Series 1959, No. 3

Issued February 1962

SOIL SURVEY

Sharkey County Mississippi

OUR SOIL ★ OUR STRENGTH

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

HOW TO USE THE SOIL SURVEY REPORT

THIS REPORT on Sharkey County, Mississippi, 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, ponds, buildings, and other structures; aid foresters in managing woodlands; serve as a reference for students and teachers; and add to the knowledge of soil scientists.

In making this survey, soil scientists dug holes and examined surface soils and subsoils; measured slopes with a hand level; noticed differences in growth of crops, weeds, and brush; and, in fact, recorded all the things about the soils that they believed might affect their suitability for farming, grazing, engineering, and related uses.

The scientists plotted the boundaries of the soils on aerial photographs. Then, cartographers prepared from the photographs the detailed soil map in the back of this report. Fields, woods, roads, and many other landmarks can be seen on the map.

Locating the soils

Use the index to map sheets to locate areas on the large detailed map. The index is a small map of the county, on which numbered rectangles have been drawn to show what area is covered by each sheet of the detailed map. On the detailed map, the boundaries of the soils are outlined and there is a symbol for each kind of soil. All areas marked with the same symbol have the same kind of soil. Suppose, for example, an area located on the map has the symbol Sb. The legend for the detailed map shows that Sb represents Sharkey clay, ½ to 2 percent slopes. This soil and all the others mapped in the county are described in the section "Descriptions of Soils."

Finding information

Different sections of this report will be of special interest to different groups of readers.

Farmers can learn about their soils in the section "Descriptions of Soils" and how to manage the soils and what yields to expect in the section "Use and Management of Soils."

Foresters and others interested in woodlands can refer to the subsection "Management of Woodland."

Engineers will find the engineering characteristics of the soils summarized in the subsection "Engineering Applications."

Soil scientists will find information about how the soils were formed and how they are classified in the section "Genesis, Morphology, 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.

The last part of the report gives general information about the county and about the kind of agriculture. It will be of particular interest to persons not familiar with the county.

* * *

This soil survey is part of the technical assistance furnished by the Soil Conservation Service to the Sharkey County Soil Conservation District. Fieldwork for this survey was completed in 1959. Unless otherwise indicated, all statements refer to conditions at the time the survey was in progress.

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SOIL SURVEY OF SHARKEY COUNTY, MISSISSIPPI

FIELD SURVEY BY F. T. SCOTT AND L. B. WALTON, SOIL CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE

REPORT BY F. T. SCOTT AND R. C. CARTER, SOIL CONSERVATION SERVICE

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

SHARKEY COUNTY is in the west-central part of Mississippi (fig. 1). It is about 30 miles long and about 15 miles wide and covers approximately 436 square miles. It is bounded on the north by Washington County, on the east by Humphreys and Yazoo Counties, on the south by Issaquena County, and on the west by Issaquena and Washington Counties. About 60 percent of the land area in Sharkey County is in forest, much of which is a national forest.

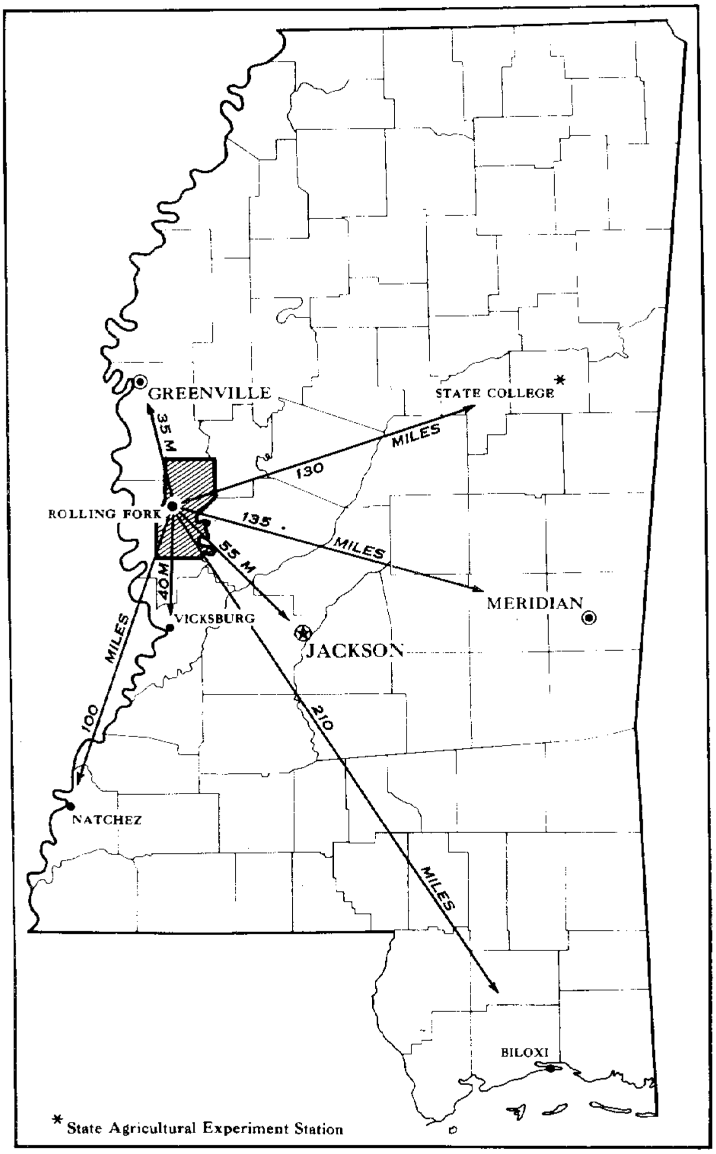

Figure 1.—Location of Sharkey County in Mississippi.

Agriculture is the main industry in the county. On most farms cotton is the principal crop, but other important crops are corn, soybeans, rice, and small grain. The production of livestock is also important.

General Soil Map

In mapping a county or other large tract, it is fairly easy to see definite changes as one travels from place to place. There are many obvious changes, among them changes in shape, gradient, and length of slopes; in the course, depth, and speed of streams; in kinds of native plants; and even in kinds of agriculture. Along with these obvious changes in the environment, there are less easily noticed changes in the patterns of soils.

By drawing lines around the different patterns of soils on a small map, one may obtain a map of the general soil areas, also called soil associations. Such a map is useful to those who want a general idea of the soils, who want to compare different parts of a county, or who want to locate large areas suitable for some particular kind of agriculture or other broad land use.

The five soil associations in Sharkey County are shown on the colored map at the back of this report. Each association is named for the major soil series in it, but each may include soils of other series. Also, the major soil series in one association may occur in another. Each of the five soil associations is described in this section.

1. Commerce-Mhoon-Robinsonville Association

This association occupies wide, nearly level areas on recent natural levees and also steeper, narrow areas along streams. The coarser textured soils commonly are adjacent to streams where the elevation is highest. As the distance from the stream increases, the elevation becomes lower and the soils are finer textured. Included are a few shallow depressions that are occupied by the poorly drained Dowling soils.

The Commerce soils are at lower elevations than the Robinsonville soils but at higher elevations than the

Mhoon soils. They are somewhat poorly drained to moderately well drained. They formed in medium-textured sediments deposited by the Mississippi River and its tributaries.

The Mhoon soils are at the lowest elevations. They are poorly drained and somewhat poorly drained and have a dark-gray surface soil and a mottled light-gray, stratified subsoil.

The Robinsonville soils are at the highest elevations. They are moderately well drained to well drained. The surface soil is brown very fine sandy loam and is underlain by yellowish-brown silt loam to very fine sandy loam.

This association covers about 14 percent of the county. The Commerce soils comprise about 95 percent of the association; the Mhoon soils, 3 percent; and the Robinsonville soils, 2 percent. About 97 percent of the acreage is in capability classes I and II, and about 3 percent is in class III.

These are some of the best farming soils in the county. Most of the acreage has been cleared and is used for row crops and livestock production. Farms are relatively large. Most farms are of the general kind, but a few are livestock farms. Sharecroppers operate many of the larger farms under the supervision of managers. Some farms are operated by tenants and day laborers. The principal crops are cotton, corn, soybeans, small grain, and pasture.

2. Forestdale-Dundee-Dowling Association

This association occupies wide, nearly level areas on old natural levees and steeper, narrow areas along streams. The soils developed in medium-textured to fine-textured alluvium of the Mississippi River. They have a medium-textured surface soil and a clayey subsoil. The coarser textured soils are adjacent to streams, where the elevation is highest. The texture becomes finer at greater distances from the streams, where the elevation is lower. Narrow, shallow depressions occur throughout the association.

The Forestdale soils are at the lower elevations on old natural levees. They are poorly drained to somewhat poorly drained and have a light brownish-gray surface soil and a grayish silty clay subsoil.

The Dundee soils are at the higher elevations. They are somewhat poorly drained to moderately well drained and have a brown surface soil and a brownish silty clay subsoil.

The Dowling soils are in depressions. They are poorly drained and have a dark-gray clayey surface soil that is underlain by dark-gray clay.

This association covers about 7 percent of the county. The Forestdale soils comprise about 80 percent of the association; the Dundee soils, 11 percent; and the Dowling soils, 9 percent. More than 80 percent of the acreage is in capability class II; the rest is in classes I and III.

Most of the acreage has been cleared and is in crops or pasture. Many of the farms are between 75 and 100 acres in size and are operated by the owners. The soils normally are easy to till and are suited to a wide range of crops. The principal crops are cotton, small grain, soybeans, corn, and pasture.

3. Alligator-Dowling-Forestdale Association

This association occupies broad, nearly level, slack-water areas that are dissected by shallow, long, narrow depressions. Many of these depressions are along old, low, natural levees. Steeper slopes occur in narrow areas along streambanks. In slack-water areas there are small acreages that are level. The soils developed in fine-textured to medium-textured sediments deposited by the Mississippi River. The coarse-textured soils are adjacent to streams where the elevation is highest.

The Alligator soils are in slack-water areas. They are poorly drained and have a light brownish-gray clayey surface soil that is underlain by mottled gray to light-gray clay.

The Dowling clays are in depressions. They are poorly drained and have a very dark gray clayey surface soil that is underlain by dark-gray clay.

The Forestdale soils are on old natural levees at slightly higher elevations than the Alligator soils. They are poorly drained to somewhat poorly drained and have a light brownish-gray, medium-textured surface soil that is underlain by grayish silty clay.

This association covers between 18 and 19 percent of the county. The Alligator soils make up about 70 percent of the association; the Dowling soils, 20 percent; and the Forestdale soils, 10 percent. Most of the acreage is in capability class III, but some is in classes II and IV.

About one-third of this association is in forest. Many of the farms are about 200 acres in size and are operated by the owners. The soils are only fair for row crops. Tilth generally is poor, and seedbeds can be prepared only within a narrow range of moisture content. The principal crops are small grain, soybeans, cotton, rice, and pasture.

4. Sharkey-Bowdre-Tunica Association

This association occupies wide, nearly level, slack-water areas. Some low, broad areas are level, and some narrow areas along streambanks are fairly steep. There are some depressions throughout the association. The soils developed in fine-textured sediments deposited by the Mississippi River.

The Sharkey soils commonly are at the lower elevations in the slack-water areas. They are poorly drained and have dark-colored, clayey profiles.

The Bowdre soils are on the higher elevations in the slack-water areas where they are next to recent natural levees. They are moderately well drained. The dark-colored clayey surface soil is underlain by coarser textured material at depths of less than 20 inches.

The Tunica soils commonly are at slightly higher elevations than Sharkey soils. They are somewhat poorly drained. The dark-colored, clayey surface soil is underlain by coarser textured material at depths of 20 to 34 inches.

The Dowling clays are in depressions. They are poorly drained and have a dark-colored clayey profile.

This association covers between 25 and 26 percent of the county. The Sharkey soils make up about 85 percent of the association, and the Tunica, Bowdre, and Dowling soils, about 15 percent. About 90 percent of the acreage is in capability class III; the rest is in classes II and IV.

About one-third of this association is in forest. Many farms are about 500 acres in size. Most farms are of the general kind, but some are livestock farms. Some farms are operated by sharecroppers under the supervision of managers, and some are run by tenants and day laborers.

The clayey texture makes these soils difficult to till. Cleared areas are used for small grain, soybeans, pasture, and cotton.

5. Sharkey-Alligator-Dowling Association

This association occupies broad, poorly drained, slackwater areas, mostly in the southern part of the county. The soils are dominantly nearly level, but some broad areas are level, and small acreages along streambanks have slopes of as much as 5 percent. Some areas, especially the numerous long, narrow depressions, are subject to backwater. In most places the soils are clay throughout the profile. The reaction is strongly acid to neutral.

This association makes up about 34 percent of the county. The Sharkey and Alligator soils occupy most of the area. These two soils are poorly drained and fine textured. The Sharkey soils are dark colored. The poorly drained, dark-colored, clayey Dowling soils are in depressions.

All of this association is wooded. About 62 percent of the acreage is in a national forest, and the rest is privately owned.

Use and Management of Soils

This section has five main parts. The first explains the system of classification used to show the relative suitability of the soils for various uses; the second is a discussion of management of the soils of Sharkey County by capability units; the third gives the estimated yields of the principal crops under two levels of management; the fourth gives some practices for the management of woodland; and the fifth contains information that can be used by engineers.

Capability Groups of Soils

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

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

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be up to 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 will interfere with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the 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 erosion hazard but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

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

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 land-forming 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.[1]

Class I.—Soils that have few limitations that restrict their use.
- Unit 1(I-1).—Mostly moderately well drained loamy soils on old or recent natural levees; 0 to 2 percent slopes.
- Unit 2(I-2).—Well-drained very fine sandy loams on recent natural levees; 0 to 2 percent slopes.

Class II.—Soils that have some limitations that reduce the choice of plants or require moderate conservation practices.
- Subclass IIe.—Soils susceptible to moderate erosion if not protected.
  - Unit 3(IIe-1).—Mostly moderately well drained loamy soils on old or recent natural levees; 2 to 5 percent slopes.
  - Unit 4(IIe-4).—Somewhat poorly drained to moderately well drained silty clay loams on recent natural levees; 2 to 5 percent slopes.
- Subclass IIs.—Soils moderately limited by poor tilth or other soil features.
  - Unit 5(IIs-2).—Mostly somewhat poorly drained silty clay soils in slack-water areas; 0 to 2 percent slopes.

[1] After the report for Sharkey County was prepared for publication, the soils shown in capability units IIs-2, IIs-3, IIs-4, IIs-5, IIs-6, and IIIs-4 were reassigned to capability units IIw-2, IIw-3, IIw-4, IIw-5, IIw-6, and IIIw-4 respectively.

Unit 6(IIs–3).—Cold-natured, somewhat poorly drained silt loams on old natural levees; 0 to 5 percent slopes.

Unit 7(IIs–4).—Cold-natured, somewhat poorly drained to poorly drained silty clay loams; 0 to 5 percent slopes.

Unit 8(IIs–5).—Poorly drained overwash of silt loam over slack-water clay; 0 to 2 percent slopes.

Unit 9(IIs–6).—Somewhat poorly drained to moderately well drained silty clay loams on recent or old natural levees; 0 to 2 percent slopes.

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

Subclass IIIw.—Soils limited by very slow permeability and by susceptibility to flooding.

Unit 10(IIIw–11).—Poorly drained, clayey soils on low bottoms; 0 to ½ percent slopes.

Unit 11(IIIw–12).—Poorly drained, clayey soils on low bottoms; subject to overflow; 0 to 2 percent slopes.

Unit 12(IIIw–13).—Poorly drained soils in depressions.

Subclass IIIs.—Soils limited by poor tilth.

Unit 13(IIIs–4).—Poorly drained, clayey soils mostly in slack-water areas; 0 to 2 percent slopes.

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

Subclass IVw.—Soils susceptible to flooding and ponding.

Unit 14(IVw–1).—Poorly drained, clayey soils in depressions.

Class V.—Soils that have little or no erosion hazard but have other limitations, impractical to remove without major reclamation, that limit their use largely to pasture, range, woodland, or wildlife food and cover. No soils in Sharkey County are in class V.

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

No soils in Sharkey County are in class VI.

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

No soils in Sharkey County are in class VII.

Class VIII.—Soils and landforms that have limitations that preclude their use, without major reclamation, for commercial production of plants; and restrict their use to recreation, wildlife, water supply or esthetic purposes.

No soils in Sharkey County are in class VIII.

Capability Units

Each of the 14 capability units in Sharkey County is discussed in this subsection. All of the soils in one unit need about the same kind of management, respond to management in about the same way, and have essentially the same limitations. The crop rotations mentioned are given as examples; they are not the only rotations suited to the soils of the unit.

Capability unit 1(I–1)

This unit consists of nearly level, mostly moderately well drained, loamy soils on old or recent natural levees. The surface soil is friable very fine sandy loam to silt loam and is from 4 to 8 inches thick. The subsoil is firm silty clay to friable very fine sandy loam. In most places it is underlain by sandier material.

The soils in this unit are—

Commerce very fine sandy loam, 0 to 2 percent slopes.
Commerce very fine sandy loam, moderately shallow, 0 to 2 percent slopes.
Commerce silt loam, 0 to 2 percent slopes.
Commerce silt loam, moderately shallow, 0 to 2 percent slopes.
Dundee silt loam, 0 to 2 percent slopes.

The available moisture holding capacity of these soils is moderate to high, except where there is a plowsole. Infiltration and permeability are moderate. The content of organic matter is low. The natural fertility is moderate. The reaction ranges from slightly acid to mildly alkaline in the Commerce soils and from strongly acid to neutral in the Dundee soil.

These soils make up about 10.6 percent of the county and are among the best in the county for crops and pasture. About 97 percent of the acreage is in crops, and the rest is in pasture. These soils are well suited to cotton, corn, soybeans, sorghum, and small grain. Vetch and wild winter peas are good winter cover crops, and they can also be grown with small grain. Bermudagrass, dallisgrass, johnsongrass, whiteclover, vetch, and wild winter peas are good pasture plants. Sudangrass and other summer grasses do well. These soils are only fairly well suited to annual lespedeza, alfalfa, red clover, and tall fescue. Trees that grow well are sweetgum, water oak, white oak, red oak, and other hardwoods.

Suitable crop rotations include the following: (1) 1 year of row crops and 1 year of soybeans; (2) 1 year of row crops and 1 year of oats seeded with wild winter peas; (3) 6 years of row crops and 3 years of sod crops.

In most places nitrogen is the only fertilizer needed. The content of organic matter can be increased by turning under crop residues, by including a suitable sod crop in the cropping system, and by growing winter legumes after clean-tilled crops. In most places the acidity of the soils must be corrected if the best yields of alfalfa or some other legumes are to be obtained.

These soils can be worked easily throughout a wide range of moisture content, but if left bare they tend to crust and pack after rains. At times the silt loams crust so hard that stands of crops are poor. Early preparation of seedbeds is desirable. In places a hard, compact layer, or plowsole, is just beneath the surface layer. It can be shattered by subsoiling when the soil is dry. Surface drainage should be provided by properly arranged rows and by W-type ditches.

Capability unit 2(I–2)

The only soil in this capability unit is Robinsonville very fine sandy loam, 0 to 2 percent slopes. This deep, well-drained, nearly level soil is on recent natural levees.

The surface soil is friable very fine sandy loam and is from 4 to 8 inches thick. The subsoil is friable very fine sandy loam to silt loam.

The natural fertility of this soil is high, and the content of organic matter is low. Infiltration and permeability are moderately rapid. The available moisture holding capacity is moderate. The reaction ranges from slightly acid to mildly alkaline.

This soil makes up less than 1 percent of the county. About 98 percent of the acreage is cultivated, and the rest is in pasture. Crops that are well suited are cotton, early truck crops, and small grain. Early corn, vetch, and wild winter peas are fairly well suited. Growing late corn, soybeans, sorghum, millet, and sudangrass is risky because of the limited moisture supply. Bermudagrass, johnsongrass, and crimson clover are good pasture plants. Whiteclover, vetch, and wild winter peas are fairly well suited, but tall fescue, alfalfa, dallisgrass, annual lespedeza, and other summer grasses are poorly suited. Trees that grow well are sweetgum, water oak, and other hardwoods.

Suitable crop rotations include the following: (1) 3 years of row crops and 3 years of sod crops; (2) early truck crops or early corn, fallow, and oats and vetch seeded in fall on the fallow land; (3) 2 years of cotton and 3 years of oats seeded with vetch.

Nitrogen generally is the only fertilizer needed. Adding organic matter will improve soil structure and reduce soil crusting; it will also increase the infiltration rate, the water-holding capacity, and bacterial activity. Organic matter can be added by turning under crop residues, by including a suitable sod crop in the cropping system, and by growing winter legumes after clean-tilled crops.

This soil can be worked easily throughout a wide range of moisture content, but if left bare it tends to crust and pack after rains. In places a plowsole several inches thick is beneath the surface layer. The plowsole restricts the development of roots, the internal movement of water, and the supply of available moisture in the surface layer. It should be broken by subsoiling, preferably in fall when the soil is dry. Surface drainage should be provided by arrangement of rows and by W-type ditches.

