

# SOIL SURVEY ACADIA PARISH LOUISIANA



United States Department of Agriculture  
Soil Conservation Service  
in cooperation with  
Louisiana Agricultural Experiment Station



# HOW TO USE THE SOIL SURVEY REPORT

**T**HIS SOIL SURVEY of Acadia Parish will serve several groups of readers. It will help farmers in planning the kind of management that protects their soils and provides good yields. It will assist engineers in selecting sites for roads, buildings, ponds, and other structures. It adds to our fund of knowledge about soils.

Soil scientists studied and described the soils and made a map that shows the kind of soil everywhere in the parish. The base for the soil map is a set of aerial photographs that show fields, woods, roads, and many other landmarks.

## Locating the soils

Use the index to map sheets to locate areas on the large map. The index is a small map of the parish that shows the location of each sheet of the large map. When the correct sheet of the large map is found, it will be seen that the boundaries of the soils are outlined in red and that there is a red symbol for each soil, wherever it is shown on the map. Suppose, for example, an area on the map has the symbol CrA. The legend for the detailed map shows that this symbol stands for Crowley silt loam, 0 to 1 percent slopes. This soil and all others mapped in Acadia Parish are described in the section "Descriptions of the Soils."

## Finding information

This report has several sections for different groups of readers. The section "General Nature of the Parish," which discusses the early settlement and development of the parish, the climate, and agriculture, including ricegrowing, will be of interest mainly to those not familiar with the parish.

*Farmers and those who work with farmers* can learn about the soils in the section "Descriptions of the Soils" and then turn to the section "Use and Management of the Soils." In this way, they can first identify the soils on their farms and then learn how these soils can be managed and what yields can be expected. The soils are grouped by capability units; that

is, groups of soils that need similar management and respond in about the same way. For example, Crowley silt loam, 0 to 1 percent slopes, is in capability unit IIw-1. The management needed for this soil will be found under the heading "Capability unit IIw-1" in the section "Management of the Soils for Crops and Pasture, by Capability Units." The "Guide to Mapping Units and Capability Units," which is just before the map sheets, lists the name of each soil, the page on which it is described, the symbol for the capability unit in which it is placed, and the page on which the capability unit is described.

Those who need only a general idea of the soils can refer to the section "Soil Associations in Acadia Parish." This section tells briefly about the principal patterns of the soils, where they are located, and how they differ from each other.

*Soil scientists and others* interested in the nature of soils will find information about how the soils were formed and how they are classified in the section "Genesis, Morphology, and Classification of the Soils."

*Engineers and builders* will find information that will assist them in the section "Engineering Properties of the Soils."

*People who are interested in growing trees* will find woodland suitability groups of soils described in the section "Management of the Soils as Woodland."

*Biologists and others* interested in wildlife will find information on the development and maintenance of habitats for wildlife in the section "Management of the Soils for Wildlife."

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This soil survey was made as a part of the technical assistance furnished by the Soil Conservation Service to the Acadia Soil Conservation District. Help in farm planning can be obtained from the staff of the Soil Conservation Service assisting the district. Fieldwork for the survey was completed in 1959. Unless otherwise indicated, all statements in the report refer to conditions in the parish at the time the fieldwork was in progress.

Cover picture: An oil refinery, a ricefield in the Coastal Prairie, and a rotation pasture.

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# SOIL SURVEY OF ACADIA PARISH, LOUISIANA

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

**T**HIS REPORT is about the soils of Acadia Parish, Louisiana. Farmers of the parish organized the Acadia Soil Conservation District in 1945. A survey of the soils, made by the Soil Conservation Service in cooperation with the Louisiana Agricultural Experiment Station, was part of the technical assistance furnished to the district. This report contains the soil map and descriptions and interpretations of the different kinds of soils.

The agriculture of the parish is based on rice. Here it was first demonstrated that rice could be grown on the prairies of southwestern Louisiana and southeastern Texas on a large scale. Cattle raising fits in well with rice growing, and much of the farmland in the parish is used for rice and rotation pasture. The Louisiana Rice Experiment Station, which carries on research on rice and cattle raising, was established in the parish in 1909. Cotton, sweetpotatoes, and corn are the other principal crops. The production, processing, and distribution of petroleum products is the major industry.

## How Soils Are Mapped and Named

In most localities it is easy to see differences in the landscape as one travels from place to place. There are differences in the steepness, length, and shape of the slopes; in the size and speed of the streams; in the kinds of native plants or crops; and in the soils. Some differences in the soils are easily seen, but others are hidden beneath the surface.

The scientists who made this soil survey studied and mapped the soils in detail. They dug or bored a great many holes to observe the color, texture, and other properties of the natural layers, or horizons, that make up each kind of soil. The succession of these layers from the surface to the depth at which there is little evidence of any influence from soil-forming processes is called the soil profile. Each kind of soil has a characteristic profile.

On a set of aerial photographs of the entire parish, the soil scientists drew lines to show boundaries between soils. The printed soil maps show the photographic background, the soil boundaries and symbols in red, and the main streams, roads, and place names in black.

Soils that have profiles almost alike make up a *soil series*. Except for different texture in the surface layer, the major horizons of all the soils of one series are similar in thickness, arrangement, and important characteristics, such as color, consistence, and structure. The soil series has been set up as a convenient unit of classification for a group of similar soils. Each soil series is given the name of a town or other geographic feature near the place where a soil in that series was first described and mapped. Crowley soils and Midland soils are examples of two soil series.

Within many series there are soils that differ in the texture of their surface layer. Within a series, the bodies of soil that have a surface layer of the same tex-

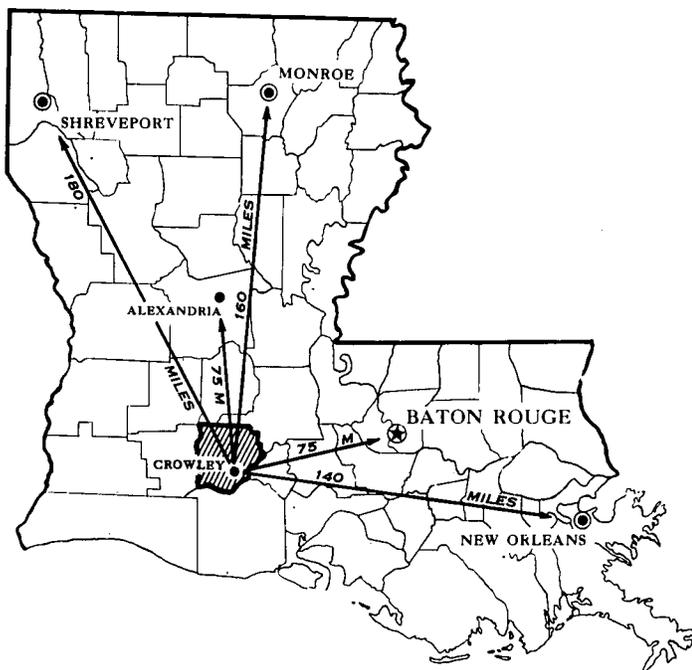


Figure 1.—Location of Acadia Parish in Louisiana. The State Agricultural Experiment Station is at Baton Rouge.

Acadia Parish is in south-central Louisiana (fig. 1). Its total land area is 662 square miles, or 423,680 acres. The parish is bounded on the south by Vermilion Parish, on the west by Jefferson Davis Parish, on the north by Evangeline and St. Landry Parishes, and on the east by St. Landry and Lafayette Parishes. The Mermentau River and its tributaries, Bayou Nezpique and Bayou Queue de Tortue, form natural boundaries between parishes on the south and west. Crowley, the "Rice City of America," is the parish seat.

tural class make up a *soil type*. Crowley silt loam and Midland silt loam are examples of soil types.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature that practical suggestions about their management could not be made if they were shown on the soil map as one unit. To get useful mapping units, such soil types are divided into *phases*. Names of the phases indicate their nature. For example, Patoutville silt loam, 1 to 3 percent slopes, eroded, is one of several phases of Patoutville silt loam. Soils of a series or of a broader classification group can also be divided into phases in the same way; that is, on the basis of some feature that affects their use, rather than on their profile or their place in the natural landscape.

Some mapping units are *complexes* that contain more than one soil. Midland-Crowley complex, 0 to 1 percent slopes, is an example of a *complex*. Some are *land types*, such as Sloping land, loamy and clayey sediments, rather than soils. A description of each mapping unit in this survey is given in the section "Descriptions of the Soils."

## Soil Associations in Acadia Parish

After studying the soils in a locality and the way in which they are arranged, it is possible to make a general map that shows the main patterns of soils. Such a map is the small-scale, colored map that appears in the back of this report. It shows five soil associations. Each association contains a few major soils and several minor soils, in a pattern that is characteristic, although not necessarily uniform, and each is on a characteristic type of landscape. The general map does not show the kind of soil at any particular place, but a pattern of several different soils. The associations are named for the major soil series in them, but, as already noted, soils of other series may also be present. The major soil series of one association may also be present in other associations but in a different pattern.

This map is useful to those who need only a general idea of the soils in Acadia Parish, to those who want to compare different parts of the parish, and to those who want a general idea of the extent of the different kinds of soils.

### 1. Soils of the Coastal Prairie, mostly imperfectly drained: Crowley-Midland association

This association consists of soils on the terrace that lies above the wooded slopes and stream valleys of the parish. This is the Prairie formation, the most recent of the Louisiana Pleistocene terraces built by alluvium deposited by the Red and Mississippi Rivers, into which the present-day streams have cut their channels almost to sea level. One's first impression is that of a flat, treeless plain, but closer observation reveals numerous low ridges along an intricate network of ancient stream channels, or coulees. These ridges slope gently back to lows and flats served by artificial or natural drains.

Originally, this area was covered by tall prairie grasses, but it is now used almost entirely for rice and rotation pasture. Only the scattered clumps of trees along fences and around homesteads and the wooded slopes and valleys of the stream channels break this uni-

form pattern of land use. The larger farms are in this association, which occupies 49 percent of the parish.

Crowley soils make up about 90 percent of this association, and Midland soils, about 10 percent. The Crowley soils are imperfectly drained. Their surface soil is dark-gray, silty, and very strongly acid to moderately alkaline. The subsoil is red and gray, mottled, medium acid to moderately alkaline silty clay. The Midland soils are poorly drained. Their surface soil is gray to dark-gray, acid silt loam to silty clay loam. The subsoil is strong-brown or light olive-brown and gray, mottled, very strongly acid to mildly alkaline silty clay.

These soils are well suited to cultivated crops. Rice is the main crop, but row crops are also grown on a small acreage in the northern and eastern parts of the area. These soils present very difficult engineering problems if used as construction material.

### 2. Soils of the Coastal Prairie, poorly and imperfectly drained: Midland-Crowley association

This association, which constitutes about 8 percent of the parish, is in the southwestern part near the confluence of the Mermentau River and Bayou Queue de Tortue. It differs from association 1 in having a higher proportion of the finer textured, poorly drained soils. Midland soils constitute about 55 percent, and Crowley soils about 45 percent, of the association. Elevations in this part of the parish are generally low.

### 3. Soils of the forest-prairie transition: Acadia-Wrightsville association

This association of claypan soils is between the Coastal Prairie and the stream valleys. It constitutes about 15 percent of the parish. The landscape is characterized by slopes and flats that blend into the Coastal Prairie and break abruptly to the bottom lands of the streams. The original vegetation was oak-pine forest. The parent material from which the soils formed was old, general alluvium from the Mississippi and Red Rivers, mostly from the Red River.

About 51 percent of this association is Acadia silt loam, 1 to 3 percent slopes, and 46 percent is Acadia-Wrightsville silt loams, 0 to 1 percent slopes. Wrightsville silt loam, 0 to 1 percent slopes, and Sloping land, loamy and clayey sediments, are not extensive. Near the edge of the Coastal Prairie, some Crowley soils are included.

The Acadia soils are imperfectly drained. Their surface soil is brown, medium textured, and very strongly acid. The subsoil is red, yellowish-brown, and gray, mottled, very strongly acid silty clay. The Wrightsville soils are poorly drained. Their surface soil is grayish brown, medium textured, and strongly acid. The subsoil is dark yellowish-brown and grayish-brown, strongly acid silty clay. Sloping land, loamy and clayey sediments, is extremely variable in color, texture, and reaction and is characterized by relatively steep slopes.

Much of this association is in grazed woodland. The most productive woodland in the parish is on these soils. About 45 percent of the acreage has been cleared and used for cultivated crops and rotation pasture. The cleared areas are mostly Acadia and Wrightsville soils, which are fairly well suited to cultivated crops. Sloping land, loamy and clayey sediments, will probably remain as

woodland. The best base and subbase material for roads is obtained from this land type and from the Acadia soils.

This association occurs in relatively narrow strips. Most of it is part of farms that also contain soils of other associations. Some large rice farms and some small row-crop farms, however, are entirely on soils in this association.

#### 4. Soils of the loessal terrace: Patoutville-Jeanerette association

This association occurs in the eastern part of the parish and constitutes about 19 percent of the total area. The landscape is similar to that of associations 1 and 2, but the ridges are more pronounced, the slopes a little stronger, and the lows and flats narrower and closer together. The alluvium from which these soils formed was loesslike material deposited chiefly by the Mississippi River, and the soils are mostly very dark gray or brown. Originally, this area was covered by tall prairie grasses, among which there were scattered clumps of trees.

Patoutville soils make up about 53 percent of this association; Jeanerette soils, 38 percent; Olivier soils, 3 percent; and Carroll soils, 5 percent. There are also small areas of Iberia and Richland soils.

The Patoutville, Jeanerette, and Olivier soils are imperfectly drained. The Patoutville soils have a dark grayish-brown, medium-textured, strongly acid surface soil and a red and yellowish-brown, mottled, medium acid, silty clay subsoil. The Jeanerette soils have a dark-gray, silty, medium acid surface soil and a grayish-brown, mottled with light olive brown, moderately alkaline, silty clay loam subsoil. The Olivier soils have a dark-brown, medium-textured, strongly acid surface soil and a dark yellowish-brown and red, mottled, very strongly acid, silty clay loam subsoil.

The Carroll and Iberia soils are poorly drained. The Carroll soils have a dark grayish-brown, strongly acid, medium-textured surface soil and a mottled grayish-brown and yellowish-brown, very strongly acid, silty clay subsoil.

About 79 percent of the acreage is used for row crops (fig. 2). Rice is also grown throughout the area, but

mostly in the western part near the Coastal Prairie. The smaller farms of the parish are on these soils. Most of the area is open, but there are some wooded places near the bayous.

The soils in this association are suited to cultivated crops. The Olivier, Richland, and Patoutville soils are better-than-average sources of fill and subgrade material, and they present no difficult engineering problems if used in construction. The Jeanerette, Iberia, and Carroll soils, however, present very difficult engineering problems.

#### 5. Soils of the bottom lands: Wet alluvial land association

This association occupies the narrow flood plains of local streams at the lowest elevations in the parish. Except for small areas in fresh-water marsh, these bottom lands are covered by a dense oak-gum-cypress forest. They constitute about 9 percent of the parish.

Wet alluvial land consists of recent deposits of silts and clays washed from the nearby higher lands. These deposits are extremely variable in texture and in degree of drainage. They are flooded during periods of high rainfall. Some areas are also subject to flooding from backwater.

Most of these bottom lands are used as grazed woodland on farms that contain other soils. About 2 percent of the area has been cleared and used for pasture. This land type is not suitable for cultivated crops but is suitable for some form of permanent vegetation, such as pasture or woodland, or for wildlife habitats. It is a readily available source of fill or subgrade material of average quality.

## Descriptions of the Soils

In this section, general descriptions of the soil series and detailed descriptions of the soil types, phases, and land types are given.

The acreage and proportionate extent of the soils are listed in table 1, and their location and distribution are shown on the map in the back of this report.

An important feature of the soil descriptions is the detailed information contained in the block profile of a mapping unit in each soil series. Letter symbols, ordinarily followed by numerical subscripts and sometimes by other letter subscripts, are used to identify the soil horizons. Letter symbols beginning with *A* indicate surface soil; those beginning with *B*, subsoil; and those beginning with *C*, parent material, or the unconsolidated material from which the soil formed.

Significant characteristics ordinarily described in the block profile include color, texture, structure, and consistence.

*Color* is an aid in determining other important characteristics of the soil. Ordinarily, it is an indication of the amount of organic matter contained in the surface layers. As a rule, the darker the surface soil, the more organic matter. Streaks and spots of gray, yellow, and brown in the lower layers ordinarily indicate poor drainage and poor aeration. In the profile descriptions, the descriptive terms used for color are followed by Munsell color notations, which indicate hue, value, and chroma, for precise color evaluation. Unless otherwise indicated, the color notations in this report are for moist soils.



Figure 2.—Planting sweetpotatoes. Row crops are grown extensively on the soils in association 4

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

Soil	Area	Extent
	<i>Acres</i>	<i>Percent</i>
Acadia silt loam, 1 to 3 percent slopes.....	33, 477	7. 9
Acadia-Wrightsville silt loams, 0 to 1 percent slopes.....	30, 618	7. 2
Carroll silt loam, 0 to 1 percent slopes.....	4, 213	1. 0
Crowley silt loam, 0 to 1 percent slopes.....	176, 812	41. 7
Crowley silt loam, 1 to 3 percent slopes.....	8, 120	1. 9
Iberia silty clay, 0 to 1 percent slopes.....	507	. 1
Jeanerette silt loam, 0 to 1 percent slopes.....	19, 347	4. 6
Jeanerette silty clay loam, 0 to 1 percent slopes.....	11, 303	2. 7
Midland silt loam, 0 to 1 percent slopes.....	8, 939	2. 1
Midland silt loam, thick surface, 0 to 1 percent slopes.....	2, 731	. 7
Midland silty clay loam, 0 to 1 percent slopes.....	26, 448	6. 2
Midland-Crowley complex, 0 to 1 percent slopes.....	14, 995	3. 5
Olivier silt loam, 1 to 3 percent slopes, eroded.....	2, 778	. 7
Patoutville silt loam, 0 to 1 percent slopes.....	38, 361	9. 1
Patoutville silt loam, 1 to 3 percent slopes, eroded.....	4, 323	1. 0
Richland silt loam, 1 to 3 percent slopes, eroded.....	447	. 1
Sloping land, loamy and clayey sediments.....	466	. 1
Wet alluvial land.....	35, 087	8. 3
Wrightsville silt loam, 0 to 1 percent slopes.....	1, 601	. 4
Miscellaneous:		
Water areas of less than 40 acres or streams less than one-eighth of a mile wide.....	2, 604	. 6
Oil waste.....	503	. 1
Total.....	423, 680	100. 0

*Texture*, the relative proportion of sand, silt, and clay in the soil, is determined in the field by the way the soil feels when it is rubbed between the fingers. This field determination is later checked by laboratory analysis.

*Structure* refers to the arrangement of individual soil particles into larger particles, clusters, or other aggregates

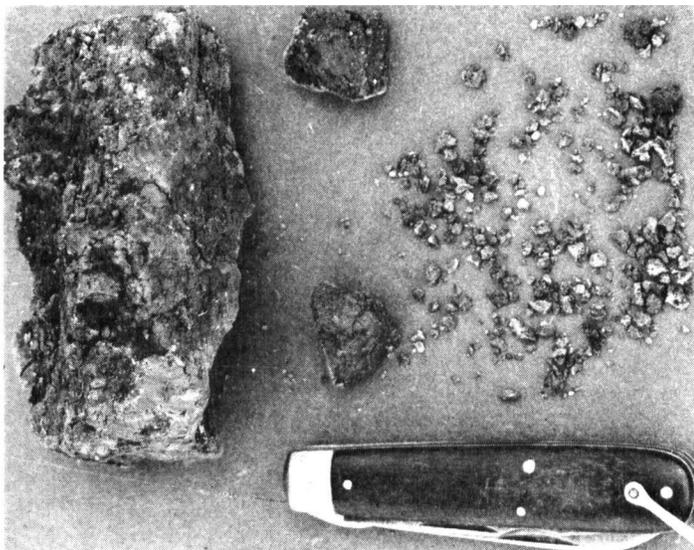


Figure 3.—Three types of soil structure. Coarse prismatic is shown at the left, medium angular blocky at the center, and very fine angular blocky at the right.

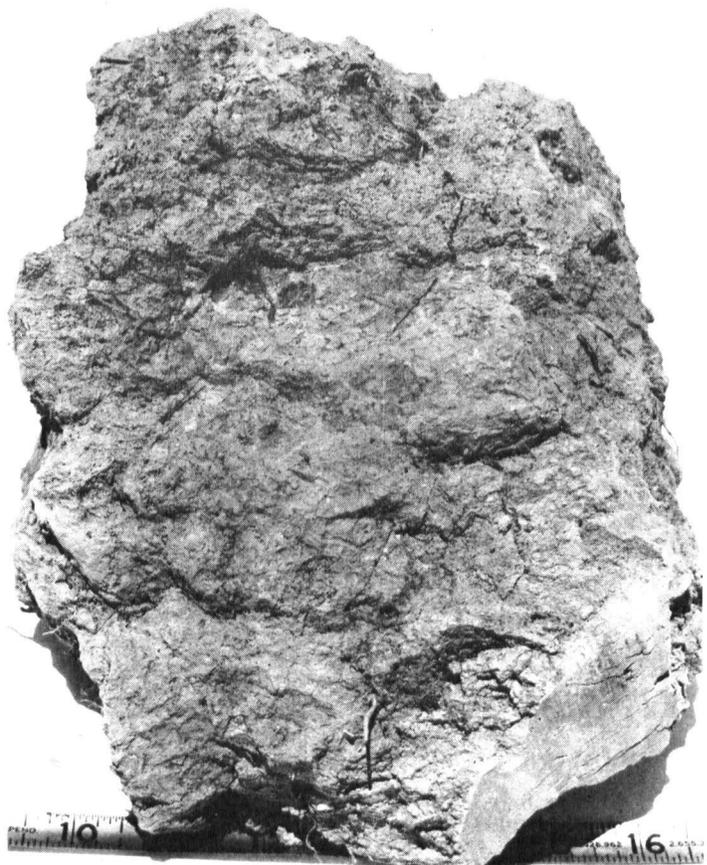


Figure 4.—Sample from structureless soil. This soil is massive, as particles adhere without cleavage.

gates that are separated from adjoining aggregates and indicates the pore space between aggregates. Structure is indicated by grade—*weak*, *moderate*, or *strong*; that is, the distinctness and durability of the aggregates; by the size of the aggregates—*very fine* or *very thin*, *fine* or *thin*, *medium*, *coarse* or *thick*, and *very coarse* or *very thick*; and by their shape—*platy*, *prismatic*, *blocky*, or *granular* (fig. 3). A soil is described as structureless if there are no observable aggregates; structureless soils (fig. 4) may be *single-grained* (noncoherent) or *massive* (coherent).

*Consistence* refers to the properties of the soil that determine its resistance to crushing and its ability to be molded or changed in shape. Consistence is described by the terms *firm*, *friable*, *plastic*, *nonplastic*, *brittle*, and *hard*.

Other characteristics observed in the field study and mapping of the soils include the depth of the soil to impermeable or compact layers, the steepness and pattern of slopes, the degree of erosion, the rate of surface runoff, the rate of the movement of water through the soil, the nature of the parent material from which the soil has formed, and the acidity or alkalinity of the soil as measured by chemical tests.

## Acadia Series

The Acadia series consists of deep, imperfectly drained, claypan soils formed on Pleistocene terraces under mixed pine and hardwood forest. The parent material was old, general alluvium deposited by the Mississippi and Red Rivers.

The surface soil is brown, medium textured, and very strongly acid. The subsoil is red, yellowish-brown, and gray, mottled, heavy silty clay. It is very strongly acid.

Acadia soils occur mostly in the western part of the parish, on the ridges and slopes along the major streams. They are associated with the Wrightsville and Crowley soils and with Sloping land, loamy and clayey sediments. They are better drained than the Wrightsville soils and have more red and yellowish-red mottles in the subsoil. They are more acid than the Crowley soils and have weaker structure in the subsoil.

About one-fourth of the acreage of the Acadia soils has been cleared of forest. Most of this cleared area is used for rice and rotation pasture.

**Acadia silt loam, 1 to 3 percent slopes (AdB).**—This is a deep, imperfectly drained, very strongly acid soil on the ridges and gentle slopes along the natural drains and major streams in the parish. In wooded areas, 30 percent of this mapping unit may consist of Acadia-Wrightsville silt loams. As much as 15 percent of the open areas may consist of inclusions of Crowley or Wrightsville soils.

Profile in a moist, cultivated site in the SW  $\frac{1}{4}$  sec. 5, T. 10 S., R. 1 W.,  $1\frac{1}{2}$  miles north of Estherwood:

- $A_{p1}$  0 to 3 inches, brown (10YR 5/3) silt loam; very pale brown (10YR 7/3) when dry; few, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, very fine, granular structure to massive; friable when moist, very hard when dry, nonplastic when wet; few roots; few black concretions; very strongly acid; abrupt, smooth boundary; layer is 2 to 3 inches thick.
- $A_{p2}$  3 to 7 inches, grayish-brown (10YR 5/2) silt loam; dark brown (7.5YR 4/4) between peds and in root channels; moderate, medium and thin, platy structure; firm when moist, very hard when dry, nonplastic when wet; few roots; many black and brown concretions; very strongly acid; abrupt, smooth boundary; layer is 2 to 4 inches thick.
- $A_{2x}$  7 to 17 inches, gray (5Y 6/1) silt loam; many, medium, prominent, yellowish-brown (10YR 5/6) mottles; massive; firm when moist, hard when dry, slightly plastic when wet; few roots; many pinholes; many black concretions; very strongly acid; gradual, irregular boundary; layer is 10 to 17 inches thick.
- $B_{2x}$  17 to 30 inches, yellowish-brown (10YR 5/6) and gray (5Y 6/1), mottled, heavy silty clay; few, fine, prominent, red (10R 4/8) mottles; weak, coarse, angular blocky structure; very firm when moist, very hard when dry, very plastic when wet; black concretions; many tongues of gray (5Y 6/1) silt; few roots; very strongly acid; diffuse, irregular boundary; layer is 10 to 16 inches thick.
- $B_{3x}$  30 to 40 inches, gray (5Y 6/1) and yellowish-brown (10YR 5/6), mottled, heavy silty clay; few, fine, prominent, yellowish-red (5YR 4/8) mottles; weak, coarse, angular blocky structure; very firm when moist, very hard when dry, very plastic when wet; strongly acid; many black concretions; many tongues of gray (5Y 6/1) silty clay; layer is 8 to 10 inches thick; layer underlain by several feet of olive-brown, slightly acid, heavy silty clay.

The color of the  $A_{p1}$  layer ranges from dark gray to brown, and the texture, from silt loam to fine sandy loam. The  $A_{2g}$  layer is gray to yellowish brown. In

the  $B_{2g}$  layer there are a few, fine, yellowish-red mottles to many, medium, red mottles, and the structure ranges from weak blocky to strong blocky. Slopes are short, and the dominant gradient is 1 percent. On stronger slopes, where drainage is better, the  $A_{2g}$  layer is more brown and the  $B_{2g}$  layer is more red.

This soil is low in natural fertility. The organic-matter content is low. Surface runoff is more rapid than on the Acadia-Wrightsville silt loams. The rate of infiltration is very slow, and permeability is very slow. The moisture-supplying capacity is low. The root zone is deep, but tilth is poor.

This soil is suited to a number of crops, but it is best suited to cool-season crops or to irrigated crops, such as rice. Three-fourths of its acreage remains in mixed pine and hardwood forest. Cleared areas are used mostly for rice and rotation pasture, but corn, cotton, and sweetpotatoes are also grown. A small acreage is in permanent pasture.

This soil is suited to moderately intensive use. Controlling erosion is the chief management requirement. Secondary needs are to increase fertility, to improve tilth, to improve the moisture-supplying capacity, and to prevent or correct compaction. (Capability unit IIIe-2)

**Acadia-Wrightsville silt loams, 0 to 1 percent slopes (AwA).**—Acadia silt loam makes up about 70 percent of this soil complex. A representative profile of Acadia silt loam is described in the preceding mapping unit. A representative profile of Wrightsville silt loam is given in the description of that soil.

The dominant slope is about one-half percent. Surface runoff is slow, and the rate of infiltration is very slow. Permeability is very slow, and the moisture-supplying capacity is low. Natural fertility is low, and the organic-matter content is low. The root zone is deep, but tilth is poor.

