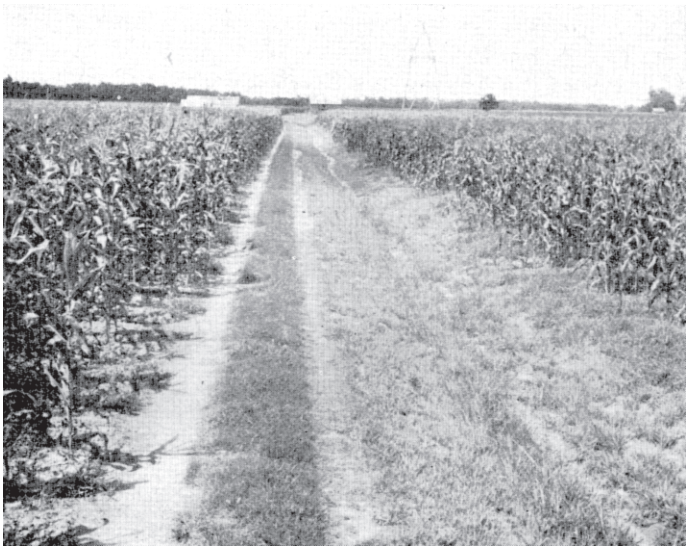

Figure 7.—**This V-ditch removes surface water from Leeper silty clay. Capability unit IIIw-1.**

AND ESTIMATED PHYSICAL PROPERTIES--Continued

Engineering classification		Percentage passing sieve--			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	Inches per inch of soil	pH	
CH------	A-7----	100	100	90-100	0.20-0.50	0.28	7.5-8.4	Moderate to high.
CH------	A-7----	100	100	90-100	0.00-0.50	.28	7.5-8.4	High.
CH------	A-7----	100	100	90-100	0.00-0.50	.25	7.5-8.4	High.
CH------	A-7----	100	100	90-100	0.00-0.50	.25	7.5-8.4	High.
MH------	A-7----	100	100	90-100	0.00-0.50	.25	7.5-8.4	High.

2/ Properties are variable.

land, to sweetgum, red and white oaks, and maple. The stands of second-growth pine were cut heavily in the 1930's and 1940's. Areas in hardwood trees were clear cut to allow seeding and full stocking of trees desirable for cutting at pole size. All but the alkaline soils on upland in the county are suited to trees. Farmers and foresters have started to restock sparse stands to increase yields of wood products.

About 23 percent of the total land area in Monroe County is woodland. About three-fourths of this acreage is owned by farmers and other individuals, and one-fourth is owned by companies.

Only small industries in the county require wood products, but markets for lumber, veneer, and other wood products are available elsewhere. Pulpwood is important in the economy of Monroe County and is processed at a papermill in Counce, Tenn. A market is needed for low-grade lumber and for hardwood thinnings that are not suitable for lumber and veneer but can be used for other purposes.

Woodland suitability groups

Management of woodland can be planned more easily if soils are grouped according to those characteristics that affect the growth of trees and the management of the stands. For this reason the soils of Monroe County have been placed in 17 woodland suitability groups. Each group consists of soils that have about the same suitability for wood crops, require about the same management, and have about the same potential productivity.

Listed in table 6, page 76, and later described in the text, are the 17 woodland suitability groups in the county. Shown in table 6 and in the text are the average site indexes of various kinds of trees on the soils of each group. Also shown are hazards and limitations that affect the management of each group. The terms used in this table require explanation.

The potential productivity of selected trees is expressed as a *site index.* The site index for a given soil is the height, in feet, that a specified kind of tree growing on that soil will reach in 50 years. The site index is determined mainly by the capacity of the soil to supply moisture and to provide growing space for roots. Each site index shown in table 6 is an average for all the soils in the woodland suitability groups. The site index for any one soil in the group may be somewhat different from the average.

As shown in table 6, each woodland suitability group has, in varying degree, limitations that affect its management. Some of these limitations are expressed by the relative terms *slight*, *moderate*, or *severe*. These terms and others used in table 6 are explained in the following paragraphs.

Plant competition is the invasion or growth of undesirable brush, trees, and plants where woodland is disturbed by fire, cutting, grazing, or some other means. The invading plants compete with the desirable trees and hinder their establishment and growth. Competition is *slight* if unwanted plants are not a special problem. It is *moderate* if the invaders delay but do not prevent the establishment of a normal, fully stocked stand. Where plant competition is moderate, seedbeds need not be prepared specially and simple methods can be used to prevent undesirable plants from invading. Competition is *severe* if trees cannot regenerate naturally. Where competition is severe, sites should be carefully prepared and management should include controlled burning, spraying with chemicals, and girdling.

Seedling mortality refers to the mortality of seedlings as influenced by the characteristics of the soils. Even if healthy seedlings of a suitable tree are correctly planted or occur naturally in adequate numbers, some of them die unless the soils favor their growth. Mortality is *slight* if not more than 25 percent of the planted seedlings die, or if trees ordinarily regenerate naturally in places where there are enough seeds. It is *moderate* if 25 to 50 percent of the seedlings die, or if trees do not regenerate naturally in numbers needed for adequate restocking. In some places replanting is needed to fill open spaces. Mortality is *severe* if more than 50 percent of the planted seedlings die, or if trees do not ordinarily reseed naturally in places where there are enough seeds. If mortality is severe, adequate restocking requires replanting, specially prepared seedbeds, and good planting methods.

TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Alluvial land (Al).	Variable-------	Variable----	Variable---	Variable-----	Variable------	Variable---------
Bibb (Bm).	Fair to good---	Poor--------	Poor-------	Fair; fair shear strength and stability; steep side slopes erodible.	High water table; slopes easily eroded.	Fair to low shear strength and stability; moderate seepage.
Brooksville (BrA, BrB, BrB2).	Poor----------	Unsuitable--	Unsuitable-	Poor; high shrink-swell potential; low shear strength and stability; fair when mixed with coarse-grained material.	High water table; high shrink-swell potential.	Low strength and stability; slow permeability. Suitable for fills less than 15 feet thick without making special geologic studies and special design.
Cahaba (CaA, CaB2, CaC3).	Good----------	Good in some places.	Good in some places.	Good; good stability; moderate erodibility.	Low water table; good stability.	Good strength and stability; moderate permeability.

See footnote at end of table.

PROPERTIES OF SOILS

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Variable------	Variable-------	Variable-------	Variable-----	Variable--------	Variable-----	Very severe.
Moderate to slow seepage.	Fair to low shear strength and stability; moderate seepage; side slopes easily eroded.	Poor drainage; high water table; few drainage outlets.	Moderate intake rate; moderate available moisture capacity.	Moderate erodibility.	Low fertility; moderate available moisture capacity.	Very severe because of poor drainage, high water table, and occasional floods.
No limitations; impervious; can support deep water.	Difficult to pack; low strength and stability; slow permeability; high shrink-swell potential; cracks when dry. Suitable for fills less than 15 feet thick without making special geologic studies and special design.	Somewhat poor drainage; slow permeability; seasonally high water table; needs surface drainage in level areas.	Slow permeability; high available moisture capacity; good intake rate when dry.	Grading and shaping difficult when soils are extremely wet or dry; plastic and sticky when wet, very hard when dry.	Grading and shaping difficult when soils are extremely wet or dry; high available moisture capacity; moderate fertility.	Very severe because of somewhat poor drainage and dense, plastic clay.
Moderate permeability.	Good strength and stability; moderate permeability.	Good drainage in surface and subsurface layers.	Moderate infiltration; moderate available moisture capacity.	Low erodibility; soil properties favorable.	Low erodibility; moderate permeability; moderate available moisture capacity.	Slight; good internal drainage.

TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Catalpa (Cs).	Poor----------	Unsuitable-	Unsuitable-	Poor; high shrink-swell potential; low shear strength and stability; fair when mixed with coarse-grained material; slopes erodible.	High water table; high shrink-swell potential.	Low strength and stability; slow permeability. Suitable for fills less than 15 feet thick without making special geologic studies and special design.
Cuthbert (CtB, CtC, CtD2, CuC3, CuD3, RsE, RsE2, RsF).	Fair to poor--	Unsuitable-	Unsuitable-	Fair; moderate stability and shear strength; erodible if side slopes are steep.	Slopes easily eroded.	Fair to moderate stability and shear strength; erodible if side slopes are steep.
Eustis (EsA).	Poor----------	Fair in some places.	Fair in some places.	Fair; moderate strength and stability; use gentle side slopes; erodible.	Moderate strength and stability; side slopes easily eroded.	Excessive seepage; side slopes easily eroded.
Eutaw (Et, Eu).	Poor----------	Unsuitable--	Unsuitable-	Poor; high shrink-swell potential; low shear strength and stability; erodible.	High water table; slopes erodible.	Low to high shrink-swell potential; unstable; slopes erodible.

See footnote at end of table.

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
No limitations; impervious; can support deep water.	Low strength and stability; difficult to pack. Suitable for fills less than 15 feet thick without making special geologic studies and special design.	Moderately good drainage; slow permeability seasonally high water table; flooded occasionally; needs surface drainage in level areas.	High available moisture capacity; good intake rate when soil is cracked.	Grading and shaping difficult when soil is wet or dry; diversions needed only when water runs in from adjacent hills.	High available moisture capacity; moderate fertility.	Very severe because of dense, plastic clay and occasional floods.
Moderate to slow seepage.	Fair to moderate stability and shear strength; side slopes erodible if steep.	Not needed; drainage moderately good.	Slow intake rate; slow permeability.	Erodible; soil properties generally favorable.	Erodible; establish vegetation before terracing; moderate available moisture capacity; low fertility.	Severe because of slow permeability and clayey subsoil.
Excessive seepage.	Excessive seepage.	Not needed; somewhat excessive drainage.	Low available moisture capacity; rapid intake rate.	Not needed-----	Low available moisture capacity; low fertility.	Slight; rapid permeability.
Impervious; can support deep water.	Low to high shrink-swell potential; unstable; slopes erodible.	Poor drainage; seasonally high water table; need surface and subsurface drainage; slow permeability; subsurface drainage difficult.	Slow intake rate; slow permeability; high available moisture capacity.	Soil properties favorable.	High available moisture capacity; moderate fertility.	Very severe because of dense, plastic clay.

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TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Geiger (Ga, Gg).	Poor----------	Unsuitable-	Unsuitable-	Poor; high shrink-swell potential; low shear strength; unstable.	High water table; high shrink-swell potential.	Unstable; low shear strength. Suitable for fills less than 15 feet thick without making special geologic studies and special design.
Greenville(GnB3, GnC3, GrA, GrB2).	Good----------	Unsuitable-	Unsuitable-	Good when mixed with coarse-grained material; side slopes erodible.	Slopes easily eroded; soil properties favorable.	Moderate to high stability; slopes easily eroded.
Guin (GsD).	Poor----------	Good in some places.	Good------	Very good; high strength and stability.	Good drainage; soil properties favorable.	Excessive seepage unless impervious core and blankets are used.
Houlka (Hc, Hk).	Poor----------	Unsuitable-	Unsuitable-	Poor; low shear strength; unstable; high shrink-swell potential.	High water table.	High shrink-swell potential.

See footnote at end of table.

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Impervious; can support deep water.	Unstable; low shear strength. Suitable for fills less than 15 feet thick without making special geologic studies and special design.	Poor drainage; high water table; slow permeability; few drainage outlets.	Slow intake rate; high available moisture capacity.	Generally not needed because of nearly level topography; soil properties favorable.	High available moisture capacity; moderate fertility.	Very severe because of dense, plastic clay.
Fairly slow seepage.	Good stability; slopes easily eroded; low shrink-swell potential.	Good drainage; some nearly level areas need surface drainage.	Moderate intake rate; moderate available moisture capacity.	Soil properties favorable.	Highly erodible; establish vegetation before terracing; moderate available moisture capacity; low fertility.	Slight; moderate permeability.
Excessive seepage.	Excessive seepage; impervious core needed.	Good drainage; agricultural drainage not needed.	Rapid infiltration; low available moisture capacity.	Erodible; soil properties favorable.	Erodible; low fertility; droughty.	Slight; rapid internal drainage.
Impervious; can support deep water.	Unstable; low shear strength; high potential; difficult to pack.	Somewhat poor drainage; high water table; slow permeability; need surface drainage.	Slow intake rate; high available moisture capacity.	Soil properties favorable.	Moderate fertility; high available moisture capacity.	Very severe because of dense, plastic clay.

TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Houston (HoA, HoB, HoB2, HoC2).	Poor---------	Unsuitable-	Unsuitable-	Poor; low shear strength and stability; high shrink-swell potential.	High water table; chalk at depth of 6 feet.	Good if mixed with coarse-grained material; high shrink-swell potential.
Iuka (Iu).	Good---------	Unsuitable-	Unsuitable-	Fair; fair shear strength; moderate stability; susceptible to erosion.	Moderately high water table; occasional floods.	Gentle side slopes; moderate stability; low shrink-swell potential.
Kipling (KpA, KpB).	Fair to poor-	Unsuitable-	Unsuitable-	Fair; moderate shrink-swell potential in lower stratum; moderate strength and stability; good when mixed with coarse-grained material; slopes erodible.	Water table at depth of 4 feet; slopes erodible.	Moderate strength and stability. Suitable for fills less than 15 feet thick without making special geologic studies and special design.

See footnote at end of table.

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Chalk at depth of 6 feet.	Unstable; low shear strength; difficult to pack. Suitable for fills less than 15 feet thick without making special geologic studies and special design.	Moderately good drainage; need surface drainage in level areas.	Slow intake rate; high available moisture capacity; good intake rate when soils are cracked.	Grading and shaping difficult when soils are wet or dry; can be worked within only a narrow range of moisture content.	Grading and shaping difficult when soils are extremely wet or dry; moderate fertility; high available moisture capacity.	Very severe because of dense, plastic clay.
Floods; moderate to slow seepage.	Gentle slopes; fair to good stability.	Moderately good drainage; high water table; moderate permeability; surface drainage needed.	Moderate intake rate; moderate available moisture capacity.	Soil properties favorable.	Moderate available moisture capacity; moderate fertility.	Severe because of occasional flooding.
Moderate to slow permeability.	Moderate strength and stability. Suitable for fills without making special geologic studies and special design.	Moderately good drainage; need surface drainage in level areas.	Moderate available moisture capacity; slow intake rate.	Erodible if sloping; soil properties favorable.	Erodible if sloping; moderate available moisture capacity; low fertility.	Severe because of moderately slow permeability.

TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Leaf (La).	Fair to poor-	Unsuitable-	Unsuitable-	Fair; moderate shear strength and stability.	Soil properties fair; high water table.	Moderate strength and stability; moderate to low shrink-swell potential.
Leeper (Lp).	Poor---------	Unsuitable-	Unsuitable-	Poor; low strength and stability; high shrink-swell potential; slopes erodible.	High water table; highly plastic material; high shrink-swell potential.	High shrink-swell potential; unstable.
Luverne (RtD2, RtD3, RtE, RtE2, RtF, RtF2).	Good---------	Medium; local areas have good sand in substratum.	Fair in some places.	Good; good strength and stability.	Good stability and low shrink-swell potential.	Good strength and stability; low shrink-swell potential.
Mantachie (Ma).	Fair to good-	Poor------	Poor------	Fair; moderate strength and stability; side slopes erodible.	Frequent floods; high water table.	Moderate strength and stability; side slopes erodible.
Mashulaville (Ms).	Fair to good above the fragipan, which is at depth of about 15 inches.	Poor------	Poor-----	Fair; moderate strength and stability; slopes easily eroded.	High water table; fragipan impedes internal drainage.	Moderate stability; side slopes easily eroded; slow permeability.

See footnote at end of table

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Slow seepage--	Moderate strength and stability; slopes easily eroded.	Poor drainage; high water table; slow permeability in lower stratum; surface drainage needed.	Moderate available moisture capacity; slow intake rate.	Soil properties favorable.	Moderate available moisture capacity; low fertility.	Severe because of poor drainage and slow permeability in lower stratum.
Floods; impervious; can support deep water.	High shrink-swell potential; unstable; cracks when dry.	Moderately good drainage; high water table; slow permeability; needs surface drainage.	Slow intake rate; high available moisture capacity.	Soil properties favorable; diversions needed only when water runs in from adjacent hills.	High available moisture capacity; moderate fertility.	Very severe because of flooding and dense, plastic clay.
Excessive seepage in some places.	Slow to moderate seepage; low shrink-swell potential; good stability.	Good drainage; agricultural drainage not needed.	Good intake rate; moderate available moisture capacity.	Erodible slopes; soil properties favorable.	Erodible slopes; moderate available moisture capacity; low fertility.	Slight; good drainage and moderate permeability.
Some seepage in summer.	Fair strength and stability.	Somewhat poor drainage; high water table; frequent flooding; moderate permeability; needs surface drainage.	Moderate to slow intake rate; moderate available moisture capacity.	Soil properties favorable.	Moderate available moisture capacity.	Very severe; frequent floods and high water table.
Slow seepage-	Fair strength and stability.	Poor drainage; high water table; fragipan at depth of 15 inches; needs surface drainage.	Very slow intake rate; moderate available moisture capacity.	Not needed-----	Low fertility; low to moderate available moisture capacity.	Very severe because of perched water table.

TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Myatt (My).	Fair to good above fragipan, which is at depth of about 15 inches.	Poor-------	Unsuitable-	Fair; moderate strength and stability; low to moderate shrink-swell potential.	High water table; fragipan impedes internal drainage.	Moderate stability; moderately slow permeability.
Ora (OaB, OaB3, OaC2, OrC3, OrD3).	Fair; fragipan at depth of about 2 feet.	Fair in some places.	Fair in some places.	Good; good strength and stability; low shrink-swell potential; side slopes erodible.	High water table at depth of 2 to 3 feet; fragipan about 2 feet from the surface impedes internal drainage.	Moderate to good stability; side slopes erodible.
Pheba (PhA, PhB).	Fair to good above fragipan.	Poor-------	Poor------	Fair; fair strength; slopes erodible.	High water table; fragipan impedes internal drainage.	Fair to moderate stability; erodible side slopes.
Prentiss (PrA, PrB, PrB2).	Good above fragipan.	Good in places.	Good in places.	Good; good strength and stability.	Water table at depth of 2 to 3 feet; fragipan impedes internal drainage.	Low shrink-swell potential.
Ruston (RfA, RfB, RfB3, RfC, RfC3, RsE, RsE2, RsF, RtD2, RtD3, RtE, RtE2, RtF, RtF2).	Good--------	Fair in places.	Fair in places.	Good; good strength and stability; side slopes erodible.	Soil properties favorable.	Good strength and stability.

See footnote at end of table.

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Moderate to slow seepage.	Moderately slow permeability.	Poor drainage; high water table; moderately slow permeability; fragipan at depth of about 15 inches; needs surface drainage.	Moderate to slow intake rate; moderate to low available moisture capacity.	Not needed------	Low fertility; low to moderate available moisture capacity.	Very severe because of perched water table.
Moderate to slow seepage.	Moderate to good stability; side slopes erodible; slow to moderate seepage.	Moderately good drainage; fragipan at depth of 20 to 24 inches; drainage not needed.	Moderate intake rate; moderate available moisture capacity.	Erodible slopes; soil properties favorable.	Erodible slopes; low fertility; moderate available moisture capacity; fragipan at depth of about 2 feet.	Moderate to severe because fragipan impedes internal drainage.
Fair to good seepage in upper stratum; fragipan at depth of 14 to 18 inches.	Moderate stability; erodible side slopes; low shrink-swell potential.	Somewhat poor drainage; high water table; fragipan at depth of 14 to 18 inches; need surface drainage.	Moderate intake rate; moderate to low available moisture capacity.	Erodible slopes; soil properties favorable.	Erodible slopes; low to moderate available moisture capacity; low fertility.	Severe because of somewhat poor drainage and fragipan.
Some seepage in upper stratum.	Slow to moderate seepage; upper stratum good; fair to good strength and stability.	Moderately good drainage; fragipan at depth of 18 to 20 inches; surface drainage needed in level areas.	Moderate intake rate; moderate available moisture capacity.	Soil properties favorable.	Moderate available moisture capacity; low fertility.	Moderate to severe because fragipan impedes internal drainage.
Sand stratum in places.	Good strength and stability; slow to moderate seepage.	Good drainage; drainage not generally needed.	Moderate intake rate; moderate available moisture capacity.	Soils easily worked, erodible; soil properties favorable.	Soils easily worked; erodible; moderate available moisture capacity; low natural fertility.	Slight; soil properties favorable.

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TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Sandy alluvial land (Sa).	Variable------	Variable---	Variable---	Variable------	Variable------	Variable---------
Savannah (SnA, SnB).	Good above fragipan.	Poor-------	Poor-------	Fair to good; good strength and stability; steep slopes erodible.	High water table; fragipan.	Good stability; steep slopes erodible.
Stough (St).	Fair to good above fragipan.	Fair in some places.	Fair in some places.	Fair; moderate strength and stability; slow permeability.	High water table; fragipan at depth of 15 to 20 inches impedes internal drainage.	Moderate strength and stability.
Sumter (SuB3, SuD3, VsE3).	Poor----------	Unsuitable-	Unsuitable-	Poor; low strength; moderate stability; high shrink-swell potential.	Marl or chalk at depth of 20 inches or more; slow permeability.	Low stability; erodible slopes.
Tilden (TfA, TfB, TfB2, TfC2).	Fair to good above fragipan.	Fair in some places.	Fair in some places.	Good; good strength and stability; erodible slopes.	Seasonally high water table at depth of $2\frac{1}{2}$ to 3 feet; moderate permeability; fragipan impedes drainage.	Moderate stability.

See footnote table at end of table.

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Variable-----	Variable-------	Somewhat excessive drainage.	Low available moisture capacity.	Variable--------	Variable-----	Very severe.
Moderate seepage in places.	Good stability; low shrink-swell potential.	Moderately good drainage; fragipan at depth of 18 to 24 inches; surface drainage needed in level areas.	Moderately slow intake rate; moderate available moisture capacity.	Soil properties favorable.	Erodible; need water-tolerant vegetation; low natural fertility; moderate available moisture capacity.	Moderate to severe because fragipan impedes internal drainage.
Generally slow seepage.	Moderate strength and stability.	Somewhat poor drainage; high water table; fragipan at depth of 15 to 20 inches; surface drainage needed.	Moderate intake rate; moderate to low available moisture capacity.	Soil properties favorable.	Low natural fertility; low to moderate available moisture capacity.	Severe because of fragipan and somewhat poor drainage.
Seepage through fissures in marl.	Unstable; difficult to pack. Suitable for fills less than 13 feet thick without making special geologic studies and special design.	Moderately good drainage; some surface drainage needed.	Slow intake rate; high available moisture capacity.	Grading and shaping difficult; narrow range of moisture content within which soils can be worked and shaped.	Grading and shaping difficult; moderate fertility; high to moderate available moisture capacity.	Very severe because of dense, plastic clay.
Generally slow seepage.	Good stability; erodible slopes.	Moderately good drainage; high water table; fragipan; surface drainage needed in level areas.	Moderate available moisture capacity; moderate intake rate.	Erodible; soil properties favorable.	Low natural fertility; moderate available moisture capacity.	Moderate to severe because fragipan impedes internal drainage.

TABLE 5.--INTERPRETATION OF ENGINEERING

Soil and map symbol 1/	Suitability as source of--				Soil features affecting--	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Tuscumbia (Ut).	Poor----------	Unsuitable-	Unsuitable--	Poor; low strength and stability; high shrink-swell potential.	High water table; slow permeability; highly plastic material; high shrink-swell potential.	High shrink-swell potential.
Una (Ut).	Poor---------	Unsuitable-	Unsuitable-	Poor; low strength and stability; high shrink-swell potential.	High water table; slow permeability; highly plastic material.	High shrink-swell potential.
Vaiden (VaA, VaB, VaC, VdA, VdB2, VdB3, VdC2, VdC3, VdD3, VsE3).	Poor---------	Unsuitable-	Unsuitable-	Poor; low strength and stability; high shrink-swell potential.	High water table; marl or chalk at depth of 6 feet; slow permeability; highly plastic material.	Unstable; high shrink-swell potential.
West Point (Wp).	Poor---------	Unsuitable-	Unsuitable-	Poor; low strength and stability; high shrink-swell potential.	High water table; slow permeability; highly plastic material.	Unstable; high shrink-swell potential.

1/ The following land types have been omitted from this table because their properties vary greatly; Gullied land, acid (Gu); Gullied land, alkaline (Gv); and Terrace escarpments (Ta).

PROPERTIES OF SOILS--Continued

Soil features affecting--Continued						Limitations for septic tank disposal fields
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	
Reservoir area	Embankment					
Impervious; can support deep water.	Suitable for fills less than 13 feet thick without making special geologic studies and special design.	Poor drainage; high water table; slow permeability; outlets difficult to find.	Slow intake rate; high available moisture capacity.	Narrow range of moisture content within which soil can be worked; diversions needed only if water runs in from adjacent hills.	Moderate natural fertility; high available moisture capacity.	Very severe because of dense, plastic clay and frequent floods.
Impervious;can support deep water.	Moderate stability. Suitable for fills less than 13 feet thick without making special geologic studies and special design.	Poor drainage; high water table; slow permeability; outlets difficult to find.	Slow intake rate; high available moisture capacity.	Narrow range in moisture content within which soil can be worked; diversions needed only if water runs in from adjacent hills.	Moderate natural fertility; high available moisture capacity.	Very severe because of dense, plastic clay and frequent floods.
Impervious; can support deep water.	Unstable. Suitable for fills less than 13 feet thick without making special geologic studies and special design.	Somewhat poor drainage; high water table; slow permeability; needs surface drainage in level areas.	Slow intake rate; high available moisture capacity.	Grading and shaping difficult; highly erodible.	Grading and shaping difficult; highly erodible; high available moisture capacity; moderate to low fertility.	Very severe because of dense, plastic clay.
Impervious; can support deep water.	Unstable. Suitable for fills less than 13 feet thick without making special geologic studies and special design.	Moderately good drainage; high water table; slow permeability; subject to overflow; needs surface drainage.	Slow intake rate; high available moisture capacity.	Grading and shaping difficult; diversions needed only if water runs in from adjacent hills.	Grading and shaping difficult; high available moisture capacity; moderate to low fertility.	Very severe because of dense, plastic clay and flooding.

TABLE 6.--WOODLAND SUITABILITY GROUPS OF SOILS, THEIR POTENTIAL PRODUCTIVITY,

[Absence of data indicates that information is not available. Refer to text for a

Woodland group 1/	Map symbol	Potential productivity (site index at 50 years)			
		Mixed upland oaks	Shortleaf pine	Loblolly pine	Bottom-land hardwoods
Group 1: Deep, moderately coarse to moderately fine textured, well-drained soils that are nearly level to very steep and moderately permeable. These soils are on terraces and uplands.	CaA, CaB2, CaC3; GnB3, GnC3, GrA, GrB2; RfA, RfB, RfB3, RfC, RfC3; RsE, RsE2, RsF (Ruston part); RtD2, RtD3, RtE, RtE2, RtF, RtF2.	55 to 65	65 to 75	75 to 85	---
Group 2: Moderately deep, moderately well drained, medium and moderately fine textured soils that are gently sloping to strongly sloping and slowly permeable. These soils are on uplands.	CtB, CtC, CtD2, CuC3, CuD3; RsE, RsE2, RsF (Cuthbert part).	---	65 to 75	75 to 85	---
Group 3: Moderately deep, moderately well drained, medium and moderately coarse textured soils that are nearly level to strongly sloping and contain a fragipan; permeability moderate above pan and very slow below it. These soils are on terraces and uplands.	KpA, KpB; OaB, OaB3, OaC2, OrC3, OrD3; PrA, PrB, PrB2; SnA, SnB; TfA, TfB, TfB2, TfC2.	---	55 to 65	85 to 95	---
Group 4: Somewhat poorly drained and poorly drained, medium-textured alluvial soils.	Bm; Ma----------	---	---	95 to 105	---
Group 5: Medium and moderately coarse textured, poorly drained, nearly level soils that are slowly permeable. These soils are on terraces and uplands.	La; Ms; My----------	---	---	85 to 95	---
Group 6: Poorly drained, medium to fine-textured soils that are moderately to slowly permeable.	Ga, Gg----------	---	---	---	85 to 95

See footnotes at end of table.