Capability unit 3(IIe-1)

This capability unit consists of gently sloping, mostly moderately well drained soils that occur in narrow, fairly long bands on old or recent natural levees. The surface soil is friable silt loam to very fine sandy loam and is about 4 to 6 inches thick. The subsoil is firm silty clay to friable silt loam. In most places it is underlain by sandier material.

The soils in this unit are—

Commerce very fine sandy loam, 2 to 5 percent slopes.
Dundee silt loam, 2 to 5 percent slopes.

The natural fertility of these soils is moderate, but the content of organic matter is low. Permeability and infiltration are moderate except where there is a plowsole. The capacity for holding available moisture is moderate to high. The reaction ranges from strongly acid to mildly alkaline.

These soils make up less than 1 percent of the county. About 92 percent of the acreage is in crops, and about 8 percent is in pasture. Crops that are well suited are cotton, corn, soybeans, small grain, millet, and sudangrass. Vetch and wild winter peas are good winter cover crops or can be grown with small grain. Good permanent pasture plants are bermudagrass, johnsongrass, dallisgrass, white clover, winter legumes, and summer grasses. Annual lespedeza, tall fescue, alfalfa, and red clover are only fairly well suited. Trees that grow well are sweetgum, water oak, white oak, red oak, and other hardwoods.

Suitable crop rotations include the following: (1) 3 years of row crops and 3 years of sod crops; (2) 1 year of a row crop and 1 year of oats seeded with vetch.

Crops other than legumes respond to nitrogen fertilizer. In most places the acidity of the soils must be corrected if the best yields of alfalfa and some other legumes are to be obtained. The organic-matter content can be increased by turning under crop residues, by including a suitable sod crop in the cropping system, and by growing winter legumes after clean-tilled crops.

These soils are easily worked throughout a wide range of moisture content, but if left bare they tend to crust and pack after rains. At times the silt loam crusts so hard that stands of crops are poor. If clean-tilled crops are grown continuously, slight or moderate erosion is likely. To prevent further erosion and to conserve moisture, rows should be on the contour. W-type ditches and grassed waterways are needed for row outlets.

Capability unit 4(IIe-4)

The only soil in this capability unit is Commerce silty clay loam, 2 to 5 percent slopes. This gently sloping soil is somewhat poorly drained to moderately well drained. It occurs mostly in long, narrow bands on recent natural levees. The surface soil is friable silty clay loam and is about 4 to 6 inches thick. The subsoil is friable silt loam to silty clay loam.

The available moisture holding capacity of this soil is moderate. Permeability and infiltration are also moderate. The content of organic matter is low, but the natural fertility is moderate. The reaction ranges from slightly acid to mildly alkaline.

This soil makes up less than 1 percent of the county. About 88 percent of the acreage is in crops, and the rest is in pasture. Crops that are well suited are cotton, soybeans, small grain, and sorghum. Corn, sudangrass, annual lespedeza, and rice are fairly well suited. Pasture plants that are well suited are tall fescue, bermudagrass, johnsongrass, dallisgrass, white clover, wild winter peas, red clover, vetch, and alfalfa. Trees that grow well are sweetgum, water oak, hackberry, elm, and ash.

Suitable crop rotations include the following: (1) 4 years of row crops, followed by 2 years of sod crops; (2) 1 year of a row crop, followed by 1 year of oats seeded with vetch.

Crops other than legumes respond to nitrogen fertilizer. The content of organic matter can be increased by turning under crop residues, by including a suitable sod crop in the cropping system, and by growing winter legumes after clean-tilled crops. Rows should be on the contour so that excess surface water will run off without causing erosion. V-type and W-type ditches are needed for row outlets.

Capability unit 5(IIs–2)

This capability unit consists of nearly level, mostly somewhat poorly drained soils in slack-water areas. The surface soil is clay and silty clay. The clayey subsoil is underlain by coarser textured material at depths of 10 to 20 inches.

The soils in this unit are—

Bowdre silty clay, 0 to 2 percent slopes.
Tunica clay, 0 to 2 percent slopes.

Tillage is difficult because these soils crack when dry and are sticky when wet. Permeability is slow to moderately slow, and infiltration is slow if the soils are wet. The capacity for holding available moisture is medium to high. Drainage ranges from somewhat poor to moderately good. The content of organic matter is low, but the natural fertility is moderate. The reaction ranges from medium acid to moderately alkaline.

These soils make up about 3.4 percent of the county. About 86 percent of the acreage is in crops, 10 percent is in pasture, and the rest is in woodland. Pasture crops and hay are well suited, but in some years growing row crops is risky. Crops that are well suited are cotton, sorghum, small grain, rice, vetch, soybeans, and wild winter peas. Corn, annual lespedeza, millet, and sudangrass are only fairly well suited. Sod crops that are well suited are tall fescue, johnsongrass, dallisgrass, alfalfa, white clover, red clover, and winter legumes. Summer grasses and annual lespedeza are fairly well suited. Trees that grow well are sweetgum, water oak, hackberry, elm, and ash.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 4 years of sod crops; (2) 1 year of soybeans, followed by oats and red clover seeded in fall, fallow the second year after the oats are harvested, then 2 years of row crops; (3) 1 year of cotton, followed by 2 years of winter legumes grown for seed.

In most places nitrogen is the only fertilizer needed. The content of organic matter can be increased by turning under crop residues and by including a suitable sod crop in the cropping system.

Because of the texture and consistence of these soils, good workability is difficult to maintain. Deep tillage late in fall or early in winter helps to prevent excessive clodding at planting time. High seedbeds provide better drainage and aeration. Rows should be arranged so that excess water will run off slowly. V-type and W-type ditches are needed to remove excess water and prevent ponding.

Capability unit 6(IIs–3)

This capability unit consists of nearly level and gently sloping, cold-natured, somewhat poorly drained soils on old natural levees. The surface soil is silt loam. In most places it is about 4 inches thick. The subsoil is thick silty clay. It is underlain by coarser textured material at a depth of about 23 inches.

The soils in this unit are—

Forestdale silt loam, 0 to 2 percent slopes.
Forestdale silt loam, 2 to 5 percent slopes.

These soils occur in small to large areas. Surface runoff in some of the nearly level areas is slow. The available moisture holding capacity is high. Infiltration and permeability are slow. The content of organic matter is low, the natural fertility is moderate, and the reaction is medium acid to strongly acid.

These soils make up about 1.8 percent of the county. About 96 percent of the acreage is in crops, and the rest is in pasture. Crops that are well suited are soybeans, sorghum, small grain, vetch, and wild winter peas. Corn, cotton, rice, sudangrass, and millet are fairly well suited. Bermudagrass, johnsongrass, and winter legumes are also well suited, but tall fescue, dallisgrass, white clover, red clover, annual lespedeza, and the summer grasses are only fairly well suited. Suitable trees are sweetgum, water oak, hackberry, elm, and ash.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 3 years of sod crops; (2) 2 years of row crops other than legumes, followed by 2 years of soybeans, with oats and winter legumes seeded in fall of the fourth year, fallow the fifth year after the oats are harvested.

In most places nitrogen is the only fertilizer needed. Increasing the content of organic matter will improve the structure, increase the rate of infiltration, and reduce puddling, crusting, and packing. Organic matter can be supplied by turning under crop residues, by using a suitable sod crop in the cropping system, and by growing winter legumes after clean-tilled crops.

These soils are easily tilled, but if left bare they tend to pack, puddle, erode, and crust after rains. At times the crusting is so severe that stands of crops are poor. Tillage may be delayed for several days after rains because of slow internal drainage. A plowsole, several inches thick, tends to form just beneath the plow layer. It should be shattered by subsoiling late in fall when the soils are dry. Surface drainage should be provided by the arrangement of rows and by V-type and W-type ditches.

Capability unit 7(IIs–4)

This capability unit consists of nearly level and gently sloping, cold-natured soils that are somewhat poorly drained to poorly drained. The surface soil is silty clay loam. The subsoil is thick silty clay or clay.

The soils in this unit are—

Alligator silty clay loam, 0 to 2 percent slopes.
Forestdale silty clay loam, 0 to 2 percent slopes.
Forestdale silty clay loam, 2 to 5 percent slopes.
Sharkey silty clay loam, 0 to 2 percent slopes.

Tillage is difficult because these soils crack when dry and are plastic when wet. Their capacity for holding available moisture is moderate to high. Infiltration and permeability are slow to very slow. Surface runoff in some of the more nearly level areas is very slow. The content of organic matter is low, but the natural fertility is moderate. The reaction is medium acid to strongly acid.

These soils make up about 4.5 percent of the county. They occur in small to large areas. About 95 percent of the acreage is in crops, 3 percent is in pasture, and the rest is in woodland. Crops that are well suited are soybeans, annual lespedeza, rice, small grain, vetch, wild winter peas, and sorghum. Cotton, sudangrass, and millet are fairly well suited. Corn and alfalfa generally are not suited. Bermudagrass, johnsongrass, and legumes are also well suited, but tall fescue, dallisgrass, white clover, red clover, and the summer grasses are only fairly well suited. Trees that grow well are sweetgum, water oak, and other hardwoods.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 3 years of sod crops; (2) 2 years of cotton, 2 years of soybeans with oats seeded in fall of the fourth year, fallow the fifth year after oats have been harvested in spring; (3) 1 year of cotton, followed by 2 years of winter legumes grown for seed.

In most places nitrogen is the only fertilizer needed. Adding organic matter will improve soil structure and workability, reduce soil crusting, and increase the infiltration rate and bacterial activity. Organic matter can be added by turning under crop residues and by including a suitable sod crop in the cropping system. Rows should be arranged so that excess water will run into V-type and W-type ditches that have adequate outlets. Deep tillage and high seedbeds will improve drainage and aeration.

Capability unit 8(IIs-5)

The only soil in this capability unit is Sharkey silt loam, overwash, 0 to 2 percent slopes. This nearly level soil is cold natured, poorly drained, and shallow. The surface soil is an overwash of silt loam. The subsoil is thick silty clay or clay.

The available moisture holding capacity of this soil is moderate to high. Infiltration and permeability are slow to very slow. In some areas surface runoff is slow. The content of organic matter is low, but the natural fertility is moderate. The reaction is medium acid to neutral. Tillage is less difficult than on Sharkey clay because of the coarser texture of the surface soil.

This soil makes up less than 1 percent of the county. It occurs in small areas. About 96 percent of the acreage is in crops, 3 percent is in pasture, and the rest is in woodland. Crops that are well suited are soybeans, small grain, rice, sorghum, vetch, and wild winter peas. Cotton, corn, sudangrass, millet, and annual lespedeza are only fairly well suited. Bermudagrass, johnsongrass, tall fescue, dallisgrass, and white clover are well suited, but red clover, alfalfa, and summer grasses are only fairly well suited. Trees that grow well are sweetgum, water oak, and other hardwoods.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 3 years of sod crops; (2) 1 year of cotton, followed by 2 years of winter legumes grown for seed.

Nitrogen generally is the only fertilizer needed. The content of organic matter should be increased to improve soil structure and workability and to increase the infiltration rate and bacterial activity. The content of organic matter can be increased by turning under crop residues and by including a suitable sod crop in the cropping system. Rows should be arranged so that excess surface water will run into V-type and W-type ditches that have adequate outlets. Deep tillage will improve aeration.

Capability unit 9(IIs-6)

This capability unit consists of nearly level, somewhat poorly drained to moderately well drained soils that are on recent or old natural levees or on low bottoms. The surface soil is silty clay loam. In most places it is from 4 to 6 inches thick. The subsoil is mostly silty clay or silty clay loam but in places is coarser textured.

The soils in this unit are—

Commerce silty clay loam, 0 to 2 percent slopes.
Commerce silty clay loam, moderately shallow, 0 to 2 percent slopes.
Dundee silty clay loam, 0 to 2 percent slopes.
Tunica silty clay loam, 0 to 2 percent slopes.

Surface runoff on these soils is no problem, but permeability is moderately slow. Infiltration is slow to moderate. The available moisture holding capacity is high. The content of organic matter is low, and the natural fertility is moderate. The reaction ranges from strongly acid to neutral in the Tunica and Dundee soils and from neutral to moderately alkaline in the Commerce soils.

These soils make up about 5 percent of the county. Most of the acreage is cultivated. Crops that are well suited are cotton, soybeans, small grain, and sorghum. Corn, sudangrass, annual lespedeza, and rice are fairly well suited. Pasture plants that are well suited are tall fescue, bermudagrass, johnsongrass, dallisgrass, white clover, wild winter peas, red clover, vetch, and alfalfa. Trees that grow well are sweetgum, water oak, hackberry, elm, and ash.

Suitable crop rotations include the following: (1) 4 years of row crops, followed by 2 years of sod crops; (2) 3 years of row crops, followed by 2 years of small grain.

Nitrogen is the only fertilizer needed. The content of organic matter can be increased by turning under crop residues, by including a suitable sod crop in the cropping system, and by growing winter legumes after clean-tilled crops.

These soils are somewhat difficult to till because they tend to clod if cultivated when wet. Rows should be so arranged as to permit excess water to run off. W-type ditches are needed as outlets.

Capability unit 10(IIIw-11)

This capability unit consists of level, poorly drained soils on low bottoms, mostly broad, slack-water flats. The surface soil is clay. It is from 3 to 5 inches thick. When dry, it is very hard. The subsoil is very firm, thick clay that restricts the movement of air and water and the development of roots.

The soils in this unit are—

Alligator clay, 0 to ½ percent slopes.
Sharkey clay, 0 to ½ percent slopes.

The available moisture holding capacity of these soils is high. Surface runoff, infiltration, and permeability are very slow. In wet seasons the water table may be near the surface. The content of organic matter is low, and natural fertility is moderate. The reaction is strongly acid to neutral.

These soils make up about 9.6 percent of the county. About 40 percent of the acreage is in crops, 40 percent is in woodland, and the rest is in pasture or is idle. Use of these soils is limited by wetness, poor workability, and susceptibility to local flooding.

Crops that are best suited are rice, soybeans, and sorghum. Corn does not grow well. Small grain, vetch, wild winter peas, and cotton are not suited unless the soils are extensively drained. Good pasture plants are bermudagrass, dallisgrass, johnsongrass, tall fescue, and whiteclover. Sudangrass, millet, red clover, and annual lespedeza are only fairly well suited. Trees that grow well are sweetgum, water oak, hackberry, elm, and ash.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 4 years of sod crops; (2) 2 or 3 years of rice, followed by 3 years of pasture crops, small grain, or soybeans; (3) 1 year of row crops other than legumes, followed by 2 years of small grain or soybeans; (4) 1 year of row crops other than legumes, followed by 2 years of winter legumes grown for seed.

Nitrogen generally is the only fertilizer needed. The content of organic matter can be increased by using a suitable sod crop in the cropping system.

Good stands of crops are difficult to obtain because these soils swell, seal over, and puddle when wet and harden and crack when dry. Most of the time they are either too wet or too dry to cultivate. They should be tilled deeply in fall. If tilled in spring they clod and generally remain cloddy throughout the growing season.

Water that runs off higher areas collects on these soils. If crops are grown, surface drainage is essential. Rows should be so arranged as to provide maximum drainage, and V-type and W-type ditches should be used to help remove excess surface water.

Capability unit 11(IIIw–12)

This capability unit consists of level to nearly level, poorly drained soils on low bottoms. These soils are in broad, slack-water areas and are subject to periodic overflow or backwater. The surface soil is clay. It is about 3 to 5 inches thick. The subsoil is very firm, thick clay that restricts the movement of air and water and the development of roots.

The soils in this unit are—

Alligator clay, overflow, 0 to 2 percent slopes.
Sharkey clay, overflow, 0 to 2 percent slopes.

The available moisture holding capacity of these soils is moderate to high. Infiltration and permeability are very slow. The content of organic matter is fairly high when the soils are first cultivated but decreases rapidly after the soils are tilled. The natural fertility is moderate. The reaction is strongly acid to mildly alkaline.

These soils make up a little less than 1 percent of the county. About half the acreage is in crops and pasture, and the rest is in woodland. Crops that are well suited are soybeans, rice, and sorghum. Fairly well suited crops are sudangrass, millet, annual lespedeza, and cotton. Corn, small grain, perennial and winter grasses, and legumes are uncertain crops because of the hazard of overflow or backwater. Summer grasses and clovers are fairly well suited. Trees that grow well are sweetgum, water oak, hackberry, elm, and ash.

Suitable crop rotations include the following: (1) 4 years of soybeans, followed by 2 years of row crops; (2) 2 or 3 years of rice, followed by 3 years of soybeans or annual lespedeza.

In most places nitrogen is the only fertilizer needed. The content of organic matter can be increased by using a suitable sod crop in the cropping system and by turning under crop residues.

Because of the hazard of overflow or backwater, there is only a narrow range of moisture content within which these soils can be worked. When wet they are too plastic to work, and when dry they are too hard and too severely cracked. They should be tilled deeply in fall. If tilled in spring when wet, they clod and generally remain cloddy throughout the growing season. Rows should be so arranged as to provide maximum drainage. Many V-type and W-type ditches are needed to help remove excess surface water.

Capability unit 12(IIIw–13)

The Dowling soils are the only soils in this capability unit. They occur in long narrow depressions and are poorly drained. Additional sediments washed from higher areas are deposited periodically. The surface soil ranges in texture from silty clay to very fine sandy loam. The subsoil is clay and in places contains lenses of coarser textured material.

The content of organic matter in these soils is higher than in the surrounding soils. The natural fertility is moderate to high. Surface runoff is very slow to ponded. Infiltration is slow, and permeability is very slow. The available moisture holding capacity is high. The reaction is strongly acid to neutral. Workability is poor. The water table is at the surface in wet seasons.

These soils make up about 1.7 percent of the county. About 60 percent of the acreage is in crops, 20 percent is in pasture, and the rest is in woodland. In adequately drained areas, rice and sorghum are well suited. Crops that are fairly well suited are soybeans, corn, wheat, vetch, and wild winter peas. Growing barley, oats, and cotton is risky because of the hazard of frequent floods. Pasture crops that are fairly well suited are tall fescue, bermudagrass, dallisgrass, sudangrass, whiteclover, and millet. Johnsongrass and red clover do not grow well. Trees that grow well are sweetgum, water oak, hackberry, elm, ash, overcup oak, and bitter pecan.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 4 years of sod crops; (2) permanent pasture.

Nitrogen is the only fertilizer needed, but too much nitrogen fertilizer can result in excessive plant growth. These soils are limited in use by local flooding, poor drainage, and poor tilth. They remain wet for long periods after heavy rains. If crops are grown, rows should be so arranged as to provide the maximum amount of surface drainage. V-type, W-type, and dragline ditches are needed to remove excess water.

Capability unit 13(IIIs–4)

This capability unit consists of nearly level, poorly drained clayey soils that are mostly in slack-water areas. The surface soil is clay or silty clay and is about 3 to 5 inches thick. The subsoil is very firm, thick clay that restricts the movement of air and water and the development of roots.

The soils in this unit are—

Alligator clay, ½ to 2 percent slopes.
Mhoon silty clay, 0 to 2 percent slopes.
Sharkey clay, ½ to 2 percent slopes.

The content of organic matter is fairly high when these soils are first cleared, but in most places it decreases rapidly after the soils are tilled. Infiltration and surface runoff are slow. Permeability is very slow. The available moisture holding capacity is moderate to high. The natural fertility is moderate. The reaction is medium acid to mildly alkaline. In prolonged wet periods the water table is near the surface in many places.

These soils make up about 23 percent of the county. About 65 percent of the acreage is in crops, 15 percent is in pasture, 18 percent is in woodland, and the rest is idle. Crops that are well suited are small grain, rice, soybeans, vetch, and wild winter peas. Fairly well suited crops are cotton, sudangrass, millet, and annual lespedeza. Growing corn is risky because of the danger of flooding. Bermudagrass, dallisgrass, johnsongrass, tall fescue, white clover, and red clover are well suited pasture plants. Trees that grow well are sweetgum and water oak.

Suitable crop rotations include the following: (1) 2 years of row crops, followed by 4 years of sod; (2) 1 year of cotton, and 2 years of small grain or soybeans; (3) 2 or 3 years of rice and 3 years of pasture, small grain and vetch, or soybeans; (4) 1 year of cotton, followed by 2 years of winter legumes grown for seed.

In most places nitrogen is the only fertilizer needed. The content of organic matter can be increased by including a suitable sod crop in the cropping system and by turning under crop residues.

These soils are difficult to manage. They can be worked only within a narrow range of moisture content because they harden and crack when dry and are plastic when wet. When erosion is not a problem, deep tillage in fall is advisable. If tilled in spring when wet, these soils clod and commonly remain cloddy throughout the growing season. Rows should be so arranged as to provide maximum drainage without causing erosion. Many V-type and W-type ditches are needed to remove excess surface water.

Capability unit 14(IVw-1)

The only soil in this capability unit is Dowling clay. This poorly drained soil occurs in numerous, narrow to broad, flat depressions in slack-water areas. The slope ranges from 0 to 2 percent. The surface soil is clay, and the subsoil is very firm clay. Runoff from higher areas accumulates on this soil and deposits additional sediments periodically.

The organic-matter content of this soil is higher than that of the surrounding soils. Infiltration and permeability are very slow. The available moisture holding capacity is high. The natural fertility is moderate to high. The reaction is strongly acid to neutral. In wet seasons the water table is at the surface.