These soils are suited to many crops and are especially well suited to rice. About two-thirds of the acreage is now used for cultivated crops and rotation pasture. A small acreage is in permanent pasture. Most of the rest of the acreage is in mixed pine and hardwood forest.

These soils are suited to intensive use. Drainage of wet, uneven spots is the chief management requirement. Secondary needs are to increase fertility, to improve tilth, to improve the moisture-supplying capacity, and to prevent or correct compaction. (Capability unit IIw-2)

## Carroll Series

The Carroll series consists of deep, poorly drained soils formed in loesslike material on Pleistocene terraces. The parent material was old, general alluvium, mostly deposited by the Mississippi River. In some places the original vegetation was mixed hardwood forest, and in others, tall prairie grasses.

The surface soil is dark grayish brown, medium textured, and strongly acid. The subsoil is silty clay; it is grayish brown mottled with yellowish brown and is very strongly acid.

The Carroll soils are associated with the imperfectly drained Olivier and Patoutville soils, but they are in lower positions and are more poorly drained. The subsoil in the Patoutville and Olivier soils has more red,

brown, and yellow colors than that of the Carroll soils.

Soils of the Carroll series are suited to many uses. Crops grown on them respond to good management. More than one-half their acreage in this parish is used for cultivated crops, chiefly row crops. About one-fourth of the acreage is wooded.

**Carroll silt loam, 0 to 1 percent slopes (C<sub>ca</sub>A).**—This is a deep, poorly drained, acid soil in depressions on the loessal terrace in the northeastern part of the parish. As much as 15 percent of the acreage may consist of inclusions of Patoutville or Olivier soils.

Profile in a moist, cultivated site in sec. 67, T. 7 S., R. 2 E., 1 mile north of Church Point:

- A<sub>01</sub> 0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam; light brownish-gray (10YR 6/2) when dry; moderate, very fine, granular structure; friable when moist, slightly hard when dry, nonplastic when wet; strongly acid; abrupt, smooth boundary; layer is 2 to 4 inches thick.
- A<sub>02</sub> 4 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; massive; firm when moist, hard when dry, nonplastic when wet; soft, brown concretions; very strongly acid; abrupt, smooth boundary; layer is 4 to 5 inches thick.
- A<sub>2g</sub> 8 to 16 inches, grayish-brown (10YR 5/2) silt loam; few, fine, faint, yellowish-brown (10YR 5/8) mottles; massive; friable when moist, slightly hard when dry, nonplastic when wet; very strongly acid; pinholes; brown concretions; clear, irregular boundary; layer is 4 to 11 inches thick.
- B<sub>2g</sub> 16 to 28 inches, grayish-brown (10YR 5/2), heavy silty clay; few, fine, faint, yellowish-brown (10YR 5/8) mottles; strong, medium, prismatic structure and strong, medium, subangular blocky structure; peds coated with very dark gray (5YR 3/1) clay films; firm when moist, hard when dry, very plastic when wet; tongues of gray silt; many black concretions; very strongly acid; gradual, irregular boundary; layer is 9 to 13 inches thick.
- B<sub>3</sub> 28 to 54 inches, grayish-brown (10YR 5/2) silty clay; many, fine, faint, yellowish-brown (10YR 5/8) mottles; moderate, medium, prismatic structure and moderate, medium, subangular blocky structure; peds coated with grayish-brown (10YR 5/2) clay films; firm when moist, hard when dry, very plastic when wet; tongues of gray silt; many black concretions; very strongly acid; gradual, irregular boundary; layer is 22 to 26 inches thick.
- C<sub>1</sub> 54 to 90 inches, light brownish-gray (10YR 6/2) silty clay loam; many, medium, faint, yellowish-brown (10YR 5/6) and dark yellowish-brown (10YR 3/4) mottles; plastic when wet; medium acid; layer is several feet thick.

In some places there is a 2- to 4-inch layer (B<sub>1g</sub>) of light brownish-gray silty clay loam between the A<sub>2g</sub> layer and the B<sub>2g</sub> layer. In some places the B<sub>2g</sub> layer contains a few fine mottles of red. The texture of the B<sub>3</sub> layer ranges from silty clay loam to silty clay.

This soil occurs at low elevations, and it receives surface runoff from soils at higher elevations. Slopes are concave; the dominant slope is less than one-third percent.

This soil is moderately fertile but is low in organic-matter content. Surface runoff and the rate of infiltration are very slow. Permeability is very slow, and the moisture-supplying capacity is low. Tilth is very poor.

Most of the cleared areas of this soil are used for sweetpotatoes, corn, and cotton. Some areas are used for rice and rotation pasture.

This soil is suited to moderately intensive use. Drainage is the chief management requirement. Secondary

needs are to improve the moisture-supplying capacity, to increase fertility, to improve tilth, and to prevent or correct compaction. (Capability unit IIIw-1)

## Crowley Series

The Crowley series consists of deep, imperfectly drained, claypan soils formed on Pleistocene terraces under tall prairie grasses. The parent material was old, general alluvium deposited by the Mississippi and Red Rivers.

The surface soil is dark gray, medium textured, and very strongly acid to moderately alkaline. The subsoil is mottled red and gray, heavy silty clay that has prismatic (fig. 5) to subangular blocky structure; it is medium acid to moderately alkaline.

The Crowley soils are the most extensive in Acadia Parish. They occur at intermediate and high elevations in all parts of the parish except the northeastern. They are associated with the Acadia, Wrightsville, Midland, and Patoutville soils. They are less acid than the Acadia soils and have stronger subsoil structure. They occupy higher slopes, are better drained, and are more red and brown than the Wrightsville and Midland soils. The lower subsoil of the Crowley soils is less acid and of finer texture than that of the Patoutville soils.

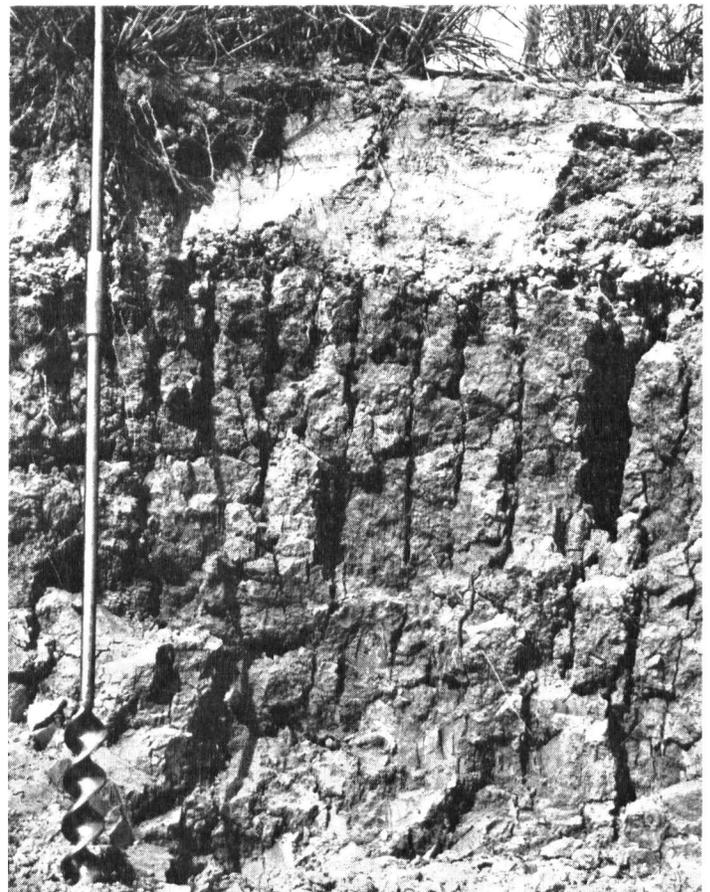


Figure 5.—Prismatic structure in the B horizon of Crowley silt loam, 0 to 1 percent slopes. Prismatic structure is strongest when the soil is dry and barely noticeable when it is moist; plant roots ordinarily follow the lines of cleavage.

The Crowley soils are suited to many uses. About three-fourths of the acreage is used for cultivated crops and rotation pasture.

**Crowley silt loam, 0 to 1 percent slopes (CrA).**—This is the most extensive soil in the parish. It is a deep, imperfectly drained, very strongly acid to moderately alkaline soil on gentle slopes and ridges in the Coastal Prairie. As much as 15 percent of the area may consist of inclusions of Midland, Wrightsville, Patoutville, or Acadia soils.

Profile in a moist, cultivated site in the NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 35, T. 10 S., R. 1 W., 2 $\frac{1}{2}$  miles southeast of Estherwood:

- A<sub>p1</sub> 0 to 3 inches, dark-gray (10YR 4/1) silt loam; gray (10YR 6/1) when dry; dark reddish-brown (5YR 3/4) in root channels; weak, very fine, granular structure to massive; firm when moist, very hard when dry, slightly plastic when wet; many roots; few brown concretions; very strongly acid; abrupt, smooth boundary; layer is 3 inches thick.
- A<sub>p2</sub> 3 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; dark brown (7.5YR 4/4) between pedes and in root channels; moderate, medium and thin, platy structure; firm when moist, very hard when dry, slightly plastic when wet; few roots; few brown concretions; very strongly acid; abrupt, smooth boundary; layer is 4 to 5 inches thick.
- A<sub>2g</sub> 8 to 13 inches, dark grayish-brown (10YR 4/2) silt loam; common, fine, faint, gray (10YR 6/1) and dark yellowish-brown (10YR 3/4) mottles; many large, gray (10YR 5/1) and dark reddish-brown (5YR 3/4) pockets in root channels; massive; firm when moist, very hard when dry, slightly plastic when wet; few roots; many pinholes; few brown concretions; medium acid; clear, wavy boundary; layer is 0 to 9 inches thick.
- B<sub>1g</sub> 13 to 17 inches, light brownish-gray (10YR 6/2) silty clay loam; common, fine, prominent, red (10R 4/8) mottles; moderate, fine to medium, prismatic structure and strong, medium, subangular blocky structure; pedes coated with thin, very dark gray (10YR 3/1) clay films; firm when moist, hard when dry, plastic when wet; few roots; few pinholes; few brown concretions; strongly acid; clear, wavy boundary; layer is 0 to 4 inches thick.
- B<sub>2g</sub> 17 to 32 inches, gray (10YR 5/1), heavy silty clay; common, fine, prominent, dark-red (10R 3/6) mottles; moderate, fine to medium, prismatic structure and strong, medium, subangular blocky structure; pedes coated with thin, very dark brown (10YR 2/2) to gray (10YR 5/1) clay films; firm when moist, very hard when dry, very plastic when wet; few roots; few black concretions; medium acid; diffuse, irregular boundary; layer is 8 to 15 inches thick.
- B<sub>3g</sub> 32 to 45 inches, yellowish-brown (10YR 5/6), gray (5Y 5/1), and light olive-brown (2.5Y 5/4), mottled silty clay; moderate, fine to medium, prismatic structure and moderate, fine, angular blocky structure; pedes partially coated with thin, gray (10YR 5/1) clay films; firm when moist, very hard when dry, very plastic when wet; few black concretions; many large tongues of gray (10YR 5/1) silty clay loam; neutral; layer is several feet thick.

The surface soil is dark gray to dark grayish brown. The reaction of the surface layers ranges from very strongly acid to moderately alkaline and that of the B<sub>2g</sub> layer, from medium acid to moderately alkaline. Isolated pockets of lime concretions occur in the lower part of the subsoil in some places. Stratified silt and clay underlie the profile at a depth of about 72 inches. In about half the area, the depth to the B<sub>2g</sub> layer is either less than 10 inches or more than 20 inches. The slopes are convex; the dominant gradient is about one-third percent. On slightly stronger slopes, where the drainage is better, the B<sub>2g</sub> layer is redder.

Fertility is moderate, and the organic-matter content is moderate. Surface runoff is slow, and the rate of infiltration is very slow. Permeability is very slow, and the moisture-supplying capacity is low. The root zone is deep, but tilth is poor.

Most of this soil is used for cultivated crops and rotation pasture. It is suited to many crops and is especially well suited to rice. Although rice is the chief crop, cotton, corn, sweetpotatoes, and hay are also grown. All the crops respond to good management. A small acreage is used for permanent pasture, and only a very small acreage is wooded.

This soil is well suited to intensive use. It can be irrigated by flooding. Drainage of wet, uneven spots is the chief management requirement. Secondary needs are to improve the moisture-supplying capacity, to increase fertility, to improve tilth, and to prevent or correct compaction when the soil is cultivated. (Capability unit IIw-1)

**Crowley silt loam, 1 to 3 percent slopes (CrB).**—This soil occurs along natural drains and on old natural levees. As much as 10 percent of those areas near woods consists of inclusions of Acadia soils. Slopes are short. The dominant gradient is about 1 percent. The silt loam A horizon is relatively thin. Depth to the silty clay subsoil ranges from 6 to 16 inches.

Surface runoff is more rapid on this soil than on Crowley silt loam, 0 to 1 percent slopes. Natural fertility and the organic-matter content are moderate. The rate of infiltration is very slow, and permeability is very slow. The moisture-supplying capacity is low.

About two-thirds of the acreage of this soil is used for cultivated crops, chiefly rice and rotation pasture. Sweetpotatoes, corn, and cotton are also grown.

This soil is suited to moderately intensive use. Controlling the erosion that results from the very slow infiltration of water and the notable slope is the chief management requirement. Secondary needs are to improve the moisture-supplying capacity, to increase fertility, to improve tilth, and to prevent or correct compaction. (Capability unit IIIe-1)

## Iberia Series

The Iberia series consists of deep, poorly drained soils formed on Pleistocene terraces. The parent material was old, general alluvium, chiefly deposited by the Mississippi River. Tall prairie grasses and sedges constituted the original vegetation.

The surface soil is very dark gray, medium acid, and fine textured. The subsoil is neutral to moderately alkaline, gray clay mottled with yellowish brown.

Soils of the Iberia series occur in the northeastern part of the parish in association with the Jeanerette soils. They are in lower positions than the Jeanerette soils, are more poorly drained, and are finer textured.

The Iberia soils are relatively high in natural fertility, and they are suited to many uses. Most of the acreage in Acadia Parish is used for rice and rotation pasture.

**Iberia silty clay, 0 to 1 percent slopes (IbA).**—This is a deep, poorly drained, heavy, "black-land" soil in depressions on the loessal terrace. It is not extensive. As much as 15 percent of the mapping unit may consist of inclusions of the Jeanerette soils.

Profile in a moist, cultivated site in the NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 33, T. 8 S., R. 3 E., 1 mile northeast of Mire:

- A<sub>p1</sub> 0 to 5 inches, very dark gray (10YR 3/1), heavy silty clay; gray (10YR 5/1) when dry; weak, very fine, granular structure to massive; very firm when moist, very hard when dry, very plastic when wet; medium acid; abrupt, smooth boundary; layer is 5 to 8 inches thick.
- A<sub>p2</sub> 5 to 10 inches, very dark gray (10YR 3/1), heavy silty clay; few, fine, faint, dark yellowish-brown (10YR 3/4) mottles; weak, very thick, platy structure to massive; very firm when moist, very hard when dry, very plastic when wet; medium acid; abrupt, smooth boundary; layer is 4 to 5 inches thick.
- B<sub>1</sub> 10 to 29 inches, very dark gray (N 3/0) clay; few, fine, prominent, yellowish-brown (10YR 5/6) and gray (10YR 5/1) mottles; weak, medium, prismatic structure and moderate, fine, angular blocky structure; very firm when moist, very hard when dry, very plastic when wet; slightly acid; diffuse, irregular boundary; layer is 4 to 19 inches thick.
- B<sub>2</sub> 29 to 40 inches, gray (10YR 5/1) clay; few, fine, faint, yellowish-brown (10YR 5/6) mottles; moderate, medium, prismatic structure and moderate, fine, angular blocky structure; peds coated with gray (10YR 5/1) clay films; very firm when moist, very hard when dry, very plastic when wet; tongues of very dark gray (N 3/0) clay; neutral; diffuse, irregular boundary; layer is 11 to 16 inches thick.
- C<sub>g</sub> 40 to 60 inches, light brownish-gray (2.5Y 6/2) silty clay; few, fine, prominent, yellowish-brown (10YR 5/6) mottles; very hard when dry, very plastic when wet; tongues of gray (10YR 5/1) clay; black concretions; moderately alkaline; abrupt, irregular boundary; layer is 0 to 20 inches thick.
- C<sub>caz</sub> 60 to 90 inches, grayish-brown (2.5Y 5/2) silty clay; few, fine, prominent, yellowish-brown (10YR 5/8) mottles; very hard when dry, very plastic when wet; tongues of gray (10YR 5/1) clay; many lime concretions; moderately alkaline; ground water in layer; layer is several feet thick.

The reaction is medium acid to neutral in the A<sub>p1</sub> layer; at a depth of about 2 feet, it is neutral to moderately alkaline. Usually the upper part of the substratum contains lime concretions.

Slopes are concave; the dominant gradient is less than one-third percent. The soil occurs at low elevations, and it receives runoff from soils at high elevations.

This is one of the most fertile soils in the parish. It is high in organic-matter content. Surface runoff and permeability are very slow. The rate of infiltration is moderately slow. The moisture-supplying capacity is moderate. The root zone is deep, but tilth is poor.

This soil is suited to many crops, and crops respond well to good management. Most of the acreage is used for rice and rotation pasture.

Because of its relatively high natural fertility, deep root zone, and moderate moisture-supplying capacity, this soil is well suited to moderately intensive use. Drainage is the chief management requirement. A secondary need is to improve tilth. (Capability unit IIIw-4)

## Jeanerette Series

The Jeanerette series consists of deep, imperfectly drained, "black-land" soils formed on old Pleistocene terraces. The parent material was old, loesslike, general alluvium, mostly deposited by the Mississippi River. Tall prairie grasses constituted the original vegetation.

The surface soil is dark gray to very dark gray and is medium acid. The subsoil is very dark grayish-brown

silty clay loam mottled with light olive brown. It is neutral to moderately alkaline.

Soils in the Jeanerette series occur in the northeastern part of the parish and are associated with the Iberia and Patoutville soils. They occupy higher positions, are better drained, and are of coarser texture than the Iberia soils. The Jeanerette soils are less acid than the Patoutville soils. The subsoil of the Jeanerette soils is dark gray to dark grayish brown, whereas that of the Patoutville soils is brown to yellowish brown.

The Jeanerette soils are some of the most fertile in Acadia Parish, and they are suited to many uses. About four-fifths of their acreage is used for cultivated crops, mostly row crops.

**Jeanerette silt loam, 0 to 1 percent slopes (JeA).**— This is a deep, imperfectly drained soil on the loessal terrace in the northeastern part of the parish. As much as 15 percent of this mapping unit may consist of inclusions of Jeanerette silty clay loam and Patoutville silt loam.

Profile in a moist, cultivated site in sec. 73, T. 7 S., R. 3 E., at Church Point:

- A<sub>1p</sub> 0 to 5 inches, dark-gray (10YR 4/1) silt loam; gray (10YR 5/1) when dry; moderate, very fine, granular structure; friable when moist, slightly hard when dry, slightly plastic when wet; many roots; many pores; medium acid; abrupt, smooth boundary; layer is 4 to 5 inches thick.
- A<sub>12</sub> 5 to 12 inches, very dark gray (10YR 3/1), light silty clay loam; moderate, medium, prismatic structure and moderate, fine, granular structure; firm when moist, slightly hard when dry, plastic when wet; many black and brown concretions; a few small lime concretions; slightly acid; clear, irregular boundary; layer is 4 to 7 inches thick.
- B<sub>2</sub> 12 to 16 inches, dark grayish-brown (2.5Y 4/2) silty clay loam; few, fine, faint, light olive-brown (2.5Y 5/6) mottles; strong, medium and fine, prismatic structure; peds coated with dark-gray (10YR 4/1) clay films; firm when moist, slightly hard when dry, very plastic when wet; many small lime concretions; a few black concretions; a few tongues of dark-gray (10YR 4/1) silty clay; moderately alkaline; gradual, irregular boundary; layer is 4 to 10 inches thick.
- B<sub>3ca</sub> 16 to 28 inches, light olive-brown (2.5Y 5/4) and grayish-brown (2.5Y 5/2), mottled silty clay loam; strong, fine, prismatic structure; peds coated with gray (10YR 5/1) clay films; firm when moist, slightly hard when dry, very plastic when wet; many large lime concretions and black concretions; many tongues of dark-gray (10YR 4/1) silty clay; moderately alkaline; gradual, irregular boundary; layer is 8 to 18 inches thick.
- B<sub>3</sub> 28 to 50 inches, light olive-brown (2.5Y 5/6) and grayish-brown (2.5Y 5/2), mottled, heavy silty clay loam; moderate, medium, prismatic structure; peds coated with gray (10YR 5/1) clay films; firm when moist, slightly hard when dry, very plastic when wet; many black concretions; few brown concretions; mildly alkaline; layer is several feet thick.

The color of the A<sub>1p</sub> horizon ranges from very dark grayish brown to dark gray and the reaction, from strongly acid to slightly acid. In some places this horizon is underlain by a compact, platy layer, 3 to 6 inches thick. The 5- to 12-inch layer is uniformly very dark gray, but the texture ranges from silt loam to silty clay loam.

This soil, which occurs at intermediate elevations, receives some runoff from soils occupying slightly higher positions. Slopes are convex; the dominant gradient is about one-third percent.

This is one of the most fertile soils in Acadia Parish. Its organic-matter content is high. Surface runoff is slow. Permeability is moderately slow, and the rate of infiltration is moderately slow. The moisture-supplying capacity is high. The root zone is deep, and tilth is excellent.

This soil is suited to many crops, and crops respond to good management. Most of the acreage is used for cotton, corn, and sweetpotatoes. Rice is also grown.

Because of its excellent tilth, high natural fertility, deep root zone, and high moisture-supplying capacity, this soil is well suited to intensive use. Drainage of wet, uneven spots is the major management requirement. The secondary need is to prevent or correct compaction. (Capability unit IIw-4)

**Jeanerette silty clay loam, 0 to 1 percent slopes (JnA).**—This deep, imperfectly drained, "black-land" soil occurs in the northeastern part of the parish, in depressions on the loessal terrace. As much as 15 percent of this mapping unit may consist of inclusions of Jeanerette silt loam and Iberia silty clay.

Profile in a moist, cultivated site in the NE $\frac{1}{4}$  sec. 30, T. 8 S., R. 3 E., 1 mile south of Higginbotham:

- A<sub>p1</sub> 0 to 3 inches, very dark gray (10YR 3/1) silty clay loam; gray (10YR 5/1) when dry; moderate, fine, granular structure; friable when moist, slightly hard when dry, plastic when wet; many roots; many pores; medium acid; abrupt, smooth boundary; layer is 3 to 6 inches thick.
- A<sub>p2</sub> 3 to 7 inches, very dark gray (10YR 3/1) silty clay loam; weak, coarse, prismatic structure to massive; firm when moist, hard when dry, plastic when wet; medium acid; abrupt, smooth boundary; layer is 3 to 4 inches thick.
- B<sub>1</sub> 7 to 15 inches, very dark gray (10YR 3/1), light silty clay; moderate, fine and medium, prismatic structure; firm when moist, slightly hard when dry, very plastic when wet; slightly acid; gradual, irregular boundary; layer is 6 to 10 inches thick.
- B<sub>2g</sub> 15 to 34 inches, grayish-brown (2.5Y 5/2), light silty clay; many, fine, faint, light olive-brown (2.5Y 5/4) mottles; strong, fine and medium, prismatic structure; peds coated with very dark gray (N 3/0) clay films; firm when moist, slightly hard when dry, very plastic when wet; many black concretions; many tongues of very dark gray (10YR 3/1) silty clay; neutral; gradual, irregular boundary; layer is 8 to 19 inches thick.
- C<sub>1cag</sub> 34 to 50 inches, gray (5Y 5/1), light silty clay; few, fine, distinct, light olive-brown (2.5Y 5/6) mottles; weak, fine, prismatic structure; friable when moist, slightly hard when dry, very plastic when wet; few brown concretions; many lime concretions; tongues of dark-gray (10YR 4/1) silty clay; moderately alkaline; gradual, irregular boundary; layer is 10 to 18 inches thick.
- C<sub>2g</sub> 50 to 90 inches, light olive-gray (5Y 6/2), heavy silty clay; common, fine, prominent, yellowish-brown (10YR 5/8) mottles; very plastic when wet; many black concretions; many tongues of very dark gray (10YR 3/1) silty clay; moderately alkaline; free water at 80 inches.
- C<sub>3cag</sub> 90 to 100 inches, light olive-gray (5Y 6/2), heavy silty clay; common, fine, prominent, yellowish-brown (10YR 5/8) mottles; very plastic when wet; many black concretions; many lime concretions; many tongues of very dark gray (10YR 3/1) silty clay; moderately alkaline; layer is several feet thick.

The texture of the A<sub>p1</sub> layer ranges from silt loam to silty clay loam; the reaction ranges from strongly acid to medium acid. Acidity decreases with depth; the B<sub>1</sub> layer is slightly acid to neutral, and the B<sub>2g</sub> layer, neutral to moderately alkaline.

This soil occurs at low elevations, and it receives surface runoff from soils in higher positions. Slopes are concave; the dominant gradient is about one-third percent.

This is one of the most fertile soils in Acadia Parish. It is high in organic-matter content. Surface runoff is very slow. Permeability is very slow, but the rate of infiltration is moderately slow. The moisture-supplying capacity is high. The root zone is deep, and tilth is good.

This soil is suited to many crops. About four-fifths of the acreage is used for cultivated crops, principally cotton, corn, and rice. Sweetpotatoes are also grown. A smaller acreage is in pasture, and a much smaller acreage is wooded. All crops respond to good management.

This soil is well suited to intensive use. Drainage is the major requirement. Preventing or correcting compaction is the secondary management need. (Capability unit IIw-4)

## Midland Series

The Midland series consists of deep, poorly drained soils formed on Pleistocene terraces. The parent material was old, general alluvium deposited by the Red and Mississippi Rivers. The original vegetation consisted of tall prairie grasses and sedges.

The surface soil is gray to dark gray and strongly acid. The subsoil is strong-brown to light olive-brown, heavy silty clay mottled with gray. It is very strongly acid to mildly alkaline.

Soils of the Midland series occur at low elevations in all parts of Acadia Parish, except the northeastern. They are associated with the Crowley, Acadia, and Wrightsville soils. They are less acid than the Wrightsville soils. They differ from the Crowley and Acadia soils in that they occupy lower positions, are poorly drained, and have gray rather than red mottles in the subsoil.

The Midland soils are suited to many uses. More than three-fourths of the acreage in Acadia Parish is used for cultivated crops and rotation pasture. About 5 percent is in permanent pasture.

**Midland silt loam, 0 to 1 percent slopes (MaA).**—This deep, poorly drained soil occurs in depressions on the Coastal Prairie. As much as 15 percent of the area may consist of inclusions of Crowley soils; Midland silt loam, thick surface; or Midland silty clay loam.

Profile in a moist, cultivated site in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 8, T. 8 S., R. 1 E., 1.2 miles south of Mowata:

- A<sub>p1</sub> 0 to 3 inches, gray (10YR 5/1) silt loam; light gray (10YR 7/1) when dry; dark reddish brown (5YR 3/4) in root channels; weak, very fine, granular structure to massive; friable when moist, very hard when dry, slightly plastic when wet; many pinholes; strongly acid; abrupt, smooth boundary; layer is 3 to 4 inches thick.
- A<sub>p2</sub> 3 to 6 inches, gray (10YR 5/1) silt loam; dark reddish brown (5YR 3/4) between peds and in root channels; moderate, medium and thin, platy structure; firm when moist, very hard when dry, slightly plastic when wet; strongly acid; abrupt, smooth boundary; layer is 3 to 4 inches thick.
- A<sub>2g</sub> 6 to 18 inches, gray (10YR 6/1) silt loam; many, medium, faint, light brownish-gray (10YR 6/2) mottles; dark yellowish brown (10YR 3/4) in root channels; massive; firm when moist, very hard when dry, slightly

- plastic when wet; few pinholes; neutral; clear, irregular boundary; layer is 6 to 16 inches thick.
- B<sub>2g</sub>** 18 to 30 inches, strong-brown (7.5YR 5/6), heavy silty clay; many, fine, distinct, gray (10YR 5/1, 6/1) mottles; moderate, medium, prismatic structure and moderate, medium, angular blocky structure; peds coated with thin, gray (5Y 5/1) clay films; firm when moist, very hard when dry, very plastic when wet; tongues of gray (5Y 5/1) silt loam; pinholes; medium acid; clear, irregular boundary; layer is 10 to 18 inches thick.
- B<sub>3g</sub>** 30 to 42 inches, gray (5Y 5/1) silty clay; common, medium, distinct, light olive-brown (2.5Y 5/6) and olive-gray (5Y 5/2) mottles; moderate, medium, prismatic structure and moderate, medium, angular blocky structure; peds coated with thin, gray (5Y 5/1) clay films; firm when moist, very hard when dry, very plastic when wet; tongues of gray (5Y 5/1) silty clay loam; many black concretions; mildly alkaline; layer is several feet thick.