AND RATINGS FOR MAJOR LIMITATIONS AND HAZARDS AFFECTING MANAGEMENT

discussion of each woodland suitability group and a list of the soils in each group]

Plant competition	Seedling mortality	Equipment limitation	Erosion hazard	Windthrow hazard	Suitable trees	
					Favored in existing stands	Favored for planting
Slight or moderate.	Slight-------	Slight or moderate.	Slight or moderate.	Slight------	Loblolly pine, shortleaf pine, sweetgum, and red oak.	Loblolly pine and shortleaf pine.
Moderate-------	Slight-------	Moderate----	Moderate-----	Slight------	Loblolly pine, shortleaf pine, sweetgum, and cherrybark oak.	Loblolly pine and shortleaf pine.
Moderate------	Slight------	Slight------	Slight or moderate.	Slight or moderate.	Loblolly pine, shortleaf pine, sweetgum, and red oak.	Loblolly pine and shortleaf pine.
Moderate or severe.	Slight------	Severe------	Slight-------	Slight------	Cherrybark oak, loblolly pine, shortleaf pine, and sweetgum.	Loblolly pine and shortleaf pine.
Severe--------	Slight------	Moderate----	Slight------	Moderate----	Loblolly pine, shortleaf pine, red oak, sweetgum, and black tupelo.	Loblolly pine and shortleaf pine.
Moderate or severe.	Slight or moderate.	Moderate----	Slight------	Slight------	Cherrybark oak, sweetgum, and willow oak.	Cherrybark oak.

TABLE 6.--WOODLAND SUITABILITY GROUPS OF SOILS, THEIR POTENTIAL PRODUCTIVITY,

Woodland group 1/	Map symbol	Potential productivity (site index at 50 years)			
		Mixed upland oaks	Shortleaf pine	Loblolly pine	Bottom-land hardwoods
Group 7: Deep, coarse and moderately coarse textured, nearly level and strongly sloping soils that are well drained to excessively drained and moderately to rapidly permeable.	EsA; GsD----------	---------	65 to 75	---------	---------
Group 8: Shallow, medium and moderately coarse textured, nearly level to gently sloping soils that are somewhat poorly drained; moderately permeable above fragipan and slowly permeable within it. These soils are on terraces and uplands.	PhA, PhB; St----------	---------	---------	85 to 95	---------
Group 9: Deep, medium and moderately coarse textured, nearly level alluvial soils that are moderately well drained and moderately permeable.	Iu----------	---------	---------	95 to 105	---------
Group 10: Fine- and medium-textured soils that have a shallow to moderately thick root zone and are somewhat poorly drained or poorly drained and slowly permeable. These soils are on nearly level to strongly sloping terraces and uplands.	BrA, BrB, BrB2; Et, Eu; VaA, VaB, VaC, VdA, VdB2, VdB3, VdC2, VdC3, VdD3.	---------	65 to 75	75 to 85	---------
Group 11: Fine- and medium-textured, nearly level alluvial soils that are somewhat poorly drained and slowly permeable.	Hc, Hk----------	---------	---------	---------	85 to 95

See footnotes at end of table.

AND RATINGS FOR MAJOR LIMITATIONS AND HAZARDS AFFECTING MANAGEMENT--Continued

Plant competition	Seedling mortality	Equipment limitation	Erosion hazard	Windthrow hazard	Suitable trees	
					Favored in existing stands	Favored for planting
Moderate------	Moderate----	Slight------	Slight------	Slight-----	Loblolly pine and shortleaf pine.	Loblolly pine and shortleaf pine.
Moderate------	Slight------	Moderate----	Slight------	Moderate----	Loblolly pine, shortleaf pine, cherrybark oak, and sweetgum.	Loblolly pine.
Moderate or severe.	Slight------	Moderate----	Slight------	Slight------	Loblolly pine, cherrybark oak, red oak, maple, white oak, sweetgum, and yellow-poplar.	Loblolly pine and yellow-poplar.
Moderate or severe.	Slight------	Moderate----	Slight or moderate.	Slight------	Loblolly pine, shortleaf pine, and cherrybark oak.	Loblolly pine and shortleaf pine.
Severe--------	Slight------	Moderate or severe.	Slight------	Slight------	Cherrybark oak, sweetgum, and loblolly pine.	Cherrybark oak, yellow-poplar, and loblolly pine.

TABLE 6.--WOODLAND SUITABILITY GROUPS OF SOILS, THEIR POTENTIAL PRODUCTIVITY,

Woodland group 1/	Map symbol	Potential productivity (site index at 50 years)			
		Mixed upland oaks	Shortleaf pine	Loblolly pine	Bottom-land hardwoods
Group 12: Moderately well drained, fine-textured soils that have a moderately shallow or shallow root zone and are slowly permeable. These soils are on gently sloping to strongly sloping uplands.	SuB3, SuD3----------	---------	---------	---------	---------
Group 13: Deep, fine-textured alluvial soils that are nearly level, moderately well drained, and slowly permeable.	Cs; Wp----------	---------	---------	---------	85 to 105
Group 14: Deep, fine-textured, nearly level to moderately sloping soils that are moderately well drained and slowly permeable. These soils are on uplands.	HoA, HoB, HoB2, HoC2--	---------	---------	---------	---------
Group 15: Moderately deep, fine-textured alluvial soil that is nearly level, somewhat poorly drained, and slowly permeable.	Lp----------	---------	---------	---------	95 to 105
Group 16: Poorly drained, clayey alluvial soils that are nearly level and slowly permeable.	Ut----------	---------	---------	---------	85 to 105
Group 17: Somewhat poorly drained and moderately well drained, clayey soils that are predominantly acid and are severely eroded.	2/ VsE3----------	---------	65 to 75	75 to 85	---------

1/ The miscellaneous land types (Al, Gu, Gv, Sa, Ta) have been omitted from this table.

AND RATINGS FOR MAJOR LIMITATIONS AND HAZARDS AFFECTING MANAGEMENT--Continued

Plant competition	Seedling mortality	Equipment limitation	Erosion hazard	Windthrow hazard	Suitable trees	
					Favored in existing stands	Favored for planting
Slight--------	Moderate or severe.	Severe------	Slight or moderate.	Slight or moderate.	Eastern redcedar.	Eastern redcedar.
Moderate or severe.	Slight------	Moderate or severe.	Slight------	Slight------	Loblolly pine, cherrybark oak, sweetgum, southern red oak, and red maple.	
----------	----------	Moderate----	----------	----------	Cherrybark oak and sweetgum.	
Moderate or severe.	Slight------	Severe------	Slight-------	Slight------	Cherrybark oak, willow oak, sweetgum, cottonwood, and ash.	Cottonwood, willow oak, cherrybark oak, and ash.
Moderate or severe.	Moderate or severe.	Severe------	Slight-------	Slight------	Cherrybark oak, willow oak, Shumard oak, sweetgum, and ash.	Cherrybark oak, willow oak, and Shumard oak.
Moderate------	Moderate or severe.	Moderate----	Severe-------	Slight------	Loblolly pine and slash pine.	Loblolly pine and slash pine.

2/ Ratings are for the Vaiden part of this mapping unit.

Equipment limitation varies according to drainage, slope, stoniness, soil texture, or other soil characteristics that restrict or prohibit the use of equipment commonly used in pruning, thinning, harvesting, or other woodland management. The kinds of equipment, methods of operation, or seasons when equipment can be used vary for different soils. The equipment limitation is *slight* if there are no restrictions on the type of equipment or on the time of year that the equipment can be used. It is *moderate* if slopes are moderately steep, if equipment is restricted by wetness in winter and early in spring, or if use of equipment damages the roots to some extent. Equipment limitation is *severe* if many types of equipment cannot be used, if the time equipment cannot be used is more than 3 months during the year, and if the use of equipment severely damages the roots of trees and the stability of the soil. The limitation is severe on moderately steep and steep soils that are stony and have rock outcrops. It is also severe on bottom lands and low terraces that are wet in winter or early in spring.

Erosion hazard is rated according to the risk of erosion on well-managed woodland that is not protected by special practices. Woodland can be protected from erosion by choosing the kinds of trees, by adjusting the rotation age and cutting cycles, by using special techniques in management, and by carefully constructing and maintaining roads, trails, and landings. Erosion hazard is *slight* where only a small loss of soil is expected. Generally, erosion is slight if slopes range from 0 to 2 percent and runoff is slow or very slow. Erosion is *moderate* if there is a moderate loss of soil where runoff is not controlled and the vegetative cover is not adequate for protection. It is *severe* where steep slopes, rapid runoff, slow infiltration and permeability, and past erosion make the soil susceptible to further erosion.

Windthrow hazard is rated according to soil characteristics that affect the growth of tree roots and the firmness with which the roots anchor the tree in the soil and resist the force of the wind. Root development is prevented, in places, by a high water table or by an impermeable layer. The protection of surrounding trees also affects windthrow hazard. Knowing the degree of this hazard is important in choosing trees suitable for planting and in planning release cuttings or harvest cuttings. The windthrow hazard is *slight* if roots hold the tree firmly against a normal wind, and individual trees are likely to remain standing if protective trees on all sides are removed. The hazard is *moderate* if the roots hold the tree firmly except when the soil is excessively wet and the wind is high. Windthrow is *severe* if roots cannot provide adequate stability and individual trees are likely to be blown over if they are released on all sides.

In the following pages the 17 woodland suitability groups in this county are described, and the soils in each group are listed. The land types in the county vary so much in characteristics, and in their suitability for trees, that they have not been placed in woodland suitability groups. These land types are—

Alluvial land.
Gullied land, acid.
Gullied land, alkaline.
Sandy alluvial land.
Terrace escarpments.

Some information about trees that are suitable on these land types is given in the section "Descriptions of the Soils."

WOODLAND SUITABILITY GROUP 1

This group consists of deep, moderately coarse to moderately fine textured, well-drained soils that have a moderately permeable subsoil. The soils are—

Cahaba fine sandy loam, 0 to 2 percent slopes.
Cahaba fine sandy loam, 2 to 5 percent slopes, eroded.
Cahaba fine sandy loam, 5 to 8 percent slopes, severely eroded.
Greenville loam, 0 to 2 percent slopes.
Greenville loam, 2 to 5 percent slopes, eroded.
Greenville clay loam, 2 to 5 percent slopes, severely eroded.
Greenville clay loam, 5 to 8 percent slopes, severely eroded.
Ruston fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, severely eroded.
Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ruston and Cuthbert soils, 12 to 17 percent slopes (Ruston part).
Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (Ruston part).
Ruston and Cuthbert soils, 17 to 45 percent slopes (Ruston part).
Ruston and Luverne soils, 8 to 12 percent slopes, eroded.
Ruston and Luverne soils, 8 to 12 percent slopes, severely eroded.
Ruston and Luverne soils, 12 to 17 percent slopes.
Ruston and Luverne soils, 12 to 17 percent slopes, eroded.
Ruston and Luverne soils, 17 to 45 percent slopes.
Ruston and Luverne soils, 17 to 45 percent slopes, eroded.

On these soils the range in site index is 75 to 85 for loblolly pine, 65 to 75 for shortleaf pine and sweetgum, and 55 to 65 for red oak.

Plant competition is only slight or moderate because for long periods during the growing season moisture is not plentiful. Competing plants generally do not prevent desirable trees from restocking, but they may slow initial growth. If unwanted trees are removed, seedlings are established and grow rapidly. Seedling mortality is slight.

Soil erosion is a problem only on slopes of more than 12 percent. On these slopes the use of equipment is limited. The windthrow hazard is slight on the soils of this group.

WOODLAND SUITABILITY GROUP 2

This group consists of medium and moderately fine textured, moderately well drained soils that have a slowly permeable, clayey subsoil. The soils are—

Cuthbert silt loam, 2 to 5 percent slopes.
Cuthbert silt loam, 5 to 8 percent slopes.
Cuthbert silt loam, 8 to 12 percent slopes, eroded.
Cuthbert silty clay loam, 5 to 8 percent slopes, severely eroded.
Cuthbert silty clay loam, 8 to 12 percent slopes, severely eroded.
Ruston and Cuthbert soils, 12 to 17 percent slopes (Cuthbert part).
Ruston and Cuthbert soils, 12 to 17 percent slopes, eroded (Cuthbert part).
Ruston and Cuthbert soils, 17 to 45 percent slopes (Cuthbert part).

On these soils the range in site index is 75 to 85 for loblolly pine and 65 to 75 for shortleaf pine. The site index has not been determined for desirable hardwoods.

Plant competition is moderate. Competing plants generally do not prevent desirable trees from restocking, but they may slow initial growth. In some places unwanted hardwoods, shrubs, and vines should be cleared, for they compete with the pines and desirable hardwoods. Com-

mercial hardwoods on these soils grow only on steep slopes that are adjacent to bottom lands and terraces. If rainfall is well distributed throughout the year, the loss of planted stock generally is slight and satisfactory restocking is obtained from the first planting.

Conventional equipment can be used only in dry periods. Erosion is likely on unprotected slopes of more than 12 percent.

WOODLAND SUITABILITY GROUP 3

This group consists of moderately well drained, medium and moderately coarse textured soils that contain a fragipan or clay. Permeability is moderate above the fragipan but is very slow within it. The soils are—

Kipling silt loam, moderately well drained variant, 0 to 2 percent slopes.
Kipling silt loam, moderately well drained variant, 2 to 5 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes, severely eroded.
Ora fine sandy loam, 5 to 8 percent slopes, eroded.
Ora loam, 5 to 8 percent slopes, severely eroded.
Ora loam, 8 to 12 percent slopes, severely eroded.
Prentiss fine sandy loam, 0 to 2 percent slopes.
Prentiss fine sandy loam, 2 to 5 percent slopes.
Prentiss fine sandy loam, 2 to 5 percent slopes, eroded.
Savannah silt loam, 0 to 2 percent slopes.
Savannah silt loam, 2 to 5 percent slopes.
Tilden fine sandy loam, 0 to 2 percent slopes.
Tilden fine sandy loam, 2 to 5 percent slopes.
Tilden fine sandy loam, 2 to 5 percent slopes, eroded.
Tilden fine sandy loam, 5 to 8 percent slopes, eroded.

On these soils the range in site index is 85 to 95 for loblolly pine and 55 to 65 for shortleaf pine.

Plant competition is moderate. In places, unwanted hardwoods, shrubs, and vines should be cleared from stands of pines and desirable hardwoods. Commercial hardwoods that grow on these soils are only on the low slopes and terraces. If rainfall is well distributed throughout the year, loss of planted stock generally is slight and satisfactory restocking is obtained from the first planting.

Equipment limitation is slight, but the use of equipment is delayed at times after rains. Further erosion is likely in areas already eroded unless a good cover of vegetation is maintained. Windthrow is a slight or moderate hazard, for the root zone is limited in severely eroded areas of these soils.

WOODLAND SUITABILITY GROUP 4

This group consists of somewhat poorly drained and poorly drained, medium-textured alluvial soils in the eastern part of the county. Infiltration and permeability are moderate, and available moisture capacity is moderate to high. These soils are subject to frequent flooding. Their water table is at or near the surface during winter. The soils are—

Bibb and Mantachie soils.
Mantachie soils.

On these soils the range in site index is 95 to 105 for loblolly pine.

Plant competition is moderate or severe, and in some areas unwanted plants should be removed. Because these soils are better suited to hardwoods than to pines, open fields planted to loblolly pine revert to hardwoods after the initial harvest. Seedling mortality generally is slight where trees have enough light and flooding is not severe.

Frequent and extended floods limit management. Use of equipment is severely limited from 3 to 6 months each year because of wetness. Although the windthrow hazard is slight, some trees are likely to be uprooted by high winds during wet periods when the soils are saturated.

WOODLAND SUITABILITY GROUP 5

This group consists of poorly drained, medium and moderately coarse textured soils that contain a fragipan or clay. The soils are—

Leaf silt loam.
Mashulaville silt loam.
Myatt fine sandy loam.

On these soils the range in site index is 85 to 95 for loblolly pine. The site index for desirable hardwoods has not been determined.

Plant competition is severe and, in many places, prevents a good stand from being established. Unwanted trees, shrubs, and vines that compete with desirable trees should be controlled. Planting sites should be specially prepared.

The use of equipment is limited by long wet periods that occur during winter and spring. Because the soils in this group are nearly level, erosion is only a slight hazard. Windthrow is a moderate hazard because the fragipan or clay near the surface limits the root zone.

WOODLAND SUITABILITY GROUP 6

This group consists of nearly level, poorly drained, clayey soils on stream terraces. These soils formed in alluvium from the prairie upland. Their surface layer is silt loam or silty clay, and their subsoil is clay. These soils are acid, moderate in natural fertility, and low in organic-matter content. They are—

Geiger silt loam.
Geiger silty clay.

The range in site index on these soils is 85 to 95 for cherrybark oak, willow oak, and sweetgum.

Plant competition from unwanted hardwoods, shrubs, and vines is moderate or severe unless the competing plants are controlled. Also, planting sites should be specially prepared. Seedling mortality is slight or moderate.

The equipment limitation is moderate, and conventional equipment can be used only in dry periods. The erosion and windthrow hazards are slight.

WOODLAND SUITABILITY GROUP 7

This group consists of well-drained to excessively drained, coarse and moderately coarse textured soils that are moderately to rapidly permeable. The soils are—

Eustis loamy sand, terrace, 0 to 2 percent slopes.
Guin gravelly sandy loam, 5 to 12 percent slopes.

On these soils, the range in site index is 65 to 75 for shortleaf pine. The site index has not been determined for loblolly pine, nor for oaks and other hardwoods.

Plant competition is moderate. In places it is necessary to remove unwanted hardwood trees, shrubs, and vines. Seedling mortality is moderate, and between 25 and 50 percent of the seedlings die. Generally some replanting is needed.

The use of equipment is not limited, and erosion and windthrow are only slight hazards.

WOODLAND SUITABILITY GROUP 8

This group consists of somewhat poorly drained, medium and moderately coarse textured soils with a fragipan. Permeability is moderate above the pan and slow within it. The soils are droughty in summer. They are—

Pheba silt loam, 0 to 2 percent slopes.
Pheba silt loam, 2 to 5 percent slopes.
Stough fine sandy loam.

On these soils the range in site index is from 85 to 95 for loblolly pine. Hardwoods are not suited, because the fragipan limits the root zone largely to a depth of 1½ or 2 feet.

Unless they are controlled, unwanted trees, shrubs, and vines compete moderately with desirable trees. Proper site preparation is needed in areas planted to trees.

Use of conventional equipment is moderately limited late in winter and in spring. Because these soils are nearly level to gently sloping, erosion is generally not a hazard. Windthrow is moderate, however, because the root zone is limited by a perched water table caused by the fragipan.

WOODLAND SUITABILITY GROUP 9

Only the mapping unit Iuka soils is in this group. These are moderately well drained, medium and moderately coarse textured alluvial soils that are moderately permeable.

On Iuka soils the range in site index is 95 to 105 for loblolly pine. The site index for hardwoods has not been determined.

Plant competition is moderate or severe. Unless unwanted hardwoods, shrubs, and vines are controlled, they compete with desirable trees. Because these soils are naturally better suited to hardwoods than to pines, open fields that are planted to loblolly pine revert to hardwoods after the initial harvest.

Management and the use of equipment are moderately limited because these soils, as well as those nearby, are frequently flooded for short periods. Equipment cannot be used for a period of 1 to 3 months each year.

Windthrow is only a slight hazard. Unless winds are high, individual trees can be expected to remain standing when released on all sides.

WOODLAND SUITABILITY GROUP 10

This group consists of somewhat poorly drained and poorly drained, clayey soils that are underlain by chalk or marl. Infiltration, permeability, and internal drainage are slow. The soils are—

Brooksville silty clay, 0 to 2 percent slopes.
Brooksville silty clay, 2 to 5 percent slopes.
Brooksville silty clay, 2 to 5 percent slopes, eroded.
Eutaw silt loam, deep.
Eutaw silty clay, deep.
Vaiden silt loam, deep, 0 to 2 percent slopes.
Vaiden silt loam, deep, 2 to 5 percent slopes.
Vaiden silt loam, deep, 5 to 8 percent slopes.
Vaiden silty clay, deep, 0 to 2 percent slopes.
Vaiden silty clay, deep, 2 to 5 percent slopes, eroded.
Vaiden silty clay, deep, 2 to 5 percent slopes, severely eroded.
Vaiden silty clay, deep, 5 to 8 percent slopes, eroded.
Vaiden silty clay, deep, 5 to 8 percent slopes, severely eroded.
Vaiden silty clay, deep, 8 to 12 percent slopes, severely eroded.

On these soils the range in site index is 75 to 85 for loblolly pine and 65 to 75 for shortleaf pine.

Competition is moderate or severe between desirable trees and unwanted hardwoods, shrubs, and vines. Where competition is moderate, it does not prevent desirable trees from establishing themselves, but it does delay their natural regeneration and slows initial growth. Where competition is severe, prescribed methods of preparing seedbeds help desirable trees to restock.

The restriction on use of conventional equipment is moderate, and use is limited to dry periods. Unless the sloping soils in this group are protected, erosion is a moderate hazard. Windthrow is only a slight hazard, and individual trees can be expected to remain standing when released on all sides.

WOODLAND SUITABILITY GROUP 11

This group consists of somewhat poorly drained, acid, clayey and loamy alluvial soils of the prairie. Infiltration and permeability are slow. The soils are—

Houlka silty clay.
Houlka very fine sandy loam, local alluvium.

On these soils the range in site index is 85 to 95 for cherrybark oak, willow oak, and sweetgum, which are hardwoods that grow on bottom land.

Unwanted hardwoods, shrubs, and vines compete severely with desirable trees unless the competing plants are controlled. Proper site preparation is needed in areas that are to be planted to trees. Seedling motality is slight in places where light is adequate and flooding is not severe.

The use of equipment is moderately or severely limited. Logging and other forestry work are delayed for periods of 2 to 6 months by the frequent floods and, in some areas, by the clayey soils. Although the windthrow hazard is slight, some trees are likely to be uprooted by strong winds when the soils are saturated.

WOODLAND SUITABILITY GROUP 12

This group consists of soils that are moderately well drained, alkaline, and clayey. Because their root zone is moderately shallow, these soils are droughty. They are—

Sumter silty clay, 2 to 5 percent slopes, severely eroded.
Sumter silty clay, 5 to 12 percent slopes, severely eroded.

These soils are not generally suited to trees. They are too alkaline for pines and are too shallow and droughty for hardwoods. Redcedar, however, grows moderately well, and volunteer stands of this tree are fairly common. The soils are best suited to Christmas trees, fence posts, and other specialty crops, as well as to low-growing perennial plants that attract wildlife. Wooded areas containing good sod are well suited to grazing.

Seedling mortality is a moderate or severe problem on these soils. The use of equipment is severely limited and confined to dry weather because the soils are plastic and sticky when they are wet. Erosion is generally a slight or moderate hazard, but it is severe on unprotected slopes. Windthrow is a slight or moderate hazard. It is moderate where erosion is severe and the root zone is shallow.

WOODLAND SUITABILITY GROUP 13

This group consists of moderately well drained, neutral to alkaline, clayey alluvial soils. The soils are—

Catalpa silty clay.
West Point silty clay.

On these soils the range in site index for hardwoods is 85 to 95 for sweetgum and willow oak and is 95 to 105 for cottonwood and cherrybark oak.

Plant competition is moderate or severe. Where it is moderate, competing plants do not prevent desirable trees from growing, but they delay natural regeneration of trees and slow their initial growth. Where competition is severe, prescribed methods of preparing seedbeds help in restocking these soils with desirable trees.

The use of conventional equipment is moderately or severely limited. Because these clayey soils are frequently flooded, logging and other forestry work are limited to dry periods.

Windthrow is not a serious hazard. Unless winds are high, individual trees can be expected to remain standing when released on all sides.

WOODLAND SUITABILITY GROUP 14

This group consists of moderately well drained, neutral, to alkaline, clayey soils of the prairie upland. The soils are—

Houston clay, 0 to 2 percent slopes.
Houston clay, 2 to 5 percent slopes.
Houston clay, 2 to 5 percent slopes, eroded.
Houston clay, 5 to 8 percent slopes, eroded.

These alkaline soils are not suited to pines. The site index for trees has not been determined, because the soils are used primarily for row crops and pasture.

Use of conventional equipment is moderately limited and needs to be done in dry periods.

WOODLAND SUITABILITY GROUP 15

Leeper silty clay, the only soil in this group, is somewhat poorly drained. Permeability is slow.

On this soil the range in site index is 95 to 105 for cottonwood and for sweetgum.

Plant competition is moderate or severe. Unless unwanted trees, shrubs, and vines are controlled, they compete with desirable trees. In places the competing plants need to be removed or destroyed so that desirable trees can grow. Seedling mortality is generally slight where trees have enough light and flooding is not severe.

Equipment limitation is severe. Because this soil is clayey and frequently flooded, logging and other forestry work are limited to dry periods. Windthrow is not a serious hazard. Unless winds are high, individual trees can be expected to remain standing when released on all sides.

WOODLAND SUITABILITY GROUP 16

Una and Tuscumbia silty clays, mapped as one unit, are the only soils in this group. They are poorly drained, clayey alluvial soils.

The range in site index is 95 to 105 for cottonwood and for sweetgum. The site index is 85 to 95 for cherrybark oak on the Una part of this mapping unit.

Seedling mortality and plant competition are moderate or severe. In some places it is necessary to remove unwanted plants. Equipment limitation is severe. Because these soils are clayey and frequently flooded, logging and other forestry work are limited to dry periods.

Erosion and windthrow are only slight hazards.

WOODLAND SUITABILITY GROUP 17

Vaiden and Sumter soils, 8 to 17 percent slopes, severely eroded, are the only soils in this group. They are on steep slopes adjacent to stream bottoms. Their texture is silty clay or clay. In some shallow gullies calcareous chalk is exposed. The Vaiden soils are acid, and the Sumter soils are alkaline. The available moisture capacity in both these soils is variable and depends on the depth to chalk.

The Vaiden soils, which make up about 70 percent of this mapping unit, are well suited to loblolly and shortleaf pines. The range in site index is 75 to 85 for loblolly pine and 65 to 75 for shortleaf pine.

Plant competition is moderate, and control of unwanted hardwoods, shrubs, and vines is needed. Sites should be specially prepared before seedlings are planted, for seedling mortality is moderate or severe. The limitation to use of conventional equipment is moderate. Erosion is a severe hazard.

Because the Sumter soils are shallow to the underlying chalk, they are droughty. These soils are generally best suited to low-growing perennial plants used for grazing, or to Christmas trees, fence posts, and other specialty crops.

Protective forestry

Grazing, fire, insects, and diseases damage or destroy trees and thus reduce the amount of wood products harvested. Major practices that provide protection against these hazards are discussed in the following paragraphs.

Protection from grazing: Wooded areas need protection from heavy grazing, for heavy grazing not only destroys seedlings and damages trees but also makes the soils more likely to erode and less likely to take in and store water for trees. Uncontrolled grazing is particularly harmful on steep or eroded woodland. Where some grazing is necessary, livestock should be distributed so that they eat not more than 40 percent of the low-growing cover. In hardwood sites grazing should be restricted where possible. If grazing is necessary, restrict livestock to areas that are fully stocked with desirable trees large enough to resist browsing damage. Grazing is less harmful to woodland in April, May, and June than it is at other times because more forage is available in those months. Cattle generally damage trees less than do other grazing animals.