This soil makes up about 4.3 percent of the county. About 25 percent of the acreage is in crops, 25 percent is in pasture, and the rest is in woodland. Yields of hay and pasture are fairly good, but yields of row crops are uncertain. Rice is well suited, but sorghum, soybeans, millet, and sudangrass are only fairly well suited. Cotton and corn are not suited. Pasture crops that are fairly well suited are fescue, bermudagrass, dallisgrass, and whiteclover. Johnsongrass and red clover are not suited. Trees that grow well are bitter pecan, cottonwood, cypress, tupelo-gum, willow, and overcup oak.

Suitable crop rotations include the following: (1) 2 years of rice, followed by 2 years of soybeans; (2) summer annual crops; (3) 2 years of summer annuals or soybeans, followed by 4 years of sod crops.

This soil is difficult to work and to manage. When dry, it shrinks and cracks enough to injure the roots of some plants. It is fairly fertile, but its low position, poor drainage, and fine texture prevent plants from using fertilizers efficiently. Excess surface water often delays the planting of row crops. Extensive drainage is needed for most crops. It can be provided by dragline, V-type, and W-type ditches. If crops are grown, rows should be so arranged as to provide the maximum surface drainage.

Estimated Yields

In table 1 are given the estimated average acre yields of the principal crops on each of the soils in Sharkey County under two levels of management. In columns A are average yields under management now prevalent in the county. In columns B are estimates of yields possible under management that includes the selection of suitable crop varieties, proper use of fertilizers, control of insects, proper tillage, and adequate drainage.

The estimates are based mainly on information obtained from experimental data and from farmers and other agricultural workers who were in a position to observe soils and crop yields in this county and in neighboring counties.

Management of Woodland

Forests now occupy about 60 percent of the land area of the county. They contain many kinds of trees, principally red oak, gum, cypress, ash, overcup oak, red elm, and pecan. Some minor species are sycamore, cottonwood, willow, rock elm, and honeylocust.

About 34 percent of the woodland in the county is in the Mississippi National Forest (fig. 2). In it are approximately 331 million board feet of saw-log trees more than 12 inches in diameter. About 5,000 acres in the national forest is being planted, at the rate of about 200 acres a year, to gum, cypress, ash, and red oak. In the next 12-

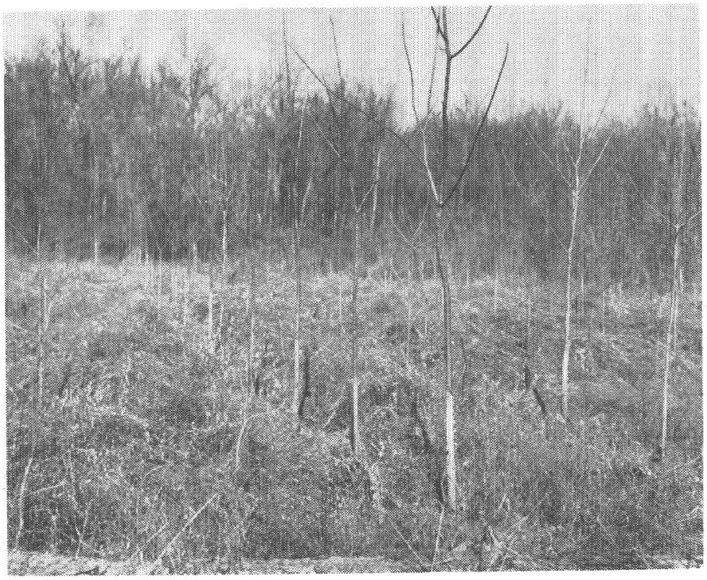

Figure 2.—**Four-year-old planting of ash seedlings on Sharkey clay, overflow, 0 to 2 percent slopes, on national forest land. Notice high-water marks on trunks of trees.**

TABLE 1.—*Estimated average acre yields of principal crops under two levels of management*

[Yields in columns A are those to be expected over a period of years under common management practices; those in columns B, under improved management practices. Absence of figure indicates crop is not commonly grown on the soil specified]

Soil	Capability unit	Cotton		Corn		Soybeans		Oats		Rice		Permanent pasture	
		A	B	A	B	A	B	A	B	A	B	A	B
		Lb.	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Acres per animal unit* [1]	*Acres per animal unit* [1]
Alligator clay, ½ to 2 percent slopes	13(IIIs-4)	225	375	----	----	20	35	30	50	50	85	6. 0	3. 0
Alligator clay, 0 to ½ percent slopes	10(IIIw-11)	175	250	----	----	10	25	----	----	50	85	6. 0	3. 0
Alligator clay, overflow, 0 to 2 percent slopes.	11(IIIw-12)	----	----	----	----	----	----	----	----	----	----	----	----
Alligator silty clay loam, 0 to 2 percent slopes.	7(IIs-4)	225	375	----	----	25	35	30	50	50	85	5. 0	2. 5
Bowdre silty clay, 0 to 2 percent slopes	5(IIs-2)	425	550	30	45	15	25	30	50	----	----	4. 5	2. 5
Commerce very fine sandy loam, 0 to 2 percent slopes.	1(I-1)	700	825	45	90	30	45	40	65	----	----	4. 2	2. 2
Commerce very fine sandy loam, 2 to 5 percent slopes.	3(IIe-1)	650	750	35	80	15	40	40	65	----	----	4. 2	2. 2
Commerce very fine sandy loam, moderately shallow, 0 to 2 percent slopes.	1(I-1)	700	825	45	90	30	45	40	65	----	----	4. 2	2. 2
Commerce silt loam, 0 to 2 percent slopes.	1(I-1)	700	825	45	90	30	45	40	60	----	----	4. 2	2. 2
Commerce silt loam, moderately shallow, 0 to 2 percent slopes.	1(I-1)	700	825	45	90	30	45	40	65	----	----	4. 2	2. 2
Commerce silty clay loam, 0 to 2 percent slopes.	9(IIs-6)	650	775	35	60	30	40	35	55	----	----	4. 5	2. 5
Commerce silty clay loam, 2 to 5 percent slopes.	4(IIe-4)	550	600	30	55	20	30	35	55	----	----	4. 0	2. 0
Commerce silty clay loam, moderately shallow, 0 to 2 percent slopes.	9(IIs-6)	625	750	35	60	30	40	35	55	----	----	4. 5	2. 5
Dowling clay	14(IVw-1)			----	----	15	30	----	----	50	75		
Dowling soils	12(IIIw-13)	200	300	15	35	15	30	----	----	50	75	----	----
Dundee silt loam, 0 to 2 percent slopes	1(I-1)	625	750	45	90	20	35	40	60	----	----	4. 2	2. 2
Dundee silt loam, 2 to 5 percent slopes	3(IIe-1)	400	650	30	75	15	30	40	60	----	----	----	----
Dundee silty clay loam, 0 to 2 percent slopes.	9(IIs-6)	525	650	30	55	20	35	35	55	40	70	4. 0	2. 0
Forestdale silty clay loam, 0 to 2 percent slopes.	7(IIs-4)	350	450	----	----	20	35	30	50	50	85	4. 5	2. 5
Forestdale silty clay loam, 2 to 5 percent slopes.	7(IIs-4)	325	425	----	----	15	30	30	50	----	----	4. 5	2. 5
Forestdale silt loam, 0 to 2 percent slopes.	6(IIs-3)	375	500	35	55	20	35	30	50	40	65	4. 5	2. 5
Forestdale silt loam, 2 to 5 percent slopes.	6(IIs-3)	350	475	30	50	15	30	30	50	----	----	4. 5	2. 5
Mhoon silty clay, 0 to 2 percent slopes	13(IIIs-4)	325	420	25	45	25	45	25	45	50	75	----	3. 0
Robinsonville very fine sandy loam, 0 to 2 percent slopes.	2(I-2)	700	825	45	90	----	----	45	65	----	----	3. 0	1. 5
Sharkey clay, ½ to 2 percent slopes	13(IIIs-4)	300	400	25	45	20	40	25	45	50	85	----	3. 0
Sharkey clay, 0 to ½ percent slopes	10(IIIw-11)	175	250	----	----	10	30	25	45	50	85	----	5. 0
Sharkey clay, overflow, 0 to 2 percent slopes.	11(IIIw-12)	----	----	----	----	----	----	----	----	----	----	----	----
Sharkey silty clay loam, 0 to 2 percent slopes.	7(IIs-4)	325	425	----	----	25	40	25	45	50	85	5. 0	3. 0
Sharkey silt loam, overwash, 0 to 2 percent slopes.	8(IIs-5)	375	500	35	50	25	40	25	45	50	85	5. 0	3. 0
Sharkey, Alligator, and Dowling soils	(Not classified)	----	----	----	----	----	----	----	----	----	----	----	----
Tunica clay, 0 to 2 percent slopes	5(IIs-2)	450	600	25	50	25	40	30	55	40	70	5. 0	3. 0
Tunica silty clay loam, 0 to 2 percent slopes.	9(IIs-6)	475	650	25	50	15	25	30	55	----	----	5. 0	3. 0

[1] Average number of acres required to furnish, without injury to the pasture, adequate grazing for 1 animal unit for a grazing period of 215 days. An animal unit is equivalent to 1 cow, steer, or horse; 5 hogs; or 5 sheep or goats.

year cutting cycle, the virgin redgum and oak will be removed.[2]

About 64 percent of the woodland is privately owned. These tracts are mostly in mixed hardwoods. They contain approximately 110 million board feet of standing saw-log trees about 12 inches in diameter.[3] Because of the demand for pulpwood, stands of tupelo-gum and sweetgum are being rapidly depleted.

The trend in Sharkey County is to convert woodland to general farmland. The land to be cleared should be carefully chosen because some areas will produce more income if used to grow trees than if used for row crops or pasture.

Four steps are needed to begin a program of hardwood management. They are (1) to reduce losses from fire or other destructive agents; (2) to eliminate grazing where new trees are needed to complete the stocking of an area; (3) to remove badly damaged or overmature trees; and (4) to destroy large shrubs, such as red haw and privet, and to remove culls of commercial species.

The State forestry representative who resides in the area should be consulted before these jobs are undertaken.

The following list[4] shows the principal forest species in the county and the soils on which each grows best.

Species	*Soil series*
American elm	Forestdale, Sharkey, Tunica, Commerce.
Cottonwood [1]	Bowdre, Commerce, Mhoon.
Cypress [2]	Dowling.
Black willow [1]	Mhoon, Dowling.
Green ash [2]	Forestdale, Alligator, Sharkey, Tunica.
Nuttall oak [2]	Forestdale, Alligator, Sharkey, Tunica.
Overcup oak [2]	Forestdale, Alligator, Sharkey, Tunica.
Water oak [2]	Commerce, Dundee, Alligator, Sharkey.
Cow oak	Dundee, Forestdale.
Sweetgum [1 2]	Commerce, Dundee, Bowdre, Alligator, Sharkey.
Tupelo-gum [1 2]	Dowling.
Sycamore	Dundee, Forestdale.
Cherrybark oak	Bowdre, Alligator, Sharkey, Dundee, Forestdale.
Bitter pecan	Dundee, Forestdale, Alligator, Sharkey.

[1] Pulpwood species. [2] Saw-log species.

Engineering Applications[5]

Soil engineering deals with soil as structural material and as foundation material upon which structures rest. To engineers, soil is a natural material that occurs in infinite variety over the earth and whose engineering properties may differ widely within a single project. Generally, soil must be used in the locality and in the condition in which it occurs.

Important steps in soil engineering are to differentiate between the various types of soil and to map their location, to determine their engineering properties, to correlate their properties with the requirements of the job, and to select the best material for each job.

Engineers of the U.S. Bureau of Public Roads and the Soil Conservation Service collaborated with soil scientists of the Soil Conservation Service in preparing this subsection.

This report contains information that can be used by engineers to—

1. Make soil and land use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Assist in designing drainage and irrigation structures and in planning dams and other structures for water and soil conservation.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting highway, pipeline, and airport locations and in planning detailed soil surveys of the intended locations.
4. Locate sand and gravel for use in structures.
5. Correlate performance of engineering structures with types of soil and thus develop information that will be useful in designing and maintaining structures.
6. Determine the suitability of soil units for cross-country movements of vehicles and construction equipment.
7. Supplement information obtained from other published maps and reports and aerial photographs for the purpose of making soil maps and reports that can be used readily by engineers.

The soil map and the descriptive soil report are somewhat generalized, however, and should be used only in planning more detailed field surveys that will, in turn, be used to determine the in-place condition of the soil at the site of the proposed engineering construction.

Some terms used by soil scientists may not be familiar to engineers, and some words—for example, soil, sand, silt, topsoil, and parent material—have special meanings in soil science. Most of these terms are defined in the Glossary at the back of this report. Other parts of this report also may be useful to engineers, particularly the section "Descriptions of Soils."

On many construction sites, major soil variations occur within the depth of proposed excavations, and several different soils may occur within short distances. If the maps, descriptions, and other data in this report are used to plan detailed soil investigations at construction sites, a minimum number of soil samples will be needed for laboratory testing. After testing the soils and observing their behavior in place under various conditions, engineers should be able to anticipate to some extent the properties of the various types of soil, wherever they are mapped.

Test data and engineering interpretations

The tables in this subsection serve different purposes. Table 2 gives results of tests on samples of three soil series in Issaquena County, and table 3 gives results of tests on samples of two soil series in Humphreys County and one in Leflore County. The soils tested are representative of soils of the same series in Sharkey County.

The results of these tests and the information obtained by actual field experience and performance were used in estimating the engineering properties of the soils in tables 4 and 5. Table 4 gives a brief description of the soils in Sharkey County and their estimated physical properties. Table 5 contains information on the estimated suitability of the soils in the county for engineering uses.

[2] Information furnished by HERBERT RICE, ranger, Sharkey County.

[3] Information furnished by C. A. BOZEMAN, ranger, Sharkey County.

[4] Information furnished by W. M. BROADFOOT, forester, experiment station, Stoneville, Miss.

[5] D. E. ALCORN, engineer, Soil Conservation Service, prepared part of this section. Test data are from the U.S. Bureau of Public Roads.

TABLE 2.—*Engineering test data for soil samples taken*

[Soils tested are representative of soils of the same series in Sharkey County. Tests performed by the Bureau of Public Roads in

Soil name and location of samples	Parent material	Bureau of Public Roads report number	Depth	Horizon	Mechanical: Percentage passing sieve— No. 40 (0.42 mm.)	No. 60 (0.25 mm.)	No. 200 (0.074 mm.)
Bowdre clay:			*Inches*				
1 mile northwest of Tallula (modal profile).	Slack-water clay underlain by fine-textured alluvium.	S34126	4 to 11	A_2	----------	100	95
		S34127	11 to 14	AD	----------	100	95
		S34128	14 to 33	D_1	----------	100	87
		S34129	33 to 72+	D_2	----------	100	31
1.5 miles north of Fitler (underlain by clay).	Slack-water clay underlain by fine-textured alluvium.	S34130	6 to 15	A_2	----------	100	95
		S34131	20 to 35	D_1	----------	100	95
		S34132	35 to 48	D_2	----------	100	87
2 miles northwest of Grace (sandy D horizon).	Slack-water clay underlain by fine-textured alluvium.	S34133	4 to 11	A_2	100	99	95
		S34134	11 to 20	D_1	100	90	63
		S34135	27 to 72+	D_3	100	85	6
Commerce silt loam:							
8 miles northwest of Mayersville (modal profile).	Recent alluvium	S34136	6 to 17	AC	----------	----------	100
		S34137	17 to 44	C_1	----------	100	97
		S34138	44 to 54	C_2	----------	100	99
200 yards east of Tallula (sandy loam C horizon).	Recent alluvium	S34139	4 to 22	AC	----------	100	95
		S34140	22 to 48	C_1	----------	100	73
		S34141	48 to 72	C_2	----------	100	95
Commerce silty clay loam:							
0.25 mile east of Tallula (high in silty clay loam).	Recent alluvium	S34142	4 to 9	A	----------	100	99
		S34143	20 to 52	C_1	----------	100	93
		S34144	52 to 72+	C_2	----------	100	99
Sharkey clay:							
2 miles northeast of Tallula (modal profile).	Slack-water sediments	S34145	4 to 23	A_{21}	----------	100	99
		S34146	28 to 46	C	----------	100	99
		S34147	46 to 72+	D	----------	100	95
2 miles northeast of Fitler (fine texture).	----------	S34148	3 to 43	A_2	----------	----------	100
		S34149	45 to 72	C	----------	----------	100
2.5 miles southeast of Grace (stratified).	Slack-water sediments	S34150	6 to 40	A_2	----------	----------	100
		S34151	44 to 55	D_2	----------	----------	100
		S34152	55 to 72	D_3	----------	----------	100

[1] Mechanical analyses according to the American Association of State Highway Officials Designation: T. 88. Results by this procedure frequently differ somewhat from results that would have been 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 more than 2 millimeters in diameter. In the SCS procedure, the fine material is analyzed by the pipette method and the material more than 2 millimeters in diameter is excluded from calcula-

The engineering soil classifications in tables 2 and 3 are based on data obtained by mechanical analyses and by tests to determine liquid limits and plastic limits. Mechanical analyses were made by combined sieve and hydrometer methods.

Tests for liquid-limit and plastic-limit measure the effect of water on the consistence of soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a solid to a semisolid, or 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 solid state to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic state to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is in a plastic condition.

If a soil material is compacted at successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material will increase until the optimum moisture content is reached. After that, the density decreases with increase in moisture content. The highest dry density obtained in the compaction test is termed "maximum dry density." Moisture-density data are important in earthwork, for as a rule optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

from nine soil profiles in Issaquena County, Miss.

accordance with standard procedures of the American Association of State Highway Officials (AASHO) (*1*)]

analysis [1]				Liquid limit	Plasticity index	Classification	
Percentage smaller than—						AASHO [2]	Unified [3]
0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
90	71	57	44	52	24	A-7-6(16)	MH-CH
81	47	28	24	33	12	A-6(9)	CL
62	31	19	15	29	6	A-4(8)	ML-CL
18	8	6	4	([4])	([4])	A-2-4(0)	SM
89	75	65	54	64	34	A-7-5(20)	MH-CH
83	47	26	22	33	12	A-6(9)	CL
58	25	15	12	27	5	A-4(8)	ML-CL
93	82	76	68	81	49	A-7-5(20)	CH
56	43	34	30	38	21	A-6(10)	CL
5	2	2	2	([4])	([4])	A-3(0)	SP-SM
94	56	20	16	31	7	A-4(8)	ML-CL
80	33	8	6	26	3	A-4(8)	ML
98	84	55	39	57	32	A-7-6(19)	CH
83	45	20	16	31	9	A-4(8)	ML-CL
51	24	10	8	24	3	A-4(8)	ML
86	48	17	13	30	6	A-4(8)	ML-CL
94	70	44	33	46	22	A-7-6(14)	CL
76	36	15	12	28	6	A-4(8)	ML-CL
96	69	30	23	37	14	A-6(10)	ML-CL
97	90	83	74	94	53	A-7-5(20)	MH-CH
96	84	62	51	65	38	A-7-6(20)	CH
76	40	23	20	34	12	A-6(9)	ML-CL
98	90	75	62	82	46	A-7-5(20)	MH-CH
98	86	60	49	67	37	A-7-5(20)	CH
99	90	68	54	72	38	A-7-5(20)	MH-CH
99	93	70	55	74	44	A-7-5(20)	CH
98	92	81	70	98	60	A-7-5(20)	CH

tions of the grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soils.

[2] Based on the Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, AASHO Designation: M 145-49.

[3] Based on the Unified Soil Classification System, Tech. Memo. No. 3-357, v. 1, Waterways Experiment Station, Corps of Engineers, March 1953.

[4] Nonplastic.

Engineering classification systems

Two systems for classifying soils are used in this report, the AASHO and the Unified. Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials (*1*)[6]. In this system 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. Within each group, the relative engineering value of the soil material can be indicated by a group index number. Group indexes 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. The AASHO classification of each sample tested is shown in the next to last column in tables 2 and 3.

Some engineers prefer to use the Unified Soil Classification system (*7*). In this system soil materials are identified as coarse grained (8 classes), fine grained (6 classes), or highly organic. The classification of each sample tested according to the Unified system is shown in the last column of tables 2 and 3.

Characteristics that affect suitability for engineering structures

The depth to bedrock in Sharkey County is so great that it is of no concern in excavation and does not provide footings for foundations.

[6] Italic numbers in parentheses refer to Literature Cited, p. 34.