The reaction of the A<sub>p1</sub> layer ranges from medium acid to moderately alkaline. The reaction of the B<sub>3g</sub> layer ranges from very strongly acid to moderately alkaline.

This soil occurs at low elevations, and it receives runoff from soils that occupy higher positions. Slopes are concave; the dominant gradient is less than one-third percent.

Natural fertility is moderate, and the organic-matter content is generally low. Surface runoff and the rate of infiltration are very slow. Permeability is very slow, and the moisture-supplying capacity is low.

This soil is suited to moderately intensive use. More than three-fourths of the acreage is used for cultivated crops, principally rice and rotation pasture. Drainage is the chief management requirement. Improving tilth, improving the moisture-supplying capacity, increasing fertility, and preventing or correcting compaction are secondary needs. (Capability unit IIIw-1)

**Midland silt loam, thick surface, 0 to 1 percent slopes (MbA).**—This deep, poorly drained soil occurs in old stream channels, locally known as coulees, on the Coastal Prairie. As much as 15 percent of the area may consist of inclusions of Midland silt loam or Midland silty clay loam.

Profile in a moist, cultivated site in the NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 2, T. 8 S., R. 1 W., 2 miles west of Mowata:

- A<sub>p1</sub>** 0 to 3 inches, dark-gray (10YR 4/1) silt loam; gray (10YR 6/1) when dry; weak, very fine, granular structure to massive; firm when moist, very hard when dry, slightly plastic when wet; strongly acid; abrupt, smooth boundary; layer is 2 to 4 inches thick.
- A<sub>p2</sub>** 3 to 6 inches, gray (10YR 5/1) silt loam; dark yellowish brown (10YR 4/4) in root channels and between peds; weak, very thick, platy structure; firm when moist, very hard when dry, slightly plastic when wet; medium acid; abrupt, smooth boundary; layer is 3 to 4 inches thick.
- A<sub>2g</sub>** 6 to 24 inches, gray (10YR 5/1) silt loam; many, fine, faint, light-gray (10YR 7/1) mottles; massive; firm when moist, very hard when dry, slightly plastic when wet; pinholes; strongly acid; gradual, irregular boundary; layer is 15 to 20 inches thick.
- B<sub>2g</sub>** 24 to 43 inches, very dark brown (10YR 2/2), yellowish-brown (10YR 5/8), and gray (10YR 5/1), mottled, heavy silty clay; strong, medium, prismatic structure; peds coated with very dark brown (10YR 2/2) clay films; firm when moist, very hard when dry, very plastic when wet; tongues of silty clay loam; pinholes; brown and black concretions; very strongly acid; gradual, irregular boundary; layer is 20 to 30 inches thick.
- C<sub>1g</sub>** 43 to 90 inches, light brownish-gray (2.5Y 6/2), stratified silt and clay; few, fine, prominent, dark yellowish-

brown (10YR 4/4) mottles; few black and brown concretions; very strongly acid; layer is several feet thick.

The texture of the A<sub>p1</sub> layer ranges from silt loam to very fine sandy loam, and the color, from gray to dark grayish brown. The reaction of the B<sub>2g</sub> layer ranges from very strongly acid to neutral. The mottles in this layer are yellowish red to brownish yellow.

This soil occurs at low elevations, and it receives surface runoff from soils that occupy higher positions. Slopes are concave; the dominant gradient is less than one-third percent.

Natural fertility is moderate. Ordinarily, the content of organic matter is low. Surface runoff is very slow, and the rate of infiltration is very slow. Permeability is very slow, and the moisture-supplying capacity is low.

This soil is suited to moderately intensive use. Most of the acreage is used for cultivated crops, principally rice and rotation pasture. Drainage is the chief management requirement. Secondary needs are to improve tilth, to improve the moisture-supplying capacity, to increase fertility, and to prevent or correct compaction. (Capability unit IIIw-1)

**Midland silty clay loam, 0 to 1 percent slopes (McA).**—This deep, poorly drained, heavy soil occurs in depressions on the Coastal Prairie. As much as 15 percent of the area may consist of inclusions of Crowley or Midland silt loams.

Profile in a moist, cultivated site in the NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 31, T. 10 S., R. 1 W., 5 miles southwest of Crowley:

- A<sub>p1</sub>** 0 to 3 inches, dark-gray (10YR 4/1) silty clay loam; gray (10YR 6/1) when dry; massive to weak, fine, granular structure; root channels and cracks stained brown (10YR 5/3); very hard when dry, firm when moist, very plastic when wet; few roots; very strongly acid; abrupt, smooth boundary; layer is 2 to 3 inches thick.
- A<sub>p2</sub>** 3 to 6 inches, dark-gray (10YR 4/1) silty clay loam; strong, medium and thick, platy structure; peds and root channels stained dark yellowish brown (10YR 3/4); very hard when dry, very firm when moist, plastic when wet; few roots; strongly acid; abrupt, clear boundary; layer is 3 to 4 inches thick.
- B<sub>2g</sub>** 6 to 13 inches, gray (5Y 5/1) and light olive-brown (2.5Y 5/6), mottled, heavy silty clay; strong, medium, angular and subangular blocky structure; peds partially coated with thin, dark-gray (10YR 4/1) clay films; hard when dry, firm when moist, very plastic when wet; few dark-brown and black concretions; few tongues of dark-gray (10YR 4/1) silty clay; mildly alkaline; diffuse, irregular boundary; layer is 7 to 18 inches thick.
- B<sub>3g</sub>** 13 to 18 inches, gray (5Y 5/1) and light olive-brown (2.5Y 5/4), mottled, heavy silty clay; moderate, fine, angular blocky structure; peds partially coated with thin, gray (10YR 5/1) clay films; hard when dry, firm when moist, very plastic when wet; few black concretions; few tongues of dark-gray (10YR 4/1) silty clay; moderately alkaline; diffuse, irregular boundary; layer is 5 to 18 inches thick.
- C<sub>g</sub>** 18 to 40 inches, gray (5Y 5/1) and light olive-brown (2.5Y 5/4), mottled, heavy silty clay; moderate, fine, angular blocky structure; peds partially coated with thin, gray (5Y 5/1) clay films; hard when dry, firm when moist, very plastic when wet; few tongues of dark-gray (10YR 4/1) silty clay; few lime concretions; few black concretions; moderately alkaline; layer is several feet thick.

The texture of the surface soil ranges from light silty clay loam to silty clay. The reaction of the A<sub>p1</sub> and A<sub>p2</sub> layers ranges from very strongly acid to medium

acid, that of the B<sub>2g</sub> layer, from strongly acid to moderately alkaline. The B<sub>3g</sub> and C<sub>g</sub> layers are slightly acid to moderately alkaline. In some places, there are pockets of lime concretions. The mottles in the B<sub>2g</sub> layer are light olive brown or yellowish red.

This soil occurs at low elevations, and it receives runoff from the soils at higher elevations. Slopes are concave; the dominant gradient is less than one-third percent.

Fertility is moderate, and the content of organic matter is moderate. Surface runoff is very slow, and the rate of infiltration is very slow. Permeability is very slow, and the moisture-supplying capacity is moderate.

This soil is suited to moderately intensive use. About four-fifths of the acreage is used for cultivated crops, principally rice and rotation pasture. Drainage is the chief management requirement. Secondary needs are to improve tilth and to increase fertility. (Capability unit IIIw-3)

**Midland-Crowley complex, 0 to 1 percent slopes (MxA).**—About 55 percent of this complex is made up of Midland silt loam and Midland silty clay loam. The remainder consists of Crowley silt loam. Representative profiles of these soils are described in one of the mapping units in each series.

This complex occurs at intermediate to locally high elevations. The dominant slope is less than one-third percent.

Fertility is moderate, and the organic-matter content is moderate. Surface runoff is slow, and the rate of infiltration is very slow. Permeability is very slow, and the moisture-supplying capacity is low. The root zone is deep, but tilth is poor.

These soils are well suited to intensive use. More than three-fourths of the acreage is used for cultivated crops, principally rice and rotation pasture. Crops respond to good management. Drainage is the chief management requirement. Secondary needs are to improve tilth and to increase fertility. (Capability unit IIIw-3)

## Olivier Series

The Olivier series consists of deep, imperfectly drained, fragipan soils formed on Pleistocene terraces. The parent material was old, loesslike, general alluvium, most of which was deposited by the Mississippi River. The native vegetation consisted of tall prairie grasses and some forest.

The surface soil is dark brown, strongly acid, and medium textured. The subsoil is dark yellowish-brown silty clay loam mottled with yellowish red. It is very strongly acid.

Soils of the Olivier series occur in the northeastern part of the parish. They are associated with the Patoutville, Richland, and Carroll soils. They are coarser textured than the Patoutville soils. There is less red mottling in the subsoil of the Olivier soils than in that of the Patoutville soils. Olivier soils are lighter colored than the Richland soils and not so well drained. They occupy higher positions and are better drained than the Carroll soils. The subsoil of the Olivier soils has more yellow and brown colors than that of the Carroll soils.

The Olivier soils are suited to many uses. About four-fifths of their acreage in Acadia Parish is used for culti-

vated crops, chiefly row crops. About one-fifth of the acreage is wooded.

**Olivier silt loam, 1 to 3 percent slopes, eroded (OvB2).**—This is a deep, imperfectly drained soil on the loessal terrace in the northeastern part of the parish. It occurs at intermediate and high elevations. The dominant slope gradient is about 1 percent, but, in about 30 percent of the area delineated, the gradient is less than 1 percent. As much as 15 percent of the mapping unit may be inclusions of Patoutville soils.

Profile in a moist, cultivated site in the SE $\frac{1}{4}$  sec. 76, T. 7 S., R. 3 E., 1 mile northeast of Church Point:

- A<sub>p</sub> 0 to 5 inches, dark-brown (10YR 4/3) silt loam; pale brown (10YR 6/3) when dry; weak, very fine, granular structure; friable when moist, slightly hard when dry, nonplastic when wet; many roots; strongly acid; abrupt, smooth boundary; layer is 2 to 5 inches thick.
- B<sub>2</sub> 5 to 15 inches, dark yellowish-brown (10YR 4/4) silty clay loam; many, fine, prominent, yellowish-red (5YR 4/8) mottles; peds coated with thin, grayish-brown (10YR 5/2) silt films; moderate, medium, prismatic structure and moderate, fine, granular structure; friable when moist, slightly hard when dry, plastic when wet; very strongly acid; gradual, wavy boundary; layer is 5 to 17 inches thick.
- B<sub>3m1</sub> 15 to 32 inches, brown (10YR 5/3) silty clay loam; manps fine, faint, yellowish-brown (10YR 5/8) mottles; py, coated with thin, brown (10YR 5/3) silt films; strong-coarse, prismatic structure and moderate, fine, granular structure; brittle when moist, slightly hard when dry, plastic when wet; many black concretions; many pinholes; medium acid; gradual, irregular boundary; layer is 7 to 42 inches thick.
- B<sub>3m2</sub> 32 to 55 inches, grayish-brown (2.5Y 5/2) silty clay loam; many, fine, prominent, yellowish-brown (10YR 5/8) mottles; weak, medium, prismatic structure and moderate, medium, granular structure; brittle when moist, slightly hard when dry, plastic when wet; many black concretions; many pinholes; medium acid; gradual, irregular boundary; layer is 0 to 52 inches thick.
- C<sub>1</sub> 55 to 90 inches, brown (10YR 5/3), yellowish-brown (10YR 5/8), and grayish-brown (2.5Y 5/2), mottled, stratified silt and clay; plastic when wet; medium acid; layer is several feet thick.

In some places, enough of the surface soil has been removed by erosion to expose the subsoil. There are numerous rills and a few shallow gullies.

Natural fertility is moderate, and the organic-matter content is low. Surface runoff is rather rapid. Permeability is slow, and the moisture-supplying capacity is low.

About four-fifths of the acreage is used for cultivated crops. Sweetpotatoes, cotton, corn, and hay are the principal crops.

This soil is suited to moderately intensive use. Controlling erosion is the dominant management requirement. Improving the low moisture-supplying capacity, increasing fertility, and preventing or correcting compaction are secondary needs. (Capability unit IIw-5)

## Patoutville Series

The Patoutville series consists of deep, imperfectly drained, fragipan soils on Pleistocene terraces. The parent material was loesslike, old, general alluvium deposited by the Red and Mississippi Rivers. The original vegetation consisted of prairie grasses and forest.

The surface soil is dark grayish brown, strongly acid, and medium textured. The upper part of the subsoil is medium acid, brown silty clay mottled with red and yellowish brown. The lower part of the subsoil is gray, mottled with yellowish-brown, slightly acid silty clay loam.

Soils in the Patoutville series occur in the northeastern part of Acadia Parish and are associated with the Olivier, Richland, Crowley, Jeanerette, and Carroll soils. They are finer textured than the Richland and Olivier soils and have more red mottles in the upper part of the subsoil. They are coarser textured than the Crowley soils and more acid in the lower part of the subsoil. They are more acid than the Jeanerette soils, and the upper part of the subsoil is mottled brown rather than dark gray. They occupy higher positions, are better drained, and have more brown and yellow colors than the Carroll soils.

More than three-fourths of the acreage of the Patoutville soils in Acadia Parish is used for cultivated crops; about one-fourth is wooded.

**Patoutville silt loam, 0 to 1 percent slopes (PaA).**—This deep, imperfectly drained soil occurs on nearly level ridges in the northeastern part of the parish. As much as 15 percent of the area may be inclusions of soils of the Olivier series; another 15 percent may consist of Carroll, Jeanerette, and Crowley soils.

Profile in a moist, cultivated site in the NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 14, T. 9 S., R. 2 E., 2 miles northeast of Rayne:

- A<sub>p</sub> 0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam; light gray (10YR 7/2) when dry; weak, very fine, granular structure; friable when moist, slightly hard when dry, nonplastic when wet; many hard, black concretions; strongly acid; abrupt, smooth boundary; layer is 3 to 4 inches thick.
- A<sub>2</sub> 4 to 8 inches, light brownish-gray (10YR 6/2) silt loam; many, fine, faint, very dark grayish-brown (10YR 3/2) mottles; weak, very fine, granular structure to massive; friable when moist, hard when dry, nonplastic when wet; many brown concretions; many pinholes; strongly acid; abrupt, wavy boundary; layer is 4 to 6 inches thick.
- B<sub>2</sub> 8 to 16 inches, brown (10YR 5/3), light silty clay; many, fine, prominent, red (2.5YR 4/8) and yellowish-brown (10YR 5/8) mottles; moderate, medium, prismatic structure; peds partially coated with thin, dark-gray (10YR 4/1) clay films; very firm when moist, very plastic when wet, hard when dry; few brown concretions; medium acid; gradual, irregular boundary; layer is 8 to 17 inches thick.
- B<sub>3m1</sub> 16 to 36 inches, brown (10YR 5/3), dark yellowish-brown (10YR 4/4), and light brownish-gray (10YR 6/2), mottled silty clay loam; weak, medium, prismatic structure; firm when moist, plastic when wet, slightly hard when dry; many black and brown concretions; tongues of grayish-brown (10YR 5/2) silt loam; slightly acid; gradual, irregular boundary; layer is 12 to 24 inches thick.
- B<sub>3m2</sub> 36 to 46 inches, gray (10YR 5/1), light silty clay loam; many, medium, faint, yellowish-brown (10YR 5/8) mottles; weak, medium, prismatic structure; peds coated with gray (10YR 6/1) clay films; firm when moist, plastic when wet, slightly hard when dry; black and brown concretions; tongues of gray (10YR 6/1) silty clay; slightly acid; layer is several feet thick.

In some places, the A<sub>p</sub> layer is underlain by a compact, platy, silt loam layer, 3 to 6 inches thick. The color of the A<sub>2</sub> layer ranges from light gray to yellowish brown. The B<sub>2</sub> layer is light silty clay to heavy silty clay, and the B<sub>3m1</sub> layer is silt loam to heavy silty

clay loam. The reaction of all layers ranges from strongly acid to slightly acid. At a depth of 43 to 72 inches, the soil is underlain by stratified silt and clay.

This soil occurs at high elevations in the northeastern part of the parish. Slopes are convex; the dominant gradient is one-half percent. On the stronger slopes, the soil is slightly eroded, but in only a few places is it eroded enough to expose the subsoil. These more strongly sloping areas are better drained, the A<sub>2</sub> layer is brownish, and the B<sub>2</sub> layer is reddish.

Natural fertility is moderate, and the organic-matter content is moderate. Surface runoff and the rate of infiltration are slow. Permeability is slow, and the moisture-supplying capacity is moderate. The root zone is deep, and tilth is good.

This soil is suited to many crops, and crops respond to good management. Most of the acreage is used for cotton, sweetpotatoes, corn, rice, and hay crops.

This soil is well suited to intensive use. Drainage of wet, uneven areas is the chief management requirement. Increasing fertility and preventing or correcting compaction are secondary requirements. (Capability unit IIw-3)

**Patoutville silt loam, 1 to 3 percent slopes, eroded (PaB2).**—The plow layer of this soil is dark grayish-brown to dark-brown silt loam. Slopes are convex; the dominant gradient is 1 percent. Drainage is a little better than in Patoutville silt loam, 0 to 1 percent slopes. The surface soil is browner, the subsoil is redder, and the upper subsoil (B<sub>2</sub> layer) is generally thinner than those of the nearly level Patoutville silt loam. In some places, enough of the surface soil has been removed by erosion to expose the light silty clay upper subsoil. There are numerous rills and a few shallow gullies. As much as 5 percent of this mapping unit may be inclusions of Olivier silt loam.

This soil is moderately fertile. It is low in organic-matter content. Surface runoff is moderate. Permeability is slow, and the moisture-supplying capacity is low.

Most of the acreage has been cropped. Cotton, corn, sweetpotatoes, and hay are the principal crops. Rice is grown on the more nearly level areas.

This soil is suited to moderately intensive use. Controlling erosion that results from the slow permeability and the notable slope is the chief management requirement. Secondary needs are to improve the moisture-supplying capacity, to increase fertility, and to prevent or correct compaction. (Capability unit IIw-5)

## Richland Series

The Richland series consists of deep, moderately well drained, fragipan soils on Pleistocene terraces. The parent material was loesslike, old, general alluvium deposited mainly by the Mississippi River. The native vegetation consisted of prairie grasses and some forest.

The surface soil is dark grayish brown, medium textured, and strongly acid. The subsoil is very strongly acid, mottled, grayish-brown, yellowish-red, and dark-brown silty clay loam.

Soils in this series occur at high elevations in the northeastern part of the parish. They are associated with the Olivier and Patoutville soils. They are coarser textured than the Patoutville soils and have fewer red

mottles in the upper part of the subsoil. They are better drained and darker colored than the Olivier soils.

The Richland soils are suited to many uses, and crops grown on them respond to good management. More than four-fifths of the acreage in Acadia Parish is used for cultivated crops.

**Richland silt loam, 1 to 3 percent slopes, eroded (RcB2).**—This deep, moderately well drained soil occurs on the loessal terrace in the northeastern part of the parish. As much as 15 percent of the area may be inclusions of Olivier and Patoutville soils.

Profile in a moist, cultivated site in the SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 20, T. 8 S., R. 3 E., 4 miles southeast of Church Point:

- A<sub>p1</sub> 0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam; light brownish gray (10YR 6/2) when dry; moderate, fine, granular structure; friable when moist, soft when dry, nonplastic when wet; many roots; many pores; strongly acid; abrupt, smooth boundary; layer is 3 to 4 inches thick.
- A<sub>p2</sub> 4 to 12 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium to very thick, platy structure and moderate, fine, granular structure; firm when moist, slightly hard when dry, nonplastic when wet; many roots; some pores; strongly acid; abrupt, smooth boundary; layer is 0 to 8 inches thick.
- A<sub>3</sub> 12 to 16 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, medium, prismatic structure and moderate, fine, granular structure; friable when moist, soft when dry, slightly plastic when wet; few roots; many pores; very strongly acid; clear, wavy boundary; layer is 0 to 9 inches thick.
- B<sub>2</sub> 16 to 26 inches, grayish-brown (10YR 5/2), light silty clay loam; many, medium, faint, dark-brown (10YR 3/3) and few, fine, yellowish-red (5YR 4/8) mottles; weak, medium, prismatic structure and moderate, fine, granular structure; peds coated with grayish-brown (10YR 5/2) silt; firm when moist, slightly hard when dry, slightly plastic when wet; few, soft, black and yellowish-red concretions; very strongly acid; clear, irregular boundary; layer is 10 to 15 inches thick.
- B<sub>3m</sub> 26 to 40 inches, light brownish-gray (10YR 6/2), light silty clay loam; common, medium, faint, dark-brown (10YR 3/3) and few, fine, faint, yellowish-brown (10YR 5/8) mottles; weak, very coarse, prismatic structure; polygonal cracks contain tongues of light brownish-gray (10YR 6/2) silty clay; brittle when moist, slightly hard when dry, slightly plastic when wet; many pinholes; strongly acid; layer is several feet thick.

The color of the A<sub>p1</sub> layer ranges from dark grayish-brown to brown. In patches, much of the surface soil has been removed by erosion, and the subsoil is exposed. There are numerous rills and a few shallow gullies. The dominant slope is about 1 percent. In 30 percent of the area, however, the slope is less than 1 percent, and the soil is not eroded.

This soil is moderately fertile. It is low in organic-matter content. Surface runoff and the rate of infiltration are moderate. Permeability is moderately slow, and the moisture-supplying capacity is moderate.

Most of the acreage has been used for cultivated crops. Sweetpotatoes, cotton, corn, and hay are the principal crops.

This soil is suited to moderately intensive use. Controlling erosion is the chief management requirement. Increasing fertility and preventing or correcting compaction are secondary needs. (Capability unit IIe-1)

## Sloping Land, Loamy and Clayey Sediments

This land type is a complex of various soils, chiefly in the Acadia and Crowley series, and outcrops of the material from which these soils were formed. The parent material was old, general alluvium deposited by the Mississippi and Red Rivers. The native vegetation consisted of pine-hardwood forest. The slopes are the steepest in Acadia Parish.

**Sloping land, loamy and clayey sediments (Sd).**—This land type occurs at intermediate elevations along natural drains and major streams. Slopes are short. They range from 3 to 8 percent, but the dominant gradient is about 3 percent. There is much variation in the color, texture, arrangement, and thickness of the soil layers; in the reaction; and in the pattern in which the different profiles occur. A profile representative of most of the areas is described.

Profile in a moist, wooded site in the SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 16, T. 9 S., R. 2 W., 3 miles northwest of Egan:

- A<sub>1</sub> 0 to 2 inches, grayish-brown (10YR 5/2) silt loam; weak, very fine, granular structure; friable when moist, hard when dry, nonplastic when wet; many roots; slightly acid; abrupt, smooth boundary; layer is 0 to 4 inches thick.
- A<sub>2</sub> 2 to 7 inches, pale-brown (10YR 6/3) silt loam; weak, fine, granular structure to massive; friable when moist, hard when dry, nonplastic when wet; few roots; very strongly acid; clear, wavy boundary; layer is 0 to 6 inches thick.
- A<sub>3</sub> 7 to 10 inches, yellowish-brown (10YR 5/6) silt loam; common, medium, faint, pale-brown (10YR 6/3) mottles; weak, very fine, granular structure to massive; friable when moist, hard when dry plastic when wet; very strongly acid; clear, wavy boundary; layer is 0 to 6 inches thick.
- B<sub>1</sub> 10 to 15 inches, yellowish-brown (10YR 5/6) silty clay; common, medium, distinct, yellowish-red (5YR 5/8) mottles; moderate, medium, subangular blocky structure; friable when moist, slightly hard when dry, very plastic when wet; very strongly acid; clear, wavy boundary; layer is 0 to 6 inches thick.
- B<sub>2</sub> 15 to 22 inches, dark-red (2.5YR 3/6), heavy silty clay; strong, medium, subangular blocky structure; peds coated with light brownish-gray (10YR 6/2) silt loam; friable when moist, slightly hard when dry, very plastic when wet; very strongly acid; gradual, wavy boundary; layer is 4 to 14 inches thick.
- B<sub>3</sub> 22 to 32 inches, red (10R 4/8) and light brownish-gray (10YR 6/2) mottled clay; strong, very fine, angular blocky structure; firm when moist, very hard when dry, very plastic when wet; very strongly acid; diffuse, wavy boundary; layer is 9 to 22 inches thick.
- C<sub>1</sub> 32 to 60 inches, yellowish-red (5YR 5/6) silty clay; few, fine, prominent, light brownish-gray (10YR 6/2) mottles; weak, coarse, angular blocky structure; firm when moist, very hard when dry, very plastic when wet; very strongly acid; diffuse, wavy boundary; layer is 18 to 28 inches thick.
- C<sub>2</sub> 60 to 82 inches, light-brown (7.5YR 6/4), stratified clay and very fine sandy loam; firm when moist, very hard when dry, plastic when wet; strongly acid; diffuse, wavy boundary; layer is 20 to 32 inches thick.
- D 82 to 120 inches, brown (7.5YR 5/4) loamy fine sand; single grain; loose when moist, soft when dry, nonplastic when wet; slightly acid; layer is several feet thick.

In some places, the clay subsoil is exposed; in others, loamy fine sand crops out. Lime concretions occur in some areas.

Natural fertility is low, and the organic-matter content is low. Surface runoff is more rapid than that of any other soil in the parish. The rate of infiltration is very

slow, and permeability is very slow. The moisture-supplying capacity is low.

About two-thirds of the acreage is wooded, and about one-fifth is used for permanent pasture. Only a very small acreage is used for cultivated crops. The cleared areas are adjacent to, or intermingled with, larger areas of Crowley and Acadia soils and generally are on the gentler slopes.

This land type is an important source of material used in construction. Otherwise, it is suited to only very limited use, principally permanent pasture, meadow, or woodland. Controlling erosion is the chief management requirement. (Capability unit IVE-1)

## Wet Alluvial Land

This land type occupies the flood plains of active streams. The parent material was recent alluvium deposited by these local streams. The vegetation consists of hardwood forest.

**Wet alluvial land (Wc).**—There is much variation in the texture, color, and sequence of the soil layers; in drainage; in reaction; and in the pattern of soils. A profile representative of most of the areas is described.

Profile in a moist, wooded site in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 4, T. 10 S., R. 1 W., 1 mile north of Estherwood:

- A<sub>11</sub> 0 to 2 inches, dark-gray (10YR 4/1) silty clay loam; gray (10YR 6/1) when dry; moderate, thick to very thick, platy structure; gray (10YR 6/1) between peds; firm when moist, very hard when dry, plastic when wet; many roots; many pores; some decomposed plant residues; strongly acid; abrupt, smooth boundary; layer is 2 to 6 inches thick.
- A<sub>12</sub> 2 to 10 inches, dark-gray (10YR 4/1), heavy silty clay; moderate, coarse, angular blocky structure; firm when moist, very hard when dry, very plastic when wet; many roots; many pores; some decomposed plant residues; strongly acid; clear, wavy boundary; layer is 7 to 17 inches thick.
- A<sub>3</sub> 10 to 16 inches, gray (10YR 5/1) clay; few, fine, prominent, dark reddish-brown (5YR 3/4) mottles; strong, coarse, angular blocky structure; peds coated with thick, dark-gray (10YR 4/1) clay films; firm when moist, very hard when dry, very plastic when wet; few roots; many black root fossils; many pores; some raw organic matter; very strongly acid; gradual, wavy boundary; layer is 0 to 6 inches thick.
- C<sub>1g</sub> 16 to 32 inches, gray (10YR 6/1), heavy silty clay; many, medium, prominent, dark-brown (7.5YR 4/4) mottles; moderate, fine, prismatic structure and moderate, fine, angular blocky structure; peds coated with thin, gray (10YR 5/1) clay films; firm when moist, very hard when dry, very plastic when wet; few roots; few tongues of gray (10YR 5/1) clay; very strongly acid; gradual, wavy boundary; layer is 15 to 21 inches thick.
- C<sub>2g</sub> 32 to 50 inches, gray (10YR 6/1), heavy silty clay loam; common, medium, prominent, dark-brown (7.5YR 4/4) mottles; weak, fine, prismatic structure and weak, fine, angular blocky structure; firm when moist, very hard when dry, very plastic when wet; few roots; few pockets of gray silt; very strongly acid; layer is several feet thick.