Protection from fire: Fire kills seedlings, young trees, and some of the larger trees. The greatest loss in hardwood stands is from fires, which damage the base of trees and make the trees susceptible to insects and rot. Fires also destroy humus and litter and thereby increase the hazard of erosion. Firebreaks help to protect wooded areas by checking or stopping fires. A firebreak may be a road in the woods, or a plowed or disked fire lane and should tie into streams, ponds, public roads, utility rights-of-way, or other barriers. At the firebreak the firefighters can start a backfire, which is a fire set to counter an advancing fire.

Protection from insects and diseases: Serious losses from diseases and insects are not likely in woodland in Monroe County. To avoid damage from insects, cuttings in pine stands should be made in fall and winter. Hardwoods can be cut at any time during the year but preferably in summer when sites are suitable for logging and other forestry work. Log the woodland carefully so that

the trees left standing are not scarred and made more susceptible to disease, insects, and rot.

Use of Soils for Wildlife and Fish

All the soils in Monroe County are suitable for wildlife, but the kinds and numbers of wildlife present in any areas are determined by how the soils are used. Some birds and animals prefer woodland, and some prefer farmland or wet land, but most need a combination of these if they are to be abundant. Bobwhite, doves, rabbits, and other farm game are common in all areas in the county that are open and used for agriculture. Squirrels, deer, turkeys, and other forest game thrive best in woods consisting partly of hardwood trees. Excellent habitat for forest game is on the bottom lands along the Tombigbee and Buttahatchie Rivers, several creeks, and small streams. Ducks frequent the rivers, and they also use beaver ponds and areas naturally flooded by small streams.

Food and cover needed by wildlife

Quail (bobwhite).—These birds prefer to feed in open and semiopen areas near plants that protect them from predators and bad weather. Mainly the row-cropped areas provide this food and cover. Choice foods for quail are acorns, beechnuts, blackberries, browntop millet, black cherries, corn, cowpeas, and seeds of the flowering dogwood. Other choice foods are bicolor, Kobe, Korean, and common lespedezas, mulberries, pine seeds, partridgepea, ragweed, soybeans, sweetgum, and tickclover (beggartick). Quail also eat insects in warm weather.

Deer.—Deer require wooded areas of 500 acres or more that are adequately watered. These animals eat many kinds of plants, but among their choice foods are acorns, clover, corn, cowpeas, greenbrier, honeysuckle, oats, rescuegrass, wheat, and many other native forage plants.

Doves.—Some choice foods for doves are browntop millet, corn, croton, grain sorghum, panicgrass, pokeberry, ragweed, sunflower, wheat, and pine and sweetgum seeds. Doves feed in open fields that do not have a dense ground cover. They drink water daily.

Ducks.—Natural bodies of water or areas that flood in winter are needed for ducks. Among their choice foods are acorns, beechnuts, browntop and Japanese millets, smartweed, and corn.

Rabbits.—Adequate cover is the primary need for rabbits. Good cover plants are blackberry briers, multiflora rose, sericea lespedeza, and low-growing shrubs and annual weeds. Rabbits eat mainly bark, grass, clover, and grain.

Squirrels.—A few acres or more of woodland containing hardwoods is needed for squirrels. Choice foods are acorns, beechnuts, hickory nuts, mulberries, black cherry, corn, and the seeds of blackgum, dogwood, maple, pecan, and pine.

Nongame birds.—Nongame birds vary greatly in their need for food and cover. Some kinds of nongame birds eat nothing but insects, a few eat insects and fruits, and several eat insects, acorns, nuts, and fruits.

Fish.—The principal game fish in ponds and streams are bass, bluegill and other sunfish, and channel catfish. Bluegill and most of the sunfish eat aquatic worms, insects, and insect larvae. Bass and catfish eat small fish, frogs, crayfish, and other aquatic animals. The amount of fish food and the pounds of game fish produced in ponds are affected by the fertility of the soils on the watershed and at the bottom of the ponds. Most ponds need to be fertilized and limed to produce a good crop of fish.

Suitability of soils for wildlife

The suitability of the soils as wildlife habitats is discussed in the following pages by three groups of soil associations (see the general soil map at the back of this report). Suggestions are made for the improvement of food and cover for desirable kinds of wildlife. More complete descriptions of the soil associations are given in the section "General Soil Map."

(1) HOUSTON-BROOKSVILLE-VAIDEN AND (2) VAIDEN-EUTAW SOIL ASSOCIATIONS

These soil associations are in the part of the county generally known as the prairie section. They occupy about 20 percent of the county and extend along the entire western boundary. Except for steep slopes that adjoin some of the stream bottoms, the associations make up a broad, nearly level plain in which there is a well-established pattern of streams that have wide bottoms. The soils are moderately well drained to poorly drained.

Some of the large farms in the county are in these associations. For the most part, the soils are well suited to cultivation and are farmed extensively. Cotton, corn, soybeans, and pasture grasses are the main crops. Livestock raising is an important enterprise.

These associations are particularly well suited to doves and rabbits. Doves feed mostly in fields of corn and grain sorghum after the crops have been harvested. Browntop millet grows well and can be planted for doves. The soils are well suited to many kinds of native cover plants needed by rabbits, and they are good soils for multiflora rose and sericea lespedeza.

Quail are only moderately well suited to these associations because their habitats are limited by extensive livestock farming. Quail are common on farms used for row crops and can be increased by growing suitable plants. Cowpeas, browntop millet, bicolor lespedeza, and other cultivated crops grow on most of the soils, and native cover plants grow well enough if they are left along fences, ditches, and streams and are managed for quail. Choice supplemental foods are acorns from oaks that grow along the edges of fields and in hardwood sites along stream bottoms.

By encouraging native food and cover plants to grow, the number of game birds in these associations can be increased and their habitat improved. Choice food crops should be planted to attract these birds.

Squirrels live mainly in the woodland. Native oaks and hickories are particularly well suited to the soils, and if these trees are maintained in the timber stands, they support many squirrels.

Where the water supply is adequate in fall and winter, the soils can be flooded for duck-feeding areas by constructing low levees. Browntop and Japanese millets produce good food for ducks.

(3) HOULKA-LEEPER-WEST POINT AND (6) BIBB-MANTACHIE-ALLUVIAL LAND SOIL ASSOCIATIONS

These soil associations are along Old Town, Mattubby, and James Creeks in the west-central part of the county

and on bottom lands along the Tombigbee, Buttahatchie, and Sipsey Rivers in the central and eastern parts. The soils are moderately well drained to poorly drained and are frequently flooded. Those along the creeks are extensively cultivated. Small areas are wooded. Cotton and corn are the main crops; raising cattle is the main enterprise. The river bottoms are wide and level and are mainly in hardwood timber that is owned by large companies.

Along the creek bottoms (see soil association 3 on the general soil map), farm game is well suited. Management for quail, doves, and rabbits is the same on the creek bottoms in these soil associations as the management on Houston-Brooksville-Vaiden and Vaiden-Eutaw associations discussed in the previous group. Squirrels, the only forest game in the woodland along the creeks, obtain adequate food from many kinds of hardwoods. Duck-feeding areas can be developed along the streams where the land is flat and where water for flooding can be pumped or diverted from a stream.

The wide bottoms along the Tombigbee, Buttahatchie, and Sipsey Rivers (soil association 6) are suited mainly to deer, squirrels, and turkeys. Proper timber management, however, is needed. Because many kinds of hardwoods occur, the bottoms are especially well suited to squirrels, but the timber stand should not be clear cut. Small clearings in the tracts of timber attract large numbers of deer and turkeys. These patches should be planted to fescue, small grain, white clover, and other winter forage crops.

Generally, these soil associations are not suitable for the constructing of duck fields, because floods are likely to damage the levees. However, ducks are attracted to swamps, sloughs, and low wooded areas that are flooded in winter.

Because of the frequent floods, fishponds are not suitable on these soil associations.

(4) ORA-SAVANNAH, (5) MYATT-STOUGH-TILDEN, AND (7) RUSTON-CUTHBERT-LUVERNE SOIL ASSOCIATIONS

The Ora-Savannah soil association (No. 4 on the general soil map) consists of nearly level and gently sloping ridges that are farmed extensively to row crops. The Myatt-Stough-Tilden association (No. 5) on gently sloping stream terraces is mainly in pasture, and the rough, broken Ruston-Cuthbert-Luverne association (No. 7) is steep and mainly in forest. These three associations are dissected by many streams, branches, and draws. The farms in the areas are scattered and generally are less than 160 acres in size.

Forest game and farm game are suited to these soil associations. Quail and rabbits are common where the soils have been cleared and are row cropped, but they are not common where the soils are mainly in pasture. Large, wooded areas provide habitat for forest game. Ducks are common only in beaver ponds and natural lakes. The soils and topography are suitable for constructing fishponds, but the ponds need to be fertilized if they are to produce many fish.

Quail and rabbits can be maintained on these soil associations by permitting lespedeza, partridgepea, tickclover, and other native plants to grow and by planting cowpeas, browntop millet, and other choice foods. Acorns and ash seeds provide supplemental foods.

The timber stands on these soil associations have enough hardwood trees to support squirrels, and the large wooded areas on the Ruston-Cuthbert-Luverne association are suitable for deer and turkeys, as well as for squirrels. The best hardwoods grow along the streams and draws and should be well managed so that they produce enough mast for forest game.

Doves are attracted to row-cropped areas. If too little native food and waste grain is available, browntop millet can be planted.

Because of their topography the Ora-Savannah and the Ruston-Cuthbert-Luverne associations are not generally suitable for constructing duck fields. Along the stream bottoms in the Myatt-Stough-Tilden association, ducks can be attracted because water is available for flooding their feeding areas.

Formation and Classification of Soils

Discussed in this section are the factors that have affected the formation and composition of the soils in Monroe County. Also discussed is the classification of the soils by higher categories.

Factors of Soil Formation

Soil is formed by weathering and other processes that act upon parent material. The characteristics of the soil at any given point depend upon (1) the physical and mineralogical composition of the parent material, (2) the climate, (3) living organisms, (4) the relief, or lay of the land, and (5) time (*13*). Through their effect on plants, climate and relief modify the characteristics of the soil. Relief, in turn, strongly affects drainage, aeration, runoff, erosion, and exposure to sun and wind.

Climate and living organisms are the active forces that gradually form a soil from parent material. Relief, in most places, largely controls natural drainage, and, therefore, influences the effectiveness of the active forces. If climate and living organisms have not been in force long enough to produce a soil that is nearly in equilibrium with its environment, the soil is considered young. When a soil has developed certain definite characteristics and has a well-developed profile, it is said to be mature.

Generally, the soil-forming factors are complex. Each force interacts with the others and slowly, but constantly, brings about changes. The soil itself is a complex substance; it is continually changing and never reaches a static condition. It passes slowly through stages of youth, maturity, and even old age. Thus, the characteristics and thickness of a soil depend upon the intensity of the soil-forming processes, on the length of time during which the various processes have acted, and on the resistance of the parent material to change.

Parent material

The soils of Monroe County developed mainly in sediments deposited in the Gulf of Mexico before the water receded from the Coastal Plain (*4*). These sediments consist of sands, silts, clays, and, in a few places, gravel. They occur in strata ranging from less than 1 foot to more than 10 feet in thickness. The geologic formations now at the surface are of the Pleistocene and Recent epochs (*16*). East of the Tombigbee River, the Ruston and other soils formed in sediments consisting of noncalcareous

sands, silts, and clays. In the western part of the county, the Houston, Vaiden, and other soils formed in beds of acid and calcareous clays over thick beds of calcareous Selma chalk.

Along the Tombigbee and Buttahatchie Rivers and their tributaries, the soil materials consist of recent alluvium that washed from the terraces and uplands. In this alluvium the West Point, Iuka, and other soils formed.

At any stage in its history, a soil may be affected by mechanical agencies. For example, the surface layer may be wholly or partly removed by erosion and the material beneath it exposed. Then, the soil-forming factors begin working on the exposed material to form a new surface layer. Whether or not erosion benefits the growth of plants depends on how fast the old surface layer is removed and on the supply of plant nutrients available in the new surface layer. At times normal erosion benefits the soil; accelerated erosion, however, is caused by misuse of the land.

Climate

Monroe County has a humid, warm continental climate. The average maximum temperature is 75.8° F., and the average minimum temperature is 52.2° (see table 11, p. 119). Rainfall is abundant, is slightly greater in spring and summer than fall and winter, and averages about 52 inches a year.

Because the climate is warm and the soils are moist much of the time, chemical reactions are rapid. The large amount of rainfall increases the leaching of soluble materials and moves downward the less soluble material, or colloidal matter. Weathering is hastened because the soils are frozen in winter for only brief periods and only near the surface.

Climate determines some of the differences in kinds and numbers of plants and animals that live in the soil. Consequently, the changes in the soil brought about by plants and animals are caused indirectly by climate (*13*).

Living organisms

Plants, micro-organisms, earthworms, and other forms of life that live on and in the soil are active in the soil-forming processes. The changes they bring about depend mainly on the kind of life processes peculiar to each. Micro-organisms play an extremely important part in developing soils and in preparing them for the growth of higher plants. Some micro-organisms tend to encourage the growth of certain kinds of plants, whereas others destroy plants. The kinds of plants and animals are determined by other organisms and by the climate, parent material, relief, and age of the soil.

Generally, the type of soil in an area varies according to the kind of vegetation. In Monroe County the soils are mineral soils that formed under two broad kinds of vegetation, pine-hardwood forest and grass-hardwood forest. The soils that formed under pine-hardwood forest are the most extensive. The soils range from well drained to poorly drained, and such soils as the Ruston have a light-colored surface layer that is low in organic-matter content. The soils that formed under the grass-hardwood forest have a gray to black surface layer and are moderately well drained to poorly drained.

Relief

Through its control of natural drainage and erosion, relief acts as a modifying factor in soil formation (*13*). Many differences in soils can be attributed to variations in relief. For example, runoff is more rapid on steep slopes than on nearly level slopes and, consequently, the steeper slopes have less leaching, more runoff, and more likelihood of erosion. Soils are wet in nearly level or depressional areas and, because aeration tends to be poor in these areas, the subsoil is gray or mottled in many places. The Ruston and Mashulaville soils developed from similar parent material, but the sloping Ruston soils have a yellowish-red subsoil, whereas the nearly level Mashulaville soils have a gray subsoil that is mottled with yellowish brown.

Within a given length of time, on a given parent material, and under the same kind of vegetation, the degree of profile development that takes place seems to depend largely on the amount of water passing through the soil. The most strongly developed soil profiles occur in flat areas where the parent material is medium textured or moderately heavy textured and the substratum is sufficiently permeable to carry off the excess ground water slowly. In some poorly drained and waterlogged areas, however, strongly developed soils have formed.

Time

Time is necessary for the development of soils from parent materials. The length of time required for the formation of a given type of soil depends largely on the other factors involved. A normal, or mature, soil profile in Monroe County is one that has easily recognized A and B horizons. Less time is generally required for a soil to develop in warm, humid areas where vegetation is rank than in dry or cold areas where vegetation is scant. Also, if factors are equal, less time is required if the parent material is coarse textured than if it is fine textured.

The age of soils varies considerably. Generally, the older soils show a greater degree of horizon differentiation than younger ones. For example, on the older stream terraces and on the smoother parts of the uplands, the Ruston and other soils have developed to maturity, but on first bottoms and in areas of local alluvium, the soil materials have been deposited too recently for the Iuka and other soils to develop a mature profile.

Classification of Soils by Higher Categories

Soils are placed in narrow classes so that knowledge of their behavior on a single farm or within a county can be organized and applied. They are placed in broad classes for study and comparison of continents and other large areas. In the comprehensive system of soil classification followed in the United States, the soils are placed in six categories. Beginning with the most inclusive, the six categories are the order, suborder, great soil group, family, series, and type (*12*).

In the highest category, the soils are placed in three orders—the zonal, intrazonal, and azonal. In the lowest category thousands of soil types are recognized. The suborder and family categories have never been fully developed and thus have been little used. Attention has been given largely to the classification of soils into soil types and

series within counties or comparable areas and to the subsequent grouping of series into soil groups.

The great soil groups are discussed in this section, and the series in each group are briefly described. Then, a detailed profile of a soil typical of the series is given. More detailed descriptions of the soil series, as well as descriptions of soils types and phases, are given in the section "Descriptions of the Soils."

Table 7 groups the soils by higher categories and gives the general characteristics and relationships of these soils.

Red-Yellow Podzolic soils

The Red-Yellow Podzolic great soil group contains soils that are much alike in morphology but differ in color of the subsoil. These soils are discussed in two groups: the soils with a red subsoil, and those with a yellow subsoil. The soils in the two groups apparently developed under the same climate. Laterization and podzolization were the soil-forming processes (*13*).

The red members of the Red-Yellow Podzolic great soil group have a thin organic layer over a yellowish-brown, leached surface layer, which overlies a red B horizon. The soils developed under a deciduous or mixed forest in a warm temperate to a tropical humid climate.

The yellow members of the Red-Yellow Podzolic great soil group developed from organic and organic-mineral layers that are underlain by a grayish-yellow, leached layer and a yellow B horizon. In Monroe County these soils are nearly level to steep. They developed under a deciduous or mixed forest, and their plant cover may have been somewhat less luxuriant than that of the red members.

In this county the soils that conform to the central concept of Red-Yellow Podzolic soils are the Cahaba, Cuthbert, Kipling, Luverne, and Ruston soils. Of these, the Cahaba, Cuthbert, Luverne, and Ruston soils are red members, and the Kipling soils are yellow members.

Soils in the Ora, Prentiss, Savannah, and Tilden series are Red-Yellow Podzolic soils with a fragipan. Of these soils, the Ora and Tilden are red members, and the Prentiss and Savannah are yellow members.

The Vaiden soils are yellow members of the Red-Yellow Podzolic great soil group, but they intergrade toward the Grumusol great soil group.

CAHABA SERIES

The Cahaba series consists of well-drained soils that developed in old alluvium on stream terraces. The Cahaba soils occur with the Tilden, Prentiss, Stough, and Myatt soils. They are better drained than those soils, however, and lack the fragipan that is characteristic of them. Cahaba soils most nearly resemble the Ruston soils of the uplands.

Profile of Cahaba fine sandy loam in a cultivated field 2 miles west of Amory on U.S. Highway No. 278 at intersection of a local gravel road (NE¼NE¼ sec. 33, T. 12 S., R. 19 W.):

Ap—0 to 8 inches, dark-brown (10YR 3/3) fine sandy loam; very friable; weak, fine, granular structure; few fine roots; strongly acid; abrupt, wavy boundary.

B21t—8 to 14 inches, brown to dark-brown (7.5YR 4/4) heavy sandy loam; friable; weak, medium, subangular blocky structure; few fine roots; contains material from Ap horizon; strongly acid; clear, smooth boundary.

B22t—14 to 29 inches, strong-brown (7.5YR 5/6) loam; friable; moderate, medium, subangular blocky structure; few fine roots; strongly acid; clear, smooth boundary.

B3t—29 to 42 inches, strong-brown (7.5YR 5/6) sandy loam; friable; weak, medium, subangular blocky structure; few fine roots; strongly acid; gradual, smooth boundary.

C2—42 to 60 inches, strong-brown (7.5YR 5/8) loamy sand; very friable; structureless; strongly acid.

CUTHBERT SERIES

The soils of the Cuthbert series are moderately well drained and have a thin, reddish, mottle-free upper B horizon. These soils developed from beds of clays containing lenses of sand. They occur mainly with the Ruston and Luverne soils but are distinguished from them by a thinner, finer textured subsoil. Cuthbert soils occupy fairly large areas in the eastern part of the county along the border of Alabama but are not agriculturally important.

Profile of Cuthbert silt loam in a cultivated field (NE¼ SW¼ sec. 20, T. 13 S., R. 16 W.):

Ap—0 to 6 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; few fine roots; strongly acid; clear, smooth boundary.

B21t—6 to 16 inches, yellowish-red (5YR 5/6) heavy silty clay loam; moderate, medium, angular and subangular blocky structure; firm when moist, plastic and sticky when wet; a few fine and medium roots; strongly acid; clear, smooth boundary.

B22t—16 to 26 inches, yellowish-brown (10YR 5/4) silty clay; few, medium, distinct mottles of red (2.5YR 4/6) and light gray (10YR 6/1); moderate, fine and medium, angular blocky structure; firm when moist, plastic and sticky when wet; strongly acid; clear, smooth boundary.

C—26 to 48 inches, mottled red (2.5YR 4/6), strong-brown (7.5 YR 5/6), and light-gray (10YR 6/1) silty clay; massive (structureless); firm when moist, plastic and sticky when wet, hard when dry; strongly acid.

KIPLING SERIES

In Monroe County the Kipling series consists of moderately well drained soils that formed from sandy clays and clays on stream terraces. These soils occur with the Geiger soils but are browner than those soils and are better drained. They occupy areas near Bigbee and are moderately important to agriculture.

Profile of Kipling silt loam, moderately well drained variant, 2 miles southwest of Bigbee and about 40 feet north of a gravel road (SW¼SW¼ sec. 26, T. 12 S., R. 7 E.):

Ap—0 to 5 inches, dark-brown (7.5YR 3/2) silt loam; weak, fine to medium, granular structure; friable; few fine roots; few, fine, soft, black concretions; worm casts; strongly acid to medium acid; clear, smooth boundary.

B21t—5 to 11 inches, dark-brown (7.5YR 4/4) silty clay loam; weak, fine, subangular blocky structure; friable; few fine roots; common, fine and medium, soft, black concretions; contains material from the Ap horizon brought down through worm action; medium acid; clear, smooth boundary.

B22t—11 to 18 inches, dark-brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; a few fine and medium roots; few, fine, soft, black concretions; strongly acid; clear, smooth boundary.

TABLE 7.--CHARACTERISTICS AND GENETIC RELATIONSHIPS OF SOIL SERIES

ZONAL SOILS

Great soil group and soil series	Brief profile description	Position	Soil drainage	Slope range	Parent material	Degree of profile development
				Percent		
Red-Yellow Podzolic soils (central concept):						
Cahaba----------	Dark-brown, very friable fine sandy loam over structureless, strong-brown loamy sand at depth of 42 to 60 inches.	Terraces--	Good----------	0 to 8	Old loamy Coastal Plain alluvium.	Weak.
Cuthbert----------	Brown, friable silt loam over yellowish-brown and red silty clay loam at depth of 6 to 16 inches; mottled red silty clay at depth of 26 to 48 inches.	Uplands---	Moderately good.	2 to 45	Beds of Coastal Plain clay with lenses of sand.	Weak.
Kipling (moderately well drained variant).	Dark-brown silt loam over silty clay loam; underlain by mottled yellowish-brown loam to silty clay loam.	Terraces--	Moderately good.	0 to 5	Alluvium from fine-textured Coastal Plain soils.	Weak.
Luverne----------	Brown fine sandy loam or sandy loam to depth of 12 inches over dark-red sandy clay to depth of 12 to 34 inches; underlain by sandy clay loam.	Uplands---	Good----------	0 to 45	Thick beds of medium- to coarse-textured Coastal Plain sediments.	Medium.
Ruston----------	Brown fine sandy loam and yellowish-red loam over friable sandy loam at depth of 33 to 60 inches.	Uplands---	Good----------	0 to 45	Thick beds of Coastal Plain loamy sand to sandy clay.	Medium.
Red-Yellow Podzolic soils (with fragipan):						
Ora----------	Brown fine sandy loam over clay loam to a depth of 23 inches; underlain by a fragipan of mottled sandy clay loam, 18 to 24 inches thick.	Uplands---	Moderately good.	2 to 12	Unconsolidated Coastal Plain sand and clay.	Medium.

Prentiss----------	Grayish-brown to yellowish-brown fine sandy loam to loam over a yellowish-brown loam fragipan 5 to 10 inches thick; underlain by mottled yellowish-brown sandy loam.	Terraces--	Moderately good.	0 to 5	Medium-textured Coastal Plain alluvium.	Weak.
Savannah----------	Grayish-brown to yellowish-brown silt loam over a fragipan of yellowish-brown loam; underlain by mottled yellowish-red, brown, and gray loam at depth of 50 to 70 inches.	Uplands---	Moderately good.	0 to 5	Unconsolidated Coastal Plain sand and clay.	Medium.
Tilden----------	Brown fine sandy loam to yellowish-red loam over a fragipan of fine sandy loam 18 inches thick; underlain by mottled red, gray, and brown clay loam at depth of 39 to 61 inches.	Terraces--	Moderately good.	0 to 8	Alluvium from medium-textured Coastal Plain soils.	Weak.
Red-Yellow Podzolic soils (intergrading toward Grumusols):						
Vaiden----------	Grayish-brown silt loam to a depth of 6 inches over mottled brown, yellow, and gray clay; friable to firm when moist and plastic and sticky when wet.	Uplands---	Somewhat poor.	0 to 17	Clay of the Coastal Plain over calcareous material.	Medium.
Reddish-Brown Lateritic soils:						
Greenville--------	Dark-brown loam over friable clay loam to a depth of 60 inches; underlain by dark-red sandy clay loam that is friable when moist and slightly plastic when wet.	Uplands---	Good----------	0 to 8	Fine-textured Coastal Plain sediments.	Medium.
INTRAZONAL SOILS						
Planosols:						
Leaf----------	Dark-brown silt loam, 0 to 3 inches thick over mottled clay loam; friable to firm; many concretions.	Terraces--	Poor----------	0 to 2	Old alluvium of the Coastal Plain.	Weak.
Planosols (with fragipan):						
Mashulaville------	Dark-gray to light-gray silt loam over a fragipan of gray silt loam; underlain by gray silty clay loam to depth of about 20 to 40 inches.	Uplands---	Poor----------	0 to 2	Medium-textured Coastal Plain sediments.	Weak.

TABLE 7.--CHARACTERISTICS AND GENETIC RELATIONSHIPS OF SOIL SERIES--Continued

INTRAZONAL SOILS--Continued

Great soil group and soil series	Brief profile description	Position	Soil drainage	Slope range	Parent material	Degree of profile development
				Percent		
Planosols (with fragipan)--Cont'd.						
Pheba	Brown to yellowish-brown silt loam over a fragipan of mottled loam at depth of 14 inches; underlain by mottled gray loam to clay loam at depth of 47 to 60 inches.	Uplands	Somewhat poor.	0 to 5	Unconsolidated sand and clay of the Coastal Plain.	Weak.
Stough	Dark-brown fine sandy loam over a mottled gray loam fragipan at depth of about 18 inches; underlain by mottled sandy clay loam at depth of 46 to 62 inches.	Terraces	Somewhat poor.	0 to 2	Old alluvium from Coastal Plain soils.	Weak.
Low-Humic Gley soils:						
Geiger	Grayish-brown silty clay over mottled gray clay; massive (structureless); plastic and sticky when wet.	Terraces	Poor	0 to 2	Old clay alluvium.	Weak.
Myatt	Very dark gray fine sandy loam over sandy loam to silty clay loam that extends to depth of 63 inches.	Terraces	Poor	0 to 2	Old sandy alluvium of the Coastal Plain.	Weak.
Tuscumbia	Very dark grayish-brown silty clay over evenly mottled gray clay; very plastic and sticky when wet.	Flood plains.	Poor	0 to 2	Acid and calcareous alluvium of the Coastal Plain.	None.
Una	Dark grayish-brown silty clay over mottled clay loam at depth of 20 to 60 inches.	Flood plains.	Poor	0 to 2	Clayey alluvium of the Coastal Plain.	None.
Grumusols:						
Brooksville	Dark grayish-brown silty clay to depth of about 10 inches over mottled dark grayish-brown to light brownish-gray clay to depth of 60 inches.	Uplands	Somewhat poor.	0 to 5	Thick beds of calcareous material of the Coastal Plain.	Weak.