TABLE 3.—*Engineering test data for soil samples taken from*

[Soils tested are representative of soils of the same series in Sharkey County. Tests performed by the Bureau of Public

Soil name and location of samples	Parent material	Bureau of Public Roads report number	Depth	Horizon	Moisture density: Maximum dry density	Moisture density: Optimum moisture content
			Inches		*Lb. per cu. ft.*	*Percent*
Alligator clay: Center SW¼ sec. 33, T. 16 N., R. 4 W.	Alluvium	93211	0 to 3	A_p	91	23
		93212	3 to 30	C_{1g}	92	25
		93213	30 to 55+	C_{2g}	93	25
Dundee silty clay loam: SW¼ sec. 3, T. 20 N., R. 1 W	Old alluvium, Mississippi River flood plain.	92903	0 to 5	A_p	104	17
		92904	5 to 18	B_{21} and B_{22}	103	19
		92905	18 to 48	B_3 and C	108	17
Forestdale silty clay loam: NW¼NW¼ sec. 2, T. 16 N., R. 5 W.	Old alluvium, Mississippi River flood plain.	93214	0 to 4	A_p	108	16
		93215	4 to 26	B_2	100	22
		93216	26 to 53	C_g	105	17
Forestdale silty clay loam: NW¼NW¼ sec. 2., T. 16 N., R. 5 W.	Old alluvium, Mississippi River flood plain.	92900	0 to 9	A_p and A_2	108	17
		92901	9 to 27	B_{21g} and B_{22}	99	21
		92902	27 to 59	C_{1g} and C_{2g}	108	17

[1] Mechanical analyses according to the American Association of State Highway Officials Designation: T 88. Results by this procedure frequently differ somewhat from results that would have been 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 more than 2 millimeters in diameter. In the SCS procedure, the fine material is analyzed by the pipette method and the material more than 2 millimeters in diameter is excluded from calculations

The Alligator, Dowling, and Sharkey soils and the upper part of the Bowdre and Tunica soils shrink when dry and swell when wet. They are, therefore, unsuitable for subgrades on which to lay pavement. The cracking and warping of pavements, caused by the expansion and contraction of these very plastic soils, can be minimized if a thick layer of soil material of low volume change is used as a foundation course. The foundation course should extend through the shoulders of the road. Sandy loams or loamy sands are generally the best sources of foundation material for road pavement and will support a limited amount of traffic on the road shoulders.

Many soils in Sharkey County have a high water table, and water ponds on them during much of the year. Roads on these soils should be constructed on embankments and should have adequate drainage, both on the surface and under the roadbed. In lowlands and in other areas that are flooded, roads should be constructed on a continuous embankment that is several feet above the level of frequent floods. Because of good surface drainage, the natural levees are generally the best sites for roads. The sandy soils are well suited to use as pavement foundation. Any of the medium-textured soils are suitable for farm or field roads, but they too require good surface drainage of roadbeds and shoulders.

Descriptions of Soils

This section gives detailed information about the soils in Sharkey County. In it the soil series and the various soils, or mapping units, are described in detail. The texture, structure, consistence, and other significant characteristics of each soil are given.

An important part of each series description is the soil profile, a record of what the soil scientist observed when he dug into the ground. It is to be assumed that all soils of one series have essentially the same kind of profile. The differences, if any, are explained in the description of the soil or are indicated by the soil name. For example, Sharkey clay and Sharkey silty clay loam are both members of the Sharkey series. One has a clay surface soil, and the other has a silty clay loam surface soil. Another important feature included in the name of the soil is its slope range.

Following the name of each soil is a symbol in parenthesis. This symbol identifies the soil on the detailed map. Also given is the capability unit in which the soil was placed and certain broad interpretations as to the use and suitabilities of the soil. The capability units are described in the section "Use and Management of Soils."

In describing the soil profile, the soil scientist assigns a symbol to the various layers, or horizons. Symbols beginning with A refer to the surface soil, those beginning with B refer to the subsoil, and those beginning with C, to the substratum, or parent material.

The boundaries between horizons are described as abrupt if less than 1 inch thick; clear if from 1 to 2½ inches thick; gradual if from 2½ to 5 inches thick; and diffuse if more than 5 inches thick. The shape of the boundary is described as smooth, wavy, irregular, or broken.

The color of a soil can be described in words or can be indicated by the Munsell color notations, which are used *four soil profiles in Humphreys and Leflore Counties, Miss.*

Roads in accordance with standard procedures of the American Association of State Highway Officials (AASHO) (*1*)]

Mechanical analysis [1]						Liquid limit	Plasticity index	Classification	
Percentage passing sieve—		Percentage smaller than—						AASHO [2]	Unified [3]
No. 60 (0.25 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
100	99	91	76	63	52	71	40	A-7-5(20)	CH
100	99	88	75	65	54	85	54	A-7-5(20)	CH
100	99	85	69	61	50	94	64	A-7-5(20)	CH
100	97	85	60	29	21	34	11	A-6(8)	ML-CL
100	98	83	57	37	32	48	24	A-7-6(15)	CL
100	97	80	48	24	20	35	13	A-6(9)	ML-CL
100	93	78	55	35	28	33	13	A-6(9)	CL
100	97	86	68	50	45	63	38	A-7-6(20)	CH
99	91	74	50	35	31	47	24	A-7-6(15)	CL
100	93	77	50	29	24	31	11	A-6(8)	CL
100	98	85	60	39	35	50	25	A-7-6(16)	CH
100	97	80	52	30	25	39	17	A-6(11)	CL

of the grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soils.

[2] Based on the Classification of Soils and Soil Aggregate Mixtures for Highway Construction Purposes, AASHO Designation: M 145-49.

[3] Based on the Unified Soil Classification System, Tech. Memo. No. 3-357, v. 1, Waterways Experiment Station, Corps of Engineers, March 1953.

by soil scientists to evaluate soil colors precisely. Unless otherwise noted, Munsell notations given in this report are for moist soils.

Technical terms used in the soil descriptions are defined in the Glossary.

The approximate acreage and proportionate extent of the soils mapped in Sharkey County are shown in table 6.

Alligator Series

This series consists of poorly drained soils that formed from fine-textured, slack-water sediments deposited by the Mississippi River. Slope is less than 2 percent. The surface soil is light brownish-gray clay to silty clay loam. The subsoil is gray to light-gray mottled clay. When dry, these soils shrink and form cracks that are from 1 to 3 inches wide and several feet deep. When wet, they expand and the cracks fill up. The reaction is medium acid to strongly acid. The native vegetation is mixed hardwoods, canes, and vines.

These soils make up about 12 percent of the county and are mostly in the eastern part. They are in slack-water areas and commonly are adjacent to the Forestdale soils, which are on the lower parts of old natural levees, and the Dowling soils, which are in depressions. The Alligator soils are finer textured than the Forestdale soils and lack a B horizon. They are lighter colored than the Dowling soils.

The Alligator soils are mostly in crops or pasture, although they are difficult to manage because of poor tilth and poor drainage.

Alligator clay, ½ to 2 percent slopes (Ab).—This is the most extensive Alligator soil in the county. It is mostly on ridges, at higher elevations than some of the other Alligator soils, and is separated from depressions in which there are Dowling soils. It is very plastic when wet and very hard when dry. Deep cracks form readily.

Profile in a cultivated site (NE¼NW¼ sec. 5, T. 14 N., R. 5 W.):

A_p 0 to 4 inches, light brownish-gray (10YR 6/2) clay; common, medium, distinct mottles of yellowish red (5YR 5/6); massive; very hard when dry; many large roots; medium to strongly acid; abrupt smooth boundary.

C_{1g} 4 to 22 inches, gray (10YR 5/1) clay; common, fine, distinct mottles of reddish brown (5YR 4/3); weak, medium, subangular blocky peds; very firm when moist; numerous roots; medium to strongly acid; clear smooth boundary.

C_{2g} 22 to 50 inches, gray to light-gray (10YR 6/1) clay; common, medium, distinct mottles of yellowish red (5YR 5/8); massive; very firm when moist; medium to strongly acid.

The A_p horizon ranges in thickness from 4 to 6 inches. Runoff is slow, and the movement of water into and through the soil is very slow. The capacity for holding available moisture is high. In most places nitrogen is the only fertilizer needed. Included with this soil are small areas that have slopes of as much as 5 percent.

About 70 percent of the acreage is cultivated. This soil is well suited to hay and pasture. The common pasture plants are bermudagrass, dallisgrass, tall fescue, and johnsongrass. The principal crops are soybeans, small grain, and rice. Some cotton is grown.

TABLE 4.—*Brief description of soils in Sharkey*

Map symbol	Soil	Depth to seasonally high water table	Brief description of soils	Depth from surface [1]	Engineering classification: USDA textural class
		Feet		*Inches*	
Aa	Alligator clay, 0 to ½ percent slopes.	0	Poorly drained, plastic clay in slack-water areas.	0 to 4	Clay
Ab	Alligator clay, ½ to 2 percent slopes.			4 to 22	Clay
Ac	Alligator clay, overflow, 0 to 2 percent slopes.			22 to 50	Clay
Ae	Alligator silty clay loam, 0 to 2 percent slopes.				
Bk	Bowdre silty clay, 0 to 2 percent slopes.	0. 5 to 6	From 10 to 20 inches of clay underlain by silty clay loam to very fine sandy loam.	0 to 12	Silty clay
				12 to 48	Silt loam
Ca	Commerce silt loam, 0 to 2 percent slopes.	2	Somewhat poorly drained to moderately well drained, layered silt loam, sandy loam, and silty clay loam.	0 to 6	Very fine sandy loam or silt loam.
Ch	Commerce silty clay loam, 0 to 2 percent slopes.			6 to 17	Silty clay loam
Ck	Commerce silty clay loam, 2 to 5 percent slopes.			17 to 34	Silt loam
Cn	Commerce very fine sandy loam, 0 to 2 percent slopes.			34 to 57	Very fine sandy loam
Cr	Commerce very fine sandy loam, 2 to 5 percent slopes.				
Cs	Commerce very fine sandy loam, moderately shallow, 0 to 2 percent slopes.	2	Somewhat poorly drained to moderately well drained, layered silt loam, sandy loam, and silty clay loam underlain by clay at depths of 20 to 36 inches.	0 to 6	Very fine sandy loam or silt loam.
Cd	Commerce silt loam, moderately shallow, 0 to 2 percent slopes.			6 to 20	Silt loam
Cm	Commerce silty clay loam, moderately shallow, 0 to 2 percent slopes.			20 to 36	Clay
Da	Dowling clay.	0	Poorly drained clayey soils in depressions.	0 to 4	Clay
Db	Dowling soils.			4 to 37+	Clay
De	Dundee silt loam, 0 to 2 percent slopes.	2 to 4	Somewhat poorly drained to moderately well drained silt loam to silty clay loam.	0 to 6	Silt loam
Df	Dundee silt loam, 2 to 5 percent slopes.			6 to 18	Silty clay
Dk	Dundee silty clay loam, 0 to 2 percent slopes.			18 to 36	Silty clay loam
				36 to 50	Sandy loam
Fa	Forestdale silt loam, 0 to 2 percent slopes.	0.5 to 1	Poorly drained silt loam to silty clay loam.	0 to 4	Silty clay loam
Fc	Forestdale silt loam, 2 to 5 percent slopes.			4 to 23	Silty clay
Fd	Forestdale silty clay loam, 0 to 2 percent slopes.			23 to 40	Silty clay loam
Fe	Forestdale silty clay loam, 2 to 5 percent slopes.				
Mh	Mhoon silty clay, 0 to 2 percent slopes.	0.5 to 1	Poorly drained, stratified silty clay	0 to 5	Silty clay
				5 to 7	Silty clay loam
				7 to 24	Silty clay
				24 to 35	Silty loam
				35 to 42	Clay
Ro	Robinsonville very fine sandy loam, 0 to 2 percent slopes.	3	Well-drained very fine sandy loam to silt loam.	0 to 15	Very fine sandy loam
				15 to 21	Silt loam
				21 to 46	Very fine sandy loam

See footnote at end of table.

County and their estimated physical properties

Engineering classification—Con.		Percentage passing sieve—		Permeability	Structure	Available moisture holding capacity	Reaction	Dispersion	Shrink-swell potential
Unified	AASHO	No. 200	No. 10						
				Inches per hour		*Inches per foot*	*pH*		
CH	A-7	95	100	<0. 05	Massive	3	5.1 to 6	Low	Very high.
CH	A-7	95	100	<0. 05	Subangular blocky to massive.	3	5.1 to 5	Low	Very high.
CH	A-7	95	100	<0. 05	Massive	3	5.1 to 6	Low	Very high.
CL-CH	A-7	95	100	<0. 05 to 2	Massive	3	6.1 to 7.8	Low	High.
ML-CL	A-4	90	100	0. 8 to 5	Massive	2.5 to 1.8	7.4 to 9	High	Low.
ML	A-4	80	100	0. 8 to 5	Granular	2	6.6 to 7.8	High	Low.
CL	A-6	95	100	0. 8 to 2. 5	Structureless	2	6.6 to 7.8	Moderate	Low.
ML-CL	A-4	90	100	0. 8 to 2. 5	Structureless	2.2	6.6 to 7.8	High	Low.
ML or CL	A-4	80	100	0. 8 to 2. 5	Structureless	2	7.4 to 8.4	High	Low.
ML	A-4	80	100	0.2 to 0.8	Granular	2	6.6 to 7.8	High	Low.
ML-CL	A-4	95	100	0.2 to 0.8	Granular	2	6.6 to 7.8	High	Low.
CH	A-7-6	95	100	<0.05	Massive	3	6.6 to 7.8	Low	Very high.
CH	A-7	95	100	<0.05	Crumb	3	5.1 to 6	Low	Very high.
CH	A-7	95	100	<0.05	Massive	3	5.1 to 7.3	Low	Very high.
ML-CL	A-4	90	100	0.8 to 2.5	Granular	2.2	5.1 to 6	High	Low.
CL or CH	A-7	95	100	0.8 to 2.5	Subangular blocky	2.2	5.6 to 6.5	Low	High.
CL	A-6	95	100	0.8 to 2.5	Subangular blocky	2.2	6.1 to 7.3	Moderate	Moderate.
SM-SC or SC.	A-2	30	100	2.5 to 5	Single grain	1.2	5.1 to 6	High	Low.
CL	A-6	95	100	0.2 to 0.8	Granular	2.5	5.1 to 6	Moderate	Moderate.
CL-CH	A-7	95	100	0.05 to 0.2	Subangular blocky	2.5	5.1 to 6	Low	High.
CL	A-6	95	100	0.2 to 0.8	Weak subangular blocky.	2.5	5.1 to 6	Moderate	Moderate.
CL or CH	A-7	80	100	0 to 0.05	Massive	2.5	6.1 to 7.3	Low	High.
ML-CL	A-4	95	100	0.05 to 0.2	Structureless	2.5	6.6 to 7.8	Moderate	Moderate.
CL or CH	A-7	95	100	0.05	Massive	2.5	6.1 to 7.3	Low	High.
ML or CL	A-6	90	100	0.2 to 0.8	Structureless	2.2	6.6 to 7.8	High	Low.
CH	A-7	95	100	1 to 0.05	Massive	2.5	6.6 to 7.8	Low	Very high.
ML	A-4	80	100	2.5 to 5	Granular to structureless.	1.6	6.1 to 7.8	High	Low.
ML-CL	A-4	95	100	2.5 to 5	Structureless	1.4	6.6 to 7.8	High	Low.
ML	A-4	80	100	2.5 to 5	Structureless	1.6	6.6 to 7.8	High	Low.

TABLE 4.—*Brief description of soils in Sharkey*

Map symbol	Soil	Depth to seasonally high water table	Brief description of soils	Depth from surface [1]	Engineering classification
					USDA textural class
		Feet		*Inches*	
Sa Sb Sd Sk Se	Sharkey clay, 0 to ½ percent slopes. Sharkey clay, ½ to 2 percent slopes. Sharkey clay, overflow, 0 to 2 percent slopes. Sharkey silty clay loam, 0 to 2 percent slopes. Sharkey silt loam, overwash, 0 to 2 percent slopes.	0	Poorly drained, plastic, slack-water clay.	0 to 5 5 to 17 17 to 72	Clay Clay Clay
Sr	Sharkey, Alligator, and Dowling soils.		Unclassified, poorly drained, slack-water clay and soils in depressions in large wooded areas.		
Ta Tc	Tunica clay, 0 to 2 percent slopes. Tunica silty clay loam, 0 to 2 percent slopes.	0 to 0.5	Somewhat poorly drained, slack-water soils underlain by coarser textured material at a depth of about 24 inches.	0 to 8 8 to 24 24 to 28 28 to 50	Clay Clay Silty clay loam Silt loam

[1] Typical depth for the series; depths of all layers somewhat variable.

TABLE 5.—*Estimated suitability*

Soil series and map symbols	Adaptability to winter grading	Suitability for—		Suitability as a source of—		Suitability for use in dikes and levees
		Road subgrade	Road fill	Topsoil	Sand	
Alligator (Ab, Aa, Ac, Ae)	Not suitable, because of site and clay content.	Poor	Poor	Poor	Poor	Not suitable, because of shrinking and swelling.
Bowdre (Bk)	Poor to fair	Poor	Poor	Poor	Poor	Fair if well constructed
Commerce (Cn, Cr, Cs, Ca, Cd, Ch, Ck, Cm)	Fair	Poor to fair	Fair	Poor to fair	Poor	Suitable if well constructed and vegetated.
Dowling (Da, Db)	Not suitable, because of position and clay content.	Poor	Poor	Poor	Poor	Not suitable, because of shrinking and swelling.
Dundee (De, Df, Dk)	Fair	Poor to fair	Fair	Poor to good	Poor	Suitable if well constructed and vegetated.
Forestdale (Fd, Fe, Fa, Fc)	Not suitable, because of high water table.	Poor	Poor	Poor	Poor	Fair if well constructed
Mhoon (Mh)	Not suitable, because of high water table.	Poor	Poor	Poor	Poor	Fair if well constructed
Robinsonville (Ro)	Good	Fair	Fair	Good	Good	Good if vegetated
Sharkey (Sb, Sa, Sd, Sk, Se, Sr).	Not suitable, because of location and clay content.	Poor	Poor	Poor	Poor	Not suitable, because of shrinking and swelling.
Tunica (Ta, Tc)	Not suitable, because of location and clay content.	Poor	Poor	Poor	Poor	Good if surface layer is mixed with subsoil.

County and their estimated physical properties—Continued

Engineering classification—Con.		Percentage passing sieve—		Permeability	Structure	Available moisture holding capacity	Reaction	Dispersion	Shrink-swell potential
Unified	AASHO	No. 200	No. 10						
				Inches per hour		*Inches per foot*			
CH	A-7	95	100	<0.05	Massive	3	5.6 to 6	Low	Very high.
CH	A-7	95	100	<0.05	Subangular blocky	3	5.6 to 7.3	Low	High.
CH	A-7	95	100	<0.05	Massive	3	6.1 to 7.3	Low	High.
CH	A-7	95	100	<0.05	Granular	3	5.1 to 6	Low	Very high.
CH	A-7	95	100	0.2 to 0.8	Subangular blocky	3	5.1 to 6	Low	Very high.
CL	A-6	95	100	2.5 to 5	Subangular blocky	2	6.1 to 7.3	Moderate	Moderate.
ML-CL	A-4	90	100	0.8 to 2.5	Massive	2.2	6.1 to 7.3	High	Low.

of soils for engineering uses

Need for drainage	Suitability for irrigation	Suitability as sites for farm ponds	
		Reservoirs	Embankments
Needed; slow infiltration, slow permeability; requires removal of surface water.	Excellent water-holding capacity; deep cracks when dry; fast infiltration when dry and slow when wet; leveling permissible when dry; deep cuts allowable.	Good; impervious when wet; will support deep water.	Poor but can be used with proper specifications.
Surface drainage needed; slow permeability and infiltration.	Low intake rate; fair water-holding capacity; suitable for leveling when dry; medium cuts allowable; underlain by sand.	Good; impervious when wet; thin layer of clay material.	Fair if well constructed.
Some surface drainage needed	Good intake rate and water-holding capacity; suitable for leveling; deep cuts allowable except on shallow phases.	Fair where extensive clay layers are present.	Good if well constructed and vegetated.
Surface drainage needed; very slow infiltration when wet.	Fairly well suited; on-site examination needed where cut is planned; usually receives fill.	Good; impervious when wet; will support deep water.	Poor but can be used with proper specifications.
Some surface drainage needed	Fair intake rate; good water-holding capacity; leveling permissible and moderate cuts allowable.	Fair where extensive clay layers are present.	Good if well constructed and vegetated.
Surface drainage needed; poor internal drainage.	Slow intake rate; good water-holding capacity; some uniform areas can be leveled with limited cuts.	Fair where silty clay layers occur.	Fair if well constructed.
Surface drainage needed; poor internal drainage.	Slow intake rate; good water-holding capacity; suitable for leveling when dry; deep cuts allowable.	Good; impervious when wet; will support deep water.	Fair if well constructed.
Some surface drainage needed	Good intake rate; fair water-holding capacity; deep cuts permissible.	Poor; may not hold water	Good.
Surface drainage needed; slow infiltration when wet.	Cracks when dry; good infiltration rate; satisfactory for leveling when dry; deep cuts allowable.	Good; impervious when wet; will support deep water.	Poor.
Surface drainage needed	Fair water-holding capacity; infiltration good when dry and cracked; suitable for leveling when dry; moderate cuts allowable.	Fair where extensive layer of clay exists.	Good if surface layer is mixed with subsoil.