The color of the surface layer ranges from dark gray to light gray, and the texture, from silt loam to heavy silty clay. The reaction ranges from medium acid to very strongly acid.

The water table is at the surface the greater part of the time. This land type is flooded frequently by local runoff or backwater from the streams, and it remains under water for long periods.

Almost the entire acreage is forested. Cypress, tupelo gum, and oak are the principal trees. A little over 600 acres has been cleared and used for pasture.

Wetness and frequent floods limit the use of this land type to forest or other permanent vegetation. Capability unit Vw-1)

## Wrightsville Series

The Wrightsville series consists of deep, poorly drained soils on Pleistocene terraces. The parent material was old, general alluvium deposited by the Mississippi and Red Rivers. The original vegetation was a mixed forest of pines and hardwoods.

The surface soil is very strongly acid and grayish brown. The subsoil is strongly acid, grayish-brown silty clay mottled with dark yellowish brown.

Soils of the Wrightsville series occur at low elevations, mainly in the western part of the parish. They are associated with the Acadia, Crowley, and Midland soils. They occupy lower positions, are less well drained, and have fewer red mottles in the subsoil than the Acadia and Crowley soils. They are more acid than, but otherwise very similar to, the Midland soils.

The Wrightsville soils are suited to many uses, but they require good management if cropped. About 44 percent of their total acreage in Acadia Parish has been cleared and used for cultivated crops and pasture. A little over half the acreage is forested.

**Wrightsville silt loam, 0 to 1 percent slopes (WvA).**—This deep, poorly drained soil occurs in depressions. As much as 15 percent of the area consists of inclusions of Acadia soils.

Profile in a moist, wooded site in the NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 9, T. 9 S., R. 1 E., 3 miles north of Crowley:

- A<sub>1</sub> 0 to 4 inches, grayish-brown (10YR 5/2) silt loam; light brownish-gray (10YR 6/2) when dry; many, fine, faint, light brownish-gray (10YR 6/2) mottles; weak, very fine, granular structure to massive; firm when moist, very hard when dry, slightly plastic when wet; many pores; very strongly acid; abrupt, irregular boundary; layer is 2 to 4 inches thick.
- A<sub>2g</sub> 4 to 20 inches, light brownish-gray (10YR 6/2) silt loam; many, medium, faint, dark yellowish-brown (10YR 4/4) mottles; massive; firm when moist, very hard when dry, slightly plastic when wet; few pinholes; very strongly acid; gradual, irregular boundary; layer is 16 to 18 inches thick.
- B<sub>2g</sub> 20 to 40 inches, grayish-brown (2.5Y 5/2), light silty clay; few, fine, prominent, dark yellowish-brown (10YR 4/4) mottles; strong, medium, prismatic structure and strong, medium, subangular blocky structure; firm when moist, very hard when dry, plastic when wet; few black concretions; strongly acid; gradual, irregular boundary; layer is 7 to 20 inches thick.
- C<sub>g</sub> 40 to 90 inches, olive-gray (5Y 5/2), light silty clay; many, medium, prominent, dark yellowish-brown (10YR 4/4) mottles; few black concretions; mildly alkaline; layer is several feet thick.

The reaction of the B<sub>2g</sub> layer ranges from very strongly acid to strongly acid. In some places, this layer contains a few, fine, red mottles. The C<sub>g</sub> layer is olive gray to gray, and the mottles in this layer are strong brown to dark yellowish brown. The reaction of this layer ranges from very strongly acid to mildly alkaline.

This soil occurs at low elevations and receives runoff from soils at higher elevations. Slopes are concave; the dominant gradient is less than one-third percent.

Natural fertility is low, and the content of organic matter is low. Surface runoff is very slow, and the rate of infiltration is very slow. Permeability is very slow, and the moisture-supplying capacity is low.

More than half the acreage of this mapping unit is still forested. Cleared areas are used mostly for rice and rotation pasture.

This soil is suited to moderately intensive use. Drainage is the major management requirement. Secondary needs are to improve the moisture-supplying capacity, to improve tilth, to increase fertility, and to prevent or correct compaction. (Capability unit IIIw-2)

## Use and Management of the Soils

In this section the principal problems of using the soils of Acadia Parish are outlined, and some general practices to correct these conditions, or to adapt to them, are described. The capability classification system, in which soils are grouped according to the characteristics that determine their uses and limitations, is explained. Each of the 14 capability units in the parish is described; its present use is given, and the principal management requirements for crops and pastures are outlined. Estimated crop yields under two levels of management are given for each soil.

Good management for those soils used as woodland is discussed. The development and maintenance of habitats for wildlife are described, by soil associations.

This section is intended to help the farmer, in a general way, to select the best use and management practices for the soils on his farm. Specific recommendations for fertilizers, crop varieties, and seeding mixtures for pastures are not given, since these change from time to time as prices vary and as new, or more complete, information is obtained. Interpretations of the various practices may be obtained from the local staff of the Soil Conservation Service and from the Extension Service. Up-to-date recommendations on crop varieties, seeding mixtures, and fertilizers may be obtained from the Louisiana Agricultural Experiment Station and the Extension Service.

## General Management Practices

In Acadia Parish, the principal management problems result from the inadequate drainage of most of the soils, their low moisture-supplying capacity (droughtiness), lack of fertility, poor tilth, and their tendency to become compacted under continuous cultivation. On the stronger slopes, there is a moderate erosion hazard. Flooding limits the use of the bottom lands.

The following general suggestions for correcting these conditions, or adapting to them, are applicable to most of the soils in the parish.

*Inadequate drainage.*—Most of the soils are imperfectly drained or poorly drained. There are two ways to deal with inadequate drainage. One is to provide artificial drainage; the other is to grow crops that will tolerate poor drainage. Drainage of most of the soils requires land smoothing (fig. 6). Drainage ditches and outlets are required on the poorly drained soils for surface drainage. Waterways are required on the imperfectly drained soils to dispose of runoff water.



Figure 6.—Leveling of ricefield, using a 30-foot land leveler.

*Low moisture-supplying capacity.*—Many soils in Acadia Parish have a low moisture-supplying capacity and are droughty. There are three ways to overcome this limitation. One is to increase the moisture-supplying capacity by adding organic residues to the soil to as great a depth as possible. This can be done by growing perennial grasses and legumes (fig. 7) or other plants that have deep and extensive root systems. A second way is to grow crops that are resistant to drought or that grow during the season when water is most plentiful.



Figure 7.—Field of La. S-1 whiteclover grown for seed. Field was leveled the previous summer, fertilized and limed according to soil tests, and seeded at the rate of 10 pounds per acre.



Figure 8.—Ricefield under irrigation.

The third way is to grow rice (fig. 8), which is flooded and consequently is less affected by droughtiness.

*Low fertility.*—Most soils in Acadia Parish require applications of complete-analysis fertilizers for the profitable production of crops. Lime is usually needed on the more acid soils to increase the availability of phosphorus.

*Poor tilth.*—Many of the soils in Acadia Parish are cloddy (fig. 9), are hard to plow, and tend to crust at the surface. These characteristics of poor tilth affect seed germination, plant survival, and moisture intake.

Regular additions of large amounts of organic matter help to improve and to preserve tilth. Organic matter can be added by plowing under crop residues and cover crops, applying barnyard manure, and growing perennial grasses and legumes in rotation with other crops. Protecting the soils from compaction by cattle and heavy machinery (fig. 10) helps to maintain tilth.



Figure 9.—Cloddy surface of newly plowed ricefield.

Water planting of rice helps to overcome the effects of poor tilth. Where it is difficult to prepare a good seedbed, these practices help to get a better crop stand.

*Compaction.*—A compacted layer, called a plowpan, has been formed just beneath the plowed layer in most of the cultivated silty soils in the parish. This plowpan has a platy or massive structure (fig. 11). Compaction usually results from plowing the soil to nearly the same depth each time it is plowed, from trampling by cattle, and from using heavy machinery.

A plowpan restricts the infiltration and movement of water and thus limits the moisture-supplying capacity



Figure 10.—Ruts in rice stubble made by combine used to harvest the grain.

of the soil. It also limits the depth to which roots can penetrate. In the fine-textured clayey soils, alternate shrinking and swelling crack the pan, and both water and roots can then enter the layer.

Deep plowing and chiseling will ordinarily break up a pan already formed. Plowing to varying depths and growing deep-rooted crops will ordinarily prevent the formation of a pan.

*Susceptibility to erosion.*—To prevent or control erosion on the sloping soils, it is necessary to protect the soil against raindrop splash, to reduce the amount of runoff, to provide protected outlets for runoff, and to improve the resistance of the soil to erosion. Plants and plant residues give some protection against rain and reduce the amount of runoff. Deep-rooted crops add organic matter to the soil and increase its resistance to



Figure 11.—Platy structure of plowpan formed in a cultivated area of Crowley silt loam, 0 to 1 percent slopes.

erosion. Contour cultivation and the construction of diversions and protected outlets help to control runoff.

**Flooding.**—The bottom lands in Acadia Parish are flooded frequently and consequently are of little use for crops. Protecting these areas by pumping or by building levees is not feasible. The best management practice is to grow grass or trees that are not damaged by flooding.

### Capability Grouping 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 the 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 soils are grouped at three levels—the capability class, the subclass, and the 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, forage, or wood products.

The subclasses indicate major kinds of limitations within classes. Within most of the classes there can be as many as four subclasses. The subclass is indicated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil 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 or 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 Acadia Parish, are described in the list that follows.

**Class I.** Soils that have few limitations that restrict their use.

There are no class I soils in Acadia Parish.

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

**Subclass IIe.**—Gently sloping soils subject to moderate water erosion.

**Capability unit IIe-1.**—Medium-textured, moderately well drained loesslike soils that have a friable subsoil; 1 to 3 percent slopes.

**Subclass IIw.**—Nearly level soils that are seasonally slightly wet.

**Capability unit IIw-1.**—Medium-textured, imperfectly drained soils of the Coastal Prairie that have a tight, clayey subsoil; 0 to 1 percent slopes.

**Capability unit IIw-2.**—Medium-textured, imperfectly drained forest soils that have a tight, clayey subsoil; 0 to 1 percent slopes.

**Capability unit IIw-3.**—Medium-textured, imperfectly drained loesslike soils that have a clayey subsoil; 0 to 1 percent slopes.

**Capability unit IIw-4.**—Medium-textured and moderately fine textured, imperfectly drained, very dark gray soils that have a friable, clayey

subsoil that contains lime; 0 to 1 percent slopes.

Capability unit IIw-5.—Medium-textured, imperfectly drained loesslike soils that have a friable subsoil; 1 to 3 percent slopes.

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

Subclass IIIe.—Gently sloping, very slowly permeable soils subject to moderate water erosion.

Capability unit IIIe-1.—Medium-textured, imperfectly drained soils of the Coastal Prairie that have a tight, clayey subsoil; 1 to 3 percent slopes.

Capability unit IIIe-2.—Medium-textured, imperfectly drained forest soils that have a tight, clayey subsoil; 1 to 3 percent slopes.

Subclass IIIw.—Nearly level soils that are wet and require drainage for cultivated crops and planted forage plants.

Capability unit IIIw-1.—Medium-textured, poorly drained prairie and loesslike soils; 0 to 1 percent slopes.

Capability unit IIIw-2.—Medium-textured, poorly drained forest soils; 0 to 1 percent slopes.

Capability unit IIIw-3.—Moderately fine textured, poorly drained soils of the Coastal Prairie; 0 to 1 percent slopes.

Capability unit IIIw-4.—Fine-textured, poorly drained, very dark gray soils; 0 to 1 percent slopes.

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

Subclass IVe.—Strongly sloping soils that are mostly very slowly permeable and subject to water erosion.

Capability unit IVe-1.—Mixed-textured soils or land types; 3 to 8 percent slopes.

**Class V.** Soils that have little or no erosion hazard but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife habitats.

Subclass Vw.—Soils on bottom lands subject to frequent overflow.

Capability unit Vw-1.—Mixed-textured soils on bottom lands that are subject to frequent overflow.

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

There are no class VI soils in Acadia Parish.

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

There are no class VII soils in Acadia Parish.

**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 habitats, water supply, or esthetic purposes.

There are no class VIII soils in Acadia Parish.

## Management of the Soils for Crops and Pasture, by Capability Units

In the following pages each capability unit is described briefly; the soils in each unit are listed, and some suggestions for the management of the soils for crops and for pasture are given.

### Capability unit IIe-1

This unit consists of a deep, moderately eroded, and moderately well drained loesslike soil that occurs at the highest local elevations. The soil in this unit is—

Richland silt loam, 1 to 3 percent slopes, eroded.

The surface soil is strongly acid, friable, granular silt loam. The subsoil is very strongly acid, firm, granular, light silty clay loam. Infiltration is moderate; permeability is moderately slow, and the moisture-supplying capacity is moderate. The natural fertility is moderate, and the organic-matter content is low. Ordinarily, tilth is good. The hazard of further erosion is moderate. Under continuous cultivation, a plowpan is likely to be formed.

This soil can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. Four-fifths of its acreage is now used for cultivated crops, principally sweetpotatoes, cotton, corn, oats, soybeans, lespedeza, and alyceclover. Because of the slope and the moderately slow permeability, this soil is not well suited to rice. Oats, wheat, bermudagrass, ryegrass, lespedeza, white clover, and crimson clover are the common forage plants. As a wildlife habitat, this soil is best suited to quail, doves, and rabbits.

*Management requirements.*—To control water erosion, this soil should be cultivated on the contour and should be planted to close-growing crops at least once in every 3 years. Crop residues should be left on the surface to protect against raindrop splash. Protected outlets for runoff are needed.

Lime and fertilizer are needed for most crops and for pasture.

Deep plowing, plowing to varying depths, and growing deep-rooted perennial grasses and legumes will help to prevent the formation of a plowpan or to break up a pan already formed.

### Capability unit IIw-1

This unit consists of a deep, imperfectly drained soil that occurs at the highest local elevations. It is the most extensive soil in the parish. The soil in this unit is—

Crowley silt loam, 0 to 1 percent slopes.

The upper part of the surface layer is very strongly acid to moderately alkaline, firm, granular silt loam. The subsoil is medium acid to moderately alkaline, firm, blocky, heavy silty clay. Infiltration is slow; permeability is very slow, and the moisture-supplying capacity is low. The natural fertility is moderate, and the

organic-matter content is moderate. Ordinarily, tilth is poor; the soil is cloddy and hard to plow, and it gets a very hard crust that affects germination of seeds and survival of plants. Under continuous cultivation, a plowpan is likely to be formed.

This soil can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. Most of it is used for cultivated crops and rotation pasture. Rice is the chief crop. Other suitable crops are oats, lespedeza, cotton, soybeans, alyceclover, and corn. Sweetpotatoes can be grown, but yields are low. Oats, wheat, ryegrass, bermudagrass, whiteclover, and lespedeza are the common forage plants. As a wildlife habitat, this soil is best suited to ducks, geese, and doves.

*Management requirements.*—Wet spots on this imperfectly drained soil need artificial drainage or smoothing.

Tilth can be improved by adding organic matter from crop residues and by growing grasses and legumes in rotation with other crops. If rice is grown, water planting overcomes some of the effects of poor tilth.

Growing perennial grasses or legumes helps to maintain or improve the moisture-supplying capacity. Cool-season, irrigated, and drought-resistant crops are less affected by the low moisture-supplying capacity.

Lime and fertilizer are needed for most crops and for pasture.

Deep plowing, plowing to varying depths, and growing deep-rooted crops help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIw-2**

This unit consists of a soil complex that occurs at intermediate local elevations. This complex is—

Acadia-Wrightsville silt loams, 0 to 1 percent slopes.

About 70 percent of this complex is Acadia silt loam, which is imperfectly drained; 30 percent is Wrightsville silt loam, which is poorly drained. The upper part of the surface layer of these soils is very strongly acid, friable, granular silt loam. The subsoil is very strongly acid, very firm, blocky, heavy silty clay. Infiltration is very slow; permeability is very slow, and the moisture-supplying capacity is low. Ordinarily, tilth is poor; the soils are cloddy and hard to plow, and they get a hard crust that affects germination of seeds and survival of plants. Under continuous cultivation, a plowpan is likely to be formed.

These soils can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. About two-thirds of the acreage is used for cultivated crops and rotation pasture; nearly a third is wooded. Rice is the chief crop. Other suitable crops are oats, lespedeza, alyceclover, and soybeans. Sweetpotatoes, cotton, and corn can be grown, but yields are low. Oats, wheat, ryegrass, bermudagrass, lespedeza, and whiteclover are the common forage plants. As a wildlife habitat, wooded areas of these soils are best suited to squirrels and rabbits, and cultivated areas, to ducks, geese, and doves.

*Management requirements.*—To provide adequate surface drainage for most crops, wet spots need to be smoothed out and provided with outlet channels.

Tilth can be improved by adding organic matter from crop residues and by growing grasses and legumes in

rotation with other crops. Where rice is grown, water planting overcomes some of the effects of poor tilth.

Growing perennial grasses or legumes helps to improve the moisture-supplying capacity. Cool-season, irrigated, and drought-resistant crops and forage plants are less affected by the low moisture-supplying capacity.

Lime and fertilizer are needed for most crops and for pasture.

Deep plowing, plowing to varying depths, and growing deep-rooted crops help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIw-3**

This unit consists of a deep, loesslike, imperfectly drained soil that occurs at the highest local elevations. The soil in this unit is—

Patoutville silt loam, 0 to 1 percent slopes.

The surface layer is strongly acid to slightly acid, friable, granular silt loam. The subsoil is strongly acid to slightly acid, very firm, prismatic, light silty clay. Infiltration is slow; permeability is slow, and the moisture-supplying capacity is moderate. Natural fertility is moderate, and the organic-matter content is moderate. Tilth is ordinarily good. Under continuous cultivation, a plowpan is likely to be formed.

This soil can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. About four-fifths of the acreage is now used for cultivated crops and rotation pasture. The soil is well suited to rice, and it is one of the best soils in the parish for sweetpotatoes. Other suitable crops are cotton, lespedeza, oats, corn, soybeans, and alyceclover. Oats, wheat, bermudagrass, ryegrass, lespedeza, and whiteclover are the common forage plants. As a wildlife habitat, this soil is best suited to quail, doves, and rabbits.

*Management requirements.*—To provide adequate drainage for crops, wet spots should be smoothed out and provided with outlet channels.

Lime and fertilizer are needed for most crops and for pasture.

Deep plowing, plowing to varying depths, and growing deep-rooted crops, such as perennial grasses and legumes, in rotation with other crops will help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIw-4**

This unit consists of two imperfectly drained, deep, very dark gray soils that occur at intermediate and low local elevations. They receive runoff from soils at higher elevations and are seasonally wet. These soils are—

Jeanerette silt loam, 0 to 1 percent slopes.

Jeanerette silty clay loam, 0 to 1 percent slopes.

The surface layer of these soils is strongly acid to slightly acid, friable, granular silt loam to silty clay loam. The subsoil is moderately alkaline to neutral, firm, prismatic, silty clay loam. Infiltration is moderately slow; permeability is moderately slow, and the moisture-supplying capacity is high. The high natural fertility has been reduced by intensive use. The organic-matter content is high. Tilth is ordinarily good. Under continuous cultivation, a plowpan is likely to be formed.

These soils can be used for cultivated crops, for pasture, or as a wildlife habitat. About four-fifths of their acreage is now used for cultivated crops, chiefly row crops. They are well suited to rice. If adequately drained, they are the best soils in the parish for cotton, corn, and pasture. Other suitable crops are alyceclover, soybeans, lespedeza, and oats. Sweetpotatoes can be grown, but yields are low, chiefly because of the high lime content and the imperfect drainage of the soils. Dallisgrass, bermudagrass, fescue, whiteclover, ryegrass, lespedeza, oats, and wheat are the common forage plants. As a wildlife habitat, these soils are best suited to quail, doves, and rabbits.

*Management requirements.*—Land smoothing and the building and maintenance of drainage ditches and outlets are needed to provide adequate surface drainage for crops.

Fertilizer is needed for most crops and for pasture. Ordinarily, lime is not required.

Deep plowing, plowing to varying depths, and growing deep-rooted perennial grasses and legumes in rotation with other crops will help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIw-5**

This unit consists of two imperfectly drained, deep, moderately eroded loesslike soils that occur at intermediate local elevations. These soils are—

Olivier silt loam, 1 to 3 percent slopes, eroded.

Patoutville silt loam, 1 to 3 percent slopes, eroded.

The surface layer of these soils is strongly acid, friable, granular silt loam. The subsoil is slightly acid to very strongly acid, very firm to friable, prismatic silty clay loam to light silty clay. Infiltration is moderate; permeability is slow, and the moisture-supplying capacity is low. The natural fertility is moderate, and the organic-matter content is low. Ordinarily, tilth is good. The hazard of further erosion is slight. Under continuous cultivation, a plowpan is likely to be formed.

These soils can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. About two-thirds of their acreage is now used for cultivated crops, principally sweetpotatoes, cotton, corn, oats, soybeans, lespedeza, and alyceclover. Because of their slope, they are not well suited to rice. Oats, wheat, bermudagrass, ryegrass, lespedeza, white clover, and crimson clover are suitable forage plants. As a wildlife habitat, these soils are best suited to quail, doves, and rabbits.

*Management requirements.*—To control water erosion, these soils should be cultivated on the contour and should be planted to close-growing crops at least once in every 3 years. Crop residues should be left on the surface to protect against raindrop splash. Protected outlets for runoff are needed.

Growing perennial grasses or legumes helps to improve or maintain the moisture-supplying capacity. Cool-season and drought-resistant crops and forage plants are less affected by the low moisture-supplying capacity.

Both lime and fertilizer are needed for most crops and for pasture.

Deep plowing, plowing at varying depths, and growing deep-rooted plants help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIIe-1**

This unit consists of a deep and imperfectly drained soil that occurs at intermediate local elevations. It is more strongly sloping than the Crowley soil in capability unit IIw-1. The soil in this unit is—

Crowley silt loam, 1 to 3 percent slopes.

The upper part of the surface layer is very strongly acid to moderately alkaline, firm, granular silt loam. The subsoil is medium acid to moderately alkaline, firm, blocky, heavy silty clay. The dominant slope gradient is about 1 percent. Infiltration is very slow; permeability is very slow, and the moisture-supplying capacity is very low. The natural fertility is moderate, and the organic-matter content is moderate. Ordinarily, tilth is poor; the soil is cloddy and hard to plow, and it gets a very hard surface crust that affects germination of seeds and survival of plants.

This soil can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. About two-thirds of the acreage is now used for cultivated crops. Rice is the principal crop, although slope limits the suitability of the soil for this crop. Other suitable crops are oats, soybeans, lespedeza, and cotton. Sweetpotatoes and corn can be grown, but yields are low. Oats, wheat, ryegrass, bermudagrass, whiteclover, and lespedeza are the common forage plants. Because of droughtiness, this soil is not well suited to warm-season crops and forage plants. As a wildlife habitat, this soil is best suited to ducks, geese, and doves.

*Management requirements.*—To control water erosion, this soil should be cultivated on the contour and planted to close-growing crops at least once in every 3 years. Crop residues should be left on the surface to protect against raindrop splash. Protected outlets are needed for excess runoff.

Growing perennial grasses and legumes helps to improve the moisture-supplying capacity. Cool-season, irrigated, and drought-resistant crops are less affected by the low moisture-supplying capacity.

Lime and fertilizer are needed for most crops and for pasture.

Tilth can be improved by adding organic matter from crop residues and by growing perennial grasses and legumes in rotation with other crops.

Deep plowing, plowing at varying depths, and growing deep-rooted crops will prevent the formation of a plowpan or help to break up one already formed.

#### **Capability unit IIIe-2**

This unit consists of a deep, imperfectly drained forest soil that occurs at intermediate local elevations. The soil in this unit is—

Acadia silt loam, 1 to 3 percent slopes.

The upper part of the surface soil is very strongly acid, friable, granular silt loam. The subsoil is very strongly acid, very firm, blocky, heavy silty clay. This soil is deep and imperfectly drained. Infiltration is very slow; permeability is very slow, and the moisture-supplying capacity is very low. Natural fertility is low, and the organic-matter content is low. Ordinarily, tilth is poor. The susceptibility to erosion is moderate. Un-

der continuous cultivation, a plowpan is likely to be formed.

This soil can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. About three-fourths of the acreage is wooded, and about one-fifth is used for cultivated crops and rotation pasture. Rice is the chief crop, although slope limits the suitability of the soil for this crop. Other suitable crops are oats, soybeans, lespedeza, and cotton. Sweetpotatoes and corn can be grown, but yields are low. Oats, wheat, ryegrass, bermudagrass, carpetgrass, lespedeza, and whiteclover are the common forage plants. Because of droughtiness, the soil is not well suited to warm-season crops or forage plants. As a wildlife habitat, wooded areas of this soil are best suited to squirrels and rabbits, and cultivated areas, to ducks, geese, and doves.

*Management requirements.*—To control water erosion, this soil should be cultivated on the contour and should be planted to close-growing crops at least once every 3 years. Crop residues should be left on the surface to protect against raindrop splash. Protected outlets for runoff are needed.

Lime and fertilizer are needed for most crops and for pasture.

Growing perennial grasses and legumes in rotation with other crops will help to improve or maintain the moisture-supplying capacity. Cool-season or drought-resistant crops are less affected by the low moisture-supplying capacity.

Tilth can be improved by regularly adding organic matter from crop residues and by growing perennial grasses and legumes in rotation with other crops.

Deep plowing, plowing to varying depths, and growing deep-rooted perennial grasses and legumes will help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIIw-1**

This unit consists of deep, poorly drained soils that occur at the lowest local elevations. They receive runoff from soils at higher elevations and are seasonally wet. The soils in this unit are—

Carroll silt loam, 0 to 1 percent slopes.

Midland silt loam, 0 to 1 percent slopes.

Midland silt loam, thick surface, 0 to 1 percent slopes.

The upper part of the surface layer of these soils is strongly acid, friable, granular silt loam. The subsoil is very strongly acid to mildly alkaline, firm, blocky, heavy silty clay. Permeability is very slow, and the moisture-supplying capacity is low. The natural fertility of these soils is moderate to low, and the organic-matter content is low. Ordinarily, tilth is very poor. These soils are cloddy and hard to plow, and they get a very hard surface crust that affects germination of seeds and survival of plants. Under continuous cultivation, a plowpan is likely to be formed.

These soils can be used for cultivated crops, for pasture, or as a wildlife habitat. About 70 percent of their acreage is now used for cultivated crops and rotation pasture. They are best suited to rice. For other crops and planted forage plants, intensive drainage is required. Drained areas are suited to cotton, soybeans, corn,

lespedeza, and alyceclover. Sweetpotatoes can also be grown, but yields are low. Bermudagrass, vaseygrass, carpetgrass, lespedeza, ryegrass, and whiteclover are the common forage plants. As a wildlife habitat, these soils are best suited to ducks, geese, and doves.

*Management requirements.*—Land smoothing, drainage ditches, and outlets are needed to provide adequate surface drainage for most crops and planted forage plants.

Adding organic matter from crop residues regularly and growing perennial grasses and legumes in rotation with other crops will help to improve tilth. If rice is grown, water planting will overcome some of the effects of poor tilth.

Growing perennial grasses and legumes in rotation with other crops will help to improve the moisture-supplying capacity. Drought-resistant crops and forage plants and irrigated crops are less affected by the low moisture-supplying capacity.

Lime and fertilizer are needed for most crops and for pastures.

Deep plowing, plowing to varying depths, and growing deep-rooted perennial grasses and legumes will help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIIw-2**

This unit consists of a deep, poorly drained forest soil that occurs at the lowest local elevations. It receives runoff from soils at higher elevations and is seasonally wet. This soil is—

Wrightsville silt loam, 0 to 1 percent slopes.