Houston----------	Very dark gray clay to depth of 10 inches over olive clay; massive (structureless); sticky and plastic when wet.	Uplands---	Moderately good.	0 to 8	Marl, chalk, or calcareous clay.	Weak.
Grumusols (intergrading toward Low-Humic Gley soils):						
Eutaw----------	Dark-gray silty clay over mottled gray clay; very plastic and sticky when wet.	Uplands---	Poor----------	0 to 2	Clay of the Coastal Plain and calcareous soils.	Medium.
Grumusols (intergrading toward Alluvial soils):						
West Point---------	Very dark gray silty clay or clay to depth of 20 inches over mottled very dark gray clay to depth of 20 to 52 inches.	Flood plains.	Moderately good.	0 to 2	Alkaline clay alluvium of the prairie.	None.
			AZONAL SOILS			
Regosols:						
Eustis----------	Dark-brown loamy sand; structureless and loose to depth of about 60 inches.	Terraces--	Somewhat excessive.	0 to 2	Old alluvium consisting of sand and loamy sand.	Weak.
Guin----------	Dark grayish-brown to reddish-brown gravelly sandy loam to depth of 50 inches.	Uplands---	Good to excessive.	5 to 12	Gravelly Coastal Plain sediments.	Weak.
Rendzina soils:						
Sumter----------	Olive silty clay over pale-yellow silty clay to clay to depth of 48 inches; friable when moist and plastic and sticky when wet.	Uplands---	Moderately good.	2 to 17	Chalk, marl, or calcareous clay.	Weak.
Alluvial soils:						
Catalpa----------	Dark grayish-brown and olive-brown silty clay to depth of 36 inches over mottled grayish-brown clay to depth of 63 inches.	Flood plains.	Moderately good.	0 to 2	Alkaline clay alluvium of the prairie.	None.
Houlka----------	Very dark grayish-brown silty clay to depth of 8 inches over mottled grayish-brown to brownish-gray clay.	Flood plains.	Somewhat poor.	0 to 2	Medium-textured Coastal Plain alluvium.	None.

TABLE 7.--CHARACTERISTICS AND GENETIC RELATIONSHIPS OF SOIL SERIES--Continued

AZONAL SOILS--Continued

Great soil group and soil series	Brief profile description	Position	Soil drainage	Slope range	Parent material	Degree of profile development
				Percent		
Iuka----------	Brown fine sandy loam over yellowish-brown sandy loam to depth of 20 inches; underlain by mottled gray to light-gray loam to depth of 50 inches.	Flood plains.	Moderately good.	0 to 2	Medium-textured Coastal Plain alluvium.	None.
Leeper----------	Dark grayish-brown silty clay to depth of 12 inches over mottled gray clay to depth of 62 inches.	Flood plains.	Somewhat poor.	0 to 2	Mixed neutral to alkaline alluvium of the prairie.	None.
Mantachie----------	Dark-brown silt loam to depth of 8 inches over mottled yellowish-brown sandy loam and gray loam to depth of 48 inches.	Flood plains.	Somewhat poor.	0 to 2	Medium-textured Coastal Plain alluvium.	None.
Alluvial soils (intergrading toward Low-Humic Gley soils):						
Bibb----------	Dark-brown silt loam over mottled loam to silty clay loam to depth of 36 to 48 inches.	Flood plains.	Poor----------	0 to 2	Sandy alluvium of the Coastal Plain.	None.

B23t—18 to 27 inches, yellowish-brown (10YR 5/4) heavy loam; few, fine, faint mottles of pale brown (10YR 6/3); weak, medium, subangular blocky structure; friable; a few fine and medium roots; very few, fine, soft, black concretions; many fine voids; very strongly acid; abrupt, smooth boundary.

B24t—27 to 31 inches, yellowish-brown (10YR 5/4) silty clay loam; common, fine, distinct, light brownish-gray (10YR 6/2) and strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; friable; few fine roots; few, fine and medium, soft, black concretions; old root channels filled with dark-brown (10YR 3/3) material; strongly acid; clear, smooth boundary.

B25t—31 to 60 inches, mottled yellowish-brown (10YR 5/4), light brownish-gray (10YR 6/2), and yellowish-red (5YR 5/6) clay loam; moderate, medium, subangular blocky structure; friable to firm; few fine roots; a few fine and medium and a few large, soft, black concretions; strongly acid.

LUVERNE SERIES

The Luverne series consists of well-drained soils that formed from thick beds of acid sandy loams and sandy clay loams containing a few layers of finer or coarser textured sediments. In this county the Luverne soils occur chiefly with the Ruston soils. They differ from Ruston soils in having a redder, finer textured B horizon. Luverne soils are somewhat widely distributed in the eastern part of the county.

Profile of Luverne fine sandy loam in a wooded area along State Route 8, approximately one-half mile northeast of Westville Church of Christ (NE¼NE¼ sec. 13, T. 14 S., R 18 W.):

A1—0 to 6 inches, brown (10YR 5/3) fine sandy loam; weak, medium, granular structure; very friable; many fine roots; strongly acid; abrupt, smooth boundary.

A2—6 to 12 inches, pale-brown (10YR 6/3) sandy loam; weak, medium, granular structure; friable; many fine roots; strongly acid; abrupt, wavy boundary.

B21t—12 to 34 inches, dark-red (10YR 3/6) sandy clay; moderate, medium, subangular blocky structure; friable; a few fine and medium roots; strongly acid; gradual, smooth boundary.

B22t—34 to 60 inches, dark-red (10R 3/6) sandy clay loam; moderate, medium, subangular blocky structure; friable; a few fine and medium roots; strongly acid; gradual, smooth boundary.

B3t—60 to 80 inches, red (10R 4/6) sandy clay loam; weak, medium, subangular blocky structure; friable; pockets of clay; soft black concretions; strongly acid.

RUSTON SERIES

The Ruston series consists of well-drained soils on uplands. These soils formed from thick beds of unconsolidated, acid sandy loams and sandy clay loams that are stratified in places with loams, loamy sands, and sandy clays. The Ruston soils occur with the Luverne, Greenville, Ora, Savannah, Pheba, and Cuthbert soils, and they lack the fragipan that is characteristic of the Pheba, Ora, and Savannah soils. Also, the B horizon of Ruston soils is redder than that of Pheba and Savannah soils and is coarser textured than that of Greenville and Cuthbert soils. Ruston soils are widely distributed in the county and are agriculturally important.

Profile of Ruston fine sandy loam in a cultivated field 150 feet west of a gravel road (NE¼NE¼ sec. 21, T. 13 S., R. 17 W.):

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

B21t—8 to 20 inches, yellowish-red (5YR 4/6) loam; moderate, fine and medium, subangular blocky structure; friable; few fine roots; strongly acid; clear, smooth boundary.

B22t—20 to 33 inches, yellowish-red (5YR 4/6) loam or fine sandy loam; moderate, fine and medium, subangular blocky structure; friable; few fine roots; strongly acid; clear, smooth boundary.

B3t—33 to 60 inches, yellowish-red (5YR 4/8) sandy loam; weak to moderate, medium, subangular blocky structure; friable; coating of manganese on peds; strongly acid.

ORA SERIES

In the Ora series are moderately well drained soils that have a fragipan. These soils developed from beds of acid sandy loam to clay loam. The Ora soils occur with the Ruston, Greenville, Savannah, Pheba, and Cuthbert soils. Ora soils have a fragipan like that in Savannah and Pheba soils, but they are better drained than those soils, and their fragipan is at a somewhat greater depth. The Ora soils differ from the Ruston and Greenville soils, which lack a fragipan, and from the Cuthbert soils by having a fragipan and a coarser textured B horizon. Ora soils are extensive in this county and are agriculturally important.

Profile of Ora fine sandy loam in a cultivated field 3½ miles east of Amory and 200 feet north of U.S. Highway No. 278 (SE¼SE¼ sec. 5, T. 13 S., R. 18 W.):

Ap—0 to 7 inches, brown to dark-brown (10YR 4/3) fine sandy loam that has high content of sand; weak, fine, granular and weak, medium, subangular blocky structure; very friable; few fine roots; few, fine, brown and black concretions; undecayed crop residue in lower part; strongly acid; clear, smooth boundary.

B21t—7 to 19 inches, strong-brown (7.5YR 5/6) heavy loam or clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine and medium, black and brown concretions; strongly acid; clear, smooth boundary.

B22t—19 to 23 inches, strong-brown (7.5YR 5/6) heavy loam or clay loam; common, medium, prominent mottles of dark red (2.5YR 3/6); moderate, fine, subangular blocky structure; friable; few, fine and medium, black and brown concretions; strongly acid; gradual, smooth boundary.

B24tx—23 to 35 inches, mottled dark-red (10R 3/6), yellowish-brown (10YR 5/4), and light-gray to gray (10YR 6/1) sandy clay loam; many, medium and coarse, distinct and prominent mottles; moderate, thick and very thick, platy structure; breaks to moderate, medium, subangular blocky structure; compact and brittle; firm when dry; horizon consists of thin horizontal beds of gray, dark-red, and yellowish-brown material; few fine voids; strongly acid, gradual, smooth boundary.

B25tx—35 to 42 inches, mottled dark-red (10R 3/6), light-gray (10YR 6/1), and yellowish-brown (10YR 5/4) sandy clay loam; many, medium and coarse, distinct and prominent mottles; moderate, thick and very thick, platy structure; compact and brittle; firm when dry; horizontal bedding not so strong as in horizon above; few fine voids; strongly acid; clear, smooth boundary.

B31—42 to 53 inches, dark-red (2.5YR 3/6 to 10R 3/6) sandy clay loam; common, medium and coarse, prominent, yellowish-brown (10YR 5/4) mottles; many mottles in old root channels and wormholes; weak, coarse, angular and subangular blocky structure; friable; few vertical cracks of yellowish-brown (10YR 5/4) sandy clay loam; strongly acid; diffuse, smooth boundary.

B32—53 to 65 inches, dark-red (10R 3/6) light sandy clay loam; common, medium and coarse, distinct and prominent mottles of yellowish brown (10YR 5/4) and pale brown (10YR 6/3); weak, coarse, angular and subangular blocky structure; friable.

PRENTISS SERIES

The Prentiss series consists of moderately well drained soils that have a fragipan. These soils occupy stream terraces that are made up of old alluvium from the Ruston, Luverne, Ora, Savannah, Pheba, and Cuthbert soils of the Coastal Plain upland. They are widely distributed in the county and are agriculturally important.

The Prentiss soils are members of the catena that includes the well-drained Cahaba soils, the moderately well drained Tilden soils, the somewhat poorly drained Stough soils, and the poorly drained Myatt soils. Prentiss soils are more mottled in the lower solum than the Cahaba soils, which lack a fragipan.

Profile of Prentiss fine sandy loam in a cultivated field 3 miles north of Hamilton on the west side of a local gravel road (SE¼NW¼ sec. 18, T. 15 S., R. 18 W.):

Ap—0 to 9 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, fine, granular structure; friable; few fine roots; some worm action; strongly acid; clear, smooth boundary.

B21—9 to 14 inches, yellowish-brown (10YR 5/4) loam; weak, fine and medium, subangular blocky structure; friable; few fine roots; much worm action; contains grayish-brown (10YR 5/2) material from the Ap horizon; strongly acid; clear, smooth boundary.

B22—14 to 22 inches, yellowish-brown (10YR 5/8) loam; weak, medium, subangular blocky structure; friable; few fine roots; few, fine, hard, brown concretions; through worm action contains strong-brown (7.5YR 5/6) material; strongly acid; clear, wavy boundary.

B23x5—22 to 27 inches, yellowish-brown (10YR 5/4) loam; few and common, medium, distinct mottles of strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2); moderate, medium, subangular blocky structure; compact and brittle; friable or firm when moist, hard when dry; few fine roots; very strongly acid; clear, wavy boundary.

B24xt—27 to 42 inches, mottled yellowish-brown (10YR 5/6), light-gray to gray (10YR 6/1), and dark-brown (10YR 4/3) heavy loam; moderate, medium, subangular blocky structure; compact and brittle; friable or firm when moist; few, fine, soft, brown concretions; very strongly acid; gradual, wavy boundary.

C—42 to 64 inches, mottled yellowish-brown (10YR 5/4), gray (10YR 6/1), and strong-brown (7.5YR 5/6) sandy loam; structureless; friable; few, fine, brown concretions; very strongly acid.

SAVANNAH SERIES

Moderately well drained soils that have a fragipan make up the Savannah series. These soils developed from beds of acid sandy loam to clay loam. Savannah soils occur with the Ruston, Ora, Pheba, and Mashulaville soils. The Savannah soils are yellower than the Ruston soils, which lack a fragipan. The subsoil of Savannah soils is yellowish brown, whereas the subsoil of Ruston and Ora soils is strong brown to yellowish red and that of Mashulaville soils is gray. Savannah soils are better drained than the Pheba and Mashulaville soils. The Savannah soils are extensive and agriculturally important.

Profile of Savannah silt loam in a cultivated field about 2 miles northeast of Hatley and about 100 yards east of Christian Chapel Church of Christ near a local gravel road (SE¼NE¼ sec. 26, T. 12 S., R. 18 W.):

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium, granular structure; friable; common fine roots; strongly acid; clear, smooth boundary.

B21—8 to 12 inches, strong-brown (7.5YR 5/8) silt loam; weak, medium. subangular blocky structure; friable; few fine roots; some decomposed roots; strongly acid; clear, smooth boundary.

B22—12 to 22 inches, yellowish-brown (10YR 5/8) heavy silt loam; weak, medium, subangular blocky structure; friable; few fine roots; very few, medium, hard, brown concretions; strongly acid; abrupt, smooth boundary.

B23x—22 to 30 inches, yellowish-brown (10YR 5/6) loam; few, fine, faint mottles of light brownish gray (10YR 6/2); moderate, medium, subangular blocky structure; compact and brittle; friable when moist, hard when dry; common, medium, hard, brown and black concretions; strongly acid; clear, smooth boundary.

B24tx—30 to 50 inches, mottled yellowish-brown (10YR 5/8), gray to light-gray (10YR 6/1), and yellowish-red (5YR 4/8) loam; moderate, medium, angular and subangular blocky structure; compact and brittle; friable when moist, hard when dry; few fine pieces of gravel; common, fine and medium, soft, black concretions; strongly acid; clear, smooth boundary.

B25t—50 to 70 inches, mottled yellowish-brown (10YR 5/8), red (2.5YR 4/8), yellowish-red (5YR 4/8), and gray (10YR 6/1) loam; moderate, angular and subangular blocky structure; friable; few, fine, soft, brown concretions in upper part; strongly acid.

TILDEN SERIES

The Tilden series consists of moderately well drained soils that have a fragipan. These soils developed on stream terraces in old alluvium that washed from the Ruston, Luverne, Ora, Savannah, Pheba, Cuthbert, and other soils of the Coastal Plain upland. Tilden soils are widely distributed in the county and are agriculturally important.

The Tilden soils are members of the catena that includes the well-drained Cahaba soils, the moderately well drained Prentiss soils, the somewhat poorly drained Stough soils, and the poorly drained Myatt soils. The fragipan of the Tilden soils is absent in the Cahaba soils. Tilden soils differ from Prentiss, Stough, and Myatt soils in having a darker B horizon that is free of mottles. The Tilden soils are better drained than the Stough and Myatt soils.

Profile of Tilden fine sandy loam in a cultivated field about 25 feet south of a local gravel road just east of the Monroe County airport (SW¼SE¼ sec. 1, T. 14 S., R. 19 W.):

Ap—0 to 5 inches, brown (10YR 5/3) fine sandy loam containing much sand; moderate, medium, granular structure; friable; common fine roots; contains brown to dark-brown (7.5YR 4/4) material brought up from B1 horizon; some worm action; strongly acid; abrupt, smooth boundary.

B1—5 to 11 inches, brown to dark-brown (7.5YR 4/4) loam; weak, fine to medium, subangular blocky structure; friable; few fine roots; worm channels filled with brown (10YR 5/3) material from Ap horizon; strongly acid; clear, smooth boundary.

B21t—11 to 21 inches, yellowish-red (5YR 4/6) heavy loam; moderate, medium, subangular blocky structure; friable; few fine roots; much worm action; many fine voids; few, soft, black concretions; strongly acid; clear, wavy boundary.

B22x and A'2x—21 to 39 inches, mottled brown to dark-brown (7.5YR 4/4) and light-gray to gray (7.5YR N 6/0) fine sandy loam; essentially structureless; compact; friable when moist, hard when dry; manganese coatings; few, medium, soft, brown concretions and few, fine, soft, black concretions; few sand pockets; strongly acid; clear, smooth boundary.

B'23tx—39 to 61 inches, mottled red (2.5YR 4/8), light-gray (7.5YR N 6/0), and yellowish-brown (10YR 5/6) clay loam; massive (structureless); firm; few, medium, soft, brown concretions and few, fine, soft, black concretions; strongly acid.

VAIDEN SERIES

The Vaiden series consists of somewhat poorly drained, fine-textured soils that developed in beds of acid clays over thick beds of calcareous material. The Vaiden are Red-Yellow Podzolic soils that intergrade toward Grumusols. They are rather widely distributed in the western part of the county and are important to agriculture.

The Vaiden soils occur on the prairie with the Eutaw, Brooksville, Houston, and Sumter soils. They are better drained than the Eutaw soils and are more yellow, brown, and red in the upper part of the solum. In the Vaiden soils the subsoil is yellowish brown, but in the Brooksville soils, it is grayish brown. Vaiden soils are strongly acid, whereas the moderately well drained Houston and Sumter soils are alkaline.

Profile of Vaiden silt loam in a cultivated field 2 miles west of State Route 45W at Muldon and 300 feet north of a local road (300 feet north and 560 feet west of the SE. corner of SE¼SW¼ sec. 33, T. 15 S., R. 6 E.) :

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam; many, fine, faint and distinct mottles of light brownish gray (2.5Y 6/2) and strong brown (7.5YR 5/8); moderate, fine, granular structure and weak, very fine and fine, subangular blocky structure; friable when moist, slightly plastic when wet; many root and worm channels filled with very pale brown (10YR 7/4) and gray (10YR 6/1) silt loam; many fine roots, some partly decayed organic matter; few small concretions; strongly acid; abrupt, smooth boundary.

A2—4 to 6 inches, mottled brownish-yellow (10YR 6/8), pale-brown (10YR 6/3), and some red (2.5YR 5/8) silt loam; weak, fine and medium, subangular blocky structure and moderate, fine, granular structure; friable when moist, slightly plastic and slightly sticky when wet; numerous roots; very strongly acid; abrupt, smooth boundary.

B21—6 to 12 inches, mottled red (2.5YR 4/8), pale-brown (10 YR 6/3), and gray (10YR 6/1) silty clay; mottles are many, fine and medium, and prominent; moderate and strong, very fine to medium, angular blocky and subangular blocky structure; friable when moist, very plastic and sticky when wet; a few coarse roots and numerous fine roots; very strongly acid; clear, smooth boundary.

B22g—12 to 19 inches, mottled gray (10YR 6/1), red (2.5YR 4/8), and strong-brown (7.5YR 5/8) silty clay or clay; moderate, very fine to medium, subangular and angular blocky structure; friable when moist, very plastic and very sticky when wet; a few coarse roots and numerous fine roots; root channels filled with light-gray (10YR 7/2) silty clay; very strongly acid; gradual, wavy boundary.

B23g—19 to 35 inches, gray (5Y 6/1) clay; many, fine and medium, prominent, strong-brown (7.5YR 5/8) and few yellowish-red (5YR 4/8) mottles; moderate, very fine to medium, subangular and angular blocky structure; friable when moist, very sticky and very plastic when wet; few, small, weak slickensides; numerous fine roots; strongly acid; clear, wavy boundary.

C1—35 to 49 inches, mottled yellowish-brown (10YR 5/8) and gray (10YR 6/1) clay; moderate, very fine to medium, angular and subangular blocky structure; friable or firm when moist, very sticky and very plastic when wet; many slickensides; many small concretions of manganese; root channels filled with gray clay; few fine voids; strongly acid; gradual, wavy boundary.

C2—49 to 58 inches, brownish-yellow (10YR 6/6) to yellowish-brown (10YR 5/8) clay; common, fine and medium, prominent, gray (2.5Y N 6/0) mottles; ped faces coated with gray (5Y 6/1); moderate, very fine to medium, angular and subangular blocky structure; friable to firm when moist, very plastic and very sticky when wet; many slickensides; many fine concretions and coatings of manganese throughout horizon; few fine roots; strongly acid; gradual, wavy boundary.

C3—58 to 67 inches, brownish-yellow (10YR 6/6) clay; many, faint and prominent, yellowish-brown (10YR 5/8) and light brownish-gray (2.5Y 6/2) mottles; moderate, very fine to medium, angular and subangular blocky structure; friable when moist, very plastic and very sticky when wet; many slickensides; many nodules of lime, and few concretions of manganese; few fine roots; mildly alkaline.

Reddish-Brown Lateritic soils

The Reddish-Brown Lateritic soils have a dark reddish-brown surface soil, a B horizon of red, friable clay, and red or reticulately mottled, lateritic parent material. These soils developed in a humid, tropical climate that has wet and dry seasons. Development took place under forest vegetation, and the soil-forming process was laterization (*13*). In Monroe County the only Reddish-Brown Lateritic soils are the Greenville soils. They formed dominantly in clay, silty clay, and sandy clay and are nearly level to moderately sloping.

GREENVILLE SERIES

The Greenville series consists of well-drained, reddish-brown soils that formed in sandy clays and clay loams. These soils occur with the Ruston and Ora soils but are redder and have a finer textured subsoil than those soils. They lack the fragipan that is in Ora soils. Although the Greenville soils are not extensive in the county, they are important to agriculture.

Profile of Greenville loam near a gravel road 3½ miles southwest of Greenwood Springs (NW¼NW¼ sec. 16, T. 14 S., R. 17 W.) :

Ap—0 to 6 inches, dark-brown (7.5YR 3/2) loam; weak, fine and medium, granular structure; very friable; few fine roots; few worm casts; abrupt, smooth boundary.

A3—6 to 9 inches, dark reddish-brown (5YR 3/4) loam; weak, fine and medium, granular structure and medium, subangular blocky structure; friable; few fine roots; few worm casts; clear, smooth boundary.

B21t—9 to 21 inches, dark reddish-brown (2.5YR 3/4) light clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine, soft, black concretions and coatings; few worm casts; gradual, smooth boundary.

B22t—21 to 35 inches, dark reddish-brown (2.5YR 3/4) clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; common, fine, soft, black concretions; common, fine and medium, black coatings; few fine pieces of quartz gravel; gradual, smooth boundary.

B23t—35 to 61 inches, dark reddish-brown (2.5YR 3/4) to dark-red (2.5YR 3/6) clay loam; moderate, coarse and medium, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few, fine, soft, black concretions and coatings; few fine pieces of quartz gravel; patchy clay films on ped faces and in cracks; diffuse, smooth boundary.

B24t—61 to 80 inches, dark-red (10R 3/6) sandy clay loam; moderate, coarse, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few fine pieces of quartz gravel; patchy clay films in cracks and on ped faces.

Planosols

Planosols have one or more horizons that are cemented or have a high content of clay and, as a consequence, are abruptly separated from and sharply contrasting to an

adjacent underlying horizon. These soils developed on nearly level uplands and terraces under grass or forest (*12*).

In Monroe County the Leaf, Mashulaville, Pheba, and Stough soils are classified as Planosols. The Leaf soils have a subsoil high in clay content, but the other soils have a fragipan.

LEAF SERIES

The Leaf series consists of poorly drained soils on stream terraces that formed in alluvium washed from the Cuthbert, Ora, Savannah, and other soils. Leaf soils are finer textured than the Myatt soils and are more poorly drained than the Kipling soils. The Leaf soils occur in only small areas and are not important agriculturally.

Profile of Leaf silt loam in a cultivated field about 1 mile west of Bigbee and 50 feet north of a gravel road (SW¼SW¼ sec. 23, T. 12 S., R. 7 E.):

Ap—0 to 3 inches, dark-brown (10YR 3/3) silt loam; few, medium, faint mottles of grayish brown (10YR 5/2); weak, fine and medium, granular structure; friable; many fine roots; grass stains; strongly acid; clear, smooth boundary.

B21tg—3 to 20 inches, mottled light brownish-gray (10YR 6/2) and yellowish-brown (10YR 5/8) clay loam; moderate, medium, angular and subangular blocky structure; friable; few fine roots; common, soft, brown concretions; strongly acid; clear, smooth boundary.

B22tg—20 to 48 inches, light-gray to gray (10YR 6/1) silty clay loam; common, fine, distinct mottles of yellowish brown (10YR 5/6); moderate, fine, angular and subangular blocky structure; friable or firm; many, fine to large, soft, brown and black concretions; few fine roots; strongly acid.

MASHULAVILLE SERIES

The Mashulaville series consists of poorly drained soils that have a fragipan. These level or nearly level soils developed from Coastal Plain material on upland. Mashulaville soils are the poorly drained members of the catena that includes the Ruston, Ora, Savannah, and Pheba soils. Mashulaville soils are similar to the Pheba soils in texture and profile development but are more poorly drained. They have a small total acreage in this county and are not agriculturally important.

Profile of Mashulaville silt loam in a cultivated field 2½ miles northeast of Hatley and half a mile south of bend in gravel road (NW¼SE¼ sec. 26, T. 12 S., R. 18 W.):

Ap—0 to 5 inches, dark grayish-brown (2.5Y 4/2) silt loam; weak, medium, granular structure; friable; many fine roots; root stains of yellowish red (5YR 4/8); very strongly acid; clear, smooth boundary.

A21g—5 to 13 inches, gray (10YR 6/1) silt loam; few, coarse, prominent, mottles of yellowish brown (10YR 5/8); weak, medium, subangular blocky structure; friable; few fine roots; very strongly acid; clear, smooth boundary.

A22gx and B21xg—13 to 20 inches, mottled gray (10YR 5/1) and strong-brown (7.5YR 5/6) heavy silt loam; weak, medium, subangular blocky structure; compact; friable when moist, hard when dry; few fine roots; very strongly acid; abrupt, smooth boundary.

B22txg—20 to 32 inches, dark-gray (10YR 4/1) silty clay loam; common, medium, distinct mottles of yellowish brown (10YR 5/8); weak, fine, angular and subangular blocky structure; compact and brittle; friable when moist, hard when dry, slightly sticky and slightly plastic when wet; few fine roots; very strongly acid; clear, smooth boundary.

Cg—32 to 62 inches, gray to dark-gray (10YR 5/1 to 10YR 4/1) loam; few, medium, distinct mottles of yellowish brown (10YR 5/8); structureless; friable when moist, hard when dry; very strongly acid; contains some gray (10YR 6/1) material.

PHEBA SERIES

In the Pheba series are somewhat poorly drained soils that have a fragipan. These soils developed from beds of acid sandy loam to clay loam. Pheba soils occur with the Ora, Ruston, Savannah, and Mashulaville soils. They are more poorly drained than the Ora, Ruston, and Savannah soils but are better drained and darker colored than the Mashulaville soils. The fragipan that occurs in the Pheba soils is lacking in the Ruston soils. Pheba soils are extensive and are important agriculturally.

Profile of Pheba silt loam in a cultivated field about 2 miles south of Smithville and about one-fourth mile from a gravel road (NW¼NE¼ sec. 18, T. 12 S., R. 9 E.):

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

B21—5 to 14 inches, yellowish-brown (10YR 5/6) silt loam; weak, medium, subangular blocky structure; friable; worm channels filled with brown (10YR 5/3) material from Ap horizon; few fine roots; few, medium, soft, brown concretions; strongly acid; clear, smooth boundary.