TABLE 6.—*Approximate acreage and proportionate extent of the soils mapped*

Soil	Acres	Percent
Alligator clay, ½ to 2 percent slopes	25, 100	9. 0
Alligator clay, 0 to ½ percent slopes	6, 325	2. 3
Alligator clay, overflow, 0 to 2 percent slopes	560	. 2
Alligator silty clay loam, 0 to 2 percent slopes	1, 395	. 5
Borrow pits	200	. 1
Bowdre silty clay, 0 to 2 percent slopes	4, 330	1. 5
Commerce very fine sandy loam, 0 to 2 percent slopes	19, 050	6. 8
Commerce very fine sandy loam, 2 to 5 percent slopes	440	. 1
Commerce very fine sandy loam, moderately shallow, 0 to 2 percent slopes	985	. 4
Commerce silt loam, 0 to 2 percent slopes	6, 265	2. 2
Commerce silt loam, moderately shallow, 0 to 2 percent slopes	570	. 2
Commerce silty clay loam, 0 to 2 percent slopes	11, 785	4. 2
Commerce silty clay loam, 2 to 5 percent slopes	450	. 2
Commerce silty clay loam, moderately shallow, 0 to 2 percent slopes	1, 115	. 4
Dowling clay	11, 765	4. 3
Dowling soils	4, 700	1. 7
Dundee silt loam, 0 to 2 percent slopes	2, 690	1. 0
Dundee silt loam, 2 to 5 percent slopes	655	. 2
Dundee silty clay loam, 0 to 2 percent slopes	515	. 2
Forestdale silty clay loam, 0 to 2 percent slopes	9, 800	3. 5
Forestdale silty clay loam, 2 to 5 percent slopes	605	. 2
Forestdale silt loam, 0 to 2 percent slopes	4, 635	1. 7
Forestdale silt loam, 2 to 5 percent slopes	395	. 1
Mhoon silty clay, 0 to 2 percent slopes	750	. 3
Robinsonville very fine sandy loam, 0 to 2 percent slopes	630	. 2
Sharkey clay, ½ to 2 percent slopes	38, 205	13. 7
Sharkey clay, 0 to ½ percent slopes	20, 385	7. 3
Sharkey clay, overflow, 0 to 2 percent slopes	1, 410	. 5
Sharkey silty clay loam, 0 to 2 percent slopes	770	. 3
Sharkey silt loam, overwash, 0 to 2 percent slopes	300	. 1
Sharkey, Alligator, and Dowling soils	95, 000	34. 0
Tunica clay, 0 to 2 percent slopes	5, 415	1. 9
Tunica silty clay loam, 0 to 2 percent slopes	520	. 2
Small bodies of water (less than 40 acres in size)	425	. 2
Large bodies of water (more than 40 acres in size)	900	. 3
Total	279, 040	100. 0

This soil is difficult to manage. Rows should be arranged so that excess water will run off without causing erosion. V-type or W-type ditches are needed for outlets. Sod crops rotated with row crops will build up organic matter and improve the workability of the soil.

Capability unit 13(IIIs–4).

Alligator clay, 0 to ½ percent slopes (Aa).—This soil has slower runoff than Alligator clay, ½ to 2 percent slopes. It is well suited to rice and pasture. To make it suitable for row crops, extensive drainage is needed. More than half the acreage is in woodland.

Capability unit 10(IIIw–11).

Alligator clay, overflow, 0 to 2 percent slopes (Ac).—This soil is similar to Alligator clay, ½ to 2 percent slopes, but is subject to periodic overflow or backwater. In some years it is flooded at the time when cotton or corn would be planted. Infiltration and runoff are very slow. Most of the acreage is in forest.

Capability unit 11(IIIw–12).

Alligator silty clay loam, 0 to 2 percent slopes (Ae).—Most of this soil is in transitional areas between old natural levees and slack-water areas. The surface soil is an overwash that was deposited by floods or washed from higher areas. It is from 4 to 6 inches deep.

This soil is less difficult to work than the Alligator clays and is better suited to row crops. The principal crops are soybeans, small grain, and cotton. Additional organic matter is needed to improve tilth. In most places nitrogen is the only fertilizer needed. V-type and W-type ditches are needed to remove excess water.

Capability unit 7(IIs–4).

Borrow Pits

Borrow pits (Bp).—This mapping unit consists of excavations from which soil and underlying material have been removed for use in building highways and levees. These pits fill with water during heavy rains. Some of the larger ones that never dry up are used for fishing. Others are used for hunting. Borrow pits are not in a capability unit.

Bowdre Series

The Bowdre series consists of moderately well drained clayey soils that formed in fine-textured, slack-water sediments and are underlain by coarser textured material at a depth of less than 20 inches. Slope is less than 2 percent. The surface and subsurface layers are very dark grayish-brown to dark-gray silty clay. The coarser textured material is grayish-brown to light brownish-gray silt loam. The reaction is slightly acid to strongly alkaline. The native vegetation consisted of mixed hardwoods and an undergrowth of canes and vines.

Only one Bowdre soil is mapped in Sharkey County. It makes up about 1.5 percent of the county and is mostly in the western part. This soil forms a transitional area between the Commerce soils on recent natural levees and the Sharkey soils in slack-water areas. The Bowdre soil is darker colored and finer textured in the upper part of the profile than the Commerce soils. Its subsoil is coarser textured than that of the Sharkey soils. In the Bowdre soil this coarser textured material is less than 20 inches beneath the surface, but in the Tunica soils the depth to similar material is greater. The Bowdre soil commonly is adjacent to the poorly drained Dowling soils of the depressions.

The Bowdre soil is used mostly for crops and pasture.

Bowdre silty clay, 0 to 2 percent slopes (Bk).—This soil occurs in narrow to broad bands in the higher parts of the slack-water areas.

Profile in a cultivated site (SE¼ sec. 12, T. 12 N., R. 7 W.):

A_p 0 to 4 inches, very dark grayish-brown (10YR 3/2) silty clay; massive; very plastic when moist; few roots; slightly acid to neutral; clear smooth boundary.

AC 4 to 12 inches, dark-gray (10YR 4/1) silty clay; many, medium, distinct mottles of brown (7.5YR 5/4); massive; very plastic when moist; neutral to mildly alkaline; clear boundary.

D_1 12 to 30 inches, grayish-brown (10YR 5/2) silt loam; many, fine, distinct mottles of yellowish brown (10YR 5/4); massive; friable when moist; mildly to moderately alkaline; clear boundary.

D_2 30 to 48 inches, light brownish-gray (10YR 6/2) silt loam; many, fine, distinct mottles of yellowish brown (10YR 5/8); massive; friable when moist; moderately to strongly alkaline.

The texture of the A_p horizon is clay or silty clay. The D horizon ranges in texture from silty clay loam to very fine sandy loam and in color from yellowish brown to dark grayish brown. The rate of infiltration and the movement of water through the upper part of the profile are very slow. The movement of water through the lower part is moderate. The capacity for holding available water is moderately high. The content of organic matter is low. In most places nitrogen is the only fertilizer needed.

The principal crops are soybeans, small grain, sorghum, and cotton. Pasture crops are tall fescue, johnsongrass, vetch, and clover. The woods consist of sweetgum and water oak. If crops are grown, drainage should be provided by arranging rows so that excess water will run off and by using V-type and W-type ditches as outlets. Early preparation, deep plowing, and high seedbeds are advisable.

This soil can be cultivated only within a narrow range of moisture content. It is very plastic when wet and very hard when dry. When dry, it forms deep wide cracks that damage the roots of some crops.

Capability unit 5 (IIs–2).

Commerce Series

The Commerce series consists of somewhat poorly drained and moderately well drained soils that formed from medium-textured sediments deposited by the Mississippi River and its tributaries. The slope is less than 5 percent. The surface soil is light brownish-gray to very pale brown very fine sandy loam, silt loam, or silty clay loam. It is underlain by light brownish-gray to gray silt loam, sandy loam, or silty clay loam mottled with shades of yellow, brown, and gray. The reaction is slightly acid to mildly alkaline. The native vegetation consisted of mixed hardwoods and a dense undergrowth of brush, vines, and canes.

These soils are extensive in the western part of the county along Deer Creek and Indian Bayou. They are on recent natural levees adjacent to the Robinsonville and Mhoon soils. The Robinsonville soils are browner and better drained, and the Mhoon soils are grayer and less well drained.

The Commerce soils are good agricultural soils, and most of the acreage is used for crops and pasture.

Commerce very fine sandy loam, 0 to 2 percent slopes (Cn).—This soil generally is in large areas on recent natural levees.

Profile in a cultivated site (NW¼SE¼ sec. 23, T. 13 N., R. 7 W.):

A_p 0 to 6 inches, light brownish-gray (10YR 6/2) very fine sandy loam; weak, fine, granular structure; friable when moist; numerous roots; neutral; abrupt smooth boundary.

C_1 6 to 17 inches, pale-brown (10YR 6/3) silty clay loam; few, fine, faint mottles of light brownish gray (10YR 6/2); structureless; friable when moist; neutral to mildy alkaline; abrupt smooth boundary.

C_{2g} 17 to 34 inches, light brownish-gray (10YR 6/2) silt loam; common, medium, distinct mottles of dark yellowish brown (10YR 4/4); structureless; friable when moist; neutral to mildly alkaline; clear smooth boundary.

C_{3g} 34 to 57 inches, mottled light-gray (10YR 7/1), light brownish-gray (10YR 6/2), and pale-brown (10YR 6/3) very fine sandy loam; structureless; very friable when moist; mildly to moderately alkaline.

The A_p horizon ranges in thickness from 4 to 8 inches. The C_1, C_{2g}, and C_{3g} horizons range in texture from silty clay loam to very fine sandy loam. In some places splotches or lenses of reddish-brown silty clay are in the C_1 and C_{2g} horizons. In other places ferromanganese concretions are in the C horizons. The C_{2g} horizon ranges in color from light brownish-gray to brown.

Because of gentle slopes and other favorable characteristics, this soil is well suited to crops. Water moves into and through it at a moderate rate, and the available moisture holding capacity is high. Nitrogen is the fertilizer most needed.

This is one of the most productive soils in the county, and most of the acreage is cultivated. The principal crops are cotton, corn, soybeans, sorghum, and small grain (fig. 3). The pasture crops are bermudagrass, dallisgrass, tall fescue, johnsongrass, and clover. Under good management, yields are high. This soil is easy to work throughout a wide range of moisture conditions. Organic matter should be added because the soil crusts and packs when bare. Plowsoles can be broken by deep tillage when the soil is dry. Excess water can be removed by properly arranged rows and by V-type and W-type ditches.

Capability unit 1 (I–1).

Commerce very fine sandy loam, 2 to 5 percent slopes (Cr).—This soil is along streambanks. It has more rapid runoff than Commerce very fine sandy loam, 0 to 2 percent slopes, and normally is more acid in reaction.

Most of the acreage is used for row crops. Rows should be on the contour to conserve moisture and to control runoff and erosion. Vegetated outlets are needed in some places to remove excess water.

Capability unit 3 (IIe–1).

Commerce very fine sandy loam, moderately shallow, 0 to 2 percent slopes (Cs).—The profile of this soil is similar to that of Commerce very fine sandy loam, 0 to 2 per-

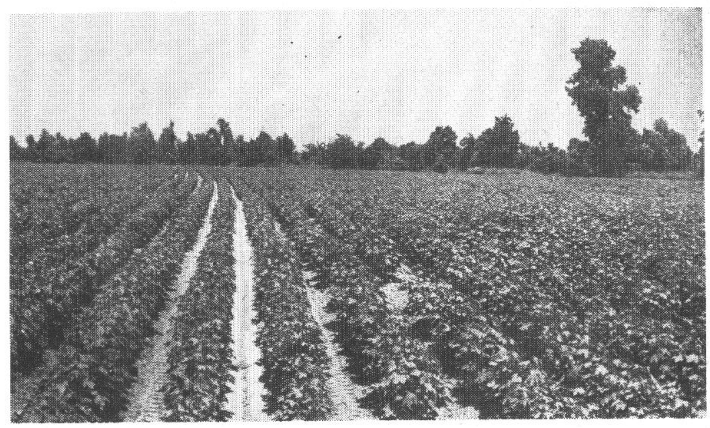

Figure 3.—Crops on Commerce very fine sandy loam, 0 to 2 percent slopes, planted on the contour to control erosion and to conserve moisture and fertility.

cent slopes, except that there is a layer of dark-gray clay at depths of 20 to 36 inches. The two soils are similar in use suitability and management needs.

Capability unit 1(I–1).

Commerce silt loam, 0 to 2 percent slopes (Ca).—Except for the texture of the surface soil, this soil is similar to Commerce very fine sandy loam, 0 to 2 percent slopes. The two soils are suited to about the same crops and require similar management (fig. 4).

Capability unit 1(I–1).

Commerce silt loam, moderately shallow, 0 to 2 percent slopes (Cd).—This soil is underlain by a layer of dark-gray clay at depths of 20 to 36 inches. In use suitability and management needs, it is similar to Commerce very fine sandy loam, 0 to 2 percent slopes.

Capability unit 1(I–1).

Commerce silty clay loam, 0 to 2 percent slopes (Ch).—This soil has poorer tilth and slower infiltration than Commerce very fine sandy loam, 0 to 2 percent slopes. In use suitability and management needs, the two soils are similar, but this soil is not well suited to corn. It can be tilled only within a narrower range of moisture content, and it has to be prepared for planting later in the season.

Capability unit 9(IIs–6).

Commerce silty clay loam, 2 to 5 percent slopes (Ck).—This soil generally is along streambanks. It is commonly more acid than Commerce very fine sandy loam, 0 to 2 percent slopes, and has more rapid runoff.

Most of this soil is used for row crops and pasture. Rows should be on the contour, to conserve rainfall and to control runoff and erosion. In some places vegetated outlets are needed to remove excess surface water.

Capability unit 4(IIe–4).

Commerce silty clay loam, moderately shallow, 0 to 2 percent slopes (Cm).—This soil is underlain by a layer of dark-gray clay at depths of 20 to 36 inches. It has a slower rate of infiltration than Commerce very fine sandy loam, 0 to 2 percent slopes.

This soil can be used for about the same crops as Commerce very fine sandy loam, 0 to 2 percent slopes, but is not so well suited to corn. The range of moisture conditions within which it can be worked is narrower, tilth is not so good, and seedbeds should be prepared later in spring.

Capability unit 9(IIs–6).

***Figure 4.*—Profile of Commerce silt loam, 0 to 2 percent slopes. This soil is well suited to most crops locally grown. Notice lenses of silty clay in lower part of the profile.**

Dowling Series

The Dowling series consists of poorly drained soils in depressions. These soils formed in slack-water deposits that included some local alluvium. In most places the surface soil is very dark-gray clay and the subsoil is black, mottled clay. The reaction is strongly acid to neutral. The native vegetation consists of mixed hardwoods and a dense undergrowth of canes and vines.

These soils make up about 6 percent of the county. They occupy depressions in areas of Dundee and Forestdale soils, which are on old natural levees, and in areas of Alligator and Sharkey soils, which are in slack-water areas.

The Dowling soils are very difficult to drain, and much of the acreage is poorly suited to crops.

Dowling clay (Da).—This soil is in narrow to broad depressions throughout the county.

Profile:

A_1 0 to 4 inches, very dark gray (10YR 3/1) clay; moderate, medium, crumb structure; very hard when dry; numerous roots; strongly acid to medium acid; clear smooth boundary.

C_1 4 to 23 inches, dark-gray (10YR 4/1) clay; few, fine, prominent mottles of yellowish red (5YR 5/6); massive; very firm when moist; numerous roots; numerous ferromanganese concretions; strongly acid to medium acid; gradual smooth boundary.

C_2 23 to 37 inches, black (10YR 2/1) to very dark gray (10YR 3/1) clay; common, fine, prominent mottles of yellowish red (5 YR 4/6); massive; very firm when moist; numerous small ferromanganese concretions; few roots; medium acid to neutral.

Because of its fine texture and poor drainage, this soil is difficult to manage. Water moves into and through it very slowly. The capacity for holding available water is high. The content of organic matter and the inherent fertility are fairly high.

Much of the acreage is in woods, which is the best use for this soil. Late crops, such as sorghum and soybeans, do fairly well if not flooded. Rice, tall fescue, and bermudagrass are well suited. Undrained areas are not suited to row crops. If row crops are grown, rows should be arranged so that water will run off, and V-type, W-type, and dragline ditches should be used to remove excess water and prevent ponding.

Capability unit 14(IVw–1).

Dowling soils (Db).—These soils occur in such intricate patterns that it is difficult to separate them into types. The texture of the surface soil ranges from silty clay to very fine sandy loam. In places the C horizon has a layer of silt loam or silty clay loam that is from 2 to 4 inches thick.

These soils occupy about 1.7 percent of the county. They are used mostly for crops and pasture. Many of the cleared areas have been drained by V-type, W-type, and dragline ditches. Rice, sorghum, winter peas, bermudagrass, and tall fescue are well suited. In undrained areas, sweetgum, water oak, cypress, and cottonwood grow well.

Capability unit 12 (IIIw-13).

Dundee Series

The Dundee series consists of somewhat poorly drained to moderately well drained soils that formed in medium-textured and fine-textured sediments deposited by the Mississippi River. Their slope is less than 5 percent. The surface soil is brown silt loam or silty clay loam. The subsoil is mottled brown silty clay or silty clay loam and is underlain by pale-brown very fine sandy loam to silt loam. The reaction is strongly acid to neutral. The native vegetation consisted of mixed hardwoods and an undergrowth of briers, vines, and canes.

These soils make up about 1.4 percent of the county. They are on old natural levees in the eastern part of the county, mostly along the Big Sunflower River and Straight Bayou. Near them are the grayer and more poorly drained Forestdale soils, which developed from slightly finer material and are at slightly lower elevations. In places the Dundee soils are adjacent to the poorly drained Dowling soils, which occupy depressions.

Most of the acreage of the Dundee soils has been cleared and is used for row crops. Because of gentle slopes and other favorable conditions, these soils are well suited to cultivation.

Dundee silt loam, 0 to 2 percent slopes (De).—This soil is on the higher parts of old natural levees along streams and bayous.

Profile in a cultivated site (SW¼NE¼ sec. 24, T. 13 N., R. 6 W.):

A_p 0 to 6 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable when moist; medium acid; abrupt smooth boundary.

B_2 6 to 18 inches, brown (10YR 5/3) silty clay; common, medium, distinct mottles of dark brown (7.5YR 4/4); medium, subangular, blocky structure; firm when moist; medium to slightly acid; clear smooth boundary.

B_3 18 to 36 inches, light brownish-gray (10YR 6/2) silty clay loam; many, fine, distinct mottles of strong brown (7.5YR 5/6); weak, subangular, blocky structure; friable when moist; slightly acid to neutral; gradual boundary.

C 36 to 50 inches +, pale-brown (10YR 6/3) sandy loam; loose when moist; single grain; strongly to medium acid.

The B horizon ranges in texture from silty clay loam to silty clay and in color from grayish brown to brown. The C horizon ranges in texture from sandy loam to silt loam. The content of organic matter is low. Water moves into and through this soil at a moderate rate. The available moisture holding capacity is high. Nitrogen generally is the only fertilizer needed. Included are small areas that have a surface soil of very fine sandy loam.

This is one of the most productive soils in the county. Cotton is the principal crop, but most crops that require good drainage are suitable. Small acreages are in soybeans, small grain, corn, and pasture. This soil is easy to work throughout a wide range of moisture content. Plowsoles can be broken by deep tillage when the soil is dry. Sod crops and cover crops will improve soil structure and will help to maintain the content of organic matter. Contour crop rows and W-type ditches will help to remove excess surface water.

Capability unit 1 (I-1).

Dundee silt loam, 2 to 5 percent slopes (Df).—This soil is on narrow ridges along streambanks. Runoff is more rapid than on Dundee silt loam, 0 to 2 percent slopes. Included are small areas that are moderately eroded and a small acreage that has a surface soil of silty clay loam.

This soil is suited to about the same crops as Dundee silt loam, 0 to 2 percent slopes. It should be tilled on the contour to conserve rainfall and prevent excessive runoff. In some places vegetated outlets are needed.

Capability unit 3 (IIe-1).

Dundee silty clay loam, 0 to 2 percent slopes (Dk).—This soil generally is adjacent to areas of slack-water clay. It has slower infiltration than Dundee silt loam, 0 to 2 percent slopes. Plowsoles are less common in this soil, but the range of moisture conditions within which it can be worked is narrower. Both soils are suited to about the same crops and require similar management.

Capability unit 9 (IIs-6).

Forestdale Series

The Forestdale series consists of poorly drained and somewhat poorly drained soils that formed in stratified, fine textured and moderately fine textured alluvium from the Mississippi River and its tributaries. Their slope is less than 5 percent. The surface soil commonly is light brownish-gray silt loam or silty clay loam. The subsoil is brown silty clay and is underlain by light-gray silty clay loam. The reaction is medium acid to strongly acid. The native vegetation consisted of mixed hardwoods and an undergrowth of canes and vines.

These soils make up 5.5 percent of the county and are in the eastern part. They are on old natural levees along old or present stream channels, adjacent to the browner, better drained Dundee soils. In many places they are adjacent to the Alligator soils of the slack-water areas and the Dowling soils of the depressions.

Most of the acreage of the Forestdale soils has been cleared and is used for crops or pasture.

Forestdale silty clay loam, 0 to 2 percent slopes (Fd).—This soil is in small to large areas on the lower parts of the old natural levees.

Profile in a cultivated site (NE¼NW¼ sec. 13, T. 14 N., R. 6 W.):

A_p 0 to 4 inches, light brownish-gray (10YR 6/2) silty clay loam; weak, granular structure; friable when moist; strongly acid to medium acid; abrupt smooth boundary.