The upper part of the surface soil is very strongly acid, firm, granular silt loam. The subsoil is strongly acid, firm, blocky silty clay. Infiltration is very slow; permeability is very slow, and the moisture-supplying capacity is low. Natural fertility is low, and the organic-matter content is very low. Ordinarily, tilth is very poor; the soil is cloddy and hard to plow, and it gets a very hard crust that affects germination of seeds and survival of plants.

This soil can be used for cultivated crops, for pasture, as woodland, or as a wildlife habitat. Over half the acreage is wooded, but about 40 percent is used for cultivated crops and rotation pasture. This soil is best suited to rice. For other crops and planted forage plants, intensive drainage is required. Drained areas are suited to lespedeza, alyceclover, and soybeans. Sweetpotatoes, cotton, and corn can also be grown, but yields are low. Carpetgrass, vaseygrass, bermudagrass, ryegrass, and whiteclover are the common forage plants. As a wildlife habitat, wooded areas of this soil are best suited to squirrels and rabbits, and cultivated areas, to ducks, geese, and doves.

*Management requirements.*—Land smoothing, drainage ditches, and outlets are needed to provide adequate surface drainage for most crops and planted forage plants.

Lime and fertilizer are needed for most crops and for pasture.

Adding organic matter from crop residues regularly and growing perennial grasses and legumes in rotation with other crops will help to improve tilth. If rice is

grown, water planting will overcome some of the effects of poor tilth.

Growing perennial grasses and legumes in rotation with other crops will help to improve the moisture-supplying capacity. Drought-resistant crops and forage plants and irrigated crops are less affected by the low moisture-supplying capacity.

Deep plowing, plowing to varying depths, and growing deep-rooted perennial grasses and legumes will help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit IIIw-3**

This unit consists of a deep, poorly drained soil and a complex that consists mostly of the poorly drained soil and less extensive areas of an imperfectly drained soil. These soils occur at the lowest local elevations. They receive runoff from soils at higher elevations and are seasonally wet. The soils in this unit are—

Midland silty clay loam, 0 to 1 percent slopes.

Midland-Crowley complex, 0 to 1 percent slopes.

The surface layer of these soils is very strongly acid to moderately alkaline, massive silty clay loam to silt loam. The subsoil is strongly acid to moderately alkaline, firm, blocky, heavy silty clay. Infiltration is very slow; permeability is slow to very slow, and the moisture-supplying capacity is moderate to low. The natural fertility and the organic-matter content are moderate to low. Tilth is ordinarily very poor; the soils are cloddy and hard to plow, and they get a very hard surface crust that affects germination of seeds and survival of plants.

These soils can be used for cultivated crops, for pasture, or as a wildlife habitat. Over three-fourths of their acreage is used for cultivated crops and rotation pasture. They are best suited to rice. For other crops and planted forage plants, intensive drainage is required. Drained areas are suited to lespedeza, soybeans, and alyceclover. Dallisgrass, bermudagrass, fescue, vaseygrass, ryegrass, lespedeza, and whiteclover are the common forage plants. As a wildlife habitat, these soils are best suited to ducks, geese, and doves.

*Management requirements.*—Land smoothing, drainage ditches, and outlets are needed to provide adequate surface drainage for most crops and planted forage plants.

Adding organic matter from crop residues regularly and growing perennial grasses and legumes in rotation with other crops will help to improve tilth. If rice is grown, water planting will overcome some of the effects of poor tilth.

Fertilizer is needed for most crops and for pasture. Lime is ordinarily not required.

#### **Capability unit IIIw-4**

This unit consists of a deep, poorly drained, very dark gray soil that occurs at the lowest local elevations. It receives runoff from soils at higher elevations and is seasonally wet. The soil in this unit is—

Iberia silty clay, 0 to 1 percent slopes.

The surface layer is medium acid to neutral, very firm, granular, heavy silty clay. The subsoil is neutral to moderately alkaline, very firm, blocky clay. Infiltration is moderately slow; permeability is very slow, and the moisture-supplying capacity is moderate. Natural

fertility is high, and the organic-matter content is high. Tilth is ordinarily very poor; the soil is cloddy and hard to plow, and it gets a very hard surface crust that affects germination of seeds and survival of plants.

This soil can be used for cultivated crops, for pasture, or as a wildlife habitat. Over 85 percent of the acreage is now used for cultivated crops and rotation pasture. The soil is best suited to rice. For other crops and planted forage plants, intensive drainage is required. Drained areas are suited to alyceclover, soybeans, and lespedeza. Dallisgrass, bermudagrass, fescue, vaseygrass, ryegrass, lespedeza, and whiteclover are the common forage plants. As a wildlife habitat, this soil is best suited to ducks, geese, and doves.

*Management requirements.*—Land smoothing, drainage ditches, and outlets are needed to provide adequate surface drainage for most crops and planted forage plants.

Adding organic matter from crop residues regularly and growing perennial grasses and legumes in rotation with other crops will help to improve tilth. If rice is grown, water planting will overcome some of the effects of poor tilth.

Fertilizer is needed for most crops and for pasture. Lime is ordinarily not required.

#### **Capability unit IVe-1**

This unit consists of a moderately well drained, extremely variable land type at intermediate local elevations. The slopes, which range from 3 to 8 percent, are the steepest in Acadia Parish. The land type in this unit is—

Sloping land, loamy and clayey sediments.

In most areas the surface layer is strongly acid, friable, granular silt loam. The subsoil is very strongly acid, friable, blocky, heavy silty clay. Infiltration is very slow; permeability is very slow, and the moisture-supplying capacity is very low. Natural fertility is low, and the organic-matter content is low. Tilth is ordinarily poor; the surface layer is cloddy and hard to plow, and it gets a very hard crust. Under continuous cultivation, a plowpan is likely to be formed. The hazard of erosion is moderate.

This land type can be used for cultivated crops occasionally, for pasture, as woodland, or as a wildlife habitat. About two-thirds of the acreage is wooded, and about one-fifth is in pasture. Only a small acreage is used for cultivated crops. These areas are best suited to forage plants, such as whiteclover, crimson clover, ryegrass, and bermudagrass. Because of the erosion hazard and the very low moisture-supplying capacity, they are not well suited to most cultivated crops. Oats, lespedeza, and alyceclover can be grown occasionally, but yields are low. As a wildlife habitat, the land type is best suited to quail, doves, and rabbits.

*Management requirements.*—To control water erosion, this land type should be cultivated on the contour, and should be planted to close-growing crops at least once in every 3 years. Crop residues should be left on the surface to protect against raindrop splash. Protected outlets for runoff are needed.

Growing perennial grasses and legumes in rotation with other crops will help to improve or maintain the moisture-supplying capacity. Cool-season or drought-

resistant crops and forage plants are less affected by the low moisture-supplying capacity.

Both lime and fertilizer are needed for most crops and for pasture.

Adding organic matter from crop residues regularly and growing perennial grasses and legumes in rotation with other crops will help to improve tilth.

Deep plowing, plowing to varying depths, and growing deep-rooted perennial grasses and legumes will help to prevent the formation of a plowpan or to break up a pan already formed.

#### **Capability unit Vw-1**

This unit consists of the poorly drained land type that occupies the flood plains of active streams. It is at the lowest elevations in the parish and is subject to frequent flooding. The land type in this unit is—

##### **Wet alluvial land.**

In most places, the surface layer is strongly acid, firm, blocky, heavy silty clay. The subsoil is strongly acid, firm, blocky, heavy silty clay. Infiltration is slow; permeability is very slow, and the moisture-supplying capacity is moderate. Natural fertility is moderate, and the organic-matter content is moderate.

This land type can be used for pasture, as woodland, or as a wildlife habitat. Most of the acreage is now wooded, and only a very small acreage is used for pasture. Because of frequent flooding, these bottom lands are not suited to cultivated crops or planted forage plants. They are best used as woodland and for pastures of volunteer forage plants. As a wildlife habitat, they are best suited to squirrels and rabbits.

### **Estimated Yields of Crops**

Table 2 shows the estimated average yields per acre of the principal crops of Acadia Parish. Yields under two levels of management are given for each of the soils commonly used for each crop. Column A gives the yields obtained by most of the successful farmers using the particular soil. Column B gives the yields obtained by farmers using improved methods on the same soil. The tillage practices, rates of fertilization, and rotations used in 1960 under the two levels of management are described in the following paragraphs. The yield estimates are based on observations, interviews, farm records, and experimental data.

**Rice.**—Under management level A, good seedbeds are prepared by winter or early spring plowing of soils that are adequately drained and fairly smooth. Preferred varieties of good-quality seed are used. Fertilizer and irrigation water are not always used to the best advantage. Insects and disease may reduce crop yields. Fertilizer is applied at the rate of 30 to 40 pounds of nitrogen per acre, 30 to 40 pounds of phosphoric acid, and 20 pounds of potash. Part of the nitrogen is applied as topdressing. In some places, complete fertilizer is also applied as topdressing. The common rotation is 1 year of rice, followed by 2 years of grazed volunteer grass and weeds. Neither improved pastures nor legumes are commonly included in the rotation.

Under management level B, good seedbeds are prepared by summer and fall plowing of soils that are well drained

and smooth. Preferred varieties of good-quality seed are planted by suitable methods. Fertilizer and irrigation water are efficiently applied, and insects and disease are promptly detected and treated. Fertilizer is applied at the rate of 60 to 80 pounds of nitrogen, 30 to 40 pounds of phosphoric acid, and 30 to 40 pounds of potash. Part of the nitrogen is applied as topdressing. In some places, complete fertilizer is also applied as topdressing. The common rotation is 1 year of rice, followed by 2 years of grazed volunteer grass and weeds. The inclusion of improved pastures or legumes in the rotation is more common than under management level A.

**Cotton.**—Under management level A, good seedbeds are prepared on soils that are adequately drained, fairly smooth, moderately well supplied with organic matter, and only moderately compacted. Tilth is good. Preferred varieties of seed are planted between April 15 and May 1. Insects are moderately well controlled. The crop is harvested by hand. Fertilizer is applied at the time of planting at the rate of 30 pounds of nitrogen, 60 pounds of phosphoric acid, and 60 pounds of potash. No lime is applied, and no side dressings are made. There is no systematic rotation; ordinarily, 1 or 2 years of corn and soybeans are followed by 1 or 2 years of cotton.

Under management level B, good seedbeds are prepared on soils that are well drained, smooth, moderately well supplied with organic matter, and only slightly compacted. Tilth is good. Preferred varieties of seed are planted between April 15 and May 1. Insects are adequately controlled. The crop is harvested by hand. Fertilizer is applied at a considerable depth and before planting, at the rate of 60 to 80 pounds of nitrogen per acre, 60 pounds of phosphoric acid, and 60 pounds of potash. Lime and additional potash are applied where needed, and side dressings of nitrogen are made when necessary. There is no systematic rotation; ordinarily, 1 or 2 years of corn and soybeans are followed by 1 or 2 years of cotton.

**Sweetpotatoes.**—Under management level A, good seedbeds are prepared on soils that are adequately drained, fairly smooth, moderately well supplied with organic matter, and only moderately compacted. Tilth is good. Homegrown seed of the common varieties is used, and the plants are of fair quality. Insects are not controlled. The crop is planted and harvested by hand. Fertilizer is applied at the time of planting at the rate of 20 pounds of nitrogen, 40 pounds of phosphoric acid, and 40 pounds of potash. There is no systematic rotation; ordinarily, 1 or 2 years of corn and soybeans are followed by 1 year of sweetpotatoes.

Under management level B, good seedbeds are prepared on soils that are well drained, smooth, moderately well supplied with organic matter, and only slightly compacted. Tilth is good. Certified and foundation seed of adapted varieties is used, and the plants are of high quality. Insects are well controlled. The crop is planted by machine and harvested by hand. Fertilizer is applied about 2 weeks before planting at the rate of 40 pounds of nitrogen per acre, 80 pounds of phosphoric acid, and 80 pounds of potash. There is no systematic rotation; ordinarily, 1 or 2 years of corn and soybeans are followed by 1 year of sweetpotatoes.

**Corn.**—Under management level A, good seedbeds are prepared on soils that are adequately drained, fairly

TABLE 2.—Estimated average acre yields of the principal crops under two levels of management

[Yields in column A are those obtained under common management; yields in column B are those obtained under improved management. Absence of figure means that the crop is not suited to or is not commonly grown on the soil]

Map symbol	Soil	Rice (green weight)		Cotton (lint)		Sweet-potatoes (U.S. No. 1)		Corn		Lespedeza cut for hay		Rotation pasture		Tillage cost
		A	B	A	B	A	B	A	B	A	B	A	B	
AdB	Acadia silt loam, 1 to 3 percent slopes.	Bbl. 12	Bbl. 15	Lb. 300	Lb. 500	Bu. 40	Bu. 70	Bu. 20	Bu. 30	Tons 0.75	Tons 1.5	Cow-acre-days <sup>1</sup> 40	Cow-acre-days <sup>1</sup> 200	High.
AwA	Acadia-Wrightsville silt loams, 0 to 1 percent slopes.	15	18	250	400	40	70	20	30	1.50	2.0	40	200	Average.
CaA	Carroll silt loam, 0 to 1 percent slopes.	16	22	400	600	50	100	25	40	2.00	2.5	60	225	High.
CrA	Crowley silt loam, 0 to 1 percent slopes.	17	20	400	500	60	90	20	40	1.50	2.0	45	290	Average.
CrB	Crowley silt loam, 1 to 3 percent slopes.	14	17	300	500	40	70	20	30	.75	1.5	40	200	High.
IbA	Iberia silty clay, 0 to 1 percent slopes.	17	26	-----	-----	-----	-----	-----	-----	2.50	3.5	100	360	Very high.
JeA	Jeanerette silt loam, 0 to 1 percent slopes.	17	22	600	800	40	70	50	70	2.50	3.5	100	360	Average.
JnA	Jeanerette silty clay loam, 0 to 1 percent slopes.	17	26	700	900	40	70	60	80	2.50	3.5	100	360	High.
MaA	Midland silt loam, 0 to 1 percent slopes.	16	22	400	600	50	100	25	40	2.00	2.5	60	225	High.
MbA	Midland silt loam, thick surface, 0 to 1 percent slopes.	16	22	400	600	50	100	25	40	2.00	2.5	60	225	High.
McA	Midland silty clay loam, 0 to 1 percent slopes.	17	26	-----	-----	-----	-----	-----	-----	2.00	2.5	80	300	Very high.
MxA	Midland-Crowley complex, 0 to 1 percent slopes.	17	26	-----	-----	-----	-----	-----	-----	2.00	2.5	80	300	Average.
OvB2	Olivier silt loam, 1 to 3 percent slopes, eroded.	-----	-----	400	600	90	160	25	40	.75	1.5	40	200	Low.
PaA	Patoutville silt loam, 0 to 1 percent slopes.	17	20	500	700	80	150	30	70	1.50	2.0	45	290	Low.
PaB2	Patoutville silt loam, 1 to 3 percent slopes, eroded.	-----	-----	400	600	70	140	25	40	.75	1.5	40	200	Low.
RcB2	Richland silt loam, 1 to 3 percent slopes, eroded.	-----	-----	500	600	110	200	40	60	1.50	2.0	45	290	Low.
Sd	Sloping land, loamy and clayey sediments.	-----	-----	-----	-----	-----	-----	-----	-----	.50	1.0	-----	160	Very high.
Wa	Wet alluvial land	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
WyA	Wrightsville silt loam, 0 to 1 percent slopes.	15	18	250	400	40	70	20	30	1.50	2.0	40	200	High.

<sup>1</sup> The number of days 1 acre will support 1 animal unit (1 cow, steer, or horse; or 5 hogs; or 7 sheep or goats) without injury to

the pasture; in Acadia Parish, 75 percent of the grazing is furnished in a 90-day period in spring.

smooth, moderately well supplied with organic matter, and only moderately compacted. Tilt is good. Adapted hybrid seed is interplanted with soybeans. The number of plants per acre is relatively small. The crop is harvested by hand. Fertilizer is applied at the time of planting at the rate of 36 pounds of nitrogen per acre, 36 pounds of phosphoric acid, and 36 pounds of potash. There is no systematic rotation; ordinarily, corn and soybeans follow either cotton or sweetpotatoes.

Under management level B, good seedbeds are prepared on soils that are well drained, smooth, moderately well supplied with organic matter, and only slightly compacted. Tilt is good. Adapted hybrid seed is planted alone. The number of plants per acre is higher than under management level A. The crop is harvested by hand. Fertilizer is applied at a considerable depth at the rate of 80 pounds of nitrogen per acre, 60 pounds

of phosphoric acid, and 60 pounds of potash. Nitrogen is provided in split applications. There is no systematic rotation; ordinarily, corn follows either cotton or sweetpotatoes.

*Lespedeza*.—Under management level A, good seedbeds are prepared on soils that are adequately drained, fairly smooth, moderately well supplied with organic matter, and only moderately compacted. Tilt is fair to good. The seedbeds are not cultipacked. Between 20 and 30 pounds of seed are planted per acre. The harvest is delayed. Fertilizer is applied before planting at the rate of 12 pounds of nitrogen per acre, 48 pounds of phosphoric acid, and 48 pounds of potash. There is no systematic rotation; ordinarily, 2 years of *lespedeza* are followed by 2 or more years of other crops or pasture.

Under management level B, good seedbeds are prepared on soils that are well drained, smooth, moderately well

supplied with organic matter, and only slightly compacted. Tilt is good. The seedbeds are cultipacked before and after planting. About 40 pounds of seed are planted per acre. The crop is harvested at the proper time. Fertilizer is applied before planting at the rate of 18 pounds of nitrogen, 72 pounds of phosphoric acid, and 72 pounds of potash. There is no systematic rotation; ordinarily, 2 years of lespedeza are followed by 2 or more years of other crops or pasture.

*Rotation pastures.*—Under management level A, crop residues and volunteer grasses and weeds are used for grazing. There is no seeding and no weed control.

Ordinarily, pastures are overstocked with good-quality grade cattle, and no supplemental grazing or feed is furnished during periods when there is a shortage in the supply of forage. No lime or fertilizer is applied. Ordinarily, these pastures are included in a rotation of 2 years of volunteer pasture, followed by 1 year of a crop.

Under management level B, well-prepared seedbeds on well-drained, smooth soils are seeded to La. S-1 clover and adapted grasses. Weeds are controlled. The pastures are properly stocked with good-quality grade or purebred cattle, and supplemental grazing or feed is furnished when there is a shortage in the supply of forage. Lime is applied according to the requirements shown by soil tests. Fertilizer is applied at the time of planting at the rate of 40 pounds of nitrogen per acre, 100 pounds of phosphoric acid, and 60 pounds of potash. Annual applications at the rate of 20 pounds of nitrogen, 50 pounds of phosphoric acid, and 30 pounds of potash follow. These pastures are included in a rotation of 3 to 4 years of pasture, followed by 1 or 2 years of a crop. Only a small proportion of the pasture in Acadia Parish is managed at this level.

## Management of the Soils as Woodland<sup>1</sup>

At the present time, wood crops contribute little to the economy of Acadia Parish. Only 0.02 percent of the total agricultural income is derived from timber products. Most of the forests are in narrow strips along streams. Approximately 75,000 acres is forested; about 37,000 acres is oak-pine forest (fig. 12), and the rest is oak-gum-cypress forest (fig. 13). Because of the lack of markets and the small size of most of the woodland holdings, there is little interest in good timber management. Most of the woodlands are now producing much less than they are capable of producing.

The site index (the average height of the dominant stand of trees at 50 years of age) for loblolly pine and slash pine on the forest soils in Acadia Parish is higher than that on comparable soils in some of the other parishes in western Louisiana. This difference in potential productivity is probably due to the higher rainfall in the parish and to the thicker surface layers of the soils.

The forest soils in the parish can be placed in three woodland suitability groups for loblolly pine and slash pine (5).<sup>2</sup> Each group consists of soils that produce similar kinds of wood crops under similar management



Figure 12.—Oak-pine forest on the uplands. This is part of a 350-acre tract that has been marked for thinning.

practices, that require similar kinds of conservation practices, and that are comparable in potential productivity. Under currently acceptable standards of woodland management, none of these soils has any special erosion hazard. There are no special problems from soil-related forest pests on these medium-textured to moderately fine textured soils. Studies have shown that gophers and Texas leaf-cutting (town) ants, which cause considerable damage to trees, are ordinarily limited to coarser textured, well-drained soils.

### Woodland suitability group 1

This group is made up of imperfectly drained soils that have a clay subsoil—Acadia silt loam, 1 to 3 percent slopes; Acadia-Wrightsville silt loams, 0 to 1 percent slopes; and Sloping land, loamy and clayey sediments. The average site index for loblolly pine and slash pine is 85.

Following removal of the overstory, plant competition from brush and other plants is rated as severe. Natural regeneration cannot be relied upon for adequate restocking of the designated species. Special management and site preparation measures, such as clearing, controlled burning, using chemical sprays, and tree planting and replanting as needed, are necessary to ensure a fully stocked stand of the desired species.

If plant competition is controlled, the seedling mortality of both planted and naturally occurring seedlings is rated as slight. Ordinarily, losses because of unfavorable soil characteristics are not more than 25 percent of the planted stock, and satisfactory restocking by initial

<sup>1</sup>This section was prepared by L. L. LOFTIN, soil scientist, and E. D. HOLCOMBE, woodland conservationist, Soil Conservation Service.

<sup>2</sup>Italic numbers in parentheses refer to Literature Cited, p. 56.



Figure 13.—Typical oak-gum-cypress forest on the bottom lands of the parish.

planting of loblolly pine and slash pine can be expected 4 years in every 5 years. If otherwise well managed, woodlands on these soils can ordinarily be restocked by natural regeneration.

These soils may be wet for as much as 3 months at a time. During these periods, the use of equipment commonly needed for planting, tending, and harvesting trees may damage soil structure and stability and injure the roots of trees.

**Woodland suitability group 2**

This group consists of a medium-textured, poorly drained soil that has a clay subsoil—Wrightsville silt loam, 0 to 1 percent slopes. The average site index for loblolly pine and slash pine is 80.

Following removal of the overstory, competition from brush and other plants is rated as severe. Special management and site preparation measures are necessary to ensure fully stocked stands of the designated species.

Even if plant competition is controlled, seedling mortality of planted and naturally occurring seedlings is rated as severe. Natural regeneration cannot be relied upon to restock woodlands. Losses because of unfavorable soil conditions ordinarily are more than 50 percent of the planted stock. Satisfactory restocking by initial planting of loblolly pine and slash pine can be expected only 2 years in every 5 years. Special seedbed preparation, superior planting techniques, and the control of

excess water are necessary to ensure adequate and immediate restocking.

This soil may be wet for periods of more than 3 months. During these wet periods, the use of equipment necessary for planting, tending, and harvesting trees may damage soil structure and stability and injure the roots of trees.

**Woodland suitability group 3**

This group consists of dominantly clayey soils on bottom lands that are flooded frequently—Wet alluvial land. Except for isolated areas less wet and less subject to damaging overflow, these bottom lands are not suited to loblolly pine and slash pine. They are best suited to hardwoods.

**Woodland productivity**

Table 3 gives average stand and yield information for well-stocked, unmanaged, naturally growing stands of slash pine and loblolly pine of different ages and site indexes.

TABLE 3.—Stand and yield information for well-stocked, unmanaged, naturally growing stands of slash pine and loblolly pine

[Statistics in this table are compiled from United States Department of Agriculture Miscellaneous Publication No. 50, 1929 (10), revised according to Coile and Schumacher, 1953 (2)]

SLASH PINE

Site index and age of stand	Total volume per acre			Height of dominant trees	Average diameter at breast height	Total trees per acre
	Cu. ft.	Cords	Bd. ft. (Doyle rule)	Feet	Inches	Number
Site index 80						
20 years---	3, 800	35	-----	48	4. 9	1, 090
30 years---	4, 950	48	1, 500	63	7. 0	610
40 years---	5, 850	58	6, 000	73	8. 7	380
50 years---	6, 600	65	10, 000	80	10. 0	295
60 years---	7, 150	69	12, 500	85	10. 8	250
Site index 90						
20 years---	4, 250	41	-----	54	5. 6	835
30 years---	5, 550	54	4, 000	71	8. 0	470
40 years---	6, 650	66	10, 000	83	10. 0	295
50 years---	7, 500	73	15, 000	90	11. 4	220
60 years---	8, 100	78	18, 000	95	12. 5	195

LOBLOLLY PINE

Site index 80						
20 years---	2, 350	22	-----	48	5. 0	950
30 years---	4, 000	38	2, 000	63	7. 4	510
40 years---	5, 300	51	6, 000	73	9. 2	345
50 years---	6, 150	60	11, 500	80	10. 7	255
60 years---	6, 650	66	16, 000	85	12. 0	210
70 years---	7, 000	70	19, 500	89	13. 1	185
80 years---	7, 300	73	22, 000	92	14. 0	160
Site index 90						
20 years---	2, 850	27	-----	54	5. 6	790
30 years---	4, 700	46	4, 000	71	8. 2	420
40 years---	6, 200	61	10, 000	82	10. 2	290
50 years---	7, 200	71	16, 500	90	12. 0	220
60 years---	7, 800	78	22, 000	96	13. 4	180
70 years---	8, 200	82	26, 000	100	14. 6	150
80 years---	8, 550	85	29, 000	103	15. 6	135

## Management of the Soils for Wildlife<sup>3</sup>

Management of the soils of Acadia Parish as wildlife habitats is discussed in the following pages by soil associations (see colored map at the back of this report). Two associations—Crowley-Midland and Midland-Crowley—are on the Coastal Prairie, which is the broad, nearly level terrace that lies above the wooded valley slopes and the bottom lands. The large rice farms of the parish are on the soils of these two associations. The wildlife habitats and management practices are the same; thus, these two associations are discussed together.

### CROWLEY-MIDLAND ASSOCIATION AND MIDLAND-CROWLEY ASSOCIATION

The wildlife habitats on the soils in these associations are best suited to ducks, geese, and doves. These soils are used almost entirely for ricegrowing and rotation pasture. Farms are large, and the nearly level, open ricefields are broken only by scattered clumps of trees.

Food for these forms of wildlife is provided ordinarily in the production of rice. Most fields of rice stubble contain about 175 pounds of waste rice and weed seeds per acre. Protective cover is at a minimum, however, and ducks may feed only at night in areas where there is much disturbance.

To make the waste rice and weed seeds more available to ducks, flood the rice stubble fields in winter. The water may be from 1 to 12 inches deep but not more than 12 inches, since dabbling ducks cannot feed in deeper water. A good depth is 4 to 6 inches. For geese, flood the fields just enough to leave them semiflooded—the ground saturated in some places and covered by about 1 inch of water in others. Geese feed on the roots of grasses, which are more easily obtained if the ground is wet, and on the winter growth of winter forbs, weeds, and grasses. To supplement these naturally occurring foods, plant browntopmillet (*Panicum ramosum*), which should be flooded late in fall and in winter.

To provide resting areas for these waterfowl, which is a necessary practice on these soils, protect some of the flooded ricefields against hunting or other disturbances. This will hold more ducks and geese in the general area and away from the marshes to the south. In years when the marshes have an abundant supply of food, few ducks feed in the ricefields.

These soils provide the best winter dove habitat in the State. Rice and the seeds of weeds that commonly grow in ricefields, such as birdseye (*Caperonia castaneaefolia*), and teaweed (*Melochia corchorifolia*), are choice foods for doves, which eat grain and weed seeds chiefly. Doves prefer to feed in rice stubble that has been grazed just enough to open the stubble slightly and make the seeds on the ground more easily available. They also prefer the better drained fields and areas on which there are windbreaks or scattered clumps of trees that provide midday rest areas. Rotation pastures produce an abundance of choice foods, such as seeds of goatweed (*Croton* sp.), also called woolly croton; birdseye; signalgrass (*Bracharia* sp.); and the paspalums.

Little needs to be done to increase the food supply for doves in this area, since these agricultural byproducts provide such abundance. If it is desirable to supplement this supply, plant small patches to browntopmillet, which will produce as much as 1,500 pounds of seed per acre in contrast to the 175 pounds per acre ordinarily available in ricefields. Permit moderate grazing of the rice stubble to make the grain more easily available. Restrict hunting; doves will desert fields that are constantly and heavily hunted. Another practice that will make food more available is to burn the rice stubble in small blocks to open up the field. Burning large areas yearly, however, is not a good practice.