B'22x and A'2x—14 to 23 inches, yellowish-brown (10YR 5/4) loam; few, medium, distinct mottles of light brownish gray (10YR 6/2) and dark yellowish brown (10YR 4/4); moderate, medium, subangular blocky structure; compact and brittle; friable when moist, hard when dry; few fine roots; few, medium, soft, black concretions; few small pieces of quartz gravel; strongly acid; clear, smooth boundary.

B'23tx—23 to 33 inches, mottled yellowish-brown (10YR 5/4), dark yellowish-brown (10YR 4/4), and light brownish-gray (10YR 6/2) loam; moderate, medium, subangular blocky structure; compact; friable when moist, hard when dry; few fine voids; common pieces of fine quartz gravel; few, medium, soft, brown concretions; strongly acid; clear, smooth boundary.

B'24txg—33 to 47 inches, light brownish-gray (10YR 6/2) loam; common, medium, distinct mottles of brownish yellow (10YR 6/8 to 5/8) and dark yellowish brown (10YR 4/4); moderate, medium, subangular blocky structure; compact and brittle; friable when moist, hard when dry; many fine and medium pieces of quartz gravel; few, soft, brown concretions; strongly acid; clear, smooth boundary.

B'3g—47 to 60 inches, mottled gray (10YR 6/1), yellowish-brown (10YR 5/8), and dark-gray (10YR 4/1) loam to clay loam; moderate, fine and medium, angular and subangular blocky structure; friable; strongly acid.

STOUGH SERIES

The Stough series consists of somewhat poorly drained soils that have a fragipan. These soils occupy stream terraces that consist of old alluvium washed from the Ruston, Luverne, Ora, Pheba, Savannah, Cuthbert, and other soils of the Coastal Plain upland. The Stough soils are members of the catena that includes the well-drained Cahaba soils, the moderately well drained Tilden soils, and the poorly drained Myatt soils. The Stough soils are yellow and have a mottled B horizon, whereas the Cahaba and Tilden soils are yellowish red and brown. Stough soils are widely distributed but are not agriculturally important.

Profile of Stough fine sandy loam in a cultivated field 2 miles south of Becker and 50 feet east of State Route 25 (SE¼SE¼ sec. 30, T. 13 S., R. 18 W.):

Ap—0 to 6 inches, dark-brown (10YR 3/3) fine sandy loam; weak, medium, granular structure; friable; common fine roots; few, fine, soft, brown concretions; slightly acid; abrupt, smooth boundary.

B21—6 to 12 inches, yellowish-brown (10YR 5/4) silt loam; few, fine, faint mottles of yellowish brown (10YR 5/8); weak, medium, granular structure; friable; few fine roots; contains material from the Ap horizon brought down by worm action; few, fine, soft, brown concretions; strongly acid; clear, smooth boundary.

B22—12 to 18 inches, yellowish-brown (10YR 5/4) loam; common, distinct mottles of strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2); weak, medium, subangular blocky structure; friable; few fine roots; few, fine and coarse, soft, brown concretions; many viscous pores; root channels filled with Ap material; strongly acid; clear, smooth boundary.

A'2xg and B'23xg—18 to 26 inches, mottled light brownish-gray (10YR 6/2), yellowish-brown (10YR 5/8), and strong-brown (7.5YR 5/6) loam; moderate, medium, angular and subangular blocky structure; compact and brittle; friable when moist, hard when dry; many pores and voids; many, fine to coarse, soft, brown and black concretions; strongly acid; clear, wavy boundary.

B'24xtg—26 to 46 inches, mottled light brownish-gray (10YR 6/2), light-gray to gray (10YR 6/1), and dark yellowish-brown (10YR 4/4) loam; moderate, medium, angular and subangular blocky structure; compact in places; friable when moist, hard when dry; many pores and voids; few, large, soft, brown concretions; strongly acid; clear, smooth boundary.

Cg—46 to 62 inches, mottled strong-brown (7.5YR 5/8), light gray to gray (10YR 6/1) sandy clay loam; structureless; friable to firm; unconsolidated sandy loam and clay; strongly acid.

Low-Humic Gley soils

This great soil group consists of poorly drained soils that occupy nearly level and depressional areas and developed in humid regions under mixed grass and forest. These soils have a brown or dark-brown surface layer that is underlain by light-gray material. Gleization has dominated in their formation (*12*).

In Monroe County the Geiger, Myatt, Tuscumbia, and Una soils are in this great soil group. All of these soils developed in general alluvium.

GEIGER SERIES

Soils of the Geiger series are poorly drained and occupy terraces along streams that drain or flow through the prairie section of the county. These soils developed in alluvium that washed from the Vaiden, Eutaw, Brooksville, and other soils. The Geiger soils are in small areas and are of limited agricultural importance.

Profile of Geiger silty clay on south side of a local paved road 5 miles northwest of Aberdeen and three-fourths mile west of U.S. Highway No. 45 (SW¼SW¼ sec. 31, T. 13 S., R. 7 E.):

Ap—0 to 4 inches, grayish-brown (2.5Y 5/2) silty clay; weak, fine, subangular blocky structure; friable or firm when moist, sticky and plastic when wet; many fine roots; medium acid; clear, smooth boundary.

C1g—4 to 17 inches, mottled light-gray (5Y 6/1) and strong-brown (7.5YR 5/6) silty clay; massive (structureless) breaking to weak, fine, subangular blocky structure; plastic and sticky when wet; few fine roots; strongly acid; gradual, wavy boundary.

C2g—17 to 30 inches, mottled gray (10YR 6/1) and strong-brown (7.5YR 5/6) clay; massive (structureless) breaking to weak, fine, subangular blocky structure; firm when moist, plastic and sticky when wet; few fine roots; medium acid; gradual, wavy boundary.

C3g—30 to 68 inches, gray (N 6/0) clay; common, medium, prominent mottles of strong brown (7.5YR 5/8); massive (structureless); firm when dry, very sticky and very plastic when wet; few, fine, hard, brown concretions; few, fine, fibrous roots; medium acid in upper part and mildly alkaline with a few medium nodules of lime in lower part.

MYATT SERIES

The Myatt series consists of poorly drained soils on stream terraces. These soils developed in alluvium that washed from the Ruston, Ora, Savannah, Pheba, Cuthbert, and other soils. Myatt soils are coarser textured than the Leaf soils and are more poorly drained than the Stough, Prentiss, Tilden, and Cahaba soils. The Myatt soils are widely distributed in the eastern half of the county but are not important agriculturally.

Profile of Myatt fine sandy loam in a pasture on the north side of road to chemical plant, one-fourth mile west of U.S. Highway No. 45 and half a mile south of Hamilton (SW¼SW¼ sec. 29, T. 15 S., R. 18 W.):

Ap—0 to 5 inches, very dark gray (10YR 3/1) fine sandy loam; weak, fine, granular structure; friable; common fine roots; contains gray (10YR 5/1) material possibly brought up from underlying horizon by worm action; strongly acid; clear, smooth boundary.

A21g—5 to 10 inches, light brownish-gray (10YR 6/2) sandy loam; weak, fine, granular structure; friable; common fine roots; worm channels filled with very dark gray (10YR 3/1) material from Ap horizon; strongly acid; clear, wavy boundary.

A22g—10 to 17 inches, gray (10YR 6/1) fine sandy loam; few, coarse, distinct mottles of yellowish brown (10YR 5/6); essentially structureless; compact; friable when moist, hard when dry; few fine roots; strongly acid; clear, smooth boundary.

B21tg—17 to 22 inches, gray (10YR 5/1) loam; common, coarse, distinct mottles of yellowish brown (10YR 5/6) and few, fine, distinct mottles of strong brown (7.5YR 5/6); moderate, medium, angular and subangular blocky structure; friable when moist, hard when dry; few coarse roots; vesicular pores; pockets of clay loam; few fine roots; strongly acid; clear, smooth boundary.

B22tg—22 to 63 inches, gray (10YR 5/1) silty clay loam; common, fine and medium, yellowish-brown (10YR 5/6) mottles; moderate, medium, angular and subangular blocky structure; firm; few fine roots; pockets of sand.

TUSCUMBIA SERIES

The Tuscumbia series consists of poorly drained, neutral to calcareous soils in the prairie section of the county. These soils formed in alluvium on stream flood plains from mixed acid and calcareous Coastal Plain materials that washed from the Houston, Sumter, Vaiden, Eutaw, Ruston, Ora, Savannah, Pheba, and other soils. The Tuscumbia soils occur with the Leeper, Houlka, and Una soils and, unlike the acid Una soils, are neutral to calcareous in reaction. Tuscumbia soils are widely distributed in the western part of the county and are of limited importance to agriculture.

Profile of Tuscumbia silty clay in a cultivated field south of Tallabinnela Creek, about 100 feet east of gravel road and about 3 miles north of State Route 41 on the Chickasaw County line (SW¼SW¼ sec. 18, T. 12 S., R. 6 E.):

Ap—0 to 4 inches, very dark grayish-brown (10YR 3/2) silty clay; moderate, fine and medium, granular structure; friable when moist, sticky and plastic when wet; common fine roots; mildly alkaline; clear, smooth boundary.

C1g—4 to 10 inches, gray (5Y 5/1) clay loam; many, fine and medium, distinct mottles of yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6); massive (structureless) when moist or wet and breaks to moderate, fine and medium, angular blocky and subangular blocky structure when slightly moist or dry; friable or firm when moist, very plastic and very sticky when wet; few, fine, soft, brown concretions; few fine roots; contains material from the Ap horizon in root and worm channels; mildly alkaline; gradual, smooth boundary.

C2g—10 to 50 inches, mottled gray (5Y 5/1), yellowish-brown (10YR 5/4), and strong-brown (7.5YR 5/6) clay loam or clay; many, fine and medium, distinct mottles; massive (structureless) when moist or wet and breaks to moderate, fine and medium, angular blocky and subangular blocky structure when slightly moist or dry; firm when moist, very plastic and very sticky when wet; common, fine, soft, brown concretions and few, fine, black concretions; few fine roots; few root and worm channels filled with material from the Ap horizon; mildly alkaline.

UNA SERIES

The Una series consists of poorly drained, acid soils on flood plains in the prairie section of the county. These soils formed in alluvial materials that washed from the Houston, Brooksville, Sumter, Ruston, Ora, Savannah, Pheba, and other soils. The Una soils occur with the Leeper, Houlka, and Tuscumbia soils. They are more poorly drained than the Leeper and Houlka soils and differ from the Tuscumbia soils, which are neutral to calcareous. The Una soils are widely distributed in the western part of the county but are of limited importance to agriculture.

Profile of Una silty clay in a cultivated field about 3 miles north of the intersection of State Route 41 and the Chickasaw County line, about 100 feet east of a gravel road and 100 feet south of Tallabinnela Creek (SW¼-SW¼ sec. 18, T. 12 S., R. 6 E.):

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) silty clay; weak, medium, granular structure; friable; common, fine, fibrous roots; strongly acid; contains yellowish-brown (10YR 5/6) materials; abrupt, smooth boundary.

ACg—5 to 20 inches, mottled light brownish-gray (10YR 6/2), yellowish-red (5YR 4/8), and strong-brown (7.5YR 5/6) silty clay loam; structureless; friable when moist, slightly sticky and slightly plastic when wet; few, fine, fibrous roots; few, fine, soft, black concretions; root channels filled with gray (10YR 5/1); worm casts; strongly acid; clear, smooth boundary.

Cg—20 to 57 inches, mottled light-gray to gray (10YR 6/1), yellowish-brown (10YR 5/6), and yellowish-red (5YR 5/6) clay loam; massive (structureless); firm when moist, plastic and sticky when wet; few medium roots; a few fine and a few, large, soft, black concretions; strongly acid.

Grumusols

Grumusols are dominated by montmorillonitic clay. They are typically clay in texture, lack eluvial and illuvial horizons, have moderate to strong, granular structure in the upper horizons, and have a high coefficient of expansion on wetting and of contraction on drying. Calcium and magnesium are the dominant exchangeable bases. Because of their high coefficients of expansion and contraction, Grumusols swell and shrink markedly as the moisture content changes. During this swelling and shrinking, material from the upper horizons drops into lower ones. Thus, the soils are churned or mixed continually, a process that partly prevents horizon differentiation.

Soils of the Brooksville and Houston series are the members of this great soil group in Monroe County. Soils of the Eutaw series intergrade toward the Low-Humic Gley great soil group. Soils of the West Point series intergrade toward the Alluvial great soil group.

BROOKSVILLE SERIES

The Brooksville series consists of somewhat poorly drained, acid soils that developed over thick beds of calcareous material. These soils adjoin the Houston and Vaiden soils in the western part of the county. Brooksville soils lack the lime concretions that generally occur in the upper horizons of the Houston soils, and they are more acid and less well drained than those soils. The Brooksville soils are in fairly large areas and are important to agriculture in the county.

Profile of Brooksville silty clay in a cultivated field along the county-line road, 2 miles northeast of Egypt, Chickasaw County (SE¼NW¼ sec. 19, T. 13 S., R. 6 E.):

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silty clay; moderate, medium, granular structure; friable when moist, hard when dry, sticky and plastic when wet; few fine roots; strongly acid; clear, smooth boundary.

A12—8 to 23 inches, very dark grayish-brown (10YR 3/2) clay; common, medium, prominent, red (10YR 4/6) mottles; moderate, medium, subangular blocky structure; firm when moist, hard when dry, sticky and plastic when wet; few, fine, soft, brown concretions; few fine roots; medium acid; clear, smooth boundary.

AC—23 to 32 inches, dark grayish-brown (2.5Y 4/2) clay; many, fine and medium, distinct, yellowish-red (5YR 5/6) mottles; moderate, medium, subangular blocky structure; firm when moist, hard when dry, sticky and plastic when wet; few, soft, brown concretions; neutral; clear, smooth boundary.

C1—32 to 42 inches, yellowish-brown (10YR 5/6) clay; many, fine, faint, light brownish-gray (10YR 6/2) mottles; moderate, medium, subangular blocky structure; firm when moist, very sticky and plastic when wet; common slickensides; few, fine and medium, brown and black concretions; mildly alkaline; clear, smooth boundary.

C2—42 to 60 inches +, mottled yellowish-brown (10YR 5/6) and light brownish-gray (10YR 6/2) clay; moderate, medium, subangular blocky structure; firm when moist, very sticky and plastic when wet; common slickensides; few, fine and medium, brown and black concretions; few lime concretions; mildly alkaline.

HOUSTON SERIES

The Houston series consists of moderately well drained soils that developed from marl or strongly calcareous clay. These soils occur with the Brooksville soils but are darker colored than those soils and are neutral to mildly alkaline instead of acid. Houston soils are extensive in the prairie section of the county and are agriculturally important.

Profile of Houston clay in a pasture three-fourths mile northwest of Muldon on State Route 45W and 50 feet west of a gravel road (SE¼NE¼ sec. 33, T. 15 S., R. 6 E.):

Ap—0 to 10 inches, very dark gray (5Y 3/1) clay; massive (structureless) breaking to strong, fine, subangular blocky structure; firm when moist, sticky and plastic when wet; common fine roots; few, fine, hard, brown concretions; few large nodules of lime; mildly alkaline; clear, wavy boundary.

AC1—10 to 26 inches, olive (5Y 4/3) clay; massive (structureless) breaking to moderate, fine and medium, subangular blocky structure; few, fine, prominent, brownish-yellow (10YR 6/8) mottles; firm when moist, very sticky and very plastic when wet; few,

fine, hard, brown and black concretions; few fine roots; few large nodules of lime; mildly alkaline; clear, wavy boundary.

AC2—26 to 48 inches, olive (5Y 4/3) clay; common, very fine, prominent mottles of brownish yellow (10YR 6/6); massive (structureless) breaking to moderate, fine, subangular and angular blocky structure; firm when moist, very sticky and very plastic when wet; few, fine, dark-brown and black concretions; few fine roots; common large nodules of lime; common slickensides; mildly alkaline; clear, wavy boundary.

C—48 to 86 inches, mottled light olive-gray (5Y 6/2), pale-olive (5Y 6/4), and brownish-yellow (10YR 6/8) clay; massive (structureless); firm when dry, very plastic and very sticky when wet; common slickensides; common, fine, soft and hard, brown and black concretions; common, medium and large nodules of lime; mildly alkaline.

EUTAW SERIES

The Eutaw series consists of Grumusols that intergrade toward Low-Humic Gley soils. They are poorly drained soils that formed from beds of clay over marl or chalk. These soils are on the prairie upland in the western part of the county and occupy areas known locally as poorly drained post oak prairies. The Eutaw soils occur closely with the Vaiden soils but are more poorly drained. Eutaw soils are in fairly small areas and are moderately important to agriculture.

Profile of Eutaw silty clay in a wooded area 3½ miles east of the crossroads in Prairie, and 456 feet south of State Route 382 (465 feet south and 165 feet east of the NW. corner of NW¼NE¼ sec. 7, T. 15 S., R. 7 E.):

A11—0 to 1 inch, very dark gray (10YR 3/1) silty clay; weak, fine, granular structure; friable when moist, slightly plastic when wet; many fine roots; medium acid; abrupt, smooth boundary.

A12—1 inch to 5 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, fine, distinct mottles of yellowish brown (10YR 5/8) and brownish yellow (10YR 6/6); weak to moderate, fine, subangular blocky structure; friable when moist, slightly plastic when wet; many fine roots; many old root and worm channels filled with material from the A11 horizon; medium acid; abrupt, smooth boundary.

A13—5 to 9 inches, mottled light yellowish-brown (2.5Y 6/4), olive-yellow (2.5Y 6/6), gray (5Y 6/1), and brownish-yellow (10YR 6/8) silty clay; many, fine, distinct and prominent mottles; moderate, very fine and fine, subangular and angular blocky structure; friable when moist, very plastic and very sticky when wet; many fine and coarse roots; medium acid; clear, wavy boundary.

C1g—9 to 21 inches, gray (5Y 6/1) clay; many, fine, prominent, brownish-yellow (10YR 6/8) mottles; moderate and strong, very fine and fine, subangular and angular blocky structure; friable when moist, very plastic and very sticky when wet; common fine roots; medium acid; gradual, wavy boundary.

C2g—21 to 41 inches, light-gray (5Y 7/1 to 7/2) clay; many, fine, prominent, yellowish-red (5YR 5/8) and brownish-yellow (10YR 6/8) mottles; moderate and strong, very fine to medium, subangular and angular blocky structure; friable when moist, very plastic and very sticky when wet; numerous slickensides as much as 2 inches in diameter; fine roots common; slightly acid; gradual, wavy boundary.

C3g—41 to 58 inches, mottled light yellowish-brown (2.5Y 6/4), yellowish-red (5YR 5/6), and gray (5Y 6/1) clay; many, fine and medium, distinct mottles; moderate and strong, fine to coarse, angular blocky structure; friable when moist, very sticky and very plastic when wet; fine roots along ped faces and few coarse roots; root channels filled with gray (10YR 5/1) clay; slightly acid; gradual, irregular boundary.

C4g—58 to 67 inches, brownish-yellow (10YR 6/8) clay; many, fine and medium, prominent, yellowish-red (5YR 5/8) and gray (5Y 6/1) mottles; moderate and strong, very fine to medium, subangular and angular blocky structure; friable when moist, very sticky and very plastic when wet; numerous vertical and horizontal slickensides 2 to 3 inches across; gray on faces of slickensides; few fine roots and few manganese coatings on ped faces; mildly alkaline.

WEST POINT SERIES

The West Point series consists of Grumusols that intergrade toward Alluvial soils. They are moderately well drained, calcareous soils. These soils are in alluvium on flood plains of the prairie in the southwestern part of the county; they formed primarily in material washed from the Houston and Sumter soils. The West Point soils occur with the Catalpa soils and are distinguished from them mainly by their darker color. They are somewhat widely distributed and are agriculturally important.

Profile of West Point silty clay in a cultivated field 2½ miles east of the intersection of State Routes 45W and 8 just south of James Creek along a gravel road (NW¼ NW¼ sec. 27, T. 14 S., R. 6 E.):

A11p—0 to 7 inches, very dark gray (5Y 3/1) silty clay; moderate, fine and medium, granular structure; friable when moist, very plastic and very sticky when wet; common, fine and medium roots; few fine nodules of lime; mildly alkaline; clear, wavy boundary.

A12—7 to 20 inches, very dark gray (5Y 3/1) clay; massive (structureless) when wet or moist and breaks to moderate, fine, angular blocky structure when slightly moist or dry; friable when moist, very plastic and very sticky when wet; common fine roots; few to common, fine nodules of lime; mildly alkaline; gradual, smooth boundary.

A13—20 to 26 inches, very dark gray (5Y 3/1) clay; few to common, fine, faint, olive (5Y 5/3) mottles; massive (structureless) when wet or moist and breaks to moderate, fine, angular blocky structure when slightly moist or dry; friable when moist, very plastic and very sticky when wet; common fine roots; common fine nodules of lime; mildly alkaline; clear, wavy boundary.

A14—26 to 43 inches, black (5Y 2/1) clay; massive (structureless) when wet or moist and breaks to weak, fine, angular blocky structure when slightly moist or dry; friable when moist, very plastic and very sticky when wet; few fine roots; few fine nodules of lime; few root channels and crayfish channels filled with olive-gray 5Y 4/2) and light olive-brown (2.5Y 5/4) material; moderately alkaline; gradual, wavy boundary.

A15—43 to 52 inches, very dark gray (5Y 3/1) clay; many, fine, faint mottles of olive gray (5Y 4/2); massive (structureless); friable when moist, very plastic and very sticky when wet; few fine roots; few fine nodules of lime; moderately alkaline.

Regosols

Regosols have few or no clearly expressed soil characteristics. They formed under scanty grass or scrubby forest in a humid to arid climate and are well drained to excessively drained (*12*). The Regosols in Monroe County are the Eustis and Guin soils.

EUSTIS SERIES

The Eustis series consists of somewhat excessively drained soils that formed in coarse-textured sediments. These soils commonly occur with the Cahaba and Tilden soils. They resemble the Cahaba soils in color but are sandier throughout the profile, and they lack the fragipan of the Tilden soils. Eustis soils have a small total acreage in this county, but they are important for some crops.

Profile of Eustis loamy sand 2 miles southwest of Hamilton and 1 mile west of chemical plant on field road (SE¼SE¼ sec. 30, T. 15 S., R. 18 W.) :

A—0 to 10 inches, dark-brown (10YR 4/3) loamy sand; structureless; loose; many fine roots; contains brown (10YR 5/3) material from worm action; strongly acid; clear, smooth boundary.

C1—10 to 14 inches, dark-brown (10YR 4/3) loamy sand; very weak, medium, granular structure; very friable; few fine roots; contains dark yellowish-brown (10YR 4/4) material; strongly acid; abrupt, smooth boundary.

C2—14 to 36 inches, dark-brown (7.5YR 4/4) loamy sand; structureless; very friable; strongly acid; clear, smooth boundary.

C3—36 to 57 inches, yellowish-brown (10YR 5/8) loamy sand; structureless; very friable to loose; strongly acid.

GUIN SERIES

The Guin series consists of well-drained to excessively drained soils that developed on gravelly material of the Coastal Plain upland. Guin soils occur with the Ora, Savannah, Ruston, and Luverne soils but, unlike those soils, are gravelly throughout the solum. They are better drained than the Ora and Savannah soils, which have a fragipan, and are not so red in the B horizon as the Luverne soils. Guin soils are in small areas and are not agriculturally important.

Profile of Guin gravelly sandy loam in a wooded area along a paved road about 2½ miles southeast of Smithville (NE¼NW¼ sec. 17, T. 12 S., R. 9 E.) :

A—0 to 5 inches, dark grayish-brown (10YR 4/2) gravelly sandy loam; contains about 20 percent by volume of quartz gravel; structureless; friable; a few fine and medium roots; strongly acid; clear, smooth boundary.

C1—5 to 22 inches, reddish-brown (5YR 5/4) gravelly sandy loam; contains about 30 percent by volume of quartz gravel; structureless; friable; few fine roots; strongly acid; clear, smooth boundary.

C2—22 to 50 inches, reddish-brown (5YR 5/4) gravelly sandy loam; contains about 50 percent by volume of quartz gravel; friable; structureless; strongly acid.

Rendzina soils

Rendzina soils have a dark grayish-brown to olive surface layer that is underlain by gray or yellowish, generally soft, calcareous material. They developed under grass and broad-leaved forest trees in a cool to hot, humid to semiarid climate. The main process of soil development is calcification (*13*). In Monroe County the Sumter soils are members of the Rendzina great soil group.

SUMTER SERIES

The Sumter series consists of moderately well drained, calcareous soils that developed from soft limestone or Selma chalk and have a thin solum. These soils occur in the prairie section of the county with the Houston, Brooksville, Vaiden, and Eutaw soils. They are not widely distributed and are of limited importance to agriculture.

Profile of Sumter silty clay in a pasture 4½ miles east of Prairie (SW¼SE¼ sec. 7, T. 15 S., R. 7 E.) :

Ap—0 to 5 inches, olive-gray (5Y 5/2) silty clay; old root and worm channels filled with pale-yellow (5Y 7/4) silty clay; moderate, fine to coarse, granular structure; friable when moist, sticky and plastic when wet; many fine grass roots; few, fine, dark-brown concretions; moderately alkaline; clear, smooth boundary.

AC1—5 to 9 inches, pale-olive (5Y 6/3) silty clay; old worm and root channels filled with olive (5Y 5/3) silty clay from Ap horizon; weak to moderate, medium, subangular blocky structure breaks to moderate, fine, granular structure; friable when moist, sticky and plastic when wet; many fine grass roots; few fine nodules of lime; moderately alkaline; clear, smooth boundary.

AC2—9 to 14 inches, pale-yellow (5Y 7/4) silty clay; common, fine, distinct mottles of brownish yellow (10YR 6/8) and light olive gray (5Y 6/2); weak to moderate, medium, subangular blocky structure breaks to moderate, fine, granular structure; few, thin, discontinuous clay skins on ped faces; friable when moist, plastic and sticky when wet; few fine grass roots; few, fine, soft nodules of lime and few dark-brown concretions; moderately alkaline; clear, wavy boundary.

C1—14 to 22 inches, mottled light olive-gray (5Y 6/2), pale-yellow (5Y 7/4), and light-gray (5Y 7/2) silty clay to clay; weak, medium, subangular blocky structure; friable when moist, sticky and plastic when wet; very fine grass roots; common, fine, soft nodules of lime; moderately alkaline; abrupt, smooth boundary.

C2—22 to 27 inches, mottled gray (5Y 6/1) and pale-yellow (5Y 7/4) clay and soft marl; few, fine, distinct mottles of yellow (2.5Y 7/8); weak, medium, subangular blocky structure; firm when moist, sticky and plastic when wet; common, fine, soft nodules of lime; moderately alkaline; clear, smooth boundary.

C3—27 to 42 inches, gray (5Y 6/1), marly clay; ped interiors pale olive (5Y 6/3); structureless, breaks to soft, rectangular pieces of marl about 2 inches in diameter that break out in plates; hard when dry, extremely firm when moist; no roots; few, fine, dark concretions; strongly alkaline.

Alluvial soils

Alluvial soils are developing in material that has been transported and fairly recently deposited by water. Little or no modification of the original material has been brought about through soil-forming processes. The main characteristic of an Alluvial soil is the varied material in the horizons. Because Alluvial soils have similar parent material and are differentiated mainly on the basis of drainage, they constitute a soil catena (*13*).

The Catalpa, Houlka, Iuka, Leeper, Mantachie, and Bibb soils are members of this great soil group in Monroe County. The Bibb soils in this county intergrade toward the Low-Humic Gley great soil group.

CATALPA SERIES

The Catalpa series consists of grayish-brown, neutral to alkaline, moderately well drained soils that occur in the western part of the county and developed in alluvium that washed mainly from the Houston and Sumter soils. Catalpa soils are not so dark colored as the West Point soils. They are better drained than the Leeper, Houlka, Tuscumbia, and Una soils.