B 4 to 23 inches, grayish-brown (10YR 5/2) silty clay; common, fine, distinct mottles of strong brown (7.5YR 5/8) and common, medium, faint mottles of pale brown (10YR 6/3); moderate, medium, subangular blocky structure; firm when moist; medium acid to strongly acid; clear smooth boundary.

C_g 23 to 40 inches, gray to light-gray (10YR 6/1) silty clay loam; common, fine, distinct mottles of strong brown (7.5YR 5/8) and pale brown (10YR 6/3); weak, medium, subangular blocky structure; friable when moist; medium acid to strongly acid.

The B horizon ranges in color from grayish brown to gray. Water moves into and through this soil slowly.

The capacity for holding available moisture is high. In most places nitrogen is the only fertilizer needed. Included are small areas that are moderately eroded.

This is the most extensive Forestdale soil in the county. Most of the acreage is used for crops, such as cotton, soybeans, corn, and small grain. The pasture crops are bermudagrass, johnsongrass, dallisgrass, and tall fescue. Most areas need V-type and W-type ditches and proper row arrangement to remove excess water. Adding organic matter will improve workability.

Capability unit 7(IIs–4).

Forestdale silty clay loam, 2 to 5 percent slopes (Fe).—This soil generally is in long, narrow strips along old drainageways. Because of the stronger slopes, it has more rapid runoff than Forestdale silty clay loam, 0 to 2 percent slopes. Some spots are moderately eroded.

Most of the acreage is used for crops, including cotton, soybeans, and bermudagrass. Contour rows and V-type and W-type ditches can be used to remove excess water.

Capability unit 7(IIs–4).

Forestdale silt loam, 0 to 2 percent slopes (Fa).—The surface layer of this soil is 1 or 2 inches thicker than that of Forestdale silty clay loam, 0 to 2 percent slopes, and the range of moisture content within which this soil can be cultivated is wider.

Most of the acreage is used for crops, such as cotton, corn, soybeans, and small grain. Pasture crops, such as bermudagrass, johnsongrass, tall fescue, and clover are well suited. This soil is easy to work, but it often crusts to such an extent after rains that crops are poor. Rows should be arranged so that water will run off, and V-type and W-type ditches are needed to remove excess surface water.

Capability unit 6(IIs–3).

Forestdale silt loam, 2 to 5 percent slopes (Fc).—This soil occurs mostly in narrow bands along old stream runs. It has somewhat more rapid runoff than Forestdale silty clay loam, 0 to 2 percent slopes. Included are small areas that are moderately eroded.

Most of this soil is used for crops, such as cotton, corn, soybeans, and small grain. Pasture crops, such as bermudagrass, johnsongrass, tall fescue, dallisgrass, and clover, are well suited. This soil is easy to work but generally crusts to such an extent after rains that crops are poor. Surface drainage can be provided by arranging rows and using V-type and W-type ditches.

Capability unit 6(IIs–3).

Mhoon Series

The Mhoon series consists of poorly drained and somewhat poorly drained soils that formed in sediments deposited by the Mississippi River. Slope is less than 2 percent. In most places the surface soil is dark-gray silty clay and the subsoil is mottled light-gray and brown stratified silt loam to gray clay. The reaction is slightly acid to mildly alkaline. The native vegetation consisted of mixed hardwoods and an undergrowth of vines and canes.

Only one Mhoon soil is mapped in Sharkey County. It makes up about 0.3 percent of the county and is in the western part. It is on recent natural levees along Deer Creek, adjacent to the coarser textured Commerce and Robinsonville soils.

The Mhoon soil is used mostly for crops or pasture. It is difficult to manage because of slow runoff and poor physical characteristics.

Mhoon silty clay, 0 to 2 percent slopes (Mh).—This soil generally occupies small areas on low ridges of recent natural levees, adjacent to slack-water clays.

Profile in a cultivated site (NW¼NE¼ sec. 17, T. 14 N., R. 6 W.):

A_p 0 to 5 inches, dark-gray (10YR 4/1) silty clay; massive; firm when moist; many roots; slightly acid to neutral; abrupt smooth boundary.

C_{1g} 5 to 7 inches, light-gray to gray (10YR 6/1) silty clay loam; common, medium, distinct mottles of brown (7.5YR 5/4); structureless; friable when moist; neutral to mildly alkaline; abrupt smooth boundary.

C_{2g} 7 to 24 inches, gray (10YR 5/1) silty clay; many, medium, distinct mottles of dark brown (7.5YR 4/4); massive; firm when moist; slightly acid to neutral; clear smooth boundary.

C_{3g} 24 to 35 inches, mottled light-gray (10YR 6/1) and brown (10YR 5/3) silt loam; structureless; friable when moist; neutral to mildly alkaline; clear smooth boundary.

C_{4g} 35 to 42 inches, gray (10YR 5/1) clay; many, medium, distinct mottles of brown (7.5YR 5/4); massive; very firm when moist; neutral to mildly alkaline.

The C horizon ranges in texture from silt loam to silty clay to clay, and in places there are blotches or lenses of silty clay and clay. The layers in the C horizon vary in thickness and in relative position.

Water moves into and through this soil slowly. The capacity for holding available moisture is high. The content of organic matter is moderate. In most places nitrogen is the only fertilizer needed.

This soil is well suited to pasture and hay. It is used to some extent for small grain and soybeans and to a lesser extent for cotton. If row crops are grown, drainage should be provided by the arrangement of rows and by the use of V-type and W-type ditches. Tilth is poor but can be improved by growing sod crops and cover crops in the rotation. This soil can be cultivated only within a narrow range of moisture content.

Capability unit 13(IIIs–4).

Robinsonville Series

The Robinsonville series consists of moderately well drained and well drained soils that formed in moderately coarse textured sediments deposited by the Mississippi River and its tributaries. Their slope is less than 2 percent. The surface soil is brown very fine sandy loam and is underlain by yellowish-brown to light yellowish-brown very fine sandy loam or silt loam. The reaction is slightly acid to mildly alkaline. The native vegetation consisted of mixed hardwoods and an undergrowth of briers, vines, and canes.

Only one Robinsonville soil is mapped in Sharkey County. It makes up about 0.2 percent of the county and is in the northern and western parts. This soil occurs on recent natural levees along Deer Creek and other stream channels and is adjacent to the Commerce and Mhoon soils. It is at higher elevations than the Commerce and Mhoon soils and is better drained.

All of the acreage of the Robinsonville soil has been cleared, and most of it is used for row crops. This soil is naturally fertile and is easy to till throughout a wide range of moisture content. It is a very good agricultural soil.

Robinsonville very fine sandy loam, 0 to 2 percent slopes (Ro).—This soil occurs on narrow, recent natural levees.

Profile in a fallowed site (SW¼SE¼ sec. 15, T. 14 N., R. 7 W):

A_p 0 to 5 inches, brown (10YR 5/3) very fine sandy loam; weak, fine, granular structure; very friable when moist; numerous roots; slightly acid to neutral; abrupt boundary.

AC 5 to 15 inches, yellowish-brown (10YR 5/4) very fine sandy loam; structureless; very friable when moist; numerous roots; neutral to mildly alkaline; gradual smooth boundary.

C_1 15 to 21 inches, dark yellowish-brown (10YR 4/4) silt loam; few, fine, faint mottles of pale brown (10YR 6/3); structureless; friable when moist; few roots; neutral to mildly alkaline; clear smooth boundary.

C_2 21 to 32 inches, brown (10YR 5/3) very fine sandy loam; common, medium, distinct mottles of very pale brown (10YR 7/3) and dark yellowish brown (10YR 4/4); structureless; very friable when moist; neutral to mildly alkaline; clear smooth boundary.

C_3 32 to 46 inches, light yellowish-brown (10YR 6/4) very fine sandy loam; structureless; very friable when moist; neutral to mildly alkaline.

The surface soil ranges in thickness from 4 to 8 inches. In some places the surface soil is silt loam. The AC horizon ranges in texture from silt loam to very fine sandy loam. In places the C_2 horizon contains blotches or lenses of reddish-brown silty clay.

This soil is slightly droughty because its capacity for holding available moisture is only moderate. The content of organic matter generally is low. The movement of water into and through this soil is moderate. In most places nitrogen is the only fertilizer needed.

This soil is well suited to crops that require good drainage. A small acreage is in corn, soybeans, and pasture, but cotton is the principal crop. The soil is easy to till throughout a wide range of moisture content. Plowsoles can be broken by deep tillage when the soil is dry. Sod and cover crops will improve tilth. To remove excess surface water, rows should be on the contour and W-type ditches should be provided.

Capability unit 2(I–2).

Sharkey Series

The Sharkey series consists of poorly drained, clayey soils that formed in fine-textured sediments in slack-water areas along the Mississippi River. Their slope is less than 2 percent. The surface soil is very dark gray clay and is underlain by dark gray to very dark brown clay. In some areas the surface soil is a recent overwash of silt loam. When dry these soils shrink and form cracks that are from 1 to 5 inches wide and several feet deep. When wet they expand and the cracks fill. The reaction is medium acid to neutral. The native vegetation consisted of mixed hardwoods and an undergrowth of vines and canes.

These soils make up about 21.9 percent of the county and are mostly in the western part. They occur with the Bowdre and Tunica soils of the slack-water areas and the Dowling soils of the depressions. The Sharkey soils are less well drained than the Bowdre and Tunica soils and are finer textured in the upper part of the profile. In the Sharkey soils the depth to coarser textured material is several feet, but in the Bowdre soils the depth to coarser textured material is less than 20 inches, and in the Tunica soils it is less than 34 inches.

About two-thirds of the acreage of the Sharkey soils has been cleared and is used for crops and pasture, but these soils are difficult to manage because they are fine textured and poorly drained.

Sharkey clay, ½ to 2 percent slopes (Sb).—This soil is in slack-water areas. It is very plastic when wet but becomes very hard and cracks when dry.

Profile in a wooded site (SE¼SE¼ sec. 22, T. 14 N., R. 6 W.):

A_{11p} 0 to 3 inches, very dark gray (10YR 3/1) clay; massive; very firm when moist; medium acid; abrupt boundary.

A_{12p} 3 to 5 inches, dark-gray (10YR 4/1) clay; common, medium, distinct mottles of dark brown (7.5YR 4/4); massive; very firm when moist; medium to slightly acid; clear boundary.

C_1 5 to 17 inches, very dark grayish-brown (10YR 3/2) clay; common, medium, distinct mottles of dark reddish brown (5YR 3/4); massive, breaks down into medium, subangular blocky peds; very firm when moist; medium acid to neutral; gradual boundary.

C_2 17 to 24 inches, very dark brown (10YR 2/2) clay; common, medium, distinct mottles of dark reddish brown (5YR 3/4) and dark brown (7.5YR 3/2); massive, breaks down into moderate, medium, subangular blocky peds; very firm when moist; slightly acid to neutral; clear boundary.

C_3 24 to 53 inches, dark-gray (10YR 4/1) clay; many, medium, distinct mottles of dark brown (7.5YR 3/2); massive; very firm when moist; slightly acid to neutral; clear boundary.

C_4 53 to 72 inches, gray (10YR 6/1) clay; many, fine, distinct mottles of strong brown (7.5YR 5/8); massive; very firm when moist; slightly acid to neutral.

The A_p horizon ranges in thickness from 3 to 6 inches. In places the C horizon contains layers or blotches of reddish-brown silty clay or clayey material. The C_2 horizon ranges in color from very dark brown to very dark gray. The content of organic matter is medium to high. When this soil is wet, water moves into and through it very slowly. Runoff is very slow. The capacity for holding available moisture is high. Nitrogen generally is the only fertilizer needed. Some small areas that have steeper slopes are included.

This is the most extensive Sharkey soil in the county. About two-thirds of the acreage has been cleared and is used for crops and pasture. Drained areas are suited to rice, soybeans, small grain, cotton, and pasture. Drainage can be provided by arranging rows so that water will run off and by using V-type and W-type ditches as outlets. Tilth is poor but can be improved by the use of sod crops in rotations and by turning under crop residues. This soil can be tilled only within a narrow range of moisture content. Seedbeds should be prepared early to permit settling.

Capability unit 13(IIIs–4).

Sharkey clay, 0 to ½ percent slopes (Sc).—This soil is on broad flats or in slightly depressed areas. It is similar to Sharkey clay, ½ to 2 percent slopes, except that it has less slope and slower runoff. Water from higher areas collects and ponds on this soil.

This soil is extensive, but about 40 percent of the acreage is in woods. In adequately drained areas, rice, soybeans, grasses, and legumes can be grown. Drainage can be provided by arranging rows and using V-type and W-type ditches that have adequate outlets.

Capability unit 10(IIIw–11).

Sharkey clay, overflow, 0 to 2 percent slopes (Sd).—This soil is mostly in broad slack-water areas. It is similar to Sharkey clay, ½ to 2 percent slopes, but is subject to overflow or backwater that remains ponded for long periods. Infiltration and runoff are very slow.

About 50 percent of the acreage is used for crops, including soybeans and pasture. In some years this soil is covered with floodwater at the time when cotton and corn would be planted. Removing surface water is difficult because of the lack of adequate outlets. Drainage can be improved by arranging rows so that water will run off and by using V-type and W-type ditches that have adequate outlets.

Capability unit 11(IIIw–12).

Sharkey silty clay loam, 0 to 2 percent slopes (Sk).—This soil is in a transitional zone between old and recent natural levees and clayey slack-water areas. The surface soil is an overwash from higher elevations. Included are small areas of silty clay loam that are alkaline in reaction.

Because of the coarser textured surface soil, this soil is not so difficult to manage as the Sharkey clays, but it is suited to about the same crops.

Capability unit 7(IIs–4).

Sharkey silt loam, overwash, 0 to 2 percent slopes (Se).—This soil occurs in a transitional zone between old and recent natural levees and clayey slack-water areas. The silt loam surface soil is an overwash from higher elevations and is from 4 to 15 inches deep.

Because of the coarser textured surface soil, this soil is not so difficult to manage as the Sharkey clays. It is suited to about the same crops and requires about the same management as Sharkey clay, ½ to 2 percent slopes.

Capability unit 8(IIs–5).

Sharkey, Alligator, and Dowling soils (Sr).—This undifferentiated unit consists of poorly drained, clayey soils in slack-water areas. Slope generally is less than 2 percent, but along streambanks and depressions there are a few areas in which slope is as much as 5 percent. Most of the acreage is in extensive wooded areas where it was difficult to delineate the soils separately. In the Sharkey and Dowling soils, the surface soil and subsoil are mostly dark-gray clay. In the Alligator soils, the surface soil and subsoil are mostly light brownish-gray to light-gray clay. When dry these soils shrink and form cracks that are from 1 to 5 inches wide and several feet deep. When wet they expand, and the cracks fill. The reaction is strongly acid to neutral.

These soils make up about one-third of the county. The Sharkey soils make up about 60 percent of the unit; the Alligator soils, about 20 percent; and the Dowling soils and some included areas, about 20 percent. Descriptions of typical Sharkey, Alligator, and Dowling soils follow the respective series descriptions elsewhere in this section.

About 62 percent of the acreage is in a national forest. The rest is privately owned woodland. These soils can be cultivated but probably will remain in woodland because tilth and drainage are poor and backwater is a problem. They have not been classified in a capability unit.

Tunica Series

The Tunica series consists of somewhat poorly drained soils that formed in fine-textured sediments in the higher parts of slack-water areas. Their slope is less than 2 percent. The surface soil is dark grayish-brown clay and is underlain by dark-gray clay. A coarser textured material is at a depth of 20 to 34 inches. The reaction is strongly acid to neutral. The native vegetation consisted of hardwoods and an undergrowth of canes and vines.

These soils make up about 2.1 percent of the county and are mostly in the western part. They are adjacent to the Sharkey and Bowdre soils of the slack-water areas. In many areas they are adjacent to the Dowling soils of the depressions. The Tunica soils are commonly at higher elevations than the Sharkey soils. They are better drained than the Sharkey soils and are coaser textured in the lower part of the profile. The coarser textured material in the Tunica soils is at a greater depth than similar material in the Bowdre soils.

Most of the acreage of the Tunica soils has been cleared and is used for crops. These soils generally are better drained than other soils in slack-water areas.

Tunica clay, 0 to 2 percent slopes (Ta).—This soil is on the higher parts of the slack-water areas. Coarser textured material is at a depth of 20 to 34 inches.

Profile in a cultivated site (SE¼SE¼ sec. 12, T. 12 N., R. 7 W.):

A_p 0 to 4 inches, very dark grayish-brown (10YR 3/2) clay; medium, granular structure; very firm when moist; numerous roots; medium acid; abrupt smooth boundary.

AC 4 to 8 inches, very dark gray (10YR 3/1) clay; common, fine, distinct mottles of dark brown (7.5YR 4/4); massive; very firm when moist; strongly acid to medium acid; clear smooth boundary.

C_1 8 to 24 inches, dark gray to very dark gray (10YR 4/1 to 3/1) clay; few, fine, distinct mottles of dark brown (7.5YR 4/4); moderate, medium, subangular blocky peds; very plastic when wet; strongly acid to medium acid; gradual smooth boundary.

C_{2g} 24 to 28 inches, gray (10YR 5/1) silty clay loam; many, medium, distinct mottles of dark brown (7.5YR 4/4); moderate, medium, subangular blocky peds; plastic when wet; slightly acid to neutral; gradual smooth boundary.

D 28 to 50 inches, grayish-brown (10YR 5/2) silt loam; many, medium, distinct mottles of dark brown (7.5YR 4/4); massive; slightly plastic when wet; slightly acid to neutral.

The D horizon ranges in texture from silty clay loam to sandy loam. In some areas the surface soil is silty clay. If the soil is wet, water moves into and through it very slowly. The capacity for holding available moisture is high. The content of organic matter is low. In most places nitrogen is the only fertilizer needed.

Most of this soil is used for row crops and rotation pasture. Cotton, small grain, sorghum, soybeans, and rice are well suited. Corn is fairly well suited. Suitable pasture plants are tall fescue, dallisgrass, johnsongrass, and clover. Wooded areas commonly need better management.

This soil is difficult to work. When wet it is very plastic, but as it dries it becomes very hard and forms deep cracks that damage the roots of some crops. The range of moisture content within which it can be easily cultivated is narrow. Seedbeds should be prepared early. Surface drainage is needed.

Capability unit 5 (IIs–2).

Tunica silty clay loam, 0 to 2 percent slopes (Tc).—In this soil infiltration is slightly faster than in Tunica clay, 0 to 2 percent slopes.

Most of the acreage has been cleared and is used for crops. This soil can be used and managed in about the same way as Tunica clay, 0 to 2 percent slopes, but seedbeds are easier to prepare because the range of moisture conditions within which this soil can be worked is fairly wide.

Capability unit 9 (IIs–6).

Genesis, Morphology, and Classification of Soils[7]

This section has three main parts. The first explains the five soil-forming factors and the role of each in determining the distribution of the soils in Sharkey County; the second discusses the morphology and composition of the soils in the county; and the third classifies the soils by higher categories and places them in the higher classes for comparison.

Factors of Soil Formation

Soil is a function of climate, living organisms, parent materials, topography, and time. The nature of the soil at any point depends upon the combination of these five major factors at that point. All five of these factors come into play in the formation of every soil. The relative importance of each differs from place to place; sometimes one is more important and sometimes another. In extreme cases one factor may dominate in the formation of the soil and fix most of its properties, as is common when the parent material consists of pure quartz sand. Little can happen to quartz sand, and the soils derived from it usually have faint horizons. Even in quartz sand, however, distinct profiles can be formed under certain types of vegetation where the topography is low and flat and the water table is high. Thus, for every soil the past combination of the five major factors is of first importance to its present character.

Climate

The climate of Sharkey County is of the humid, warm-temperate, continental type that is characteristic of the Southeastern United States. It has been a uniform factor in soil development in the county but has made only a slight impression on the soils.

Regions with a humid, warm-temperature climate normally have strongly weathered, leached, and acid soils of low fertility (*6*). The flood plain of the Mississippi River is geologically young, and time has not yet permitted strong weathering of the sediments in place. These sediments have come mainly from sections of the country where weathering is not intense. Thus the soils in Sharkey County resemble those that commonly occur in cooler and slightly drier climates. Soils normally associated with warm-temperate, humid climates do not occur in Sharkey County, although they are present within short distances.

Living organisms

Prior to settlement of the county, the native vegetation was most important in the complex of living organisms that affect soil development. The activities of animals were seemingly of minor importance. The first settlers found a cover of dense forests broken by occasional canebrakes. Heavy stands of cypress filled the swampy areas, whereas hardwood stands occupied most of the better drained soils and many of the wet ones. The trees on the slight ridges were chiefly hickory, pecan, post oak, blackgum, and winged elm. In the swales and low areas that were wet but not swampy, the principal trees were tupelo-gum, sweetgum, soft elm, green ash, hackberry, cottonwood, overcup oak, and willow oak. Canebrakes covered many of the broader level areas between the swamps. These differences in native vegetation seem to have been associated mainly with variations in drainage. Only the major differences in the original vegetation are reflected to any extent in the soils, probably because of the general youth of the land surface.