### ACADIA-WRIGHTSVILLE ASSOCIATION

The wildlife habitats on cultivated areas of these soils are best suited to ducks, geese, and doves; wooded areas, to squirrels and rabbits. This association occurs in long and relatively narrow strips bordered on the one side by the oak-gum-cypress forests of the bottom lands and on the other by the ricelands of associations 1 and 2. Over half the acreage is in grazed woodland, and about 45 percent has been cleared and used for rice and rotation pasture. These soils constitute the most productive timber-producing area in Acadia Parish.

In cultivated areas, the conditions of land use, the native habitats, and the management practices favorable to doves, ducks, and geese are the same as those described for the soils of associations 1 and 2.

The woods that provide squirrel range consist mostly of second-growth pines, among which there are some scrub oaks and a few of the more desirable oaks, such as red oak and white oak. The carrying capacity of these woods for squirrels is limited by their narrow width and by their use for grazing. Squirrels range also over the bordering and overlapping oak-gum-cypress forests of the bottom lands. Although fox squirrels are more numerous throughout these woods, there are some gray squirrels near the bottom lands. The number of squirrels, however, is limited by the confined range and by heavy hunting.

These woods are now used primarily for growing pine trees and for livestock grazing. Both uses limit the squirrel population. Nut-producing and fruit-producing trees are being cut out; this reduces the supply of food for both livestock and squirrels. Acorns are eaten by cattle and hogs as well as by squirrels, and the competition for this food is high in winter.

To improve these woods as habitats for squirrels, regulate grazing so as to reduce the competition for food. Plant corn along the edges for additional food. Save more hardwood trees and understory plants. In thinning, favor the better types of oak. The number of hardwoods to be saved depends on the number of squirrels desired. For maximum squirrel production, keep all the hardwoods; if few squirrels are desired, cut out all the hardwoods.

Cottontails are the common rabbits. Disease, weather conditions, and predation, as well as characteristics of the habitats, limit their numbers. Most of the loss of habitat results from livestock grazing. If the woods are protected against overgrazing, rabbits can obtain most of their summer food from the naturally occurring

<sup>3</sup> This section was prepared by CARL THOMAS, biology specialist, Soil Conservation Service.

plants, since they eat such a wide variety of foods. Winter foods, however, are normally in short supply. To supplement the food supply in winter, plant green winter cover crops near patches of dense cover.

#### PATOUTVILLE-JEANERETTE ASSOCIATION

Wildlife habitats on these soils are best suited to quail, doves, and rabbits. The area is intensively cultivated to poor crops, such as cotton, corn, and sweetpotatoes. A small acreage is planted to rice. The area is thickly populated, and the farms are small. Most of the area is open, but there is some woodland along the bayous and small drains. There are some improved pastures.

Bobwhite quail are numerous where food and cover are present. In general, however, the area is only fair to poor quail range because it is so intensively cultivated. Desirable habitats for quail are poorly distributed. Food is scarce, and, except in the few wooded areas, there is little protective cover during the winter months. Extensive fall and spring plowing seriously curtails the food supply. The livestock that graze the cotton and corn fields either eat the remaining plant cover or trample it. Thus, the quail population declines early in winter, and the few remaining quail take refuge in the scattered brier patches and woods.

The management practices needed to increase food and cover for the bobwhite quail are not common in the present pattern of land use. The landowner who wishes to increase the quail population will need to introduce at least some of the following new practices.

Limit grazing in crop fields as well as in odd areas on the farm and in wooded ravines. Establish planted field borders by disking early in spring and planting annual lespedeza or shrub lespedeza, or permit volunteer grasses and legumes to grow. Protect these borders from grazing. Leave a row or two of corn or soybeans near the edge of each field during harvest. Reduce the amount of fall and winter plowing. Establish  $\frac{1}{4}$ -acre to 1-acre food plots along wooded or brushy areas; plant these plots to vetch, browntopmillet, annual lespedezas, or soybeans.

This area contains many good habitats for mourning doves, which feed exclusively on grain and weed seeds without regard for cover. They are common in areas of intensive agriculture where fields ordinarily do not have a heavy cover of grasses or weeds. Seeds of the weeds and grasses that commonly grow in cotton and corn fields; soybeans planted for harvest; and doveweed (*Croton* sp.), which volunteers in pastures or on idle land, are all good foods. Harvested hay meadows ordinarily contain enough food to feed large flocks of these birds. A variety of good foods is provided in these agricultural byproducts.

Mourning doves may change feeding areas for no apparent reason, and it is difficult to know where management practices should be applied. If additional feeding areas are desired, however, plant fields to browntopmillet, either in rows or broadcast lightly. The seeds of this plant shatter and fall to the ground. When harvesting soybeans and corn, leave a few plants in the fields. "Hogged-off" cornfields also make good feeding areas.

Cottontail rabbits are popular game animals in this area. Rabbits are vegetarians and feed on a great variety of plants. Food is seldom scarce in spring and summer unless the land is heavily grazed. The scarcity of food in winter, however, ordinarily limits the number of rabbits. The greatest limiting factor is lack of adequate cover, since rabbits are hunted constantly by every flesh-eating creature.

Management practices that will provide adequate cover are those most needed to maintain and to increase the rabbit population. These same practices will also help to prevent soil erosion. To provide cover and some additional food, protect fence rows against burning, protect wooded and shrubby areas against overgrazing, plant winter cover crops, and preserve brier patches.

#### WET ALLUVIAL LAND ASSOCIATION

The wildlife habitats on these soils are best suited to squirrels and rabbits. These soils occupy the narrow bottom lands of local streams and are flooded frequently. They are covered by typical swamp hardwoods, chiefly redgum or sweetgum, blackgum, cypress, tupelo, hackberry, elm, haw, ash, ironwood, and a few species of oak. Most of the farm woodlands are grazed.

In general, these farm woodlands provide good range for squirrels and rabbits, but they are small and narrow. Few management practices are feasible. To increase the food supply for squirrels and rabbits, control grazing. In thinning woodlands, leave the trees that produce the most mast or other foods, such as cypress, haw, gum, and oak.

## *Genesis, Morphology, and Classification of the Soils*

Soil genesis consists of two steps: The accumulation of parent materials and the differentiation of horizons in the soil system through four basic kinds of changes—additions, removals, transfers, and transformations (8). These steps are not clear-cut and distinct nor do they lead in only one direction. They merge and overlap so that it is often impossible to tell where one begins and the other ends.

### **Factors of Soil Formation**

The nature of the soil at any point on the earth depends on the combination of five major factors at that point. These genetic factors—parent materials, climate, topography, living organisms, and time—control the soil-forming processes that contribute to the differentiation of horizons in the soil profile (6). The relative importance of each factor differs from place to place; in some places, one factor is more important, in others, another. In only a few places does one factor dominate the formation of the soil and fix most of its properties.

**Parent materials.**—Alluvial sediments, both general and local, constitute the parent materials of the soils in Acadia Parish. The general alluvium consists of pure and mixed sediments deposited by the Mississippi and

Red Rivers during the Pleistocene epoch. The Prairie formation, from which most of the soils formed, is the youngest of the Pleistocene terraces in Louisiana. It is above the present flood plains of these rivers.

The mode of origin of the Prairie formation is a subject of some controversy among geologists and pedologists. Some consider it to have been formed under the sea, or to have been flooded by sea water after deposition; others consider it to be of fluvial origin. Some think that parts of it were deposited by the wind. The sediments came from the wide reaches of the Mississippi and Red Rivers during the Peorian interglacial period. As a result, they were a mixture of comparatively fresh minerals. Migration of the rivers back and forth across much of the formation during the period of deposition resulted in the stratification of materials of different textures and from different sources.

Soil-forming processes have acted on these parent materials for about 30,000 years. Generally, the properties of the resulting soils differ greatly from those of the original materials.

Loesslike soils have formed in the natural levee deposits along stream scars identified as old Mississippi River channels. Claypan soils have formed in the natural levee deposits along the old channels of the Red River. Fine-textured soils that have a high content of organic matter and of exchangeable bases have formed in the slack-water deposits in both areas.

Local alluvium consists of soil materials eroded from the Prairie formation and deposited on the narrow flood plains of local streams. These sediments are generally uniform in chemical and mechanical composition. The soils are weakly developed and are subject to further deposition. The total area is small.

**Climate.**—Acadia Parish is in the humid, warm-temperate zone. Its climate is influenced principally by the subtropical latitude, the huge land mass to the north, and the warm waters of the Gulf of Mexico. The average temperature in summer is 81.5° F. and in winter 55.2° F. The average annual rainfall is 58.98 inches. Average temperatures and the distribution of rainfall by months are given in table 6, page 38. Throughout the parish, climate has been a uniform factor in soil development but has made only a slight impression on the soils.

As a rule, regions with a humid, warm-temperate climate have strongly weathered, leached, acid soils of low fertility. Ordinarily they are covered by forests. The Prairie formation is geologically young, however, and time and other genetic factors have not permitted complete weathering of the parent materials. Thus, the kinds of soils normally associated with a warm-temperate, humid climate are not dominant in Acadia Parish. Most of the soils and the vegetation resemble those commonly found in cooler and slightly drier climates.

**Topography.**—For the most part, Acadia Parish is gently undulating to nearly level. The Prairie formation slopes gradually toward the Gulf of Mexico at the rate of 2 feet per mile. The northern part of the parish is about 53 feet above sea level. The flood plain of the Mermentau River in the southwestern part of the parish is about 5 feet above sea level.

The surface of the Prairie formation is crossed and recrossed by abandoned stream channels, locally called coulees. These coulees are about 200 feet wide. Along their edge are old natural levees 10 to 20 feet high. From the tops of the levees, long gentle slopes lead out to depressions or flats. The slopes are about a mile long and have a gradient of less than 1 percent. The depressions are ordinarily less than a mile wide and have a slope of less than one-third of 1 percent. Pimple mounds were common before the area was cultivated, but most of them have been smoothed out in cultivated fields.

The flood plains of the active streams are 5 to 10 feet above sea level. They are flanked by narrow, wooded slopes.

The overall flatness contributes to the slow drainage of many of the soils in the parish. Water moves into the main drainageways slowly, especially from the depressions.

**Living organisms.**—Before settlement, native vegetation was the most important in the complex of living organisms that affected soil development. The activity of animals, such as earthworms and crayfish, was important in some soils.

The first settlers, the Acadians, found tall prairie grasses growing over much of the parish, oak-pine forests on the slopes adjacent to major streams, and oak-gum-cypress forests on the flood plains. The principal prairie grasses were *Andropogon* spp. on the better drained areas and *Panicum* spp. The differences in forest type also seem to have resulted from variations in drainage or in stream overflow.

The reason for a prairie-grass climax in a climate and on soils that ordinarily favor a forest climax is not clear. The presence of grasses supports the theory that the Prairie formation was deposited under the sea, since saline soils favor grass rather than forest. Possibly the forests invaded the better drained areas as salts were leached from the soils.

With the development of agriculture in Acadia Parish, man has become important to the future direction and rate of development of the soils. The plowing of the soils, the introduction of new plants, artificial improvement of natural drainage, flood irrigation, and the use of chemical plant foods and insecticides will be reflected in both the direction and rate of soil changes in the future. The complex of living organisms has been drastically changed by man's activity.

**Time.**—As a genetic factor, time determines the degree to which the other factors influence soil development. The soils in Acadia Parish are of two ages. The Prairie formation is the youngest of the Pleistocene terraces in Louisiana and is about 30,000 years old. The local alluvium is much younger and is being added to from time to time. Geologically, both formations are relatively young.

## Morphology and Composition

Soil morphology in Acadia Parish is expressed in distinct horizons. Examples of such differentiation between horizons are shown in the profiles of the Crowley, Patoutville, and Acadia soils. Only a few soils show no prominent horizon development.

Horizon differentiation in these soils is the result of one or more of the following processes: Accumulation of organic matter; weathering and movement of silicate clay minerals; leaching of soluble salts and carbonates; and the reduction, oxidation, and segregation of iron and manganese.

In all the soils in the parish, enough organic matter has accumulated, mostly in the form of humus, to form an A<sub>1</sub> horizon. In the soils formed under forest, such as the Acadia and Wrightsville, the A<sub>1</sub> horizon is relatively thin; the amount of organic matter is small, and most of it is in the uppermost few inches. In the grass-covered soils, such as the Jeanerette and Crowley, the A<sub>1</sub> horizon is thicker, and the organic matter extends to a greater depth.

The amount of organic matter in a soil depends on the balance between the rate of addition and the rate of decay. In most of the soils in the parish, cultivation and artificial drainage have increased the rate of decay but decreased the rate of overall addition. As a result, there has been a marked reduction in the organic-matter content of cultivated soils.

The weathering and movement of silicate clay minerals have contributed to the differentiation of horizons in most of the soils. The parent material had a very high content of primary minerals and contained more coarse material than the developed soils. Primary minerals are disappearing, and clay minerals are forming in place. The soils also indicate the downward movement of clay minerals from the A horizon to the B horizon. The B horizon of the Crowley, Acadia, and Patoutville soils contains two to four times as much clay as the A horizon. The B horizon of fine-textured soils, such as Midland silty clay loam, ordinarily contains twice as much clay as the A horizon. The prominent ped coatings in the B horizon of most soils are indications also of the downward movement of clay minerals. Clay plugs and clay films in root channels and cracks are common. Redeposited silica probably contributes to the density and brittleness of the fragipans in the Richland, Olivier, and Patoutville soils.

Leaching of soluble salts and carbonates has occurred in all the soils in the parish. The parent materials had a very high content of exchangeable bases and a high degree of base saturation. If they were deposited under the sea or flooded by sea water, as some authorities believe, they may have been strongly saline. The upper horizon of most of the soils in the parish, e.g., Crowley, Patoutville, Acadia, Wrightsville, Richland, Olivier, and Midland soils, has a low degree of base saturation. Ordinarily, these soils are strongly acid, and, to a depth of more than 3 feet, free of lime concretions. Commercial fertilizers, lime, and irrigation water that contains large amounts of soluble salts and carbonates have added bases to cultivated soils. In some places, the recent rate of gain from these sources has been greater than the rate of loss.

In most of the soils, the soluble salts and carbonates leached from the upper horizon have been segregated, or redeposited, in lower horizons. The C<sub>ca</sub> horizons in Jeanerette silty clay loam and in Iberia silty clay are the



Figure 14.—Lime concretions in Crowley silt loam, 0 to 1 percent slopes.

result of the accumulation of calcium carbonate. Lime concretions make up as much as 33 percent of the C<sub>ca</sub> horizons in Jeanerette silty clay loam. There are pockets of lime concretions (fig. 14) somewhere in the profile in most of the soils in the parish. Ordinarily, the pH value increases with depth. The C horizon of many of the soils is mildly alkaline.

Reduction, oxidation, and segregation of iron and manganese have occurred to some extent in all the soils in Acadia Parish. The reduction and transfer of iron, a process often called gleying, has been important in horizon differentiation in most of the soils. The gray-colored horizon that occurs in most of the soils indicates the reduction of iron oxides. Reduction is commonly accompanied by some transfer of the iron, which may be either local or general in character. The reduced iron may be entirely removed from some horizons or even from the soil profile. In most of the soils in Acadia Parish, however, it has been moved only a short distance into nearby horizons. In many of the soils, iron has been segregated within horizons to form red, brown, and yellow mottles. Both iron and manganese concretions occur in most soils in the parish. These concretions seem to form under conditions of alternating reduction and oxidation.

## Laboratory Data

Table 4 summarizes the chemical properties and the mineralogical composition of samples from 11 profiles representing 9 soil types in Acadia Parish.

The pH value was determined by a pH meter in a 1:1 soil-water (20 grams of soil to 20 milliliters of water) suspension that was allowed to stand overnight. The cation exchange capacity was measured by the ammonium acetate method in which the ammonia was distilled directly from the soil. The values for calcium, magnesium, potassium, and sodium were determined in the ammonium-acetate filtrate by a Beckman DU Spec-

trophotometer with a flame photometer attachment, using a photo multiplier. The values for exchangeable hydrogen were determined by the difference between the cation exchange capacity and the sum of the values for calcium, magnesium, potassium, and sodium. The degree of base saturation was calculated from the sum of the bases and the cation exchange capacity.

Organic carbon was determined by the modified Walkley-Black method. No silver sulfate was used and no heat except the heat of reaction from 96+ percent sulfuric acid. Nitrogen was determined by the Kjeldahl method modified to include nitrate nitrogen.

TABLE 4.—Chemical and mineralogical characteristics

[Chemical determinations by M. Stelly, Louisiana Agricultural Experiment Station; mineralogical analyses by G. W. Kunze, Agricultural and

Soil and horizon	Depth	Reaction	Exchangeable cations				
			Ca	Mg	K	Na	H
Acadia silt loam, 1 to 3 percent slopes (81-85):	<i>Inches</i>	<i>pH</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>
A <sub>p1</sub> -----	0 to 3	5.1	2.75	1.91	0.65	0.18	9.78
A <sub>p2</sub> -----	3 to 7	5.4	3.84	4.12	.33	.27	7.16
A <sub>2g</sub> -----	7 to 17	5.4	3.54	4.12	.25	.75	6.70
B <sub>2g</sub> -----	17 to 30	4.8	6.51	8.22	.43	2.11	13.37
B <sub>3g</sub> -----	30 to 40	5.1	7.44	9.74	.38	2.59	7.68
Crowley silt loam, 0 to 1 percent slopes (21-26):							
A <sub>p1</sub> -----	0 to 3	7.5	8.34	1.24	.21	.41	1.02
A <sub>p2</sub> -----	3 to 7	7.6	9.18	1.76	.21	.61	-----
A <sub>2g</sub> -----	7 to 12	7.8	6.62	3.18	.24	1.12	1.67
B <sub>1g</sub> -----	12 to 16	7.3	6.08	4.83	.20	2.12	5.00
B <sub>2g</sub> -----	16 to 24	6.2	6.16	7.81	.26	3.27	9.67
B <sub>3g</sub> -----	24 to 40	7.4	7.08	8.45	.30	3.58	5.78
Crowley silt loam, 0 to 1 percent slopes (71-76):							
A <sub>p1</sub> -----	0 to 3	4.9	1.84	.49	.29	.43	6.91
A <sub>p2</sub> -----	3 to 8	5.3	2.68	1.55	.23	.42	5.39
A <sub>2g</sub> -----	8 to 13	6.4	3.50	3.23	.15	.86	4.13
B <sub>1g</sub> -----	13 to 17	5.6	3.94	5.04	.22	1.32	11.82
B <sub>2g</sub> -----	17 to 32	5.5	5.63	8.39	.33	2.14	11.09
B <sub>3g</sub> -----	32 to 45	6.7	5.74	8.53	.24	2.10	7.12
Crowley silt loam, 0 to 1 percent slopes (61-66):							
A <sub>p1</sub> -----	0 to 4	5.0	1.70	.16	.37	.06	6.45
A <sub>p2</sub> -----	4 to 7	5.4	1.42	.54	.25	.13	3.26
A <sub>2g</sub> -----	7 to 13	5.9	1.82	.89	.26	.23	3.03
B <sub>1g</sub> -----	13 to 18	5.5	3.16	2.66	.31	.71	7.34
B <sub>2g</sub> -----	18 to 33	5.7	6.75	5.35	.32	1.26	9.40
B <sub>3g</sub> -----	33 to 46	5.8	8.49	7.04	.29	1.52	4.08
Jeanerette silt loam, 0 to 1 percent slopes (251-255):							
A <sub>1p</sub> -----	0 to 5	6.4	6.03	1.73	.27	.10	2.98
A <sub>12</sub> -----	5 to 12	6.6	11.98	5.51	.28	.11	5.00
B <sub>2</sub> -----	12 to 16	7.5	17.90	6.72	.33	.18	-----
B <sub>30a</sub> -----	16 to 28	7.6	16.75	7.52	.30	.16	-----
B <sub>3</sub> -----	28 to 50	7.4	10.08	7.21	.30	.34	5.19
Jeanerette silty clay loam, 0 to 1 percent slopes (271-276):							
A <sub>p1</sub> -----	0 to 3	6.0	14.65	4.30	.30	.10	7.80
A <sub>p2</sub> -----	3 to 7	5.9	14.25	4.51	.28	.25	7.33
B <sub>1</sub> -----	7 to 15	6.2	17.22	3.38	.24	.28	4.40
B <sub>2g</sub> -----	15 to 34	6.9	17.26	2.83	.25	.26	6.06
C <sub>1cag</sub> -----	34 to 50	7.4	21.75	3.65	.30	.29	-----
C <sub>2g</sub> -----	50 to 90	7.2	18.52	3.51	.33	.28	1.62
Midland silt loam, 0 to 1 percent slopes (91-95):							
A <sub>p1</sub> -----	0 to 3	6.1	4.55	1.59	.22	.37	6.41
A <sub>p2</sub> -----	3 to 6	6.3	4.78	3.07	.13	.50	5.76
A <sub>2g</sub> -----	6 to 18	6.7	4.46	3.85	.16	.86	4.87
B <sub>2g</sub> -----	18 to 30	5.8	4.26	8.32	.27	1.44	10.09
B <sub>3g</sub> -----	30 to 42	7.5	5.69	16.18	.25	2.38	4.66
Midland silty clay loam, 0 to 1 percent slopes (11-15):							
A <sub>p1</sub> -----	0 to 3	5.3	6.08	3.11	.27	.44	10.28
A <sub>p2</sub> -----	3 to 6	5.6	6.75	3.28	.21	.47	10.11
B <sub>2</sub> -----	6 to 13	6.9	12.60	12.36	.28	.82	8.24
B <sub>3</sub> -----	13 to 18	7.4	14.41	14.16	.24	.92	7.54
C <sub>g</sub> -----	18 to 40	8.0	17.18	14.36	.22	.93	1.73
Olivier silt loam, 1 to 3 percent slopes, eroded (181-184):							
A <sub>p</sub> -----	0 to 5	5.6	3.48	1.12	.44	.09	5.68
B <sub>2</sub> -----	5 to 15	5.4	4.16	3.46	.33	.19	8.24
B <sub>3m1</sub> -----	15 to 32	6.3	4.75	4.51	.32	.57	5.14
B <sub>3m2</sub> -----	32 to 55	6.2	5.78	2.65	.21	.49	3.60

of nine principal soil types in Acadia Parish

Mechanical College of Texas, for Louisiana State University; sample identification numbers shown in parentheses following soil name]

Cation exchange capacity	Degree of base saturation	Organic carbon	Nitrogen	C/N ratio	Mineral composition of the clay fraction				
					Illite	Kaolinite	Montmorillonite	Quartz	Vermiculite
<i>Meg./100 gm.</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
15.3	35.9	0.786	0.098	8.0					
15.7	54.5	.496	.065	7.6	10 to 40	10 to 40	<40	<10	
15.4	56.4	.221	.036	6.1					
30.6	56.4	.122	.049	2.5		10 to 40	<40		
27.8	72.4	.085	.033	2.6	<10	10 to 40	<40		
11.2	90.9	.710	.094	7.6	<10	10 to 40	10 to 40	<10	
11.5	102.5	.631	.086	7.3	10 to 40	10 to 40	<40	<10	
12.8	87.0	.276	.057	4.8					
18.2	72.6	.402	.072	5.6					
27.2	64.4	.448	.073	6.1	<10	10 to 40	<40	<10	
25.2	77.1	.176	.033	5.3	<10	10 to 40	<40	<10	
10.0	30.6	.725	.090	8.1					
10.3	47.5	.609	.076	8.0	10 to 40	10 to 40	10 to 40	<10	
11.9	65.2	.360	.061	5.9					
22.3	47.1	.502	.089	5.6					
27.6	59.8	.562	.088	6.4	10 to 40	10 to 40	<40	<10	
23.7	70.0	.097	.028	3.5	<10	10 to 40	<40	<10	
8.7	26.3	.797	.103	7.7	10 to 40	10 to 40	<40	<10	
5.6	41.8	.216	.046	4.7					
6.2	51.4	.144	.038	3.8	10 to 40	10 to 40		<10	
14.2	48.2	.279	.060	4.7					
23.1	59.3	.307	.058	5.3	10 to 40	10 to 40	<40	<10	
21.4	81.0	.074	.025	3.0					
11.2	73.3	.619	.089	7.0	10 to 40	10 to 40	<40	<10	
23.2	78.4	.666	.075	8.9					
24.6	102.1	.367	.055	6.7	10 to 40	10 to 40	<40	<10	
24.1	103.7	.254	.039	6.5					
22.9	77.3	.103	.022	4.7	10 to 40	10 to 40	<40	<10	
26.3	70.3	1.056	.147	7.2					
26.9	72.7	.925	.126	7.3	10 to 40	10 to 40	<40	<10	
25.4	82.7	.645	.085	7.6					
27.5	84.1	.308	.046	6.7	<10	10 to 40	<40	<10	
24.7	105.1	.231	.034	6.8					
24.0	93.2	.192	.027	7.1	<10	10 to 40	<40	<10	
13.1	51.2	.783	.099	7.9					
13.2	56.4	.684	.095	7.2	10 to 40	10 to 40	<40	<10	
14.1	65.5	.421	.070	6.0					
24.4	58.6	.330	.061	5.4	10 to 40	10 to 40	<40	<10	
28.6	83.7	.066	.020	3.3	10 to 40	10 to 40	<40	<10	
19.9	48.4	.768	.112	6.9	<10	10 to 40	<40	<10	
20.8	51.4	.722	.095	7.6	<10	10 to 40	<40	<10	
34.3	76.0	.474	.061	7.8	<10	10 to 40	<40	<10	
37.3	79.8	.210	.030	7.0	<10	10 to 40	<40	<10	
34.4	95.0	.090	.021	4.3	<10	10 to 40	<40	<10	
10.8	47.5	.617	.095	6.5	10 to 40	10 to 40	10 to 40	<10	
16.4	49.7	.452	.075	6.0	10 to 40	10 to 40	10 to 40	<10	
15.3	66.4	.165	.054	3.1					
12.7	71.7	.064	.018	3.6	10 to 40	10 to 40	<40	<10	

TABLE 4.—*Chemical and mineralogical characteristics*

[Chemical determinations by M. Stelly, Louisiana Agricultural Experiment Station; mineralogical analyses by G. W. Kunze, Agricultural and

Soil and horizon	Depth	Reaction	Exchangeable cations				
			Ca	Mg	K	Na	H
Patoutville silt loam, 0 to 1 percent slopes (41-45):	<i>Inches</i>	<i>pH</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>	<i>Meq./100 gm.</i>
A <sub>1</sub> -----	0 to 4	6.0	2.30	0.59	0.33	0.07	3.60
A <sub>2</sub> -----	4 to 8	5.5	3.45	1.64	.26	.22	4.56
B <sub>2</sub> -----	8 to 16	5.8	6.15	5.12	.32	.76	8.08
B <sub>3m1</sub> -----	16 to 36	6.4	6.91	5.26	.33	1.24	5.33
B <sub>3m2</sub> -----	36 to 46	6.4	7.24	5.44	.28	1.19	3.44
Richland silt loam, 1 to 3 percent slopes, eroded (121-125):							
A <sub>11</sub> -----	0 to 4	5.2	2.85	.67	.35	.09	6.49
A <sub>12</sub> -----	4 to 12	4.9	2.55	.74	.28	.09	6.02
A <sub>3</sub> -----	12 to 16	4.8	2.16	.39	.29	.08	9.53
B <sub>2</sub> -----	16 to 26	5.0	2.61	1.29	.28	.25	10.34
B <sub>3m</sub> -----	26 to 40	5.3	3.77	3.06	.31	.24	8.51

<sup>1</sup> Or chlorite, 10 to 40 percent.

### Classification of the Soils by Higher Categories

In the comprehensive system of soil classification currently followed in the United States (9), the soils are placed in six categories. Beginning with the highest, the six categories are the order, suborder, great soil group, family, series, and type.

In the highest category all the soils in the country are grouped into three orders, whereas thousands of soil types are recognized in the lowest category. The categories of suborder and family have never been fully developed and thus have been little used. Attention has been given mainly 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.

The three orders in the highest category of the classification scheme are zonal, intrazonal, and azonal. The zonal order comprises soils with evident, genetically related horizons that reflect the predominant influence of climate and living organisms in their formation. None of the soils in Acadia Parish is thought to be in this order, although soils in several series have some characteristics of zonal soils. The intrazonal order includes soils with evident, genetically related horizons that reflect the dominant influence of a local factor, such as topography or parent materials, over the effects of climate and living organisms. All the soils in Acadia Parish are considered to be in this order. The azonal order includes soils that lack distinct, genetically related horizons, commonly because of youth, resistant parent materials, or steep topography.