Profile of Catalpa silty clay in a pasture 3 miles southwest of Nettleton and about 50 feet east of a road along the south side of Tallabinnela Creek (NW¼SW¼ sec. 4, T. 12 S., R. 6 E.) :

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) silty clay; moderate, medium, granular structure; friable when moist, slightly sticky and slightly plastic when wet; many fine roots; some worm action; mildly alkaline; clear, smooth boundary.

AC—4 to 14 inches, olive-brown (2.5Y 4/4) silty clay; moderate, fine and medium, subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; few fine roots; few fine nodules of lime; some worm action; mildly alkaline; clear, smooth boundary.

C1—14 to 20 inches, light olive-brown (2.5Y 5/4) silty clay; moderate, medium, subangular blocky structure; friable when moist, slightly sticky and slightly plastic

when wet; few fine roots; few fine nodules of lime; some worm action; mildly alkaline; clear, smooth boundary.

C2—20 to 36 inches, olive-brown (2.5Y 4/4) silty clay; few, fine, distinct mottles of olive gray (5Y 5/2); massive (structureless) when wet and breaks to moderate, medium, subangular blocky structure when moist or dry; friable to firm when moist, slightly sticky and slightly plastic when wet; common slickensides; few fine roots; few, soft, brown concretions; many fine nodules of lime; mildy alkaline; abrupt, wavy boundary.

C3—36 to 43 inches, very dark grayish-brown (2.5Y 3/2) clay; massive (structureless) when wet and breaks to weak, fine, subangular and angular blocky structure when moist or dry; friable to firm when moist, sticky and plastic when wet; common slickensides; few fine roots; few fine nodules of lime; moderately alkaline; clear, smooth boundary.

C4—43 to 63 inches, mottled dark grayish-brown (2.5Y 4/2) and dark yellowish-brown (10YR 4/4) clay; massive (structureless); firm when moist, sticky and plastic when wet; few slickensides; few, fine and medium, soft, brown and black concretions; few fine nodules of lime; moderately alkaline.

HOULKA SERIES

The Houlka series consists of somewhat poorly drained soils that occur on flood plains of streams flowing through the prairie section of the county. These soils formed in alluvium that washed from the Eutaw, Vaiden, Houston, Sumter, Ora, Savannah, and other soils. Houlka soils occur with the Leeper, Tuscumbia, Una, and Bibb soils. Small areas of Houlka soils are widely distributed in this county and are moderately important to agriculture.

Profile of Houlka silty clay in a pasture 2 miles east of Muldon and about 500 feet north of a road on east side of a creek (SW¼SW¼ sec. 36, T. 15 S., R. 6 E.):

Ap—0 to 8 inches, very dark grayish-brown (2.5Y 3/2) silty clay; moderate, medium, granular structure; friable when moist, sticky and plastic when wet; many fine roots; medium acid; abrupt, smooth boundary.

AC—8 to 14 inches, dark grayish-brown (2.5Y 4/2) clay; common, fine, faint mottles of brown (10YR 4/3); massive (structureless) when moist or wet and breaks to moderate, fine and medium, angular blocky structure when slightly moist; friable to firm when moist, very sticky and very plastic when wet; common, fine, soft, brown concretions; few fine roots; medium acid; clear, smooth boundary.

C1g—14 to 38 inches, light brownish-gray (2.5Y 6/2) clay; common, fine, distinct mottles of brown or dark brown (7.5YR 4/4); massive (structureless) when moist or wet and breaks to moderate, fine and medium, angular blocky structure when slightly moist or dry; friable to firm when moist, very sticky and very plastic when wet; common slickensides; fine brown concretions; few fine roots; very strongly acid; gradual, smooth boundary.

C2g—38 to 60 inches, light brownish-gray (2.5Y 6/2) clay; many, medium, distinct mottles of strong brown (7.5YR 5/8) and brown or dark brown (7.5YR 4/4); massive (structureless); friable to firm when moist, very sticky and very plastic when wet; common, fine, brown concretions; strongly acid.

IUKA SERIES

The Iuka series consists of moderately well drained soils that are widely distributed on the flood plains in the eastern part of the county. These soils formed in material washed from the Ruston, Cuthbert, Ora, Savannah, Pheba, and other soils. The Iuka soils are the moderately well drained members of the catena that includes the Ochlockonee, Mantachie, and Bibb soils.

Profile of Iuka fine sandy loam in a cultivated field north of Smithville and about 50 yards east of State Route 25 (SE¼SE¼ sec. 31, T. 11 S., R. 9 E.):

A—0 to 10 inches, brown to dark-brown (10YR 4/3) fine sandy loam; structureless; friable; many fine roots; strongly acid; clear, wavy boundary.

C1—10 to 20 inches, yellowish-brown (10YR 5/4) sandy loam; few, fine, distinct mottles of yellowish red (5YR 4/6); structureless; friable; few fine roots; many vesicular pores; very strongly acid; clear, wavy boundary.

C2g—20 to 50 inches, gray to light-gray (10YR 6/1) loam; many, fine and coarse, distinct mottles of strong brown (7.5YR 5/8); structureless; friable; few, fine, soft, brown concretions; very strongly acid.

LEEPER SERIES

In the Leeper series are somewhat poorly drained, neutral to alkaline Alluvial soils on flood plains. These soils formed in mixed acid and calcareous Coastal Plain material that washed from the Vaiden, Eutaw, Brooksville, Houston, Sumter, Ora, Savannah, and other soils. Leeper soils occur with the Tuscumbia and Una soils and are better drained than those soils. These soils are widely distributed in the prairie section of the county and are agriculturally important.

Profile of Leeper silty clay 1½ miles south of Nettleton and about 100 feet west of U.S. Highway No. 45 on south side of Old Town Creek (NE¼SE¼ sec. 11, T. 12 S., R. 6 E.):

A—0 to 12 inches, dark grayish-brown (2.5Y 4/2) silty clay; massive (structureless) when wet and breaks to coarse, subangular blocky structure when moist or dry; firm when moist, plastic and sticky when wet; few fine roots; mildly alkaline; clear, smooth boundary.

C1g—12 to 15 inches, dark-gray (5Y 4/1) clay; few, fine, faint mottles of olive brown (2.5Y 4/4); massive (structureless) when wet and breaks to medium, subangular blocky structure when moist or dry; firm when moist, sticky and plastic when wet; few fine roots; mildly alkaline; clear, smooth boundary.

C2g—15 to 29 inches, dark gray (5Y 4/1) to very dark gray (5Y 3/1) clay; common, fine and medium, distinct mottles of light olive brown (2.5Y 5/6); massive (structureless) when wet and breaks to moderate, medium, subangular blocky structure when moist or dry; firm when moist, very sticky and very plastic when wet; few slickensides; few fine roots; mildly alkaline; clear, smooth boundary.

C3g—29 to 62 inches, mottled dark-gray (5Y 4/1), light olive-brown (2.5Y 5/6), and yellowish-brown (10YR 5/6) clay; massive (structureless) when moist or wet; firm when moist, very sticky and very plastic when wet; mildly alkaline.

MANTACHIE SERIES

The Mantachie series consists of somewhat poorly drained Alluvial soils that are widely distributed on flood plains in the eastern part of the county and are agriculturally important. These soils formed in material that washed from the Ruston, Ora, Savannah, Pheba, Cuthbert, and other soils. Mantachie soils are the somewhat poorly drained members of the catena that includes the Ochlockonee, Iuka, and Bibb soils.

Profile of Mantachie silt loam in a forested area ½ mile north of Smithville and ¼ mile west of State Route 25 (NE¼NW¼ sec. 31, T. 11 S., R. 9 E.):

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; structureless; friable; a few fine and medium roots; few

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brown concretions; organic stains; slightly acid; clear, smooth boundary.

AC—8 to 19 inches, mottled yellowish-brown (10YR 5/8) and light brownish-gray (10YR 6/2) sandy loam; weak, medium, subangular blocky structure; friable; few medium roots; many pores; strongly acid; clear, wavy boundary.

Cg—19 to 48 inches, gray (10YR 6/1) loam; grayish-brown (10YR 5/2) and yellowish-brown (10YR 5/6) mottles; structureless; friable; few medium roots; common, fine to large, soft, brown concretions; few pores; strongly acid.

BIBB SERIES

The Bibb series consists of Alluvial soils that intergrade toward the Low-Humic Gley soils. Bibb soils are the poorly drained members of the catena that includes the well-drained Ochlockonee soils, the moderately well drained Iuka soils, and the somewhat poorly drained Mantachie soils. They are somewhat widely distributed on the flood plain in the eastern part of the county, but they are not agriculturally important.

Profile of Bibb silt loam in a wooded area 1 mile southeast of Splunge and 50 feet south of a gravel road (NW¼ NW¼ sec. 7, T. 13 S., R. 16 W.):

A—0 to 4 inches, dark-brown (10YR 3/3) silt loam; weak, medium, granular structure; friable; many fine and medium roots; much worm action; pH 5.0; clear, smooth boundary.

C1g—4 to 22 inches, light-gray to gray (10YR 6/1) loam; common, fine to coarse, distinct mottles of yellowish brown (10YR 5/6); structureless; friable; a few fine and medium roots; many, fine and medium, soft, brown concretions and much concretionary material; few, large, soft, black concretions; many pores; strongly acid; gradual, smooth boundary.

C2g—22 to 48 inches, mottled light-gray to gray (10YR 6/1) and strong-brown (7.5YR 5/6) silty clay loam; common, fine and medium, soft, brown and black concretions; friable; strongly acid.

Mineralogy of Soils and Parent Material[4]

The approximate mineral composition of the clay in the soils of 27 series in Monroe County is shown in table 8. The soils in the western part of the county developed from marl, calcareous clays, and silty clays. Common soils in this area are the Houston, Eutaw, Sumter, Vaiden, West Point, and Brooksville. These soils are extremely fine textured and have a clay content that ranges as high as 70 to 75 percent. About 60 to 65 percent of the clay consists of the expansible layer silicates, montmorillonite and vermiculite. Dioctahedral montmorillonite is the most abundant silicate. Clay soils consequently have a high cation exchange capacity and very high shrink-swell potential. Kaolinite generally makes up 20 to 25 percent of the clay and occurs mostly in clay of 2 to 0.2 micron size. The kaolinite appears to have been inherited from the parent material instead of having formed through chemical weathering of other minerals. The rest of the clay consists of mica (illite) and amorphous aluminosilicates. Pedogenic chlorite occurs in small amounts in some of the acid soils in this region, but it generally is absent in soils of the prairie section, or black belt. Quartz is a minor mineral in the clay fraction of these soils but is common in the silt fraction.

[4] By R. C. GLENN, assistant agronomist, Mississippi State University

The total potassium content of these soils, to a depth of 6 inches, ranges from 10,000 to 20,000 pounds per acre. Most of the potassium probably occurs in mica, for calculations based on the total clay content and on the K_2O allocated to mica generally account for most of the total K_2O in the soil. Vermiculite in the clay generally has a high capacity for fixing potassium. As in the acid, more weathered soils in the county, this high capacity suggests that interlayer exchange sites in vermiculite are not blocked by complex aluminum molecules.

In the prairie section the parent material of the soils is high in carbonates, but the soils are generally low in magnesium. X-ray examination of parent material shows a complete absence of dolomite in several areas of the Black Prairie soils. The clay minerals also are low in magnesium, which is only slowly released by weathering because the pH in most of the soils is high. The fact that plants respond to magnesium fertilization on these soils is therefore not surprising.

Soils east of the Tombigbee River developed from material much coarser than that in the prairie section. In many places this material contains an appreciable amount of glauconite, which weathers readily on exposure to air and releases a large quantity of iron. The clay fraction in these soils is dominantly kaolinite, though a noticeable amount of montmorillonite is present in some places. In the Greenville and other highly weathered soils, the clay is 15 percent or more free iron oxide. In this clay, amorphous aluminum and silica are more abundant than in the clay in the prairie soils west of the Tombigbee River. Although gibbsite was not detected in two profiles of Greenville soils in Monroe County, in some places the Greenville soils contain a small amount of this mineral.

In this county the content of illite and vermiculite in clay is generally between 2 and 5 percent. Through weathering, much of the vermiculite has been converted to the chlorite intergrade, aluminous chlorite or aluminous vermiculite. As a result of weathering, the vermiculite generally has a low capacity for fixing potassium. The total potassium content to a depth of 6 inches, ranges from 2,000 to 12,000 pounds per acre.

Physical and chemical analyses

In tables 9 and 10 are data obtained by physical and chemical analyses of eight soils of the Eutaw, Greenville, Ora, and Vaiden series. The soils were sampled in 1958 and 1961 in Monroe County, Miss., and were analyzed by the soil survey laboratory of the Soil Conservation Service at Lincoln, Nebr. Profiles of these soils are described, beginning on page 114. The data in tables 9 and 10 are useful to soil scientists in classifying soils and in developing concepts of soil genesis. These data are also helpful in estimating available water capacity, fertility, and other aspects of soil management.

Field and laboratory methods

All samples used to obtain the data in tables 9 and 10 were collected in duplicate from pits at different locations. The analyses are based on an oven-dry material. The material was first air dried, rolled, and crushed and then passed through a 2 millimeter square-holed sieve. Standard laboratory methods were used to obtain the data.

Determinations of clay were made by the pipette method (*6*, *7*, *8*). The pH was determined by glass electrode,

TABLE 8.--APPROXIMATE MINERAL COMPOSITION OF CLAY IN SOILS OF 27 SERIES[1/]

Soil series	Quartz	Illite	Vermiculite	Montmorillonite	Chlorite	Koalinite	Gibbsite	Iron oxides	Amorphous aluminum and silica [2/]
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Bibb	5	5-10	5-10	30	5	30	0	(3/)	10
Brooksville	(3/)	10	10	50	(3/)	20	0	(3/)	5-10
Cahaba	5-10	5	5	2-5	10	50	0	10	10
Cuthbert	5	10	10	25	5	30	0	5	10
Eutaw	(3/)	10	10	50	(3/)	20	0	2-5	5-10
Kipling	5	5-10	10	30	2-5	25	0	5	10
Geiger	5	5	10	35	2-5	25	0	2-5	10
Greenville	5	2-5	5	(3/)	5-10	50	0-10	15	10
Houlka	5	5	10	45	(3/)	25	0	2-5	5-10
Houston	(3/)	10	10	50	(3/)	20	0	(3/)	10
Iuka	5	5-10	5-10	30	5	30	0	5	10
Leaf	5	5-10	5-10	35	5	30	0	(3/)	10
Leeper	2-5	5	10	45	(3/)	25	0	(3/)	10
Myatt	5	5	10	25	5	35	0	2-5	10
Ora	10	5	5	5	10	50	0	10	10
Luverne	5	2-5	5	(3/)	10	50	0-10	15	10
Pheba	10	5	5	20	10	35	0	5	10
Prentiss	10	5	5	15	10	45	0	5	10
Ruston	10	5	5	2-5	10	45	0	10	10
Savannah	10	5	5	15	10	40	0	5-10	10
Stough	10	5	5	20	10	35	0	2-5	10
Sumter	(3/)	10	10	50	(3/)	20	0	(3/)	5-10
Tilden	5	5	5	25	10	35	0	5	10
Tuscumbia	(3/)	10	10	50	(3/)	20-25	0	(3/)	5-10
Una	2-5	5	5-10	35	5	30	0	2-5	10
Vaiden	(3/)	5	10	45	2-5	25	0	2-5	5-10
West Point	(3/)	10	10	50	(3/)	20-25	0	(3/)	5-10

1/ Determined from data provided by the soils staff of the Mississippi Agricultural Experiment Station.

2/ Includes noncrystalline alumino-silicates.

3/ Less than 2 percent.

using a 1:1 soil-water ratio and a 1:1 soil-potassium chloride ratio. Organic carbon was determined by wet combustion, using a modification of the Walkley-Black method. Nitrogen was determined by using a modified procedure of the Association of Official Agricultural Chemists (*2*). Bulk density measurements were made on clods at three different moisture levels: (1) at field moisture, or the moisture held in the clods when they were received in the laboratory; (2) at 30 centimeters tension, or the moisture absorbed after the clods were subjected to 30 centimeters of water tension on a sand capillary column; and (3) at air dryness, or after the clods were dried in the air. The volume was measured by displacement in water; the air-dry weight was used to calculate the bulk density. Measurements of water retention were made on soil pieces and sieved samples by a pressure plate and a pressure membrane apparatus (*11*, *18*).

The cation exchange capacity was determined by direct distillation of adsorbed ammonia (*9*). To determine the extractable calcium and magnesium, the calcium was separated as calcium oxalate and the magnesium as magnesium ammonium phosphate (*9*). Extractable sodium and potassium were determined on original ammonium-acetate extracts with a flame spectrophotometer (*9*). The triethanolamine method was used to determine extractable hydrogen (*9*). Extractable iron was extracted from soil with sodium hydrosulfite and determined by titration with standard potassium dichromate (*5*).

To determine the percentage of base saturation (NH_4OAc) in table 10, the sum of the bases (Ca, Mg, Na, and K) is divided by the cation exchange capacity (NH_4OAc), and the result is multiplied by 100. To arrive at the sum of extractable bases and H (or Al), the sum of extractable Ca, Mg, Na, and K is added either to H extractable by normal barium chloride-triethanolamine at pH 8.2 or to Al extracted by normal KCl. The sum of bases divided by the sum of cations, including hydrogen, and multiplied by 100, gives the base saturation percentage on the sum of the bases and H.

TABLE 9.--PHYSICAL ANALYSES OF

[Dashed lines indicate that determination was not made or that

Soil type and sample number	Horizon	Depth	Particle size distribution						
			Very coarse sand (2.0-1.0 mm.)	Coarse sand (1.0-0.5. mm.)	Medium sand (0.5-0.25 mm.)	Fine sand (0.25-0.10 mm.)	Very fine sand (0.10-0.05 mm.)	Silt (0.05-0.002 mm.)	Clay (less than 0.002 mm.)
		Inches	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Eutaw silty clay loam:									
S58 Miss-48-2.	A1	0-1	0.9	1.2	0.8	3.0	5.3	54.8	34.0
	A2	1-5	.2	.6	.8	2.6	5.7	50.9	39.2
	B1	5-11	.1	.4	.6	2.1	4.6	45.7	46.5
	B21g	11-27	<.1	.2	.3	.6	3.9	37.8	57.2
	B22g	27-37	.2	.3	.3	1.3	3.0	38.1	56.8
	B3g	37-53	.1	.3	.4	.6	2.4	40.7	55.5
	C1	53-65+	<.1	.2	.3	1.3	3.0	40.2	55.0
Eutaw silty clay loam:									
S58 Miss-48-1.	A1	0-1	.2	.7	.6	.8	5.1	51.6	41.0
	A2	1-5	.2	.6	.6	.7	5.2	46.5	46.2
	B1	5-9	.1	.4	.4	.6	4.0	43.2	51.3
	B21g	9-21	.2	.2	.3	.4	2.8	36.6	59.5
	B22g	21-41	.1	.2	.2	.4	2.8	36.2	60.1
	B3g	41-58	<.1	.1	.2	.8	2.4	37.5	59.0
	C1	58-72	.1	.1	.2	.8	2.3	39.5	56.8
	C2	72-82	<.1	.1	.2	1.0	2.7	40.0	56.0
Greenville silt loam:									
S61 Miss-48-1.	Ap	0-6	.3	1.6	5.2	18.6	4.3	59.9	10.1
	A3	6-10	<.1	.8	2.9	10.6	2.5	58.2	25.0
	B21	10-23	<.1	1.2	3.9	14.4	3.2	46.4	30.9
	B22	23-37	<.1	.8	2.9	10.2	2.4	54.0	29.7
	B31	37-50	<.1	1.2	4.8	17.7	3.7	39.3	33.3
	B31	50-65	<.1	1.3	4.8	19.2	3.9	35.7	35.1
	B32	65-80	.1	1.7	6.4	23.4	4.3	28.9	35.2
Greenville silt loam:									
S61 Miss-48-2.	Ap	0-6	.1	2.1	7.0	23.2	5.4	50.4	11.8
	A3	6-9	.1	1.1	3.5	13.0	2.9	54.8	24.6
	B21	9-21	.1	1.3	3.8	12.8	2.8	49.9	29.3
	B22	21-35	<.1	1.8	5.1	17.0	3.7	43.0	29.4
	B31	35-48	.1	2.0	6.6	21.6	4.5	33.1	32.1
	B31	48-61	.2	2.2	8.0	23.8	4.6	29.4	31.8
	B32	61-80	.2	2.7	9.2	28.4	5.1	22.8	31.6

SELECTED SOILS IN MONROE COUNTY

the amount determined was below the minimum reportable value]

Textural class (USDA)	Bulk density and moisture content					Moisture held at tension of--		
	Field moisture		30-cm. tension		Air dry	1/3 atmosphere (pieces)	1/3 atmosphere (sieved)	15 atmospheres (sieved)
	Percent	Gm./cc.	Percent	Gm./cc.	Gm./cc.	Percent	Percent	Percent
Silty clay loam	----	----	----	----	----	----	48.1	20.1
Silty clay loam	----	----	----	----	----	----	32.6	15.1
Silty clay	----	----	----	----	----	----	35.4	17.7
Clay	----	----	----	----	----	----	42.4	21.9
Clay	----	----	----	----	----	----	39.2	21.0
Clay or silty clay	----	----	----	----	----	----	38.9	20.4
Clay or silty clay	----	----	----	----	----	----	38.6	20.6
Silty clay or silty clay loam	----	----	----	----	----	45.2	35.6	16.9
Silty clay loam	----	----	----	----	----	42.9	33.7	17.5
Silty clay	----	----	----	----	----	43.8	35.3	18.9
Clay	----	----	----	----	----	49.4	40.1	21.7
Clay	----	----	----	----	----	50.3	39.5	22.0
Clay	----	----	----	----	----	50.7	41.4	21.9
Clay	----	----	----	----	----	45.9	36.3	20.1
Silty clay or clay	----	----	----	----	----	48.2	37.9	20.1
Silt loam	13.5	1.61	20.5	1.59	1.61	13.0	15.2	4.2
Silt loam	----	----	----	----	----	----	----	8.9
Clay loam	16.5	1.56	20.7	1.52	1.60	21.6	24.0	10.8
Silty clay loam	----	----	----	----	----	----	----	11.0
Clay loam	16.2	1.71	19.1	1.68	1.75	18.9	23.8	11.8
Clay loam	----	----	----	----	----	----	----	12.7
Clay loam	----	----	----	----	----	----	----	12.9
Silt loam or loam	14.6	1.42	18.5	1.40	1.42	12.0	16.1	4.5
Silt loam	----	----	----	----	----	----	----	9.1
Clay loam or silty clay loam.	16.6	1.60	20.4	1.56	1.67	21.1	24.8	11.0
Clay loam	----	----	----	----	----	----	----	10.9
Clay loam	15.8	1.74	18.4	1.70	1.79	18.3	22.6	11.7
Clay loam	----	----	----	----	----	----	----	11.1
Sandy clay loam	----	----	----	----	----	----	----	11.6

TABLE 9.--PHYSICAL ANALYSES OF

Soil type and sample number	Horizon	Depth	Particle size distribution						
			Very coarse sand (2.0-1.0 mm.)	Coarse sand (1.0-0.5 mm.)	Medium sand (0.5-0.25 mm.)	Fine sand (0.25-0.10 mm.)	Very fine sand (0.10-0.05 mm.)	Silt (0.05-0.002 mm.)	Clay (less than 0.002 mm.)
		Inches	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Ora silt loam:									
S61 Miss-48-3.	Ap	0-7	0.9	3.5	4.9	18.2	5.7	56.8	10.0
	B21	7-19	.6	2.6	3.6	13.9	4.7	48.8	25.8
	B22	19-23	.3	2.4	4.2	16.5	5.6	42.4	28.8
	B3m1	23-35	.2	2.3	4.4	17.4	5.7	40.1	29.9
	B3m2	35-42	.2	2.3	4.3	18.1	5.4	39.6	30.1
	C1	42-53	.4	2.9	5.6	22.1	7.2	33.6	28.2
	C2	53-65	.6	3.5	5.8	25.4	8.3	30.0	26.4
Ora silt loam:									
S61 Miss-48-4.	Ap	0-7	.2	.8	6.2	29.0	4.1	52.6	7.1
	B21	7-19	<.1	.5	5.2	23.2	3.2	44.7	23.2
	B22	19-23	<.1	.5	5.9	28.9	4.1	43.9	16.7
	B3m1	23-27	<.1	.5	6.2	30.0	4.1	39.2	20.0
	B3m2	27-37	<.1	.5	6.3	29.8	3.9	34.3	25.2
	C1	37-49	<.1	.5	7.4	32.6	4.0	27.6	27.9
	C2	49-32	<.1	.5	7.5	34.7	4.0	25.9	27.4
Vaiden silt loam:									
S58 Miss-48-3.	Ap	0-4	1.3	1.7	1.1	2.5	1.4	68.4	23.6
	A3B1	4-6	.8	1.4	.8	1.8	1.0	58.4	35.8
	B21	6-12	.1	.4	.4	1.0	.8	45.1	52.2
	B22	12-19	.1	.4	.3	.4	1.2	44.0	53.6
	B23g	19-35	.2	.6	.3	.3	1.0	44.3	53.3
	B3	35-49	.2	.4	.3	.4	.8	38.9	59.0
	C1	49-58	.1	.2	.2	.4	.9	38.2	60.0
	C2	58-67+	.5	.6	.3	.5	.6	39.6	57.9
Vaiden silt loam:									
S58 Miss-48-4.	Ap1	0-1	1.6	1.1	1.2	2.2	3.0	72.7	18.2
	Ap2	1-3	.6	1.2	1.1	1.5	4.3	71.3	20.0
	B21	3-8	.2	.6	.7	.9	2.6	54.0	41.0
	B22	8-13	.1	.5	.5	.8	2.6	50.7	44.8
	B23	13-27	.3	.5	.6	.8	2.3	48.7	46.8
	B31	27-43	.6	.6	.5	.7	2.0	45.0	50.6
	B32	43-54	.4	.5	.5	.8	2.0	45.4	50.4
	C1	54-62	.5	.4	.6	.9	1.8	46.8	49.0
	C2	62-72	.4	.6	.6	.8	2.0	46.8	48.8

SELECTED SOILS IN MONROE COUNTY--Continued

Textural class (USDA)	Bulk density and moisture content					Moisture held at tension of--		
	Field moisture		30-cm. tension		Air dry	1/3 atmosphere (pieces)	1/3 atmosphere (sieved)	15 atmospheres (sieved)
	Percent	Gm./cc.	Percent	Gm./cc.	Gm./cc.	Percent	Percent	Percent
Silt loam	13.3	1.61	19.2	1.58	1.61	15.3	17.4	3.4
Loam or clay loam	17.6	1.60	21.7	1.56	1.65	23.5	24.5	10.1
Clay loam	----	----	----	----	----	----	----	10.6
Clay loam	15.7	1.72	19.3	1.70	1.76	19.1	25.7	10.7
Clay loam	----	----	----	----	----	----	----	11.6
Clay loam	15.0	1.78	17.5	1.74	1.80	16.9	24.0	10.5
Loam or clay loam	----	----	----	----	----	----	----	9.7
Silt loam	13.1	1.51	17.4	1.48	1.50	14.1	17.6	2.5
Loam	15.2	1.60	20.3	1.57	1.64	21.3	23.2	9.1
Loam	----	----	----	----	----	----	----	5.9
Loam	----	----	----	----	----	----	----	7.2
Loam	13.4	1.80	17.1	1.76	1.82	17.1	22.3	9.4
Loam, clay loam, or sandy clay loam.	15.4	1.75	18.4	1.72	1.78	16.9	21.1	10.0
Sandy clay loam	----	----	----	----	----	----	----	10.4
Silt loam	----	----	----	----	----	41.7	31.9	10.2
Silty clay loam	----	----	----	----	----	38.9	30.9	13.4
Silty clay						48.2	40.0	20.2
Silty clay	----	----	----	----	----	47.1	39.3	20.3
Silty clay	----	----	----	----	----	47.7	39.7	20.7
Clay	----	----	----	----	----	51.0	42.6	22.1
Clay	----	----	----	----	----	47.8	39.8	21.2
Clay	----	----	----	----	----	48.6	39.3	20.8
	----	----	----	----	----			
Silt loam	----	----	----	----	----	43.0	33.1	9.1
Silt loam	----	----	----	----	----	34.8	28.2	8.0
Silty clay or silty clay loam	----	----	----	----	----	38.8	32.8	15.4
Silty clay	----	----	----	----	----	42.9	34.5	17.0
Silty clay	----	----	----	----	----	42.3	35.3	17.6
Silty clay	----	----	----	----	----	45.6	37.4	19.2
Silty clay	----	----	----	----	----	44.6	37.0	18.5
Silty clay	----	----	----	----	----	43.3	35.3	18.1
Silty clay	----	----	----	----	----	43.5	34.2	18.1