With the development of agriculture in Sharkey County, man has become important to the future direction and rate of development of the soils. The clearing of the forests, the cultivation of the soils, the introduction of new species of plants, the building of levees for flood protection, and the artificial improvement of natural drainage will be reflected in the direction and rate of soil genesis in the future. Few results of these changes can as yet be seen. Some probably will not be evident for many centuries. The complex of living organisms reflecting soil genesis in Sharkey County has been drastically changed, however, as a result of man's activity.

Parent material

Alluvial sediments laid down by the Mississippi River are the chief parent materials of soils in the county. Small quantities of alluvial sediments along the eastern edge were brought down by the Yazoo River from the uplands to the east. Total acreages of sediments other than those deposited by the Mississippi River are very small. The total thickness of the alluvium in Sharkey County ranges from many tens to several hundreds of feet.

The alluvium is of mixed composition, originating as it does in the wide reaches of the upper Mississippi River Basin. Sedimentary rocks are most extensive in this upper basin, which extends from Montana to Pennsylvania, but other kinds of rocks are also exposed and serve as sediment sources in many places. Immense areas in the upper basin are mantled by recent glacial drift and loess. The alluvium along the lower stretches of the Mississippi, including Sharkey County, has come from the multitude of soils, rocks, and unconsolidated sediments of some 20 States. As a result the alluvium consists of a mixture of minerals. Furthermore, many of the

[7] This section was taken in part from a similar one prepared for the soil survey report on Tunica County, Miss., by ROY W. SIMONSON, director of soil classification and correlation, Soil Conservation Service, USDA.

minerals are comparatively fresh and but slightly weathered.

Within Sharkey County, there are wide ranges in the texture of the alluvium because of differences in deposition. All of it has been laid down by river water, either quiet or in flood. As the river overflows its channel and the water spreads out over the flood plain, the coarser sediments are dropped first. Sands are commonly deposited in bands parallel to and near the channel. The low ridges thus formed are known as natural levees. As the floodwaters continue to spread, they move more slowly, and finer sediments, such as silts, are deposited next, usually mixed with some sands and clays. When the flood has passed and water is left standing in the lowest parts of the flood plain, the finest sediments, or clays, may settle out. These so-called slack-water clays do not settle until the water becomes still.

This simple pattern—coarse sediments near the channel, fine sediments in slack-water areas some distances away, and medium-textured sediments between the two—is not common at the present time along the Mississippi. Over the centuries the river channel has migrated back and forth across much of the flood plain, sometimes cutting out natural levees laid down earlier, sometimes depositing sand on top of slack-water clays. The normal pattern of sediment distribution from a single channel has been partly or wholly truncated in many places and has had subsequent beds of alluvium superimposed. All possible combinations of sediments resulting from the superposition of the simple patterns, one upon another, now exist on the flood plains. In many places there are fragments of former channels with their adjacent sandy natural levees, very gently sloping areas of medium-textured sediments, and slack-water clays. The large areas of slack-water clays have been comparatively stable, partly because they lie farthest from the meander belt established by the river channel in the central part of the broad flood plain.

Textural differences in the alluvium are accompanied by some differences in chemical and mineralogical composition. Sandier sediments are usually higher in quartz than are those of intermediate or fine textures. Conversely, they are lower in feldspars and ferromagnesian minerals. Sandier sediments are characteristically more siliceous and lower in bases. They are also lower in carbonates, for the most part, but not always. Some of the more recently deposited sandier levees are distinctly calcareous, but many areas of slack-water sediments are free of carbonates and are slightly acid.

Topography

Sharkey County is a small part of an immense flood plain that is nearly level. The topography ranges from level areas of slack-water clays to gently sloping ridges that once bordered the river channel. Local differences in elevation are commonly measurable in feet. Seldom are there differences of as much as 15 feet within 1 square mile. In some of the lowest and flattest parts of the flood plain, the maximum differences in elevation are less than 5 feet in as many square miles. Slopes are generally less than 3 percent in gradient. Stronger slopes occur on a few streambanks and on the present natural levees of the Mississippi River; these may range up to 15 percent. The total area of strong slopes in the county is negligible.

The highest point in the county is in the northwestern part along Deer Creek; it is 115 feet above sea level. The lowest point is in the southern part, near Little Sunflower and False Rivers; it is 85 feet above sea level, only 30 feet lower than the highest elevation. West of Deer Creek, drainage is southwesterly to Steele Bayou. East of Deer Creek, it is southeasterly to Big Sunflower River.

The flatness of the county contributes to the slow drainage of many of the soils. Water moves into the main channels with difficulty, especially from the areas of slack-water clays. Movement of water through such soils is also slow, which tends to accentuate drainage problems. A much larger part of the county probably would have been wet and swampy if, in the past, the Mississippi River channel had not meandered across the flood plain.

Time

Geologically, the soils of the county are young. Even now some areas receive fresh sediments frequently. It seems probable that the sediments that formed the land surface in Sharkey County arrived during and after the advances of the Wisconsin glaciers, the latest of which was moving into the North Central States 11,000 years ago. The soils being formed on glacial drift of the Mankato stage (last of the Wisconsin glaciers) in those States show little horizonation other than the downward leaching of carbonates and the accumulation of organic matter in the surface layer. The present surface of the Mankato drift has probably been exposed for 8,000 years. Assuming that the development of horizon differentiation in the alluvium of Sharkey County would be as rapid as that in Mankato drift, the soils could be somewhat older than those of south-central Minnesota. Even so, the comparison indicates that the time span for the development of horizons in the soils of Sharkey County has been very short.

Morphology and Composition

Soil morphology in Sharkey County is expressed generally in faint horizons. Some of the soils do have one distinct or prominent horizon, but those are in the minority. There are no soils that have prominent horizons within the solum. Marked differences in texture between the solum or C horizon and an underlying D horizon occur in some profiles, as, for example, in the Tunica soils, which formed from thin beds of clay over silt loam. Generally speaking, horizon differentiation is in its early stages or has scarcely started, and the horizons themselves are indistinct.

The differentiation of horizons in the soils of the county is the result of one or more of the following processes: Accumulation of organic matter, leaching of carbonates and salts more soluble than calcium carbonate, translocation of silicate clay minerals, and reduction and transfer of iron. In most soil profiles in the county, two or more of these processes have operated in the development of horizons. For example, the first and last are chiefly responsible for the morphology of Sharkey clay. All four processes have operated to some extent in the differentiation of horizons in Dundee soils.

Some organic matter has accumulated in the uppermost layer of all but a few soils in Sharkey County to form an A_1 horizon. Much of that organic matter is in the form of humus. The quantities are very small in some soils but fairly large in others. Soils such as Sharkey clay have evident, thick A horizons fairly high in organic matter. Taking the soils of the county as a whole, the accumulation of organic matter has been important among the processes of horizon differentiation.

Leaching of carbonates and salts has occurred in all soils of the county, although it has been of limited importance to horizon differentiation. The effects have been indirect, in that the leaching permitted the subsequent translocation of silicate clay minerals in some soils. Carbonates and salts have been carried completely out of the profiles of most of the well-drained soils. Even in the wettest soils, some leaching is indicated by the absence of carbonates and by the acid reactions. Leaching of the very wet soils is slow because water movement through the profile is itself slow. Leaching has also made little progress in removal of carbonates from soils forming on the most recent sediments near the channel of the Mississippi River. Carbonates and other salts have been washed out of the profiles of most soils in Sharkey County.

Translocation of silicate clay minerals has contributed to the development of horizons in relatively few soils in the county. It has affected mainly the soils of the Dundee series. Darker coatings on ped faces and clay films in former root channels in the B horizon of these soils indicate some downward movement of silicate clay minerals from the A horizon. The actual amount of clay movement has been small, but it has contributed to horizon differentiation. In the Dundee soils, translocation of clay has been about as important as the accumulation of organic matter in horizon differentiation. Leaching of carbonates and salts from the upper profile seems to be a necessary prelude to the movement of the silicate clays.

The reduction and transfer of iron, a process called gleying, has occurred in all of the poorly drained and somewhat poorly drained soils. It has also occurred to some extent in the lower horizons of moderately well drained soils, such as Dundee silt loam. In the large areas of naturally wet soils in Sharkey County, the reduction and transfer of iron has been of importance in horizon differentiation.

The gray colors of the lower horizons of the wet soils indicate the reduction of iron oxides. This reduction is commonly accompanied by some transfer of the iron, which may be local or general in character. After it has been reduced, iron may be removed completely from some horizons and may even go out of the soil profile. More commonly in Sharkey County, it has moved a short distance and stopped either in the horizon of its origin or in a nearby horizon. Iron has been segregated within deeper horizons of many of the soils to form yellowish-red, strong-brown, or yellowish-brown mottles. Iron has also been segregated into concretions in deeper profiles of some soils.

The differentiation of the A horizon from the lower horizons in the poorly drained soils of Sharkey County is caused in part by the reduction and transfer of iron. Horizon differences also result in part from a greater accumulation of organic matter in the surface layer. The effects of gleying are evident but not prominent. This seems to reflect the youth of the land surface and of the soils. The time during which the sediments have been subject to horizon differentiation has not been long enough to permit the development of prominent horizons in the soil profiles.

Classification of Soils by Higher Categories

Soils are placed in narrow classes for the organization and application of knowledge about their behavior on a single farm or within a county. 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.

There are three orders and thousands of types. 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 great soil groups and orders.

Classes in the highest category of the classification scheme are the zonal, intrazonal, and azonal orders. The zonal order comprises soils that have evident, genetically related horizons that reflect the predominant influences of climate and living organisms in their formation. The intrazonal order includes soils with evident, genetically related horizons that reflect the predominant influence of a local factor of topography or parent materials over the effects of climate and living organisms. The azonal order includes soils that lack distinct, genetically related horizons, commonly because of youth, resistant parent material, or steep topography. Table 7 groups the soils of Sharkey County by higher categories and gives the general characteristics and genetic relationships of these soils. A more detailed description of each series listed will be found in the section "Descriptions of Soils."

The Dundee soils in Sharkey County may be considered zonal soils. The horizons are evident but normally are faint rather than distinct. They are genetically related and seem to reflect the influence of climate and living organisms, although the effect of time is also important. This series is considered to fall barely within the zonal order and may be looked upon as an intergrade to the azonal order.

The Dundee series is tentatively classified in the Gray-Brown Podzolic group, although there is evidence for placing it in the Brunizem (Prairie) group as well. Gray-Brown Podzolic soils have a thin, dark A_1 horizon over a light brownish-gray and often platy A_2 horizon, underlain by a brown to yellowish-brown, finer textured B horizon that grades into a lighter colored and usually coarser textured C horizon. About 1.5 percent of the acreage in the county consists of Gray-Brown Podzolic soils.

Brunizem soils have a thick, dark grayish-brown to very dark brown A_1 horizon that grades into a brownish B horizon, which may be mottled; the B horizon grades, in turn, into a lighter colored and normally coarser textured C horizon. Both the Gray-Brown Podzolic soils and the Brunizem soils normally occur under humid, cool-temperate climates; the former under deciduous forest, and the latter under tall prairie grasses (*2*).

TABLE 7.—*Characteristics and genetic relationships of soil series*

ZONAL ORDER

Great soil group and soil series	Brief profile description [1]	Position	Drainage class	Slope range	Parent material
Gray-Brown Podzolic:				*Percent*	
Dundee	Brown silt loam or silty clay loam surface soil; mottled brown silty clay to silt loam subsoil underlain at a depth of about 18 inches by light brownish-gray silt loam to sandy loam.	Old natural levee.	Somewhat poorly drained to moderately well drained.	0 to 5	Medium-textured and fine-textured Mississippi River alluvium.

INTRAZONAL ORDER

Great soil group and soil series	Brief profile description [1]	Position	Drainage class	Slope range	Parent material
Low-Humic Gley:					
Alligator	Light brownish-gray clay or silty clay loam surface soil underlain at a depth of about 4 inches by mottled gray to light-gray clay.	Low bottom	Poorly drained	0 to 2	Fine-textured Mississippi River alluvium.
Dowling	Very dark gray clay surface soil underlain by mottled dark-gray to black clay.	Depression	Poorly drained	0 to 2	Fine-textured local alluvium.
Forestdale	Light brownish-gray silty clay loam or silt loam surface soil; mottled grayish-brown subsoil underlain by light-gray silty clay loam at a depth of about 23 inches.	Old natural levee.	Poorly drained to somewhat poorly drained.	0 to 5	Moderately fine textured Mississippi River alluvium.
Mhoon	Dark-gray silty clay surface soil underlain by mottled light-gray to gray silt loam to clay.	Recent natural levee.	Poorly drained to somewhat poorly drained.	0 to 2	Moderately fine textured Mississippi River alluvium.
Grumusol:					
Sharkey	Very dark gray clay surface soil underlain at a depth of about 4 inches by dark gray to very dark grayish-brown clay.	Low bottom	Poorly drained	0 to 2	Fine-textured Mississippi River alluvium.

AZONAL ORDER

Great soil group and soil series	Brief profile description [1]	Position	Drainage class	Slope range	Parent material
Alluvial:					
Bowdre	Very dark grayish-brown silty clay surface soil and subsoil underlain at a depth less than 20 inches by grayish-brown to light brownish-gray silt loam to silty clay loam.	Low bottom	Moderately well drained.	0 to 2	Fine-textured and coarse-textured Mississippi River alluvium.
Commerce	Light brownish-gray very fine sandy loam, silt loam, or silty clay loam surface soil underlain at a depth of about 6 inches by mottled, pale-brown to light brownish-gray silty clay loam to very fine sandy loam.	Recent natural levee.	Somewhat poorly drained to moderately well drained.	0 to 5	Medium-textured Mississippi River alluvium.
Robinsonville	Brown very fine sandy loam surface soil underlain at a depth of about 5 inches by yellowish-brown to brown very fine sandy loam or silt loam.	Recent natural levee.	Moderately well drained to well drained.	0 to 2	Moderately coarse textured Mississippi River alluvium.
Tunica	Very dark grayish-brown clay surface soil; very dark gray clay subsoil underlain at a depth of about 24 inches by gray silty clay loam.	Low bottom	Somewhat poorly drained.	0 to 2	Fine-textured and medium-textured Mississippi River alluvium.

[1] These descriptions are of soil profiles not materially affected by accelerated erosion.

The Dundee soils lack a distinct A_2 horizon, but all areas of the soils have been disturbed by cultivation. Consequently, it seems highly probable that the plow layer now includes former thin A_1 and A_2 horizons. The soils clearly lack a thick, dark-colored A_1 horizon and do not appear to have had one in the past.

The present character of the B horizon would permit classification of the soils in either of the two great soil groups. The apparent absence of a thick A_1 horizon and the probability that the A_1 and A_2 horizons have been mixed by plowing form a basis for placing the soils in the Gray-Brown Podzolic group. It should be recognized, however, that these soils are intergrades to the Brunizem soils, being almost as much like them as they are like the central members of the Gray-Brown Podzolic group.

Soils of the intrazonal order make up about 80 percent of Sharkey County. They include the Alligator, Dowling, Forestdale, Mhoon, and Sharkey series. All are either poorly drained or somewhat poorly drained. None seems to have distinct horizons, although all show the effects of gleying and accumulation of organic matter. These soils either are members of or are closely related to hydromorphic groups. The absence of a thick A_1 horizon high in organic matter is used as a basis for excluding these series from the Humic Gley group (*5*). The Alligator, Dowling, Forestdale, and Mhoon series, therefore, seem more appropriately classified as Low-Humic Gley soils (*5*). The Sharkey series is tentatively classified as a Grumusol, since it exhibits properties of churning through shrinking, swelling, and cracking.

Recognition of the Low-Humic Gley group was proposed initially for somewhat poorly drained to poorly drained soils lacking a prominent A_1 horizon but having strongly gleyed B and C horizons with little textural differentiation. The recognition of two great soil groups for the Low-Humic Gley and Humic Gley (Wiesenboden) soils was based on thickness of the A horizon and on its content of organic matter.

Humic Gley soils are high in organic matter, whereas Low-Humic Gley soils are moderate to low. The Alligator, Dowling, Forestdale, and Mhoon soils are not high in organic matter, and they do show effects of gleying. On the basis of present knowledge, classification of the four series as Low-Humic Gley soils seems appropriate.

Recognition as Grumusols was proposed for a group of soils dominated by montmorillonitic clays. These soils are typically clay in texture, lack eluvial and illuvial horizons, have moderate to strong granular structure in the upper horizons, and have high coefficients of expansion and contraction upon wetting and drying. In the exchange complex of these soils, calcium and magnesium are dominant. With their high coefficients of expansion and contraction, Grumusols shrink and swell markedly with changes in moisture content. In the process of shrinking and swelling, the soils crack and materials from upper horizons drop down into lower ones. Thus, the soils are being churned or mixed continually, a process that partially offsets horizon differentiation (*4*).

Grumusols may have a prominent A_1 horizon but lack a B horizon. They have dull colors of low chroma, as a rule, and are not well drained. The Sharkey soils have many of the features common to Grumusols. The texture is clay throughout, and the clay is dominantly montmorillonitic. These soils have a dark-colored A_1 horizon and evidence of gleying in the deeper horizons, which suggests placement of the series in the Humic Gley group. Laboratory analyses, however, indicate that the content of organic matter in the A_1 horizon of Sharkey clay is appreciably lower than that normal in Humic Gley soils and more nearly comparable to that of typical Grumusols. Furthermore, the dark-colored A_1 horizon is also present in many Grumusols. Consequently, Sharkey clay is tentatively classified as a Grumusol that intergrades to the Low-Humic Gley group.

The Sharkey soils seem more poorly drained than is typical of Grumusols, but they are not too wet for the churning and mixing process to be effective.

Azonal soils are less extensive in Sharkey County than intrazonal soils, despite the fact that the whole area consists of geologically recent alluvium. Azonal soils are more extensive in the county than zonal soils. At the same time, all soils classified in the zonal and intrazonal orders are marginal to the azonal order because of their low degree of horizonation. Only the series that lack genetically related horizons or are in the initial stages of horizon differentiation are placed in the azonal order. The azonal order includes the Bowdre, Commerce, Robinsonville, and Tunica series, which are all classed as Alluvial soils, although some are somewhat poorly drained and exhibit effects of gleying. The Alluvial soils make up between 18 and 19 percent of the county.

The Alluvial soils in Sharkey County lack distinct horizons because the sediments in which they are developing are so young. Given more time under natural conditions, most of these soils would eventually have profiles similar to those of the Dundee series. Whether that will now occur in soils under cultivation remains to be seen. The regime in which the soils now exist differs greatly from that of their original natural environment. Some of the processes important in horizon differentiation probably will be accentuated and others subdued. Some may progress more rapidly, and others more slowly. The net effect of the change in environment on future development of the soils cannot be forecast as yet with any certainty and may not be apparent for some centuries.

Additional Facts About Sharkey County

This section discusses the organization and population of the county, the natural resources, the climate, the cultural facilities and means of transportation, and the industries. It gives the history of agriculture in the county and the present status of agriculture.

Organization and Population

Records kept in the Chancery Clerk's office at the courthouse in Rolling Fork give the first history of Sharkey County (*3*). Sharkey County was formed from land contributed by Warren, Washington, and Issaquena Counties. It was organized on March 29, 1876, and was named for William L. Sharkey, Provisional Governor of the State in 1865. In 1918 part of the area was relinquished to form part of Humphreys County.

The population in 1920 was 14,190. The 1950 census shows the population to be 12,903. This decrease has been caused mainly by the mechanization of farms and the subsequent migration of farm workers to urban areas.

The incorporated towns in the county are Rolling Fork, Cary, and Anguilla. Rolling Fork is the county seat. Other communities and trading centers are Egremont, Blanton, Cameta, Nitta Yuma, Panther Burn, Richey, Delta City, and Spanish Fort.

Natural Resources

Timber, soil, and water are the principal natural resources of the county. Large areas of forest consist of cutover timber and undesirable species, principally pecan, overcup oak, and vines. Smaller areas have reasonably good stands of timber consisting of red oak, ash, elm, and gum. Sweetgum is being rapidly depleted for pulpwood. Most of the forest is on clay soils.

Deer Creek is in the western part of the county, and the Big Sunflower River is in the eastern part. Other principal streams are the Little Sunflower River, Rolling Fork Creek, and Indian Bayou.

Much of the water for household use and livestock is pumped from shallow wells. There are several artesian wells in the county, some of which are 1,000 feet deep or deeper. About 20 dug wells, from 86 to 135 feet deep, are used for irrigation.

The lakes, bayous, and rivers are fairly well stocked with fish. Fur-bearing animals, principally raccoons, squirrels, and rabbits, are plentiful, and there are some deer in the county. Doves are also plentiful. Quail and ducks are fairly common. State game laws provide protection.

Climate

Sharkey County has a humid, warm-temperate climate. Summers are hot and sultry, and winters are moderate. In summer when droughty periods occur, the temperature stays high day and night. In winter, temperatures above 70 degrees are common. Sudden cold periods occur occasionally but seldom last longer than a week.

The amount of rain varies throughout the county. Some areas have an abundance, and others have a shortage. In most years farming is delayed by a wet spring. Some summers are more droughty than others. Drought in summer reduces to some extent the yields of corn and soybeans.

Snow does not fall every year in Sharkey County. The snow that falls generally is light and melts by the second or third day. Hailstorms and tornados are not common but have occurred in many parts of the county. Normally, these storms are destructive but affect only limited areas.