All the soils in Acadia Parish are classified as members of the intrazonal order. Two great soil groups—Planosols and Humic Gley soils—are represented. These groups are discussed briefly in the following paragraphs. Table 5 lists the soil series by great soil groups and gives some of the distinguishing characteristics of each

series. Representative profiles of all the series are described in the section "Descriptions of the Soils."

Miscellaneous land types, of which there are two in Acadia Parish—Wet alluvial land and Sloping land, loamy and clayey sediments—are not classified into higher categories.

### Planosols

Planosols are intrazonal soils that have one or more horizons abruptly separated from and sharply contrasting to an adjacent horizon because of compaction, high clay content, or mild cementation (9). These horizons are referred to as pans. Pans rich in clay are called claypans. Those rich in either silt or sand, or both, but having a relatively low content of clay are known as fragipans. Both types of pans are present in the soils in Acadia Parish.

The Crowley and Acadia series are Planosols with claypans. The B horizon is abruptly separated from the A horizon (fig. 15), and it contains as much as four times the amount of clay as the A horizon.

Other claypan Planosols are the Midland, Wrightsville, and Carroll soils, which have a thin A<sub>1</sub> horizon low in organic-matter content. The gleyed layers are predominantly gray, but they have some yellowish-brown mottling. The B horizon contains about twice as much clay as the A horizon. The B and C horizons are 45 to 70 percent silt.

The Olivier, Patoutville, and Richland soils are Planosols with fragipans. The B<sub>m</sub> horizon, which is the fragipan, is brown and yellow, mottled, firm silty clay loam to silt loam, and it is about 70 to 80 percent silt. It has coarse, prismatic structure and is brittle when moist.

### Humic Gley soils

Humic Gley soils are poorly to very poorly drained hydromorphic soils that have dark-colored organic-mineral horizons of moderate thickness underlain by mineral gley horizons.

*of nine principal soil types in Acadia Parish—Continued*

Mechanical College of Texas, for Louisiana State University; sample identification numbers shown in parentheses following soil name]

Cation exchange capacity	Degree of base saturation	Organic carbon	Nitrogen	C/N ratio	Mineral composition of the clay fraction				
					Illite	Kaolinite	Montmorillonite	Quartz	Vermiculite
<i>Meq./100 gm.</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
6.9	47.7	.501	.072	7.0					
10.1	55.0	.342	.067	5.1	10 to 40	10 to 40	10 to 40	<10	<sup>1</sup> 10 to 40
20.4	60.5	.421	.076	5.5	10 to 40	10 to 40	10 to 40		<sup>1</sup> 10 to 40
19.1	72.0	.168	.040	4.2					
17.6	80.4	.066	.032	2.1	<10	10 to 40	<40	<10	
10.4	37.9	.897	.125	7.0					
9.7	37.8	.736	.108	6.8	10 to 40	10 to 40		<10	<sup>1</sup> 10 to 40
12.4	23.4	.821	.110	7.5					
14.8	30.0	.453	.088	5.1	10 to 40	10 to 40	10 to 40	<10	
15.9	46.5	.239	.055	4.3	10 to 40	10 to 40	10 to 40	<10	



Figure 15.—Profile of Crowley silt loam, 0 to 1 percent slopes, in a ricefield.

The Jeanerette and Iberia soils are in this great soil group. They have a very dark gray surface horizon. The gleyed horizons are gray mottled with yellowish brown. The Jeanerette soils have some characteristics of Chernozems, which are zonal soils. The B and C horizons contain concretions of calcium carbonate.

### *General Nature of the Parish*

Acadia Parish was named for the French Acadians who first settled the area and whose descendants formed the greater part of the population for many years. The Acadians arrived in New Orleans in January 1767, after they had been driven from Canada and had wandered in exile for several years. From New Orleans they were sent west to form settlements. The first colony was established at Opelousas, in what is now St. Landry Parish, which for a long time included Acadia Parish. From this point the Acadians gradually extended their settlements over the southwestern part of Louisiana.

The Acadian settlers preferred the wooded areas along the streams. This topography was better suited to the agriculture they practiced—the land was better drained; there was wood for lumber and fuel and abundant water for their herds of cattle. For more than a hundred years most of the rural population made few gains in wealth and little improvement in agricultural conditions.

The wealth of the early Acadians consisted of herds of scrub cattle and droves of inferior ponies. These animals grazed on the tall grasses of the prairie, which was common range and at that time considered worthless as cropland. Small patches of corn and rice were grown for home use in woodland clearings. When sugarcane was introduced to the agriculture, sirup and sugar were made in small quantities for home consumption.

TABLE 5.—*Characteristics and*

Great soil group and series	Brief description of major horizons in profile <sup>1</sup>	Relative elevation
Planosols with claypan: Central concept:		
Acadia.....	Brown, very strongly acid silt loam..... Red, yellowish-brown, and gray, mottled, very strongly acid, heavy silty clay. Gray and yellowish-brown, mottled, strongly acid, heavy silty clay.	Intermediate.....
Carroll.....	Dark grayish-brown, strongly acid silt loam..... Grayish-brown mottled with yellowish-brown, very strongly acid silty clay. Light brownish-gray mottled with yellowish-brown, medium acid silty clay loam.	Low.....
Crowley.....	Dark-gray, very strongly acid to moderately alkaline silt loam..... Red and gray mottled, medium acid to moderately alkaline silty clay. Yellowish-brown mottled with gray, medium acid to moderately alkaline silty clay.	High and intermediate.....
Midland.....	Gray to dark-gray, strongly acid to very strongly acid silt loam to silty clay loam. Strong-brown to light olive-brown mottled with gray, very strongly acid to mildly alkaline, heavy silty clay. Gray mottled with light olive-brown, mildly alkaline silty clay.	Low.....
Wrightsville.....	Grayish-brown, strongly acid silt loam..... Grayish-brown mottled with dark yellowish-brown, strongly acid silty clay. Olive-gray mottled with dark yellowish-brown, mildly alkaline silty clay.	Low.....
Planosols with fragipan:		
Olivier.....	Dark-brown, strongly acid silt loam..... Dark yellowish-brown, very strongly acid silty clay loam. Brown, yellowish-brown, and gray, mottled, medium acid silty clay loam.	High and intermediate.....
Patoutville.....	Dark grayish-brown, strongly acid silt loam..... Brown mottled with red and yellowish-brown, medium acid, light silty clay. Gray mottled with yellowish-brown, slightly acid silty clay loam.	High and intermediate.....
Richland.....	Dark grayish-brown, strongly acid silt loam..... Dark-brown and grayish-brown, mottled, very strongly acid silty clay loam. Light brownish-gray, dark-brown, and yellowish-brown, mottled, strongly acid silty clay loam.	High.....
Humic Gley soils: Central concept:		
Iberia.....	Very dark gray, medium acid silty clay..... Gray mottled with yellowish-brown, neutral clay. Light brownish-gray mottled with yellowish-brown, moderately alkaline silty clay; lime concretions common in lower part of the subsoil.	Low.....
Intergrading to Chernozems: Jeanerette.....	Very dark gray to dark gray, medium acid silt loam to silty clay loam..... Grayish-brown and olive-brown, moderately alkaline silty clay loam. Light olive-brown and gray, mottled, alkaline silty clay or silty clay loam; at 12 to 50 inches, accumulation of lime concretions.	Intermediate.....

<sup>1</sup> Profiles described are not materially affected by accelerated erosion.

<sup>2</sup> As measured by the number of important genetic horizons and the degree of contrast between them.

Louisiana became a part of the United States in 1803. After the Civil War, rice became one of the important money crops of the alluvial lands of the State, and rice-growing was attempted on a slightly larger scale in this parish. At first, the crop depended on local rainfall for irrigation, and it was planted and harvested by hand.

Irrigation by steam pump was first used successfully in 1885. The present canal system was introduced in 1894. Settlers who had worked in the wheatfields of the Northwest were the first to use machinery in the ricefields. With slight modifications, the machinery used in the wheatfields was used successfully to sow, harvest, and thresh rice.

Acadia Parish was formed from a part of St. Landry Parish in 1886. In the following year, the town of Crowley was laid out. It grew rapidly and became the parish seat. Settlers from all parts of the country were attracted by the profits of ricegrowing. In 1903, there was still some unoccupied land in the northern and western parts of the parish; today, all this land is privately owned, and most of the forest has been cleared and developed as cropland.

In 1901, oil was first discovered in Louisiana at Evangeline in Acadia Parish. This field has been in constant production. There are numerous oil and gas fields in the parish.

*genetic relationships of the soils*

Parent material	Native vegetation	Slope	Drainage	Degree of profile development <sup>2</sup>
Silty and clayey general alluvium from Mississippi and Red Rivers.	Forest.....	Convex; 0 to 3 percent...	Imperfect (runoff, medium; internal drainage, slow).	Strong.
Silty and clayey general alluvium, mostly from Mississippi River.	Grasses and forest...	Concave; 0 to 1 percent...	Poor (runoff, very slow; internal drainage, slow).	Medium.
Silty and clayey general alluvium from Mississippi and Red Rivers.	Grasses.....	Convex; 0 to 3 percent...	Imperfect (runoff, medium; internal drainage, slow).	Strong.
Silty and clayey general alluvium from Mississippi and Red Rivers.	Grasses and sedges..	Concave; 0 to 1 percent...	Poor (runoff, very slow; internal drainage, slow).	Medium.
Silty and clayey general alluvium from Mississippi and Red Rivers.	Forest.....	Concave; 0 to 1 percent...	Poor (runoff, very slow; internal drainage, slow).	Medium.
Silty general alluvium, mostly from Mississippi River.	Grasses and forest...	Convex; 1 to 3 percent...	Imperfect (runoff, medium; internal drainage, slow).	Medium.
Silty and clayey general alluvium from Mississippi and Red Rivers.	Grasses and forest...	Convex; 0 to 3 percent...	Imperfect (runoff, medium; internal drainage, slow).	Strong.
Silty general alluvium, mostly from Mississippi River.	Grasses and forest...	Convex; 1 to 3 percent...	Moderately good (runoff, medium; internal drainage, medium).	Medium.
Clayey general alluvium, mostly from Mississippi River.	Grasses and sedges..	Concave; 0 to 1 percent...	Poor (runoff, very slow; internal drainage, slow).	Weak.
Silty and clayey general alluvium, mostly from Mississippi River.	Grasses.....	Convex; 0 to 1 percent...	Imperfect (runoff, slow; internal drainage, slow).	Medium.

After the prairie soils had been profitably cultivated to rice, their value rose from the 50 cents to \$1 an acre received when they were used as range to \$10 to \$25 an acre by 1903. Improved and irrigated farms sold at that time for \$25 to \$75 an acre, and woodlands for \$3 to \$10 an acre. Very little land is for sale at the present time. The minimum price for agricultural land exclusive of mineral rights is about \$300 an acre. Speculation in oil and production of oil have removed much land from the market.

### Climate

The climate of Acadia Parish is influenced mostly by its subtropical latitude, by the huge land mass to the

north, and by the proximity to the warm waters of the Gulf of Mexico. Local modifications are caused by differences in relief. In summer, the prevailing southerly winds provide a moist tropical climate, but occasional westerly to northerly winds cause periods of hot dry weather. In winter, the parish is subjected alternately to moist tropical air and to dry cold air, and there are relatively sudden and extreme changes in temperature. Data on the temperature and precipitation at the official weather station at Crowley are given in table 6.

For 70 percent of the year, the relative humidity is 60 percent or more; it is less than 40 percent only about 4 percent of the year. The relative humidity does not exceed 79 percent when the temperature is 90 degrees or higher.

TABLE 6.—*Temperature and precipitation at Crowley Experiment Station, Acadia Parish, Louisiana*

[Elevation, 25 feet]

Month	Temperature <sup>1</sup>			Precipitation <sup>2</sup>			
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1924)	Wettest year (1940)	Average snowfall
December	54.3	84	17	5.60	4.94	8.18	
January	54.2	82	9	5.78	6.72	2.29	0.2
February	57.0	85	14	4.17	3.95	7.00	0
Winter	55.2	85	9	15.55	15.61	17.47	.2
March	61.0	93	25	4.75	2.29	5.38	( <sup>3</sup> )
April	68.1	93	32	3.65	2.74	7.88	0
May	74.3	98	43	5.76	1.40	1.09	0
Spring	67.8	98	25	14.16	6.43	14.35	( <sup>3</sup> )
June	80.5	102	55	4.95	1.76	12.56	0
July	82.0	100	62	6.17	1.42	5.70	0
August	81.9	103	61	6.05	1.80	37.46	0
Summer	81.5	103	55	17.17	4.98	55.72	0
September	78.3	99	44	4.26	1.42	3.69	0
October	69.2	94	29	2.65	.00	.16	0
November	60.1	88	21	5.19	2.14	15.25	0
Fall	69.2	99	21	12.10	3.56	19.10	0
Year	68.4	103	9	58.98	30.58	106.64	.2

<sup>1</sup> Average temperature based on a 44-year record, through 1952; highest temperature on a 39-year record and lowest temperature on a 36-year record, through 1952.

<sup>2</sup> Average precipitation based on a 45-year record, through 1955; wettest and driest years based on a 44-year record, in the period 1910-1955; snowfall based on a 23-year record, through 1952.

<sup>3</sup> Trace.

Once in every 4 years the temperature may fall to 20 degrees or lower for one or more days. Temperatures of 32 degrees or lower occur on an average of 14 days a year; temperatures of 90 degrees or higher occur on an average of 98 days a year. The average frost-free period is 280 days. The average date of the last frost in spring is February 17, and that of the first frost in fall is November 24. Frosts have been recorded as late as March 4 and as early as November 13.

Damaging hailstorms occur about once every 18 years, and damaging windstorms about once every 6 years. About 38 hurricanes may move over the parish, or close enough to affect it, in a 100-year period. There is a chance of a tornado about once every 18 years. About once every 3 years there may be a measurable snowfall.

## Native Vegetation

Although the Coastal Prairie, of which Acadia Parish is a part, is not entirely treeless, it can be considered a true prairie. Generally, the only trees visible are those growing on the flood plains or on the marginal slopes of streams. Where it is not under cultivation, the prairie is essentially grassland (4).

What plants grew on the prairie at the time of settlement can be determined by observing the few relict areas. On the higher lying and better drained soils, eastern gamagrass (*Tripsacum dactyloides*), Indiangrass (*Sorghastrum nutans*), big bluestem (*Andropogon gerardi*), and pinehill bluestem (*Andropogon saccharoides*) were the dominant plants. On the lower lying and more poorly drained soils, switchgrass (*Panicum virgatum*); paille fine (*Panicum hemitomon*); fall panicum (*Panicum dichotomiflorum*); giant cutgrass, also known as southern wildrice (*Zizaniopsis miliacea*); and spikesedge (*Eleocharis* sp.) were dominant.

After the prairie has been cultivated to rice or to row crops and then allowed to grow to volunteer plants and grasses for several years, these plants are present on the higher, better drained soils: cypressweed (*Eupatorium compositifolium*), birdeye (*Caperonia castaneaefolia*), goatweed, also known as woolly croton, (*Croton capitatus*), and bermudagrass (*Cynodon dactylon*). On the lower lying, more poorly drained soils, millet (*Echinochloa* sp.), vaseygrass (*Paspalum urvillei*), spikesedge, and carpetgrass (*Axonopus affinis*) are present. Bermudagrass, lespedeza (*Lespedeza* sp.), whiteclover (*Trifolium repens*), dallisgrass (*Paspalum dilatatum*), and carpetgrass (*Axonopus affinis*) are the common plants in tame pastures.

Pine, hickory, gum, and oak trees make up the forests that occur on the low benches and slopes adjacent to the streams. Gum, cypress, oak, and willow are the trees of the flood-plain forests. Evergreen oaks, commonly called "live oaks," are common in towns and around homesteads on the prairie, but they are not native to this area.

## Agriculture

In 1954, 343,697 acres, or 81.1 percent of the parish area, was in farms. There were 3,310 farms; the average size was 103.8 acres. Of the total land in farms, 276,286 acres was in cropland; 36,492 acres in woodland; 12,485 acres in pasture (not cropland and not woodland); and 18,434 acres in houselots, roads, and other miscellaneous uses.

The agriculture of the parish is based on rice. It is here that it was first demonstrated that rice could be grown on the prairies of southwestern Louisiana and southeastern Texas on a larger scale than anywhere else in the United States. It is here that the industry was first fully developed.

Livestock production fits in especially well with the growing of rice. At the present time, two-thirds of the developed riceland is in rotation pasture, since present regulations restrict the acreage in rice.

The forested areas are confined mostly to the stream bottoms and the adjacent slopes. These woodlands are distributed among many owners and make up only a small percentage of their holdings. There is no good market for timber products in the immediate area. Present trends indicate that, within a short time, most of the wooded soils suitable for cultivation will be cleared and used for rice and cattle raising.

In 1954, 94 percent of the agricultural income came from crops and nearly 6 percent from livestock and livestock products; only two-hundredths of 1 percent came from forest products.

## Types and Sizes of Farms

A typical rice farm contains about 320 acres. Under the present quota system about 100 acres is planted to rice annually. The rice stubble is grazed along with about 180 acres of rotation pasture that consists of the volunteer grasses that follow rice. There is no permanent pasture. Bermudagrass or summer legumes may be grown for hay on about 20 acres. Hay is also made from rice straw at harvest time. About 50 head of cattle are kept; the calves are sold by November 1. Roads, canals, ditches, and buildings take up about 20 acres. About 60 percent of these farms are owner-operated. Seasonal labor is hired, and there is enough machinery available to carry on the farming operations. About 50 percent of the farms have their own irrigation systems for flooding rice. The owner ordinarily receives additional income from oil leases or royalties.

The farms in the northeastern part of the parish are smaller than those in the ricegrowing section. Here the principal crops are cotton, sweetpotatoes, and corn. The undulating topography and the more permeable soils in this section are better suited to these crops.

A typical row-crop farm contains about 40 acres. About 12 acres is planted to cotton under the present quota system, 12 acres to corn and soybeans, and 10 acres to sweetpotatoes. Farm buildings, headlands, and ditches take up about 6 acres. There are ordinarily 6 head of cattle, 2 brood sows, and a few chickens on each farm. Hay is either produced on the headlands or purchased. About 25 percent of the farms are owner-operated. Seasonal labor is hired. In addition to the agricultural income, the owner receives income from oil leases or royalties.

## Principal Crops

Rice, cotton, sweetpotatoes, corn, and hay are the principal crops in Acadia Parish. The acreage in these crops in three census years is shown in table 7. Rice and cotton are now subject to acreage allotments and marketing quotas; under these programs, there is very little annual variation in the acreage planted to these crops.

TABLE 7.—Acreage of the principal crops

Crop	1944	1949	1954
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
Rice threshed or combined.....	113, 576	106, 833	119, 120
Cotton harvested.....	16, 962	18, 660	14, 523
Sweetpotatoes harvested for home use or for sale.....	8, 488	1 8, 407	2 9, 284
Corn for all purposes.....	11, 036	6, 733	7, 095
Hay crops, total.....	1, 056	2, 279	4, 019

<sup>1</sup> Does not include acreage for farms with less than 15 bushels harvested.

<sup>2</sup> Does not include acreage for farms with less than 20 bushels harvested.

## Rice

Satisfactory rice crops depend on high temperatures during the growing season, especially relatively high mean temperatures, on a dependable supply of fresh water for irrigation, on good surface drainage, and on soils that are comparatively level and will hold water well enough to permit flooding for several months with little loss by seepage (3).

On most rice farms in Acadia Parish, tractor-drawn land planes are used to level or smooth the fields. Leveling is necessary for good surface drainage and for more uniform flooding. It also reduces the number of levees needed.

The method of seedbed preparation depends on whether rice is to be planted in a dry seedbed or in water. For either method of seeding, the soil is first worked to a depth of 3 to 4 inches, ordinarily by a disk tiller. For dry planting, the soil is plowed late in fall or in winter to allow time for the plant residues to decay. In spring, the fields are worked again with a disk harrow and either a spring-tooth harrow or a peg-tooth harrow. The fields are harrowed several times to kill weeds and to pulverize the soil. Contour levees for flood irrigation are then built at a vertical interval of two-tenths of a foot.

The soil is not worked so thoroughly if rice is to be planted in water. It is either disked and left with a rough surface or harrowed after flooding but before seeding. Because water planting eliminates the need for a well-pulverized seedbed, it is more successful than dry planting on soils of poor tilth.

Rice is seeded between March 15 and June 15. The seed is either drilled to a depth of 1 to 2 inches at the rate of 100 pounds per acre (dry seeding) or is broadcast in the water from an airplane at the rate of 125 to 140 pounds per acre (water seeding).

Commercial fertilizers are used extensively. Complete fertilizer, at the rate of 200 to 300 pounds per acre, is ordinarily drilled with dry-planted rice at the time of seeding. Fertilizer is broadcast from an airplane as a topdressing on water-planted rice during the early stages of growth. Topdressing with nitrogen fertilizer is common practice during the growing season.

Ricefields are flooded to control weeds and grass during the growing season and to furnish the abundance of moisture the crop requires. The water is obtained from deep wells, local bayous, and reservoirs and is delivered through a system of pumps (fig. 16), irrigation canals, and turnouts. The fields are first flooded when the plants are 4 to 6 inches tall and are kept submerged to a depth of about 5 inches until the crop nearly reaches maturity. About 2 weeks before the grain is to be harvested, the levees are cut and the water is drained through ditches to the outlets. The crop matures more rapidly after the water is removed, and the soil dries out and provides a firmer footing for harvesting machinery.

The harvest season begins late in August and continues through October. When the moisture content of the grain reaches 20 percent, the rice is harvested by self-propelled combines (fig. 17), which cut swaths 10 to 14 feet wide. The rice is taken from the combines in the field by tractor-drawn rice carts to trucks (fig. 18), which deliver it to a rice drier.

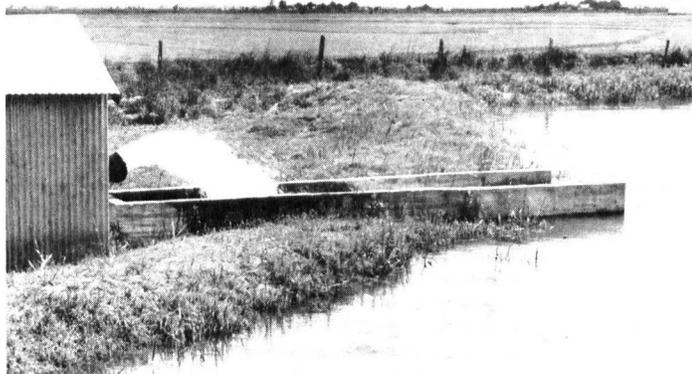


Figure 16.—Pumping water from a deep well into an irrigation canal.

Rice cannot be processed or stored when the moisture content is 20 percent. Excess water is removed from the grain by rice driers (fig. 19), which force heated air through a moving column of rice. This process is repeated until the moisture content is reduced to 14 percent or less. Then the grain can be safely stored or processed. After drying, the rice is either sold to a mill for processing or stored in commercial warehouses or elevators or in warehouses or bins on the farm.

Rice is ordinarily grown for 1 year in rotation with grass or a row crop for 1 or more years, depending on the rice acreage allotment, economics, and the availability of other land. On the basis of research that has been carried out, emphasis is now being placed on a rotation that consists of 2 years in rice and 3 years in improved pasture. To date, this is not the common practice in Acadia Parish.

#### Other crops

Cotton and sweetpotatoes are the main cash crops in the row-crop area. They are grown in rotation on the soils best suited to their production. Ordinarily, corn is grown on soils not well suited to either sweetpotatoes or cotton. On soils about equally well suited to all crops, corn is rotated with cotton and sweetpotatoes.



Figure 17.—Harvesting rice by a self-propelled combine.

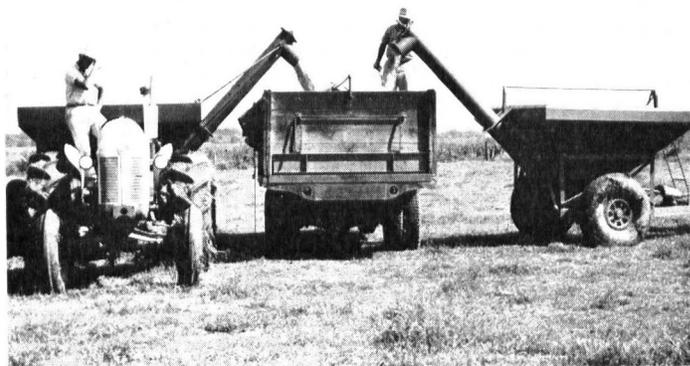


Figure 18.—Transferring freshly combined rice from rice carts to trucks for delivery to a rice drier.

Winter legumes for cover and green manure are not commonly grown on soils used for sweetpotatoes. Control of the sweetpotato weevil is a major problem. Cull sweetpotatoes are cleaned from the field by cattle and hogs; this practice and the lack of adequate fencing keep the acreage of winter legumes small. Ordinarily, soybeans are interplanted with corn. Crop residues are the main source of cover and organic matter.

### Engineering Applications<sup>4</sup>

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

1. Make preliminary estimates of the soil properties that affect the planning and designing of agricultural drainage systems, farm ponds, irrigation systems, terraces, and flood-prevention structures.
2. Make preliminary evaluations of soil and ground conditions that will aid in selecting highway and airport locations and in planning detailed surveys of selected locations.

<sup>4</sup> H. J. FOREMAN, engineering specialist, Soil Conservation Service, assisted in the preparation and review of this section of the report.

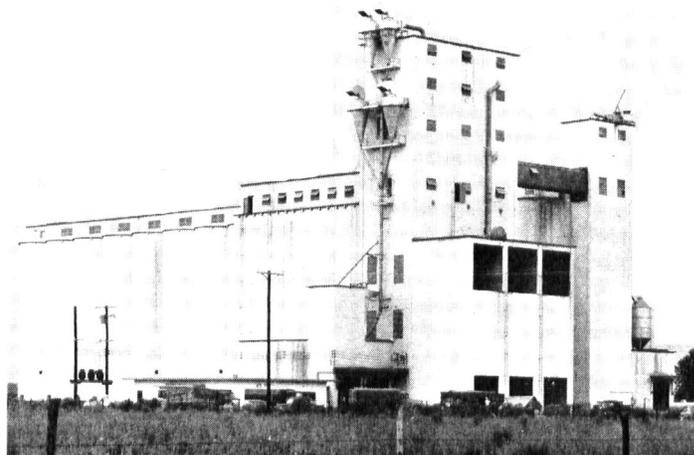


Figure 19.—Rice drier in Crowley where rice is dried and stored.

3. Estimate probable loss of time in construction caused by wetness of the soil under average climatic conditions.
4. Locate the best material for use in construction.
5. Correlate the performance of engineering structures with soil mapping units, and thus provide information that will be useful in designing and maintaining structures.
6. Determine the suitability of soil units for cross-country movement of vehicles and construction equipment.
7. Make soil and land use studies that will aid in selecting industrial, business, residential, and recreational sites.
8. Supplement information obtained from other published maps and reports and aerial photographs, for the purpose of preparing maps and reports especially designed for use by engineers.

*The mapping and descriptive reports are somewhat generalized, however, and should be used only in planning more detailed field surveys to determine the in-place condition of the soil at the site of the proposed engineering construction. Sampling and testing will still be needed before any specific engineering structure is designed and built.*

## Engineering Classification Systems

Two systems for classifying soils are in general use among engineers; both systems are used in this report. They are explained in the PCA Soil Primer (7).

### AASHO classification system

Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials (1). This system classifies soils into seven principal groups on the basis of the field performance of highways. The groups range from A-1 (gravelly soils of high bearing capacity, the best soils for subgrades) to A-7 (plastic soils having low strength when wet, the poorest soils for subgrades). The relative engineering value of the material within each group is indicated by a group index number. Group indexes range from 0 for the best soil materials to 20 for the poorest. Tables 8 and 9 give the classification of the soils in Acadia Parish according to the AASHO system. The group index is given in parentheses after the soil group symbol in table 8.