TABLE 10.--CHEMICAL ANALYSES OF

[Dashed lines indicate that determination was not made or that the

Soil type and sample number	Horizon	Depth	Reaction		Organic matter			Free iron (Fe_2O_3)
			H_2O (1:1)	KCl (1:1)	Organic carbon	Nitrogen	C/N ratio	
		Inches	pH	pH	Percent	Percent		Percent
Eutaw silty clay loam: S58 Miss-48-2.	A1	0-1	5.3	---	8.25	0.502	16.4	1.1
	A2	1-5	4.3	---	1.10	.084	13.1	1.4
	B1	5-11	4.3	---	.43	.042	10.0	1.7
	B21g	11-27	4.3	---	.22	.016	14.0	1.8
	B22g	27-37	4.5	---	.07	----	----	1.5
	B3g	37-53	4.4	---	.08	----	----	1.4
	C1	53-65+	4.2	---	.09	----	----	1.5
Eutaw silty clay loam: S58 Miss-48-1.	A1	0-1	4.8	---	3.74	.223	16.8	1.4
	A2	1-5	4.4	---	1.18	.075	15.7	1.4
	B1	5-9	4.3	---	.51	.038	13.0	1.4
	B21g	9-21	4.3	---	.18	.015	12.0	1.2
	B22g	21-41	4.4	---	.13	.007	18.0	1.0
	B3g	41-58	4.4	---	.10	----	----	1.2
	C1	58-72	4.6	---	.10	----	----	2.0
	C2	72-82	6.6	---	.06	----	----	2.2
Greenville silt loam: S61 Miss-48-1.	Ap	0-6	5.5	4.8	.57	.048	12.0	1.0
	A3	6-10	5.5	4.4	.26	.044	6.0	2.0
	B21	10-23	5.8	4.8	.19	.038	5.0	2.4
	B22	23-37	5.2	3.8	.06	.029	2.0	2.8
	B31	37-50	4.6	3.6	.06	----	---	2.9
	B31	50-65	4.6	3.4	.05	----	---	2.9
	B32	65-80	4.8	3.6	.04	----	---	3.0
Greenville silt loam: S61 Miss-48-2.	Ap	0-6	5.3	4.5	.44	.044	10.0	1.0
	A3	6-9	5.7	4.8	.32	.044	7.0	2.1
	B21	9-21	5.8	5.0	.16	.036	4.0	2.5
	B22	21-35	5.6	4.9	.07	.027	2.0	2.7
	B31	35-48	5.3	4.5	.06	----	----	2.5
	B31	48-61	5.3	3.8	.05	----	----	2.6
	B32	61-80	4.8	3.3	.03	----	----	2.7

SELECTED SOILS IN MONROE COUNTY

amount determined was below the minimum reportable value]

Cation-exchange capacity (by NH_4OAc)	Extractable cations (milliequivalents per 100 grams of soil)					Sum of extractable bases and hydrogen	Ca/Mg ratio	Base saturation	
	Ca	Mg	Na	K	H			By NH_4OAc	On sum of bases and hydrogen
Meq./100 gm.						Meq./100 gm.		Percent	Percent
29.2	20.4	5.2	0.1	0.6	23.7	50.0	3.9	90	53
21.6	6.2	2.2	<.1	.2	23.0	31.6	2.8	40	27
23.2	4.4	1.9	.1	.2	28.0	34.6	2.3	28	19
29.5	7.7	2.3	.1	.3	30.3	40.7	3.3	35	26
30.5	11.8	2.8	.4	.3	27.0	42.3	4.2	50	36
29.5	16.3	3.4	.8	.3	20.7	41.5	4.8	70	50
29.2	20.2	4.0	1.0	.3	15.2	40.7	5.0	87	63
28.9	14.7	4.3	.1	.5	19.3	38.9	3.4	68	50
28.6	6.1	2.2	.1	.3	28.9	37.6	2.8	30	23
31.5	4.3	2.1	.1	.3	34.3	41.1	2.0	22	16
35.8	7.5	1.9	.3	.3	35.6	45.6	3.9	28	22
37.9	13.8	2.5	.6	.3	28.4	45.6	5.5	45	38
38.0	21.8	3.2	1.1	.3	20.2	46.6	6.8	69	57
32.8	30.0	4.4	1.9	.3	10.6	47.2	6.8	112	78
32.7	34.1	4.6	2.0	.4	6.2	47.3	7.4	126	87
4.6	2.6	.2	<.1	.4	4.2	7.4	1.3	70	43
6.9	3.8	1.0	<.1	.4	5.6	10.8	3.8	75	48
8.4	5.4	1.6	.1	.2	4.7	12.0	3.4	87	61
9.1	3.0	1.8	.2	.2	6.3	11.5	1.7	57	45
7.6	.6	1.3	.1	.3	8.4	10.7	.5	30	21
9.1	.4	1.4	.1	.4	7.9	10.2	.3	25	23
8.8	1.6	2.2	.1	.4	6.3	10.6	.7	49	40
4.5	2.6	.8	<.1	.4	4.2	8.0	3.2	84	48
7.2	4.8	1.1	<.1	.3	6.5	12.7	4.4	86	49
8.6	5.7	1.6	.1	.2	4.9	12.6	3.6	90	61
8.3	4.5	1.9	.1	.2	4.4	11.1	2.4	81	60
7.6	3.2	2.0	.1	.3	5.6	11.2	1.6	74	50
7.8	2.6	2.0	.1	.3	5.4	10.4	1.3	64	48
7.0	.9	1.2	.1	.2	7.4	9.8	.8	34	24

TABLE 10.--CHEMICAL ANALYSES OF

Soil type and sample number	Horizon	Depth	Reaction		Organic matter			Free iron (Fe_2O_3)
			H_2O (1:1)	KCl (1:1)	Organic carbon	Nitrogen	C/N ratio	
		Inches	pH	pH	Percent	Percent		Percent
Ora silt loam:								
S61 Miss-48-3.	Ap	0-7	4.4	3.6	0.65	0.056	12.0	1.6
	B21	7-19	5.0	3.6	.14	.025	6.0	2.7
	B22	19-23	4.7	3.3	.06	.019	3.0	2.5
	B3m1	23-35	4.5	3.2	.05	.012	4.0	2.3
	B3m2	35-42	4.3	3.1	.04	----	----	2.7
	C1	42-53	4.2	3.2	.02	----	----	2.5
	C2	53-65	4.6	3.2	.01	----	----	2.4
Ora silt loam:								
S61 Miss-48-4.	Ap	0-7	5.5	4.3	.87	.057	15.0	.8
	B21	7-19	4.7	3.4	.21	.032	6.0	2.2
	B22	19-23	4.7	3.4	.06	.018	3.0	1.4
	B3m1	23-27	4.9	3.6	.06	.011	5.0	1.6
	B3m2	27-37	4.9	3.4	.04	----	----	2.3
	C1	37-49	4.9	3.4	.04	----	----	2.5
	C2	49-62	4.7	3.4	.02	----	----	2.5
Vaiden silt loam:								
S58 Miss-48-3.	Ap	0-4	5.3	---	2.28	.153	14.9	1.9
	A3B1	4-6	5.0	---	.65	.053	12.0	2.2
	B21	6-12	4.6	---	.43	.033	13.0	2.7
	B22	12-19	4.6	---	.23	.019	12.0	2.7
	B23g	19-35	4.7	---	.14	.013	11.0	2.4
	B3	35-49	4.8	---	.14	----	----	2.8
	C1	49-58	5.2	---	.18	----	----	2.9
	C2	58-67+	7.6	---	.12	----	----	3.2
Vaiden silt loam:								
S58 Miss-48-4.	Ap1	0-1	5.7	---	2.72	.194	14.0	1.1
	Ap2	1-3	4.7	---	1.03	.078	13.2	1.2
	B21	3-8	4.6	---	.43	.033	13.0	1.9
	B22	8-13	4.5	---	.22	.023	10.0	2.2
	B23	13-27	4.6	---	.18	.017	10.0	2.3
	B31	27-43	4.6	---	.07	----	----	2.4
	B32	43-54	4.8	---	.10	----	----	2.3
	C1	54-62	5.1	---	.09	----	----	2.6
	C2	62-72	7.5	---	.07	----	----	2.5

SELECTED SOILS IN MONROE COUNTY--CONTINUED

Cation-exchange capacity (by NH_4OAc)	Extractable cations (milliequivalents per 100 grams of soil)					Sum of extractable bases and hydrogen	Ca/Mg ratio	Base saturation	
	Ca	Mg	Na	K	H			By NH_4OAc	On sum of bases and hydrogen
Meq./100 gm.						Meq./100 gm.		Percent	Percent
4.2	1.3	0.8	<0.1	0.4	6.0	8.5	1.6	60	29
7.9	3.0	1.8	.1	.1	7.2	12.2	1.7	63	41
8.5	1.3	1.7	<.1	.1	8.6	11.7	.8	36	26
9.0	.9	1.3	<.1	.1	9.3	11.6	.7	26	20
9.6	.2	1.1	<.1	.1	10.3	11.7	.2	14	12
7.5	.1	1.2	<.1	.1	8.8	10.2	.1	19	14
6.9	<.1	.6	<.1	.1	8.4	9.1	---	10	8
3.7	2.0	.5	<.1	.1	4.2	6.8	4.0	70	38
8.6	1.0	1.9	.1	.2	7.9	11.1	.5	37	29
5.7	.1	1.2	.1	.1	5.8	7.3	.1	26	20
5.5	.1	1.0	<.1	.1	6.7	7.9	.1	22	15
8.4	.1	1.2	<.1	.1	9.1	10.5	.1	17	13
7.5	<.1	1.3	<.1	.1	9.8	11.2	---	19	12
8.2	.1	1.3	<.1	.1	9.8	11.3	.1	18	13
18.2	10.2	1.9	<.1	.2	11.6	23.9	5.4	68	51
20.4	12.3	1.3	<.1	.2	12.1	25.9	9.5	68	53
29.5	11.0	1.5	.1	.3	25.6	38.9	7.3	44	34
30.2	6.8	.7	.2	.3	29.5	37.5	9.7	26	21
31.6	10.5	1.0	.5	.3	26.5	38.8	10.5	39	32
35.5	20.7	1.7	.9	.4	19.0	42.7	12.2	67	56
35.7	31.2	2.2	1.2	.4	8.6	43.6	14.2	98	80
36.4	40.5	2.4	1.4	.4	.5	45.2	16.9	123	99
15.2	11.4	1.3	.1	.3	7.8	20.9	8.8	86	63
11.8	3.6	.8	<.1	.1	11.0	15.5	4.5	38	29
22.8	4.3	1.3	.1	.2	22.0	27.9	3.3	26	21
24.3	4.0	.8	.1	.2	23.9	29.0	5.0	21	18
25.8	5.5	1.1	.2	.2	23.5	30.5	5.0	27	23
28.7	11.6	.8	.4	.3	20.8	33.9	14.5	46	39
28.2	17.6	1.3	.6	.3	14.2	34.0	13.5	70	58
28.8	23.5	1.5	.7	.3	8.0	34.0	15.7	90	76
28.9	31.5	2.1	.9	.3	1.9	36.7	15.0	120	95

Profiles of soils analyzed

The profiles of the soils listed in tables 9 and 10 are described in the following paragraphs.

EUTAW SILTY CLAY LOAM, DEEP, S58-Miss-48-2

The profile described is 6 miles east of State Route 45W at Muldon and 165 feet south of a local road (160 feet east and 165 feet south of the NW. corner of NW¼NE¼ sec. 4, T. 16 S., R. 7 E.); site is in a stand of post oak, red oak, hickory, and other hardwoods. This soil formed in acid clay over marl. It is nearly level, has gilgai relief, and is poorly drained. Plant roots are well distributed. When sampled, the soil was moist to wet and was deep to ground water.

Profile description:

A1—0 to 1 inch, very dark grayish-brown (10YR 3/2) silty clay loam; weak, fine, granular structure; friable when moist, slightly plastic when wet; many fine roots; abrupt, smooth boundary.

A2—1 inch to 5 inches, mottled brownish-yellow (10YR 6/8) and light brownish-gray (2.5Y 6/2) silty clay loam; weak to moderate, fine, subangular blocky structure; friable when moist, slightly plastic and slightly sticky when wet; many fine roots, many old root and worm channels filled with material from layer above; abrupt, smooth boundary.

B1—5 to 11 inches, mottled light brownish-gray (2.5Y 6/2), yellowish-brown (10YR 5/8), and brownish-yellow (10YR 6/8) silty clay; moderate, fine, subangular blocky structure; friable when moist, very plastic and very sticky when wet; many fine roots, few large roots, few old root channels; clear, smooth boundary.

B21g—11 to 27 inches, gray (5Y 6/1) clay; many, fine and medium, distinct and prominent, yellowish-brown (10YR 5/8) and few red (10R 5/8) mottles; moderate and strong, fine and medium, subangular blocky structure; friable when moist, very sticky and very plastic when wet; many fine roots, few large roots, few old root channels; gradual, wavy boundary.

B22g—27 to 37 inches, gray (5Y 6/1) clay; many, fine and medium, prominent, dark-red (10R 3/6) and yellowish-brown (10YR 5/8) mottles; moderate and strong, fine to coarse, angular blocky structure; few scattered slickensides; friable when moist, very sticky and very plastic when wet; few roots; clear, wavy boundary.

B3g—37 to 53 inches, gray (5Y 6/1) clay or silty clay; many, medium, distinct, light olive-brown (2.5Y 5/6) mottles; moderate and strong, coarse, angular blocky and fine subangular blocky structure; common large slickensides 4 inches wide and 6 inches long that break to very fine and fine, angular blocky and subangular blocky peds; friable to firm when moist, very sticky and very plastic when wet; numerous roots; root channels filled with greenish-gray (5BG 5/1) clay; clear, wavy boundary.

C1—53 to 65 inches +, mottled yellowish-brown (10YR 5/6) and gray (5Y 6/1) clay or silty clay; mottles are many, coarse, and prominent; many large slickensides that break to moderate and strong, fine to coarse, angular blocky and subangular blocky peds; firm when moist, very sticky and very plastic when wet; few roots, few old root channels.

EUTAW SILTY CLAY LOAM, S58-Miss-48-1

Except for texture of the surface layer, the profile of this soil is the same as that of Eutaw silty clay described under the Eutaw series in the section "Formation and Classification of Soils."

GREENVILLE SILT LOAM, S61-Miss-48-1

The profile described is 3½ miles east of Amory at a point three-fourths mile north and 250 feet west of intersection of U.S. Highway No. 278 and a gravel road (SE¼NW¼ sec. 4, T. 13 S., R. 18 W.); site is in a cultivated field used for cotton. This soil formed in moderately fine textured Coastal Plain material. It is nearly level, well drained, and moderately permeable. Runoff is medium to rapid, and internal drainage is medium.

Profile description:

Ap—0 to 6 inches, dark-brown (7.5YR 3/2) silt loam with high sand content; weak, fine and medium, granular structure; friable; few fine roots; few worm casts; clear, smooth boundary.

A3—6 to 10 inches, dark reddish-brown (5YR 3/4) silt loam; weak, fine and medium, granular structure and medium, subangular blocky structure; friable; few fine roots; material from Ap horizon in root and worm holes; few worm casts; clear, smooth boundary.

B21—10 to 23 inches, dark reddish-brown (2.5YR 3/4) light clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine, soft, black concretions and coatings; few worm casts; material from Ap horizon in root and worm channels; gradual, smooth boundary.

B22—23 to 37 inches, dark reddish-brown (2.5YR 3/4) silty clay loam; moderate, medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; common, fine, soft, black concretions and coatings; patchy clay films on ped faces and in cracks; gradual, smooth boundary.

B31—37 to 50 inches, dark reddish-brown (2.5YR 3/4) to dark-red (2.5YR 3/6) clay loam; moderate, coarse and medium, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine, soft, black concretions and coatings; patchy clay films on ped faces and in cracks; diffuse, smooth boundary.

B31—50 to 65 inches, dark reddish-brown (2.5YR 3/4) to dark-red (2.5YR 3/6) clay loam; moderate, coarse and medium, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine, soft, black concretions and coatings; patchy clay films on ped faces and in cracks; diffuse, smooth boundary.

B32—65 to 80 inches, dark-red (10R 3/6) clay loam; moderate, coarse and medium, angular blocky structure; friable when moist, slightly plastic when wet; few fine roots; patchy clay films on ped faces and in cracks.

GREENVILLE SILT LOAM, S61-Miss-48-2

The profile described is 3½ miles east of Amory at a point one-half mile south and 250 feet west of intersection of U.S. Highway No. 278 and a gravel road (NE¼NW¼ sec. 8, T. 13 S., R. 18 W.); site is in a cultivated field used for cotton. This is a nearly level, well-drained, moderately permeable soil that formed in moderately fine textured Coastal Plain material. Runoff is medium to rapid, and internal drainage is medium.

Profile description:

Ap—0 to 6 inches, dark-brown (7.5YR 3/2) silt loam with high sand content; weak, fine and medium, granular structure; very friable; few fine roots; few worm casts; abrupt, smooth boundary.

A3—6 to 9 inches, dark reddish-brown (5YR 3/4) silt loam; weak, fine and medium, granular structure and medium, subangular blocky structure; friable; few fine roots; few worm casts; clear, smooth boundary.

B21—9 to 21 inches, dark reddish-brown (2.5YR 3/4) light clay loam or silty clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine, soft, black concretions and coatings; few worm casts; gradual, smooth boundary.

B22—21 to 35 inches, dark reddish-brown (2.5YR 3/4) clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when

wet; few fine roots; common, fine, soft, black concretions; common, fine and medium, black coatings; few fine pieces of quartz gravel; gradual, smooth boundary.

B31—35 to 48 inches, dark reddish-brown (2.5YR 3/4) to dark-red (2.5YR 3/6) clay loam; moderate, coarse and medium, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few, fine, soft, black concretions and coatings; few fine pieces of quartz gravel; patchy clay films on ped faces and in cracks; diffuse, smooth boundary.

B31—48 to 61 inches, dark reddish-brown (2.5YR 3/4) to dark-red (2.5YR 3/6) clay loam; moderate, coarse and medium, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few, fine, soft, black concretions and coatings; few fine pieces of quartz gravel; patchy clay films on ped faces and in cracks; diffuse, smooth boundary.

B32—61 to 80 inches, dark-red (10R 3/6) sandy clay loam; moderate, coarse, angular and subangular blocky structure; friable when moist, slightly plastic when wet; few fine pieces of quartz gravel; patchy clay films in cracks and on ped faces.

ORA SILT LOAM, S61–Miss–48–3

Except for texture of the surface layer, the profile of this soil is the same as that of Ora fine sandy loam described under the Ora series in the section "Formation and Classification of Soils."

ORA SILT LOAM, S61–Miss–48–4

The profile described is 0.4 mile west and about 300 feet north of crossroad that is 4½ miles east and 0.9 mile north of Hatley (SW¼SW¼ sec. 18, T. 12 S., R. 17 W.); site is in field that was covered with vetch. This soil formed in sandy Coastal Plain material, is on gentle slopes of about 3 percent, and is moderately well drained or well drained. Permeability is moderate in the upper part of the solum and is slow in the lower part. Runoff is medium to rapid, and internal drainage is medium.

Profile description:

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam with high sand content; weak, fine and medium, granular structure; very friable; few fine roots; material from B horizon in root and worm holes; few, fine, soft, black and brown concretions; few fine pieces of charcoal; abrupt, smooth boundary.

B21—7 to 19 inches, brown to dark-brown (7.5YR 4/4) heavy loam; moderate, fine and medium, subangular blocky structure; friable when moist, slightly plastic when wet; few fine roots; few, fine, soft, brown and black concretions; clear, smooth boundary.

B22—19 to 23 inches, strong-brown (7.5YR 5/6) heavy loam; common, medium, prominent, dark-red (2.5YR 3/6) mottles; moderate, medium, subangular blocky structure; friable; few fine roots; clear, wavy boundary.

B3m1—23 to 27 inches, mottled dark-red (10R 3/6), strong-brown (7.5YR 5/6), and yellowish-brown (10YR 5/4) loam; many, medium and coarse, faint and prominent mottles; moderate, thick and very thick, platy structure breaks to moderate, medium, subangular blocky structure; firm; few fine voids; few vertical cracks, 1 to 2 inches wide, filled with yellowish-brown (10YR 5/4) sandy loam; gradual, smooth boundary.

B3m2—27 to 37 inches, mottled dark-red (10R 3/6), yellowish-brown (10R 5/4), and pale-brown (10YR 6/3) loam; mottles are many, medium and coarse, faint and prominent; moderate, thick and very thick, platy structure breaks to moderate, medium, subangular blocky structure; firm; compact and brittle; this horizon is in thin, horizontal beds of gray, dark red, and yellowish brown; few fine voids; patchy clay films on peds and in cracks; few vertical cracks filled with yellowish-brown (10YR 5/4) sandy loam and few filled with light brownish-gray (2.5Y 6/2) sandy clay loam; gradual, smooth boundary.

C1—37 to 49 inches, dark-red (10R 3/6) loam, sandy clay loam or clay loam; common, medium, prominent mottles of yellowish brown (10YR 5/4) and few, medium, prominent mottles of light gray to gray (10YR 6/1); mottles are segregated in pockets and in old root and worm channels; moderate, coarse, angular and subangular blocky structure; friable; patchy clay films on ped faces and in cracks; few vertical cracks filled with yellowish-brown (10YR 5/4) sandy loam and few with light brownish-gray (2.5Y 6/2) sandy clay loam; diffuse, smooth boundary.

C2—49 to 62 inches, dark-red (10R 3/6) light sandy clay loam; common, medium, prominent mottles of yellowish brown (10YR 5/4); weak, coarse, angular and subangular blocky structure; friable; patchy clay films on ped faces and in cracks.

VAIDEN SILT LOAM, S58–Miss–48–3

For a profile description of this soil, see the profile described under the Vaiden series in the section "Formation and Classification of Soils."

VAIDEN SILT LOAM, S58–Miss–48–4

The profile described is 2.5 miles east of the Chickasaw County line at Egypt and 800 feet north of a local road (495 feet south and 100 feet west of the NE. corner of NE¼SW¼ sec. 4, T. 14 S., R. 6 E.); site is in open pasture. This soil formed in marly clay and is nearly level and somewhat poorly drained. When sampled the soil was moist, the level of ground water was low, and roots were well distributed.

Profile description:

Ap1—0 to 1 inch, dark-gray (5Y 4/1) silt loam; few, fine, faint, gray (5Y 5/1) mottles; weak, fine, subangular blocky structure and moderate, fine, granular structure; friable when moist, slightly plastic when wet; many fine roots; many brown and dark-gray root stains; few root and worm channels; abrupt, smooth boundary.

Ap2—1 inch to 3 inches, pale-brown (10YR 6/3) silt loam; common, medium, faint, grayish-brown (2.5Y 5/2) mottles; weak, fine, subangular blocky structure and moderate, fine, granular structure; friable when moist, slightly plastic when wet; many fine roots and few coarse roots; abrupt, wavy boundary.

B21—3 to 8 inches, mottled yellowish-brown (10YR 5/8) and brownish-yellow (10YR 6/8) to gray (10YR 6/1 to 5Y 6/1) silty clay loam; moderate, fine and medium, subangular blocky structure; friable when moist, plastic and sticky when wet; many old root and worm channels filled with gray (5Y 6/1) silt loam; many fine roots; clear, wavy boundary.

B22—8 to 13 inches, mottled brownish-yellow (10YR 6/8), yellowish-brown (10YR 5/8), light olive-gray (5Y 6/2), and red (2.5YR 4/8) silty clay; moderate, very fine to medium, angular and subangular blocky structure; friable to firm when moist, very plastic and very sticky when wet; numerous fine roots and few coarse roots; clear, smooth boundary.

B23—13 to 27 inches, mottled gray (5Y 6/1), yellowish-brown (10YR 5/8), brownish-yellow (10YR 6/8), yellowish-red (5YR 4/8), and red (2.5YR 4/8) clay; mottles are many, fine, and prominent; moderate, very fine to medium, angular and subangular blocky structure; friable when moist, very sticky and very plastic when wet; many fine roots and few coarse roots; clear, wavy boundary.

B31—27 to 43 inches, mottled light olive-brown (2.5Y 5/6) and gray (5Y 6/1) clay; moderate, very fine to medium, angular and subangular blocky structure; friable to firm when moist, very plastic and very sticky when wet; few thin slickensides; few fine roots and root channels, root channels filled with gray (5Y 6/1) clay; gradual, wavy boundary.

B32—43 to 54 inches, mottled yellowish-brown (10YR 5/8) and brownish-yellow (10YR 6/8) to gray (5Y 6/1) clay; large slickensides break to moderate, very fine to medium, angular and subangular blocky peds; faces on slickensides light olive brown (2.5Y 5/6) with some gray; friable when moist, very sticky and very plastic when wet; few concretions of manganese; few fine roots; gradual, wavy boundary.

C1—54 to 62 inches, mottled yellowish-brown (10YR 5/8) to brownish-yellow (10YR 6/8) clay; many, coarse, prominent, light brownish-gray (2.5Y 6/2) mottles; large slickensides break to moderate, very fine to medium, angular and subangular blocky peds; friable to firm when moist, very sticky and very plastic when wet; many fine concretions and coatings of manganese in lower part of horizon; few lime nodules; root channels filled with gray (10YR 6/1) clay; few fine roots; gradual, wavy boundary.

C2—62 to 72 inches, coarsely mottled brownish-yellow (10YR 6/8) to yellowish-brown (10YR 5/8) and light brownish-gray (2.5Y 6/2) to olive-gray (5Y 5/2) clay; large slickensides break to moderate, very fine to medium, angular and subangular blocky structure; friable when moist, very plastic and very sticky when wet; many lime nodules, many fine concretions of manganese; few fine roots; root channels filled with gray (10YR 6/1) clay.

Physical properties

The physical properties of soils in Monroe County can be interpreted from data on mechanical analysis, bulk density, and moisture tensions shown in table 9.

The soils east of the Tombigbee River and those west of the river differ greatly in physical properties that are related primarily to texture and mineralogy. West of the river in the prairie section, or black belt, the soils contain expansive minerals and are high in clay content. Consequently, these soils are low in permeability, have high shrink-swell potential, and are highly susceptible to erosion. If their moisture content changes, their volume readily changes, and when they are wet, their infiltration capacity and hydraulic conductivity are very low, or less than 0.1 inch per hour. Cracks form in the soils in dry weather and damage plant roots and foundations of buildings. Following a dry spell the first rain is readily absorbed, but when the soils are wet they swell and seal, and runoff from subsequent rains is rapid. Even if rainfall is heavy, water is likely to penetrate the soils only a few inches. The foregoing characteristics should be considered in designing irrigation systems for these soils or in using the soils for crops, roads, building locations, or sewage-disposal fields.