Weather Bureau records of the Greenville Station in Washington County, summarized in table 8, are representative of the climate in Sharkey County.

TABLE 8.—*Temperature and precipitation at Greenville Station, Washington County, Miss.*

[Elevation, 132 feet]

Month	Temperature [1]			Precipitation [2]			
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1952)	Wettest year (1923)	Average snowfall
	°F.	°F.	°F.	Inches	Inches	Inches	Inches
December	45.6	85	6	6.57	4.40	11.73	0.4
January	45.5	90	−1	4.78	3.75	5.50	1.1
February	48.6	91	−5	4.48	4.17	6.83	.5
Winter	46.6	91	−5	15.83	12.32	24.06	2.0
March	56.3	91	15	5.53	3.50	5.88	.2
April	64.6	95	29	5.03	5.67	6.37	0
May	72.1	99	38	5.02	1.98	7.85	0
Spring	64.3	99	15	15.58	11.15	20.10	.2
June	79.7	105	47	3.31	(3)	4.65	0
July	82.1	110	53	3.35	2.42	5.33	0
August	81.8	107	54	3.86	1.50	8.10	0
Summer	81.2	110	47	10.52	3.92	18.08	0
September	76.8	107	37	3.17	1.33	3.98	0
October	65.4	96	25	2.69	.03	4.79	0
November	54.7	87	16	4.13	2.60	5.65	.1
Fall	65.6	107	16	9.99	3.96	14.42	.1
Year	64.4	110	−5	51.92	31.35	76.66	2.3

[1] Average temperature based on a 69-year record, through 1955; highest and lowest temperatures based on a 59-year record, through 1952.

[2] Average precipitation based on a 68-year record, through 1955; wettest and driest years based on a 68-year record, in the period 1887–1955; snowfall based on a 57-year record, through 1952.

[3] Trace.

Cultural Facilities and Transportation

Many churches of several denominations are located throughout the county. School buses provide transportation to elementary schools and high schools at Rolling Fork and at Anguilla.

U.S. Highway No. 61 passes through the county and extends southward to Vicksburg and Natchez and northward to Memphis, Tennessee. State Highway No. 14 extends westward from U.S. Highway No. 49, via Anguilla and Rolling Fork, to Mayersville in Issaquena County. State Highway No. 1 is in the southern part of the county and connects with U.S. Highway No. 61 at Onward. State Highway No. 434 passes through Delta City in the north-central part of the county. There are many dirt or graveled county roads.

One main line of the Illinois Central Railroad crosses the county. This line connects with Leland, Clarksdale, Memphis, and Chicago to the north and with Vicksburg and New Orleans to the south.

In 1958 there were 203 telephones on farms in the county, and 1,350 farms had electricity.

The recreational facilities of the county consist of a motion picture theatre, a skating rink, a municipal swimming pool, a playground, and tennis courts.

Industries

Since May 1957 a textile plant has been operating at Rolling Fork. When the installation of machinery is completed, this plant will have 75 or more employees and an annual payroll of about $200,000. The plant should be in full operation in 3 to 5 years.

A lumber company at Cary has a capacity of approximately 6,000,000 board feet of lumber per annum. There is also a small, part-time sawmill in the county.

At five grain elevators located at Rolling Fork, Blanton, Anguilla, Delta City, and Egremont, grain and soybeans are bought and sold. Some elevators have storage space. Many farmers also have grain bins for storage. There are 14 cotton gins in the county, a few of which are used only by the plantations that own them.

History and Present Status of Agriculture

Sharkey County has been mainly an agricultural county. Cotton has been the leading crop, but since cotton acreage was restricted in 1934, this crop has been replaced to some extent by other crops.

The total area of Sharkey County is 279,040 acres. About 50 percent of this acreage is in farms. The 1954 census report shows that the number of farms in the county decreased from 1,800 in 1950 to 1,431 in 1954, but that the average size of the farms increased from 74.4 acres in 1950 to 97.3 acres in 1954. In 1954 there were 1,255 farms less than 100 acres in size and 142 farms between 100 and 999 acres in size. There were 34 farms that contained 1,000 acres or more. The largest farms generally are on the most productive soils, which were cleared by the first settlers. Some small farms are in areas settled in recent years.

Most farms in the county are general farms. Cotton is the main cash crop. Soybeans, small grain, and corn are also grown. Recently, rice and milo have been grown on a few farms. Livestock production is increasing.

Livestock

The use of tractors on most farms in the county has caused a reduction in the number of mules. The number of cattle and calves increased from 3,658 in 1950 to 9,691 in 1954. There are a few dairies in the county, but dairy cattle are kept mainly for home use. Most of the cattle are beef cattle; many of the herds are of good grade.

In 1954 there were 5,928 hogs and pigs in the county, 107 less than in 1950. Most of the hogs are of good quality.

The number of sheep and lambs increased from 418 in 1950 to 1,379 in 1954. Most of the sheep are of good quality. Corn, small grain, and milo grown in the county provide enough feed for the livestock raised.

Pasture

The acreage in pasture has increased since 1949 because of acreage controls on cotton, favorable prices for livestock, and improved methods of managing pasture (fig. 5).

The continued use of soils for pasture is desirable because good growth can be maintained most of the year and most soils produce better if row crops are rotated with sod crops.

Crops

The acreages of the principal crops grown in Sharkey County in stated years are given in table 9. Cotton occupies the greatest acreage, and soybeans, oats, and corn occupy the next largest acreages, in the order named.

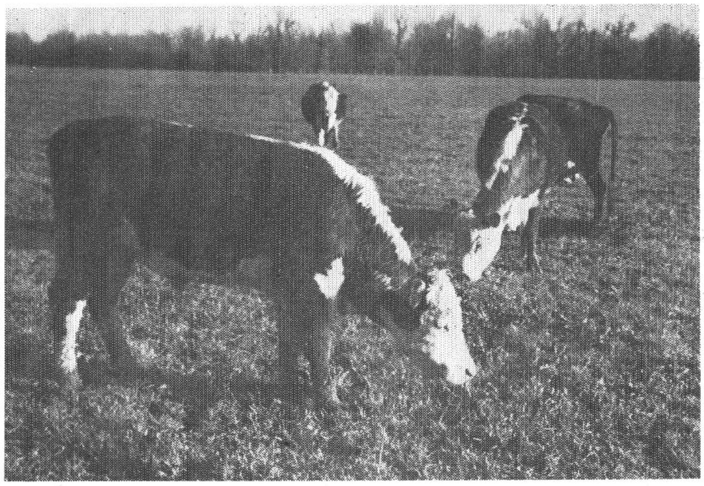

***Figure 5.*—Grade beef cattle grazing on first-year fescue, whiteclover, and wild winter peas. The soil is Sharkey clay, 0 to ½ percent slope.**

The agriculture of the county has centered principally around cotton. When the acreage was restricted in 1934, other crops and pasture replaced cotton to some extent. Most farmers use their best soils to grow cotton and the remaining soils for other crops. In recent years yields of cotton increased because of the development of better varieties and the improvement in methods of management.

Soybeans grow well on most soils in the county. They are used principally for oil. The higher yielding varieties recently developed have made soybeans a good cash crop, especially if grown on clayey slack-water soils.

Oats and wheat are also well suited to slack-water soils, and yields of 50 bushels or more per acre have been obtained. Barley produces good yields but is grown only to a limited extent.

Corn is well suited to the Commerce and Dundee soils but is poorly suited to the slack-water clays. It is grown for feed and also as a cash crop. Milo is a new feed crop in the county.

In recent years a few farmers have started growing rice. It is well suited to the clayey slack-water soils of the county, and good yields have been obtained.

Alfalfa is grown but not extensively, although it is fairly well suited to the Commerce and Dundee soils. Good yields of hay are obtained if the soils are properly managed.

TABLE 9.—*Acreages of principal crops in stated years*

Crop	1949	1954
Cotton harvested	47, 521	33, 976
Corn harvested for grain	9, 720	6, 376
Oats threshed or combined	3, 698	12, 075
Rice threshed or combined	(1)	1, 149
Soybeans harvested for beans:		
Grown alone	7, 590	25, 093
Grown with other crops	27	1
Hay:		
Alfalfa and alfalfa mixtures cut for hay	437	819
Lespedeza cut for hay	3, 907	1, 542

1 Not reported.

Some annual lespedeza is grown for hay. It is commonly sown in stands of winter oats. After the oats are harvested, a crop of lespedeza hay is obtained.

Tenure and farm equipment

In 1954 there were 1,431 farms in the county. Of the farm operators, 1,121 were tenants, 191 were full owners, 106 were part owners, and 13 were managers. Tenants operate 78.3 percent of all farms. Sharecroppers operate most of the large farms under the supervision of managers. Under the plantation system, the owner or operator furnishes all equipment and advances credit for subsistence. The owner receives from 50 to 60 percent of the cotton crop from the sharecropper. Many tenants furnish their own equipment and pay cash rent. Others give a share of the crop for rent.

According to the 1954 census, there were 683 automobiles on 468 farms, 459 motortrucks on 313 farms, 999 tractors on 333 farms, and 191 grain combines on 140 farms. There were 255 farms that had piped running water.

Use of commercial fertilizer

According to the 1954 census, the farmers of the county used, in that year, 97 tons of commercial fertilizer on hay and cropland pasture; 92 tons on other pasture; 486 tons on corn; 3,059 tons on cotton; 1 ton on fruits, vegetables, and potatoes; and 424 tons on other crops. A total of 4,159 tons of commercial fertilizer was used on all crops in the county.

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Glossary

Aggregate (of soil). Many fine soil particles held in a single mass or cluster, such as a clod, crumb, block, or prism.

Alluvium. Soil material deposited on land by streams.

Clay. (1) Mineral particles less than 0.002 millimeter in diameter. (2) As a textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Consistence, soil. The properties of soil material that determine its resistance to crushing and its ability to be molded or changed in shape. The following terms are frequently used to describe consistence:

Brittle. When dry, breaks with a clean fracture or shatters to cleanly broken hard fragments if struck a sharp blow.

Compact. Dense and firm, but not cemented.

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

Friable. When moist, crushes easily under gentle to moderate pressure between thumb and forefinger and coheres when pressed together.

Impervious. Very resistant to penetration by water and, normally, to penetration by air and plant roots.

Plastic. When wet, soil material forms a wire or spindle when rolled in hands; moderate pressure required to change shape of the soil mass; easily molded and puttylike; not friable.

Sticky. After pressure, adheres to both thumb and forefinger and tends to stretch somewhat rather than pull free from either finger; adhesive rather than cohesive when wet but normally very cohesive when dry; decided tendency to stick to other materials and objects when wet.

Stiff. Resists deformation or rupture; firm, tenacious, and tending to imperviousness. Term normally is applied to consistence of soil when in place and moderately wet.

Tight. Compact, impervious, tenacious, and normally plastic.

Cropland. Land regularly used for crops, except forest crops. Included are rotation pasture, cultivated summer fallow, and other land ordinarily used for crops but temporarily idle.

Erosion, soil. The wearing away or removal of soil material by water or wind.

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

First bottom. Recent natural levees or the normal flood plain of a stream; subject to frequent or occasional flooding.

Forest. Land that bears a stand of trees of any age or size, including seedlings, provided these trees are of kinds that attain a minimum average height of 6 feet at maturity; or land from which such a stand has been removed, but which has been put to no other use; forests on farms are commonly called woodland or farm forests.

Genesis, soil. Mode of origin of the soil. Soil genesis refers particularly to the processes causing the development of the solum from unconsolidated parent material.

Great soil group. A broad group of soils that have common internal soil characteristics.

Horizon, soil. A layer of soil, approximately parallel to the soil surface, with distinct characteristics produced by soil-forming processes.

A horizon. The master horizon consisting of (1) one or more mineral horizons of maximum organic accumulation; or (2) surface or subsurface horizons that are lighter in color than the underlying horizon and that have lost clay minerals, iron, and aluminum with resultant concentration of the more resistant minerals; or (3) horizons belonging to both of these categories.

B horizon. The master horizon of altered material characterized by (1) an accumulation of clay, iron, or aluminum, with accessory organic material; or (2) blocky or prismatic structure together with other characteristics, such as stronger colors, unlike those of the A horizons or the underlying horizons of nearly unchanged material; or (3) characteristics of both of these categories. Commonly, the lower limit of the B horizon corresponds to the lower limit of the solum.

C horizon. A layer of unconsolidated material, relatively little affected by the influence of organisms and, in chemical, physical, and mineral composition, presumed to be similar to the material from which at least a part of the overlying solum has developed.

D horizon. Any stratum underlying the C, or the B if no C is present, which is unlike the C, or unlike the material from which the solum has been formed.

Internal drainage. The movement of water through the soil profile. The rate of movement is affected by the texture of the surface soil and subsoil and by the height of the ground water table, either permanent or perched. Relative terms for expressing internal drainage follow: *None, very slow, slow, medium, rapid,* and *very rapid.*

Leaching, soil. The removal of materials in solution by the passage of water through the soil.

Loam. Soil having approximately equal amounts of sand, silt, and clay.

Low bottom. Broad slack-water areas where the clay sediments of backwater have settled from suspension.

Morphology, soil. The constitution of the soil, including the texture, structure, consistence, color, and other physical and chemical properties of the various soil horizons that make up the soil profile.

Mottling, soil. Contrasting color patches that vary in number and size. Descriptive terms are as follows:

Abundance. Few, common, and many.

Contrast. Faint, distinct, and prominent.

Size. Fine, medium, and coarse. The size measurements are as follows: Fine, commonly less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; medium, commonly between 5 and 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 those conditions 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 such factors as sudden deepening of channels or filling or blocking of drainage outlets. The following terms are used to described natural drainage: *Excessively drained, somewhat excessively drained, well drained, moderately well drained, imperfectly* or *somewhat poorly drained, poorly drained,* and *very poorly drained.*

Normal soil. A soil having a profile in near equilibrium with its environment; developed under good, but not excessive, drainage from parent material of mixed mineral, physical, and chemical composition; and expressing in its characteristics the full effects of the forces of climate and living matter.

Nutrients, plant. The elements taken in by the plant, essential to its growth, and used by it in the elaboration of its food and tissue. Nutrients obtained from the soil include nitrogen, phosphorous, calcium, potassium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps others; nutrients obtained mainly from air and water are carbon, hydrogen, and oxygen.

Old natural levee. The higher areas of old alluvium adjacent to streams where coarse-textured and medium-textured sediments have settled from suspension in water.

Parent material. The unconsolidated mass from which the soil profile develops.

Permeability, soil. That quality of the soil that enables it to transmit water or air.

Phase, soil. A subdivision of the soil type covering variations that are chiefly in such external characteristics as relief, stoniness, or accelerated erosion.

Plowsole. A dense compacted layer underneath the plow layer. It restricts the movement of water and air and the depth of the root zone. It limits the fertility and the supply of available moisture.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material. (Also see Horizon, soil.)

Reaction, soil. The degree of acidity or alkalinity of a soil expressed in words or pH values as follows:

	pH		pH
Extremely acid	below 4.5	Neutral	6.6 to 7.3
Very strongly acid	4.5 to 5.0	Mildly alkaline	7.4 to 7.8
Strongly acid	5.1 to 5.5	Moderately alkaline	7.9 to 8.4
Medium acid	5.6 to 6.0	Strongly alkaline	8.5 to 9.0
Slightly acid	6.1 to 6.5	Very strongly alkaline	9.1 and higher.

Recent natural levee. The first bottom or normal flood plain of a stream, subject to frequent or occasional flooding.

Relief. The elevations or inequalities of the land surface, considered collectively.

Sand. (1) Individual rock or mineral fragments that range in diameter from 0.05 millimeter (0.002 inch) to 2.0 millimeters (0.079 inch). Usually sand grains consist chiefly of quartz, but they may be of any mineral composition. (2) As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils that, except for texture of the surface layer, have genetic horizons similar as to differentiating characteristics and arrangement in the soil profile, and developed from a particular type of parent material. A series may include two or more soil types that differ from one another in the texture of the surface soil.

Silt. (1) Individual mineral particles that range in diameter from 0.002 millimeter to 0.05 millimeter. (2) As a textural class, soil that is 80 percent or more silt and less than 12 percent clay. (3) Sediments deposited from water in which the individual grains are approximately the size of silt, although the term is sometimes applied loosely to sediments containing considerable sand and clay.

Slack-water soil. A soil formed on sediments that settled from still stream water.

Slope classes. As used in this report, slope classes are as follows:

	Gradient
Level	0 to ½ percent.
Nearly level	½ to 2 percent.
Gently sloping	2 to 5 percent.

Soil. The natural medium for the growth of land plants. A soil is a natural three-dimensional body on the surface of the earth, unlike the adjoining bodies.

Stratified. Composed of, or arranged in, strata, or layers, such as stratified alluvium. The term is confined to geological materials. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil. The arrangement of the individual grains into aggregates that make up the soil mass; the term may refer to the natural arrangement of the grains when the soil is in place and undisturbed or when the soil is at any degree of disturbance.

Subsoil. Technically, the B horizon of a soil with a distinct profile; commonly, that part of the profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil. (Also see Horizon, soil; and Parent material.)

Surface runoff. Water removed by flow over the surface of the soil. The amount and rapidity of runoff are affected by texture, structure, and porosity of the surface soil; the plant cover; the prevailing climate; and the slope. These are the terms used to describe relative degrees of runoff: *Very rapid, rapid, medium, slow, very slow,* and *ponded.*

Surface soil. Technically, the A horizon; commonly, the upper part of the profile usually stirred by plowing.

Terrace (geological). An old alluvial plain, usually flat or undulating, that borders a stream; frequently called second bottom, as contrasted with flood plain; seldom subject to overflow.

Texture, soil. The relative proportions of the various size groups of individual soil grains in a mass of soil; specifically, the proportions of sand, silt, and clay. A coarse-textured soil is one high in content of sand; a fine-textured one contains a large proportion of clay.

Type, soil. A subdivision of the soil series based on texture of the surface soil.

Workability. The ease with which tillage, harvesting, and other farming operations can be accomplished.

GUIDE TO MAPPING UNITS

Map symbol	*Mapping unit*	*Page*	*Capability unit*	*Page*
Aa	Alligator clay, 0 to ½ percent slopes	20	10(IIIw-11)	7
Ab	Alligator clay, ½ to 2 percent slopes	15	13(IIIs-4)	8
Ac	Alligator clay, overflow, 0 to 2 percent slopes	20	11(IIIw-12)	8
Ae	Alligator silty clay loam, 0 to 2 percent slopes	20	7(IIs-4)	6
Bk	Bowdre silty clay, 0 to 2 percent slopes	20	5(IIs-2)	6
Bp	Borrow pits	20	None	
Ca	Commerce silt loam, 0 to 2 percent slopes	22	1(I-1)	4
Cd	Commerce silt loam, moderately shallow, 0 to 2 percent slopes	22	1(I-1)	4
Ch	Commerce silty clay loam, 0 to 2 percent slopes	22	9(IIs-6)	7
Ck	Commerce silty clay loam, 2 to 5 percent slopes	22	4(IIc-4)	5
Cm	Commerce silty clay loam, moderately shallow, 0 to 2 percent slopes	22	9(IIs-6)	7
Cn	Commerce very fine sandy loam, 0 to 2 percent slopes	21	1(I-1)	4
Cr	Commerce very fine sandy loam, 2 to 5 percent slopes	21	3(IIe-1)	5
Cs	Commerce very fine sandy loam, moderately shallow, 0 to 2 percent slopes	21	1(I-1)	4
Da	Dowling clay	22	14(IVw-1)	9
Db	Dowling soils	22	12(IIIw-13)	8
De	Dundee silt loam, 0 to 2 percent slopes	23	1(I-1)	4
Df	Dundee silt loam, 2 to 5 percent slopes	23	3(IIe-1)	5
Dk	Dundee silty clay loam, 0 to 2 percent slopes	23	9(IIs-6)	7
Fa	Forestdale silt loam, 0 to 2 percent slopes	24	6(IIs-3)	6
Fc	Forestdale silt loam, 2 to 5 percent slopes	24	6(IIs-3)	6
Fd	Forestdale silty clay loam, 0 to 2 percent slopes	23	7(IIs-4)	6
Fe	Forestdale silty clay loam, 2 to 5 percent slopes	24	7(IIs-4)	6
Mh	Mhoon silty clay, 0 to 2 percent slopes	24	13(IIIs-4)	8
Ro	Robinsonville very fine sandy loam, 0 to 2 percent slopes	25	2(I-2)	4
Sa	Sharkey clay, 0 to ½ percent slopes	25	10(IIIw-11)	7
Sb	Sharkey clay, ½ to 2 percent slopes	25	13(IIIs-4)	8
Sd	Sharkey clay, overflow, 0 to 2 percent slopes	26	11(IIIw-12)	8
Se	Sharkey silt loam, overwash, 0 to 2 percent slopes	26	8(IIs-5)	7
Sk	Sharkey silty clay loam, 0 to 2 percent slopes	26	7(IIs-4)	6
Sr	Sharkey, Alligator, and Dowling soils	26	None	
Ta	Tunica clay, 0 to 2 percent slopes	26	5(IIs-2)	6
Tc	Tunica silty clay loam, 0 to 2 percent slopes	27	9(IIs-6)	7

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