Because of their fine texture and mineralogy, soils of the prairie section are very plastic, and powerful equipment is needed in plowing them. Generally, the soils can be kept in good tilth for crops by plowing in fall and allowing the soil to weather until friable in spring. If row crops are grown, the soils should not be left without good vegetative cover from fall until the following June or July, for erosion can be severe on sloping land during this period. Clean-tilled crops should be used sparingly on sloping soils of the prairie and then only in conjunction with good conservation practices.

Although the soils east of the Tombigbee River are variable in texture and in sequence of layers, their physical properties are more favorable than those of the prairie soils west of the river. The surface layer of these soils generally allows fair to good infiltration of water and is easy to till. Soils with a loam, sandy loam, or loamy sand surface layer permit rainfall to infiltrate at a rate of 2.5 inches or more per hour. Whether or not this infiltration rate can be sustained depends on the hydraulic conductivity of the subsoil layers. Conductivity may be low if the subsoil is heavy textured or contains a fragipan, or if the soil is in a low position and is poorly drained.

The available moisture capacity of these soils varies according to the texture. Available moisture capacity is estimated from bulk density and from the difference in moisture content between 1/3 atmosphere and 15 atmospheres tension. Loamy sands supply less than 0.1 inch of water per inch of soil; sandy loams, 0.1 to 0.15 inch; loams 0.15 to 0.2 inch; and silt loams, 0.2 to 0.3 inch. In the Pheba, Savannah, and other soils that have a fragipan, the available moisture is limited to the layers above the fragipan, generally the upper 20 inches of soil. Because the fragipan has high bulk density—1.7 to 1.9 grams per cubic centimeter—it impedes the growth of roots. The Eustis and other coarse-textured soils have low available moisture capacity but are loose and are easily penetrated by roots. The supply of available moisture in these coarse-textured soils is quickly recharged by rainwater that infiltrates during wet periods. Because runoff is slow, the soils in the eastern part of the county are less likely to erode than are those in the western part and, therefore, they are better suited to row crops.

Chemical properties

The chemical properties of soils (table 10) are interpreted from analyses of data on exchangeable cations and cation exchange capacity. Generally, these data are expressed as milliequivalents per 100 grams of soil. To convert the data to pounds per acre, for the plow layer, or to a depth of 6 inches, the following relationships are used: 1 milliequivalent of calcium (Ca) per 100 grams of soil material equals 400 pounds of calcium or 1,000 pounds of pure calcium carbonate per acre; 1 milliequivalent of magnesium (Mg) per 100 grams of soil material equals 240 pounds per acre; 1 milliequivalent of potassium (K) per 100 grams of soil material equals 780 pounds per acre; 1 milliequivalent of sodium (Na) per 100 grams of soil material equals 460 pounds per acre; and 1 milliequivalent of hydrogen (H) per 100 grams of soil material equals 20 pounds per acre.

Exchangeable cations are available for use by plants and are held by the soil against leaching. The exchange capacity of a soil is a measure of the total cations the soil can adsorb, either as single cations or in combination. If soluble salts are added to the soil in excess of its exchange capacity, the soil becomes saline and unsuitable for plant growth. Any cation adsorbed on the exchange complex of the soil can be removed by substituting another cation in its place. For good growth of most plants, the exchange capacity of the soil should be saturated with at least 6 percent calcium, 15 percent magnesium, 5 percent potassium, and 5 percent sodium and other cations, other than hydrogen.

The chemical properties of soils in the county vary considerably with the degree of weathering and the source of parent material. Soils of the prairie section, or black belt,

west of the Tombigbee River have cation exchange capacities ranging from 20 to 50 milliequivalents per 100 grams. Percentage base saturation ranges from 20 to 90 percent in the Vaiden, Eutaw, and other acid soils and is 100 percent or greater in Houston, West Point, and other neutral to alkaline soils. Calcium is the dominant basic cation in each of these soils.

In the acid soils exchangeable magnesium may be as high as 5 milliequivalents, or 15 to 20 percent of the base exchange capacity. The neutral to alkaline soils are generally low in exchangeable magnesium. Response to magnesium is generally noted if the level in the soil drops to about 5 percent of saturation. Exchangeable potassium generally is below 0.5 milliequivalent per 100 grams, or less than 400 pounds per acre. Exchangeable sodium ranges from less than 0.1 milliequivalent in the surface layer to 2 milliequivalents in the parent material. From 3 to 10 tons of calcium carbonate per acre is needed to raise the Vaiden and other acid soils to pH 6.5.

Soils east of the Tombigbee River in Monroe County (see data on Ora and Greenville soils in table 10) are coarser in texture than the prairie, or black belt, soils west of the river and, consequently, are more weathered and leached. Cation exchange capacities in soils to the east generally range from 4 to 10 milliequivalents per 100 grams, as compared to 20 to 50 milliequivalents for soils of the black belt. Base saturation values are below 30 percent in subsurface layers and decrease with depth. Calcium is the dominant exchangeable cation only in the surface layer; magnesium dominates in the exchangeable base complex in the subsoil. The calcium: magnesium ratio thus shows a sharp decrease between the surface layer and the subsoil. Calcium minerals have long since weathered out of Monroe County soils, whereas magnesium is continually replenished on the soil exchange complex because it is released from the clays through weathering. The sodium level is very low in all soil layers; the source of sodium is lacking, and this element is not held so tightly by the soil as are other exchangeable cations. Exchangeable potassium generally is about 0.1 milliequivalent per 100 grams, or 78 pounds per acre, but it may range to as much as 0.4 milliequivalent in the surface layer. A low total content of potassium, less than 12,000 pounds per acre, is typical in these soils. Available phosphorus ranges between 2 and 5 pounds per acre in the subsoil, and in the surface layer if it is unfertilized. Both phosphorus and potassium are important fertilizer additives for crop production in the county.

Most soils in the eastern part of the county need lime in substantial amounts. Exchangeable hydrogen values closely approximate exchange capacities. The pH generally ranges from 4.5 to 5.5 and is about 1½ units lower when measured in a potassium chloride suspension. The amount of lime needed to raise the pH of the surface layer to 6.5 ranges from 1,000 to 5,000 pounds per acre, depending on soil texture, organic-matter content, and past liming history. Exchangeable cation data indicate that either dolomitic or calcitic lime is suitable. If magnesium occupies less than 10 percent of the exchange capacity of the soils, dolomitic lime is the preferred liming material. If the total base saturation of the soils is less than 20 percent, crops respond to additions of calcium and to an increase in pH values.

Additional Facts About the County

This section discusses organization and population, physiography, climate, agriculture, and other subjects of general interest.

Organization and Population

Monroe County, the first county formed in Mississippi north of Vicksburg, was created by an act of the State legislature on February 9, 1821. The area was formerly occupied by the Chickasaw Indians. The first white settlement was at a cotton port west of Amory on the Tombigbee River. The county seat was Hamilton from 1821 to 1830 and Athens from 1830 to 1849. It was then moved to Aberdeen, the present county seat.

The early settlers came from Alabama, Georgia, and Tennessee. These settlers, who formerly had migrated from Virginia and the Carolinas, were primarily of Scotch and Irish descent and had considerable wealth. The part of the county east of the Tombigbee River was settled first, but as the population steadily increased and land values rose, settlements were soon made west of the river. Most of the early settlers occupied the prairie and the nearly level to rolling areas in the northern, central, and southern parts of the county. The hilly areas in the eastern and northeastern parts and along the river were thinly settled.

By 1900, the population had increased to 31,216. It reached a peak of 37,648 in 1940 and then decreased to 33,953 in 1960.

Vegetation

At one time the uplands in the county were in stands of shortleaf pine, loblolly pine, oak, gum, and hickory. On the bottoms were gum, white oak, red oak, water oak, poplar, ash, sycamore, cypress, cottonwood, and other kinds of trees.

In 1959, woodland on farms occupied 126,083 acres, chiefly on steep slopes and in wet areas, but the acreage is increasing each year. Nearly 70 percent of the woodland consists of shortleaf and loblolly pines, and woodland reestablished in previously tilled areas is mainly loblolly pine.

In 1960, forest products grown on farms accounted for approximately 2 percent of the value of all farm products sold.

Transportation and Industry

Four railroads serve all parts of the county. They are the Illinois Central Railroad, the St. Louis-San Francisco Railway, the Gulf Mobile and Ohio Railroad, and the Missisippian Railway.

U.S. Highway No. 278 runs east and west across the northern part of the county, and U.S. Highway No. 45 runs north and south in the western part. State Routes 6, 8, 25, and 41 pass through the county. Many farm-to-market roads are paved, and all other roads are gravel.

Bus and truck lines operate on Federal and State highways.

Garment factories are located in all the towns, and a number of other industries have recently been established in the county. Among these are two plants that process bentonite, a plant that manufactures automobile accessories, a chemical plant, a furniture factory, several sawmills, grain elevators, and a mill that extracts oil from cottonseed. These industrial plants furnish employment for several hundred people.

Physiography and Relief

Monroe County lies wholly within the Gulf Coastal Plain physiographic province (*4*). The county has two regions: the Tombigbee River hills, or fall line hills, and the prairie land, or black belt. The Tombigbee River hills region occurs in about the eastern three-fifths of the county and extends westward to the western limit of outcrops of the Tombigbee sand member of the Eutaw formation. These outcrops are slightly west of the Tombigbee River and roughly parallel to it. The rest of the county is prairie land.

In general, the Tombigbee River hills region is highest in the northeastern corner of the county, where the maximum elevation is about 500 feet above mean gulf level. The region slopes west, south, and southwest to the mouth of the Buttahatchie River, where the elevation is about 150 feet (*16*). The maximum difference in elevation is, then, 350 feet or more. The hills region is cut into sections by the deep valleys of the Sipsey and Buttahatchie Rivers and, to a lesser extent, by the valleys of Weaners and Splunge Creeks and smaller streams. These valleys and a series of north-south or northeast-southwest ridges between them are the largest topographic features, though minor streams dissect the ridges into more or less rounded hills. As a whole, the topography has reached early maturity. Rolling hills dominate on the upland, and little of the surface is flat, but slopes are steep and ridges are narrow in many places, especially near the heads of the valleys.

Terraces are conspicuous along the large streams. On the eastern side of the Tombigbee River is a belt of terraces, 1 mile to 4 miles wide, in which geologists have found as many as five terraces of varying width. A good example of terrace topography is near Hamilton, both east and west of U.S. Highway No. 45.

The prairie, or black belt, region is generally nearly level to moderately sloping, but a few bluffs are steep. The valleys are wide and have few terraces.

Drainage and Water Supply

All Monroe County lies within the Tombigbee River watershed. The Tombigbee River enters the county about 2 miles northwest of Smithville. It flows southwest to a point about 3 miles west of Amory, then flows south to Aberdeen, and leaves the county about 6 miles southwest of Hamilton. Its largest tributary from the west, Old Town Creek, enters the county west of Nettleton and flows southeast. Other tributaries from the west are Mattubby, Wolf, and James Creeks. A small area in the southwestern corner of the county drains into Chuquatonchee Creek. Tributaries on the east side of the Tombigbee River are the Buttahatchie and Sipsey Rivers and Splunge, Weaners, McKinley, and Halfway Creeks. These tributaries flow generally in a westerly direction and enter the river at wide angles to it. On the west side the tributaries flow southeast and enter the river at much narrower angles.

Perennial streams, springs, and ponds furnish most of the water for livestock, and intermittent streams add to the water supply in spring and winter. Deep and shallow wells furnish water for household use on farms.

Geology

In Monroe County the geologic formations at the surface are of Upper Cretaceous age of the Mesozoic era (*3*). In order of decreasing age, the formations are the Tuscaloosa, the Eutaw, and the Selma chalk. The strata dip gently to the west and southwest at about 30 feet to the mile.

The Tuscaloosa formation, which lies unconformably on material of Paleozoic age, is made up of sand, gravel, ferruginous sandstone, conglomerate, clay, clay shale, lignite, clay ironstone, and small amounts of other materials.

The Tuscaloosa formation is overlain by the Eutaw formation. This formation consists of the lower, or typical, Eutaw formation and the upper, or Tombigbee sand member (*16*). Between the two is a zone of gradual transition that consists of crossbedded and laminated clay. The typical Eutaw formation is dominantly fine-grained glauconitic sand but contains considerable clay. The Tombigbee sand member is principally green, glauconitic and somewhat calcareous sand. It has some layers, especially in the upper part, that are indurated and contain concretionary masses.

In the western third of the county, the underlying rock is Selma chalk. This formation lies unconformably on the Tombigbee sand member of the Eutaw formation, and the zone of contact is a basal conglomerate consisting of phosphatic nodules, phosphatic molds of fossils, and oyster shells. Some of these materials were reworked from Tombigbee sand. The chalk ranges from soft, argillaceous or sandy limestone to hard layers of nearly pure limestone. The content of calcium carbonate ranges from 95 to 98 percent in a few places to practically none in others (*16*).

Climate

Monroe County has a warm, humid climate and abundant rainfall. Temperatures range from an average low of about 36° F., in January, to an average high of about 94° in August. The year-round relative humidity is 60 to 100 percent of saturation 64 percent of the time. Rainfall averages about 52 inches per year. Table 11 shows data on temperature and precipitation at Aberdeen. Table 12 shows the probability of freezes in spring and in fall.

The temperature falls to 32°, or freezing, on an average of 50 days in winter and rises to 90° or higher on an average of 90 days in summer. The temperature is below 50° in 44 percent of the hours from November through April. From May through October the temperature is 90° or higher in 12 percent of the hours. The temperature falls to 20° at least once in 9 out of 10 years. The lowest temperature ever recorded was −15°, on February 13, 1899, and the highest was 114°, recorded on July 13, 1930.

The wide range in temperature is shown in columns three and four of table 11. These columns show that, on an average, 2 years in 10 have at least 4 days in August when the temperature is 102° or higher. The other extreme occurs

in January when, on an average, 2 years in 10 have at least 4 days with a temperature of 17° or lower. If the soil is wet, as it usually is in January, a temperature this low causes the ground to freeze and to heave.

In table 12 are listed the probabilities that there will be freezing temperatures of stated intensities in spring after the dates listed and in fall before the dates listed. The table gives probabilities of frost for temperatures of 36° and 40° because, if the sky is clear and the air is calm, frost can form near the ground at night and adversely affect seeds in beds and young plants, even though the temperature registered on a thermometer 5 feet above ground in a shelter is higher than 32°. On cold, windy nights the temperature on hilltops is the same as, or lower than, it is in the valleys, but on clear, calm nights the temperature is likely to be considerably lower in the valleys and in open country than it is on the hilltops and in the large towns.

Winter and spring are the wettest seasons; fall is the driest. Dry weather in fall is especially beneficial to harvesting operations and to the planting of winter grain. However, in an unusually dry fall, germination of grain is hindered at times or planting is delayed too long. Rains in winter and spring may last for several days, but they normally occur as brief showers along the leading edge of a mass of cold air. Rains in summer come as local thundershowers that may bypass one area for days and even weeks and bring to another area enough moisture for corn and other crops. Dry weather and plentiful sunshine during summer are especially beneficial to cotton.

The wettest year of record was 1932, when 76.82 inches of rain fell, and the driest year was 1943, which had a total rainfall of 32.40 inches. The wettest month was December 1926, when 18.99 inches of rainfall was recorded. The wide range in monthly rainfall is shown in table 11. October is normally the driest month of the year and, on an average of 1 year in 10, rainfall during that month is less than 0.35 inch. But once in about every 10 years, October has more than 4.50 inches of rain. January is normally the wettest month and, on an average of 1 year in 10, total rainfall in that month is more than 10.24 inches. Once in about every 10 years, however, January has less than 2.11 inches.

Snow is of little economic importance in most years, but 14 inches of snow fell on February 13, 1960. This was the heaviest snowfall ever recorded in the county.

Relative humidity is high both in winter and summer. It is 80 percent or higher in 36 percent of the hours in which the temperature is below 50° F. It never exceeds 79 percent when the temperature is 90° or higher, but it ranges from 50 to 79 percent for 26 percent of the time when the temperature is 90° or higher. Thus, in marked contrast to the coastal part of the State, the relative humidity in Monroe County is less than 50 percent in about three-fourths of the hours that have a temperature of 90° or higher.

TABLE 11.--TEMPERATURE AND PRECIPITATION AT ABERDEEN, MONROE COUNTY, MISSISSIPPI

[Elevation, 207 feet. Data based on 30-year records, through 1960]

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with--		Average total	One year in 10 will have--		Days with snow cover	Average depth of snow on days with snow cover
			Maximum temperature equal to or higher than--	Minimum temperature equal to or lower than--		Less than--	More than--		
	°F.	°F.	°F.	°F.	Inches	Inches	Inches	Number	Inches
January----	56.6	35.8	76	17	5.57	2.11	10.24	1	4
February---	59.4	37.7	74	23	5.53	2.37	9.25	1	4
March------	66.5	43.4	81	28	6.01	3.68	9.40	(1/)	2
April------	75.7	51.8	86	37	4.70	2.09	8.20	0	0
May--------	83.7	59.7	93	48	3.71	1.98	5.94	0	0
June-------	91.3	67.2	100	58	4.02	1.61	6.99	0	0
July-------	93.0	70.4	100	64	4.88	1.60	9.56	0	0
August-----	93.6	69.4	102	60	3.08	.76	5.24	0	0
September--	88.0	62.9	98	49	2.89	.65	5.89	0	0
October----	78.6	51.1	90	37	2.60	.35	4.50	0	0
November---	65.6	40.5	80	23	3.97	1.36	6.36	(1/)	2
December---	57.3	36.4	73	20	4.88	2.58	9.23	(1/)	1
Year-----	75.8	52.2	2/ 102	3/ 11	51.84	36.66	67.28	2	4

1/ Less than 0.5 day.

2/ Average annual highest temperature.

3/ Average annual lowest temperature.

TABLE 12.--PROBABILITIES OF LAST FREEZING TEMPERATURE IN SPRING AND FIRST IN FALL

Probability	Dates for given probability and temperature					
	20° F. or colder	24° F. or colder	28° F. or colder	32° F. or colder	36° F. or colder	40° F. or colder
Spring:						
1 year in 10 later than----	February 21	March 8	March 28	April 17	April 28	May 10
2 years in 10 later than---	February 12	March 1	March 21	April 10	April 21	May 3
5 years in 10 later than---	January 27	February 15	March 7	March 27	April 7	April 19
Fall:						
1 year in 10 earlier than--	November 26	November 13	October 26	October 18	October 5	September 29
2 years in 10 earlier than-	December 3	November 19	November 1	October 24	October 11	October 5
5 years in 10 earlier than-	December 16	December 1	November 12	November 4	October 22	October 16

Although tropical storms and hurricanes have never caused winds of gale or hurricane force in Monroe County, heavy rains as a result of these storms have caused floods and have ruined unharvested crops. In the extreme northwestern part of the county, tornadoes occur about once in 20 years per 25 square miles. In the extreme southeastern part, the frequency increases to one tornado in 8 years per 25 square miles. The distribution of tornadoes is affected primarily by the topography of the area to the southwest of the county. In the past 45 years there have been at least 16 damaging thunderstorms and seven severe hailstorms in Monroe County.

Agriculture

In this subsection the general pattern of agriculture in Monroe County is discussed. The statistics given are from the U.S. Census of Agriculture.

Land use

In 1959, about 65.0 percent of the county, or 320,027 acres, was in farms. There were 2,627 farms in the county, and their average size was 121.8 acres. The 1959 Census of Agriculture lists the acreage of farmland, by use, as follows:

	Acres
Cropland, total	125,969
Cropland, harvested	90,288
Cropland, pastured	13,616
Cropland not harvested and not pastured	22,065
Woodland, total	126,083
Woodland, pastured	45,242
Woodland, not pastured	80,841
Other pasture (not cropland and not woodland)	57,305
Other land (including farmsteads, roads, and waste-land)	10,670

Farm income and improvements

The early settlers depended on cotton as their main source of income. The acreage in cotton reached its peak in about 1929; because the government placed acreage controls on the crop in the early 1930's, the acreage then declined until World War II. During the war the raising of beef cattle and other livestock gained in importance as a source of income because beef was in short supply and brought high prices. After World War II, acreage allotments were again placed on cotton, and pasture, soybeans, oats, and other crops increased in importance.

In rural areas the houses range from one- to two-room dwellings to modern, well constructed and well maintained homes. Generally, the better homes are on the better soils in the eastern, central, and western parts of the county. On most farms the condition of buildings, the extent of improvements, and the use of modern conveniences are closely related to the productivity and other characteristics of the soils.

Crops

Table 13 shows the acreage of the principal crops grown in the county in stated years.

Farm equipment and use of fertilizer

Of the 2,627 farms reporting in the 1959 census, 807 had telephones and 1,261 had home freezers. In the same year there were 2,029 tractors on 1,415 farms and 1,543 motor-

TABLE 13.--ACREAGE OF PRINCIPAL CROPS IN STATED YEARS

Crops	1939	1949	1959
	Acres	Acres	Acres
Cotton harvested----------	43,320	55,991	27,009
Corn harvested for grain--	49,291	46,693	28,923
Sorghum for all purposes except sirup----------	421	496	1,110
Oats threshed or combined----------	362	1,563	1,955
Hay----------	32,991	28,102	22,425
Cowpeas, grown alone------	4,664	1,385	389
Soybeans----------	(1/)	5,992	6,569

1/ Not reported.

trucks on 1,340 farms. Other mechanical equipment included 136 combines on 130 farms, 53 forage harvesters on 41 farms, 105 cornpickers on 104 farms, 202 pickup balers on 197 farms and 1,773 cars on 1,567 farms.

Monroe County farmers used 13,960 tons of commercial fertilizer in 1959. In addition, they used 6,545 tons of lime.

Glossary

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

Available moisture capacity. The capacity of a soil to hold water in a form available to plants. Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Azonal soils. Any group of soils without well-developed profile characteristics because of their youth, or because the nature of the parent material or the relief prevents normal development of such characteristics.

Calcareous soil. A soil that contains enough calcium carbonate (often with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid.

Catena. A sequence, or "chain," of soils on a landscape, developed from one kind of parent material but having different characteristics because of differences in relief and drainage.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter (0.000079 inch) in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Claypan. A compact, slowly permeable soil horizon that contains more clay than the horizon above and below it. A claypan is commonly hard when dry and plastic or stiff when wet.

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—

Brittle. When dry, soil that is struck a sharp blow breaks with a clean fracture or shatters to cleanly broken, hard fragments.

Compact. When moist, soil has dense and firm arrangement of particles, which are not cemented.

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

Friable. When moist, soil crushes easily under gentle to moderate pressure between thumb and forefinger and can be pressed together into a lump.

Hard. When dry, soil moderately resists pressure; can be broken with difficulty between thumb and forefinger.

Plastic. When wet, soil is readily deformed by moderate pressure but can be pressed into a lump; forms a wire or spindle when rolled between thumb and forefinger.

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

Contour furrows. Furrows plowed at right angles to the direction of the slope, at the same level throughout, and ordinarily at comparatively close intervals.

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, has a hard or very hard consistence, 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 15 to 40 inches below the surface.

Gilgai relief. The microrelief of those clays that have a high coefficient of expansion and contraction with changes in moisture: generally a succession of microbasins and microknolls in nearly level areas, or of microvalleys and microridges that run with the slopes.

Glauconite. A dull-green, amorphous iron-potassium silicate that occurs abundantly in greensand.

Gleyed soil. A soil in which waterlogging and consequent 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 (*14*) (see also Sequum). The major soil horizons are—

A horizon. The mineral horizon at the surface. It has an accumulation of organic matter, has been leached of soluble minerals and clay, or shows the effects of both.

B horizon. The horizon in which clay minerals or other material has accumulated, or that has developed a characteristic blocky or prismatic structure, or that shows the effects of both processes.

C horizon. The unconsolidated material immediately under the true soil.

In addition to the capital letters used in this report to indicate the major soil horizons, other symbols are used with the capital letters. Following are the symbols and their meaning:

g—strong gleying.
p—plow layer.
t—illuvial clay.
x—fragipan.

Internal soil drainage. The downward movement of water through the soil profile.

Intrazonal soils. Any of the great groups of soils with more or less well-developed soil characteristics that reflect the dominating influence of some local factor of relief or parent material over the normal influence of climate and vegetation.

Laterization. A process of soil formation in which rock is decomposed and leaves residual deposits of red color.

Miscellaneous land type. A mapping unit for areas of land that have little or no natural soil; or that are too nearly inaccessible for orderly examination; or that occur where, for other reasons, it is not feasible to classify the soil.

Morphology, soil. The makeup of the soil, including the texture, structure, consistence, color, and other physical, mineralogical, and biological properties of the various horizons of 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: contrast—*faint*, *distinct*, and *prominent;* abundance—*few*, *common*, and *many;* and size—*fine*, *medium*, and *coarse*. The size measurements are these: *fine*, commonly less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium*, commonly from 5 to 15 millimeters (about 0.2 to 0.6 inch) along the greatest dimension; and *coarse*, commonly more than 15 millimeters (about 0.6 inch) along the greatest dimension.

Natural drainage. Refers to conditions of drainage 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 classes of natural drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low moisture-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 and the C horizons.

Imperfectly or somewhat poorly drained soils are wet for significant periods but not all the time, and in podzolic 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.

Parent material (soil). The horizon of weathered rock or partly weathered soil material from which the soil has formed; horizon C in the soil profile.

Permanent pasture. Grazing land occupied by pasture plants that remain unplowed for many years, in contrast to rotation pasture, which is used as pasture only 1 or 2 years as a part of a crop rotation.

Permeability, soil. The quality of a soil that enables water or air to pass through it.

Phase, soil. A subdivision of a soil type, series, or other unit in the soil classification system made because of differences in the soil that affect its management but do not affect its classification in the natural landscape. A soil type, for example, may be divided into phases because of differences in slope, stoniness, thickness, or some other characteristic that affects management.

Podzolization. The process by which a soil is depleted of bases, becomes more acid, and develops a leached surface layer.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material. (See Horizon, soil; Parent material, soil.)

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in words or in pH values as follow (*15*) :

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4–7.8
Very strongly acid	4.5–5.0	Moderately alkaline	7.9–8.4
Strongly acid	5.1–5.5	Strongly alkaline	8.5–9.0
Medium acid	5.6–6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1–6.5		
Neutral	6.6–7.3		

Relief. The elevations or inequalities of a land surface, considered collectively.

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 between 0.05 millimeter (0.002 inch) and 2.0 millimeters (0.079 inch). Most sand grains consist of quartz, but they may be of any mineral composition. Sand is the textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Sequum. A sequence in a soil profile consisting of an eluvial horizon and its related illuvial horizon, if present. Two sequa may be present in a single profile, and that soil could then be called a bisequal soil. If more than one sequum is present in vertical sequence, the lower sequum is given A and B designations with a prime accent, as A′2, B′2.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface layer, are similar in differentiating characteristics and in arrangement in the profile.

Silt. Individual mineral particles in a soil that range in diameter from 0.002 millimeter (0.000079 inch) to 0.05 millimeter (0.002 inch). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants. Soil has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons.

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 profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil; the C or D horizon.

Surface runoff. (See Runoff, hydraulics.)

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. (See also Clay, Sand, and Silt.) The basic textural classes, in order of increasing proportions of fine particles, are as follows: *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. The physical condition of soil in respect to its fitness for the growth of a specified plant or sequence of plants.

Type, soil. A subdivision of the soil series that is made on the basis of differences in the texture of the surface layer.

Undifferentiated soil group (mapping unit). Two or more soils that are mapped as a single unit because their differences are not significant to the purpose of the survey or to soil management.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and ordinarily lying at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

Zonal soils. Any one of the great groups of soils having well-developed soil characteristics that reflect the influence of the active factors of soil genesis—climate and living organisms—chiefly vegetation.

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