### Unified soil classification system

Some engineers prefer to use the Unified soil classification system established by the Waterways Experiment Station, Corps of Engineers (11). This system is based on the identification of soils according to their texture and plasticity and their performance as engineering construction materials. In this system eight classes of coarse-grained soils, six classes of fine-grained soils, and one class of highly organic soils are recognized. For exact classification, mechanical analyses are needed for some soils and standard tests for liquid limit and plastic limit are necessary for others. The classification of the soils in the parish according to the Unified system is given in tables 8 and 9.

## Definitions of Terms

Some of the terms used by the agricultural soil scientist may be unfamiliar to the engineer, and some words have special meanings in soil science. These and several engineering terms that may be unfamiliar are explained in the following paragraphs.

*Aggregate (soil).*—A single mass or cluster of many fine primary soil particles held together, such as a clod, crumb, block, or prism.

*Clay.*—As a soil separate, the mineral particles less than 0.002 millimeter in diameter; as a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

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

*Liquid limit.*—The moisture content at which the soil passes from a plastic to a liquid state.

*Plastic limit.*—The moisture content at which the soil passes from a semisolid to a plastic state.

*Plasticity index.*—The numerical difference between the liquid limit and the plastic limit. The plasticity index indicates the range of moisture content within which a soil material is plastic.

*Poorly graded soils.*—Soils in which most of the soil particles are about the same size or in which one or more of the intermediate sizes is absent.

*Sand.*—As a soil separate, mineral particles that range in diameter from 2.0 millimeters to 0.05 millimeter; as a soil textural class, soil material that is 85 percent or more sand and not more than 10 percent clay.

*Shrink-swell potential.*—The indication of the volume change to be expected in soil material with changes in the content of moisture.

*Silt.*—As a soil separate, the mineral particles that range in diameter from 0.05 millimeter, the lower size of very fine sand, to 0.002 millimeter, the upper size of clay; as a soil textural class, soil material that is 80 percent or more silt and less than 12 percent clay.

*Soil.*—The natural medium for the growth of land plants, composed of organic and mineral materials and living forms.

*Well-graded soils.*—Soils that have a good representation of all particle sizes, from the largest to the smallest.

*Zone of saturation.*—Zone that contains free or gravitational water.

## Soil Characteristics Important in Engineering

Table 8 gives test data for 92 samples that represent the major horizons of each soil series in Acadia Parish. Tests were made according to standard procedures by the Louisiana Department of Highways. To establish the range in the various properties characteristic of each soil series, samples were taken from pit profiles at two or more selected locations. Only profiles that represent the normal range for each series were sampled.

In table 9 the laboratory data given in table 8 have been interpreted and projected to the major horizons of the soil types in the parish. Table 10 gives various engineering interpretations for the soils, based on field observations and experience, soil characteristics, and the test data in table 8.

TABLE 8.—Engineering

[Tests for samples numbered 601007-601070 were made by the Louisiana Department of Highways Testing and Research Section in NP indicates

Soil name and location of sample	Parent material	Louisiana Department of Highways laboratory report number	Depth	Horizon	Mechanical analyses						Liquidity limit	Plasticity index	
					Percentage passing sieve—		Percentage smaller than—						
					No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.			
Acadia silt loam: SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 16, T. 9 S., R. 2 W., 3 mi. NW. of Egan, in road cut on N. side of road, adjacent to borrow pit.  Sec. 54, T. 9 S., R. 2 W., 0.8 mi. E. of SW. corner of sec. 54, 1 mi. N. of Evangeline, along private road.  SW $\frac{1}{4}$ sec. 5, T. 10 S., R. 1 W., 1/20 mi. SW. of road junction at SE. corner of sec. 5, 1.5 mi. N. of Estherwood.  NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 9 S., R. 1 E., 0.3 mi. N. of road junction at SW. corner sec. 10, 75 ft. E. of road, 3.5 mi. N. of Crowley.	Old general alluvium, Pleistocene terrace Prairie formation.	601047	Inches 22-32	B <sub>3</sub>	100	95	80	58	46	42	54	33	
		601048	60-82	C <sub>12</sub>	100	81	66	31	25	21	32	15	
		601049	82-120	D	100	26	18	0	0	0	-----	NP	
	Same-----	Same-----	601050	4-10	A <sub>2g</sub>	100	86	75	46	17	13	-----	NP
			601051	10-24	B <sub>2g</sub>	100	92	83	67	50	43	49	26
			601052	24-40	B <sub>3g</sub>	100	92	87	70	54	43	50	27
	Same-----	Same-----	601053	58-90	C <sub>1g</sub>	100	99	90	66	39	32	47	26
			601029	7-17	A <sub>2g</sub>	100	100	91	64	29	23	29	10
			601030	17-30	B <sub>2g</sub>	100	100	94	76	51	43	63	37
	Same-----	Same-----	601031	30-40	B <sub>3g</sub>	100	100	96	80	49	41	66	43
			12390	2-18	A <sub>2g</sub>	96	90	96	64	26	18	27	11
			12391	18-32	B <sub>2g</sub>	99	93	96	76	45	36	45	15
12392	40-50	C <sub>1g</sub>	99	95	96	70	37	31	42	25			
Carroll silt loam: Sec. 67, T. 7 S., R. 2 E., 400 ft. N. of cemetery on La. Highway No. 35, 150 ft. SE. along private road, 50 ft. S. of road, 1 mi. N. of Church Point.  SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 3, T. 7 S., R. 2 E., in cultivated field on E. side of blacktop road, 1,330 ft. from road and E. of drainage ditch, 3 mi. NW. of Church Point.  Sec. 68, T. 7 S., R. 3 E., 1/4 mi. NE. of gravel road on oilfield road, in pasture N. of oilfield road.	Loesslike old general alluvium, Pleistocene terrace Prairie formation.	601058	0-4	A <sub>p1</sub>	100	100	89	61	17	11	-----	NP	
		601059	16-28	B <sub>2g</sub>	100	100	95	72	40	35	35	14	
		601060	54-90	C <sub>1</sub>	100	94	87	62	27	19	28	10	
	Same-----	Same-----	12408	12-31	B <sub>2g</sub>	99	96	96	77	40	33	42	25
			12409	31-54	B <sub>3</sub>	99	96	97	63	36	29	44	26
	Same-----	Same-----	12410	17-30	B <sub>2g</sub>	99	97	97	77	38	32	49	29
			12411	30-52	B <sub>3</sub>	99	97	97	66	34	27	45	26
	Crowley silt loam: NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 35, T. 11 S., R. 1 W., 0.2 mi. S. of road junction at NW. corner of sec. 35, 18 steps E. of road fence, 2.5 mi. SE. of Estherwood.  SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 8, T. 9 S., R. 1 W., 0.5 mi. E. of road junction at SW. corner of sec. 8, 80 steps N. of road fence, 2.5 mi. N. of Egan.	Old general alluvium, Pleistocene terrace Prairie formation.	601026	8-13	A <sub>2g</sub>	100	97	89	64	26	19	28	9
			601027	17-32	B <sub>2g</sub>	100	99	95	81	54	46	51	26
			601028	32-45	B <sub>3g</sub>	100	97	91	73	40	31	42	23
Same-----		Same-----	601023	7-13	A <sub>2g</sub>	100	87	78	50	17	12	21	3
			601024	18-33	B <sub>2g</sub>	100	94	88	71	50	41	43	19
601025	33-46	B <sub>3g</sub>	100	93	86	66	40	32	42	24			

test data

Baton Rouge; tests for samples numbered 12388-12415 were made by the Testing and Research Section, District 07, in Lake Charles. nonplastic; N.D., no data]

Physical characteristics						Textural classes		Engineering classification			
Shrinkage		Moisture-density data			Dis- per- sion	Tri- axial com- pres- sion test class	Uncon- fined com- pres- sive strength (tri- axial)	USDA	Louisiana Department of Highways	AASHO	Unified
Limit	Ratio	Maxi- mum dry density	Optimum moisture content for maximum dry density	Moisture content for 95 percent of maximum dry density							
		<i>Lb. per cu. ft.</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>		<i>Lb. per sq. in.</i>				
11	1.87	96.5	23.5	18.5-27.5	2.2	N.D.	N.D.	Clay	Light silty clay	A-7-6(19)	CH.
15	1.72	109.5	15.9	12.7-20.4	0	N.D.	N.D.	Very fine sandy loam.	Silty clay loam	A-6(10)	CL.
		105.8	14.4	N.D.-18.6	0	N.D.	N.D.	Loamy fine sand	Sandy loam	A-2-4(0)	SM.
		106.6	16.0	11.2-20.2	0	N.D.	N.D.	Silt loam	Silty loam	A-4(8)	ML.
14	1.77	98.3	21.9	18.4-27.2	0	N.D.	N.D.	Clay	Medium silty clay.	A-7-6(16)	CL.
13	1.85	93.5	26.1	17.7-30.4	.9	N.D.	N.D.	Clay	Medium silty clay.	A-7-6(17)	CL.
11	1.86	102.3	21.6	15.3-25.0	1.3	N.D.	N.D.	Clay and silt	Silty clay	A-7-6(16)	CL.
18	1.71	106.9	18.2	13.7-22.2	0	N.D.	N.D.	Silt loam	Silty clay loam	A-4(8)	CL.
11	1.75	93.5	26.1	17.7-30.4	2.9	N.D.	N.D.	Silty clay	Medium silty clay.	A-7-6(20)	CH.
11	1.87	102.3	21.6	15.3-25.0	0	N.D.	N.D.	Silty clay	Silty clay	A-7-6(20)	CH.
15.6	1.75	106.6	16.6	14.1-24.0	0	4.8	12.63	Silt loam	Silty clay loam	A-6(8)	CL.
15.3	1.86	101.5	21.4	19.7-24.7	0	N.D.	N.D.	Silty clay	Light silty clay	A-7-5(11)	ML.
14.3	1.91	100.7	19.8	18.3-25.2	5.4	5.3	5.35	Silty clay	Silty clay	A-7-6(14)	CL.
		99.6	18.5	N.D.-22.8	0	N.D.	N.D.	Silt loam	Silt	A-4(8)	ML.
18	1.69	101.8	18.2	13.0-23.2	0	N.D.	N.D.	Silty clay	Silty clay	A-6(10)	CL.
14	1.83	106.9	18.2	13.7-22.2	3.7	N.D.	N.D.	Silty clay loam	Silty clay loam	A-4(8)	CL.
30.7	1.58	100.7	19.8	18.3-25.2	17.5	5.3	5.35	Silty clay	Silty clay	A-7-6(14)	CL.
14	1.90	100.7	19.8	18.3-25.2	22.2	5.3	5.35	Silty clay	Silty clay	A-7-6(15)	CL.
13.8	1.86	100.7	19.8	18.3-25.2	13.2	5.3	5.35	Silty clay	Silty clay	A-7-6(17)	CL.
18.6	1.80	100.7	19.8	18.3-25.2	17.6	5.3	5.35	Silty clay	Silty clay	A-7-6(15)	CL.
20	1.67	106.9	18.2	13.7-22.2	0	N.D.	N.D.	Silt loam	Silty clay loam	A-4(8)	CL.
16	1.76	93.5	26.1	17.7-30.4	0	N.D.	N.D.	Silty clay	Medium silty clay.	A-7-6(17)	CH.
13	1.86	106.5	18.1	16.1-21.7	0	N.D.	N.D.	Silty clay	Silty clay	A-7-6(14)	CL.
16	1.73	106.6	16.0	11.2-20.2	0	N.D.	N.D.	Silt loam	Silty loam	A-4(8)	ML.
11	1.85	106.5	18.1	16.1-21.7	0	N.D.	N.D.	Silty clay	Medium silty clay.	A-7-6(12)	CL.
12	1.86	106.5	18.1	16.1-21.7	2.3	N.D.	N.D.	Silty clay	Silty clay	A-7-6(14)	CL.

TABLE 8.—Engineering

Soil name and location of sample	Parent material	Louisiana Department of Highways laboratory report number	Depth	Horizon	Mechanical analyses						Liquidity limit	Plasticity index
					Percentage passing sieve—		Percentage smaller than—					
					No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.		
Crowley silt loam—Continued NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26, T. 10 S., R. 2 E., 120 steps N. of gate, 50 steps E. of irrigation canal parallel to gravel road, E. of La. State Univ. Rice Experiment Station, 1 mi. NE. of Crowley.	Old general alluvium; Pleistocene terrace Prairie formation.	601010	<i>Inches</i> 7-12	A <sub>2g</sub>	100	98	90	62	26	18	27	8
		601011	16-24	B <sub>2g</sub>	100	99	94	80	50	42	50	30
		601012	24-40	B <sub>3g</sub>	100	99	93	75	43	35	50	29
Iberia silty clay: NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 9 S., R. 3 E., 200 ft. E. of private road at NW. corner of $\frac{1}{2}$ sec., 50 ft. S. in field, 1 mi. NE. of Mire.	Same-----	12388	10-29	B <sub>1</sub>	100	100	99	88	52	44	58	40
		12389	40-60	C <sub>1g</sub>	100	100	98	80	49	42	56	39
Jeanerette silt loam: Sec. 73, T. 7 S., R. 3 E., 1,440 ft. SE. of high school along private road, 1,260 ft. NE. of La. Highway No. 95.	Same-----	12398	5-12	A <sub>1</sub>	98	93	85	60	28	22	34	18
		12399	16-28	B <sub>3ca</sub>	96	94	87	77	37	30	43	26
		12400	28-50	B <sub>3</sub>	99	96	86	66	33	29	37	20
SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24, T. 7 S., R. 1 E., 50 ft. W. of highway, 25 ft. N. of oil-well road at Richard.	Same-----	12401	17-40	B <sub>3ca</sub>	99	95	86	68	32	24	37	19
		12402	40-56	B <sub>3</sub>	99	93	87	66	30	25	35	29
SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 9 S., R. 3 E., 0.3 mi. W. of private road, 0.8 mi. N. of gravel road.	Same-----	12406	12-20	B <sub>ca2</sub>	99	96	87	70	34	29	45	24
		12407	20-57	B <sub>3</sub>	98	97	87	72	34	26	43	24
Jeanerette silty clay loam: NE $\frac{1}{4}$ sec. 30, T. 8 S., R. 3 E., 20 ft. W. of La. Highway No. 95, 10 ft. S. of parish road on N. line of sec. 30, 1 mi. S. of Higginbotham.	Same-----	12403	7-15	B <sub>1</sub>	100	98	96	78	34	27	39	22
		12404	15-34	B <sub>2g</sub>	100	98	98	74	38	31	44	28
		12405	34-50	C <sub>1ca2g</sub>	99	97	97	72	35	28	41	26
NW $\frac{1}{4}$ sec. 47, T. 8 S., R. 3 E., 0.1 mi. E. of drainage ditch on gravel road, $\frac{1}{20}$ mi. S. on private road, 1.5 mi. S. of Church Point.	Same-----	601038	6-16	B <sub>1</sub>	100	100	92	69	30	22	36	14
		601039	24-42	C <sub>1ca2g</sub>	100	97	87	64	32	26	37	18
		601040	42-52	C <sub>2</sub>	100	100	93	74	38	30	46	27
SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 9 S., R. 3 E., 1.5 mi. N., 3.5 mi. W. of Lafayette Parish line, 2 mi. NE. of Duson.	Same-----	601035	6-10	A <sub>1</sub>	100	98	91	71	33	22	37	16
		601036	16-30	B <sub>2g</sub>	100	99	96	77	41	34	50	31
		601037	30-40	C <sub>1</sub>	100	100	94	75	39	32	44	23
Midland silt loam: NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 8, T. 8 S., R. 1 E., 0.2 mi. S. of NW. corner of sec. 8 on E. bank of highway right-of-way, 1.2 mi. S. of Mowata.	Same-----	601032	6-18	A <sub>2g</sub>	100	100	93	69	29	22	48	31
		601033	18-30	B <sub>2g</sub>	100	100	95	81	53	38	28	9
		601034	30-42	B <sub>3g</sub>	100	99	96	80	50	37	48	26
SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 20, T. 7 S., R. 1 W., 1,140 ft. N. along road from gravel highway, 50 ft. W. of fence, 6 mi. N. of Iota.	Same-----	601054	4-20	A <sub>2g</sub>	100	97	92	71	31	18	26	6
		601055	20-30	B <sub>21g</sub>	100	99	95	80	44	28	32	12
		601056	30-50	B <sub>3g</sub>	100	99	94	76	43	33	38	21
		601057	50-90	C <sub>1g</sub>	100	99	94	75	44	35	41	22

ACADIA PARISH, LOUISIANA

test data—Continued

Physical characteristics								Textural classes		Engineering classification	
Shrinkage		Moisture-density			Dis- per- sion	Tri- axial com- pres- sion test class	Uncon- fined com- pres- sive strength (tri- axial)	USDA	Louisiana Department of Highways	AASHO	Unified
Limit	Ratio	Maxi- mum dry density	Optimum moisture content for maximum dry density	Moisture content for 95 percent of maximum dry density							
		<i>Lb. per cu. ft.</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>		<i>Lb. per sq. in.</i>				
17	1.71	106.9	18.2	13.7-22.2	0	N.D.	N.D.	Silt loam-----	Silty clay loam--	A-4(8)-----	CL.
12	1.82	102.3	21.6	15.3-25.0	2.0	N.D.	N.D.	Silty clay loam--	Silty clay-----	A-7-6(18)---	CL.
13	1.86	102.3	21.6	15.3-25.0	4.8	N.D.	N.D.	Silty clay-----	Silty clay-----	A-7-6(18)---	CL.
12	1.94	98.7	22.4	18.5-26.3	15.7	N.D.	N.D.	Clay-----	Medium silty clay.	A-7-6(20)---	CH.
11.8	2.00	102.8	18.4	14.5-N.D.	12.5	5.3	5.35	Silty clay-----	Silty clay-----	A-7-6(19)---	CH.
17.7	1.95	106.6	16.6	14.1-24.0	0	4.8	12.63	Silty clay loam--	Silty clay loam--	A-6(11)-----	CL.
10.8	1.97	101.6	21.2	N.D.-24.5	30.4	5.3	5.35	Silty clay-----	Silty clay with concretions.	A-7-6(13)---	CL.
17.2	1.83	99.9	22.2	N.D.-24.8	12.1	5.4	5.68	Silty clay loam--	Silty clay-----	A-6(12)-----	CL.
17.5	1.84	99.9	22.2	N.D.-24.8	18.2	5.4	5.68	Silty clay-----	Silty clay-----	A-6(12)-----	CL.
16.6	1.87	106.6	16.6	14.1-24.0	27.6	4.8	12.63	Silty clay-----	Silty clay loam--	A-6(16)-----	CL.
17.8	1.84	100.7	19.8	18.3-25.2	14.3	5.3	5.35	Silty clay-----	Silty clay-----	A-7-6(15)---	CL.
19.9	1.77	100.7	19.8	18.3-25.2	17.6	5.3	5.35	Silty clay-----	Silty clay-----	A-7-6(14)---	CL.
19.4	1.77	99.9	22.2	N.D.-24.8	20.0	5.4	5.68	Silty clay-----	Silty clay-----	A-6(13)-----	CL.
15.1	1.88	100.7	19.8	18.3-25.2	19.4	5.3	5.35	Silty clay-----	Silty clay-----	A-7-6(16)---	CL.
16.5	1.85	100.7	19.8	18.3-25.2	17.1	5.3	5.35	Silty clay-----	Silty clay-----	A-7-6(15)---	CL.
18	1.66	108.2	17.2	12.6-20.8	0	N.D.	N.D.	Silty clay loam--	Silty clay-----	A-6(10)-----	CL.
15	1.78	108.2	17.2	12.6-20.8	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-6(11)-----	CL.
15	1.78	102.3	21.6	15.3-25.0	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-7-6(16)---	CL.
18	1.61	108.9	17.1	13.5-20.2	0	N.D.	N.D.	Silty clay loam--	Silty clay-----	A-6(10)-----	CL.
11	1.85	102.3	21.6	15.3-25.0	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-7-6(18)---	CL.
15	1.78	97.1	20.9	N.D.-26.6	2.6	N.D.	N.D.	Silty clay-----	Silty clay-----	A-7-6(14)---	CL.
15	1.79	93.5	26.1	17.7-30.4	3.5	N.D.	N.D.	Silt loam-----	Medium silty clay.	A-7-6(18)---	CL.
17	1.74	107.5	15.9	12.5-20.2	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-4(8)-----	CL.
12	1.80	98.3	21.9	18.4-27.2	12.0	N.D.	N.D.	Silty clay-----	Medium silty clay.	A-7-6(16)---	CL.
20	1.66	107.5	15.9	12.5-20.2	0	N.D.	N.D.	Silt loam-----	Silty clay-----	A-4(8)-----	ML-CL.
14	1.79	101.8	18.2	13.0-23.2	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-6(9)-----	CL.
12	1.83	106.5	18.1	16.1-21.7	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-6(12)-----	ML-CL.
7	1.93	106.5	18.1	16.1-21.7	11.5	N.D.	N.D.	Silty clay-----	Silty clay-----	A-7-6(13)---	CL.

TABLE 8.—Engineering

Soil name and location of sample	Parent material	Louisiana Department of Highways laboratory report number	Depth	Horizon	Mechanical analyses						Liquidity limit	Plasticity index
					Percentage passing sieve—		Percentage smaller than—					
					No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.		
Midland silt loam—Continued SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 26, T. 10 S., R. 2 E., 30 steps E. of pipe drop into road ditch, E. of La. State Univ. Rice Experiment Station, 1 mi. NE. of Crowley.	Old general alluvium, Pleistocene terrace Prairie formation.	601013	<i>Inches</i> 4-10	A <sub>2g</sub>	100	99	92	71	34	22	28	9
601014		10-22	B <sub>1g</sub>	100	99	93	74	40	30	31	11	
601015		22-40	B <sub>2g</sub>	100	99	93	77	49	39	44	22	
NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 2, T. 8 S., R. 1 W., 2,500 ft. N. and 1,360 ft. W. of SE. corner of sec. 2, 2 mi. W. of Mowata.	Same	601068	6-24	A <sub>2g</sub>	100	94	87	62	29	17	18	2
		601069	24-43	B <sub>2g</sub>	100	97	91	72	45	37	35	15
		601070	43-90	C <sub>1g</sub>	100	90	83	62	35	28	33	17
Midland silty clay loam: NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31, T. 11 S., R. 1 E., 5 mi. SW. of Crowley, 75 ft. E. of concrete brace post on N. side of road, 50 ft. S. of gravel road, 3.5 mi. W. of road junction at NE. corner sec. 31.	Same	601007	0-3	A <sub>p1</sub>	100	99	92	71	38	28	32	14
		601008	6-13	B <sub>2g</sub>	100	99	95	84	61	49	61	35
		601009	18-40	C <sub>1g</sub>	100	100	95	81	53	43	65	38
SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 7 S., R. 1 W., 540 ft. E. of private road, 80 ft. S. of irrigation canal, 1 $\frac{1}{4}$ mi. SW. of Eunice.	Same	12393	6-18	A <sub>r</sub>	99	95	97	75	42	30	38	23
		12394	43-90	C <sub>1ca</sub>	97	91	97	75	46	40	48	32
Olivier silt loam: SE $\frac{1}{4}$ sec. 76, T. 7 S., R. 3 E., $\frac{3}{4}$ mi. E. of oil refinery, 400 ft. S. of highway along private road, 250 ft. E. in field, 1 mi. NE. of Church Point.	Loesslike old general alluvium, Pleistocene terrace Prairie formation.	601061	5-15	B <sub>2</sub>	100	100	92	69	32	25	38	10
		601062	15-32	B <sub>3m1</sub>	100	98	94	70	27	20	39	14
		601063	32-55	B <sub>3m2</sub>	100	100	93	71	27	20	39	16
		601064	55-90	C <sub>1</sub>	100	94	81	52	24	20	28	12
SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 5, T. 8 S., R. 3 E., 0.1 mi. N. of gravel road behind house.	Same	12412	8-13	B <sub>2</sub>	95	92	99	71	25	17	38	14
		12413	13-20	B <sub>3m1</sub>	95	93	99	61	26	17	39	16
SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 5, T. 9 S., R. 3 E., 18 ft. E. of private road, 0.2 mi. N. of gravel road.	Same	12414	2-19	B <sub>2</sub>	97	94	97	68	27	19	41	16
		12415	73-90	D <sub>u</sub>	99	85	92	46	25	21	29	14
Patoutville silt loam: NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 9 S., R. 2 E., 2 mi. NE. of Rayne, 1.5 mi. S. of road junction at NE. corner sec. 14, 20 steps W. of fence.	Same	601016	0-4	A <sub>p</sub>	100	99	87	46	9	5	---	NP
		601017	8-16	B <sub>2</sub>	100	100	94	75	38	30	44	18
		601018	16-36	B <sub>3m1</sub>	100	100	95	74	33	26	46	22
		601019	36-46	B <sub>3m2</sub>	100	99	95	76	34	26	42	20
NE center of NE $\frac{1}{4}$ sec. 20, T. 9 S., R. 2 E., 30 steps W. of road junction at SW. corner of sec. 48, 4 steps S. of field road, 1 mi. NE. of Rayne.	Same	601020	0-3	A <sub>p1</sub>	100	98	90	58	11	8	---	NP
		601021	12-26	B <sub>2</sub>	100	100	93	75	42	33	43	18
		601022	26-40	B <sub>3m1</sub>	100	99	92	72	36	28	44	22
NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 11, T. 7 S., R. 1 W., 2.5 mi. W. of road junction at NE. corner of NE $\frac{1}{4}$ , 50 ft. S. of road at gate, 1 mi. SW. of Eunice.	Same	12395	14-31	B <sub>2</sub>	99	90	94	62	34	28	38	19
		12396	31-43	B <sub>3m1</sub>	99	77	89	37	21	17	27	13
		12397	64-90	D <sub>2</sub>	100	51	91	28	23	21	25	9

test data—Continued

Physical characteristics								Textural classes		Engineering classification	
Shrinkage		Moisture-density			Dis- per- sion	Tri- axial com- pres- sion test class	Uncon- fined com- pres- sive strength (tri- axial)	USDA	Louisiana Department of Highways	AASHTO	Unified
Limit	Ratio	Maxi- mum dry density	Optimum moisture content for maximum dry density	Moisture content for 95 percent of maximum dry density							
		<i>Lb. per cu. ft.</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>		<i>Lb. per sq. in.</i>				
19	1.63	107.5	15.9	12.5-20.2	3.0	N.D.	N.D.	Silt loam	Silty clay	A-4(8)	CL.
12	1.72	101.8	18.2	13.0-23.2	10.0	N.D.	N.D.	Silty clay loam	Silty clay	A-6(8)	CL.
15	1.79	106.5	18.1	16.1-21.7	0	N.D.	N.D.	Silty clay	Light silty clay	A-7-6(14)	CL.
15	1.70	106.9	18.2	13.7-22.2	11.1	N.D.	N.D.	Silt loam	Silty clay loam	A-4(8)	ML.
18	1.70	101.8	18.2	13.7-23.2	1.1	N.D.	N.D.	Silty clay	Silty clay	A-6(10)	CL.
14	1.81	108.9	17.1	13.5-20.2	2.9	N.D.	N.D.	Silt and clay	Silty clay	A-6(11)	CL.
16	1.69	101.8	18.2	13.0-23.2	0	N.D.	N.D.	Silty clay loam	Silty clay	A-6(10)	CL.
9	1.95	93.5	26.1	17.7-30.4	3.3	N.D.	N.D.	Silty clay	Medium silty clay.	A-7-6(20)	CH.
15	1.84	102.3	21.6	15.3-25.0	0	N.D.	N.D.	Silty clay	Medium silty clay.	A-7-6(20)	CH.
14.6	1.88	99.9	22.2	N.D.-24.8	12.8	5.4	5.68	Silty clay loam	Silty clay	A-6(13)	CL.
12.7	1.97	102.7	21.2	N.D.	14.0	N.D.	N.D.	Silty clay	Light silty clay	A-7-6(18)	CL.
22	1.60	108.2	17.2	12.6-20.8	0	N.D.	N.D.	Silty clay loam	Silty clay	A-4(8)	ML.
21	1.58	98.1	22.0	15.0-26.9	0	N.D.	N.D.	Silty clay loam	Silty clay loam	A-6(10)	ML-CL.
22	1.61	98.1	22.0	15.0-26.9	0	N.D.	N.D.	Silty clay loam	Silty clay loam	A-6(10)	CL.
14	1.79	98.1	22.0	15.0-26.9	0	N.D.	N.D.	Silt and clay	Silty clay loam	A-6(9)	CL.
21.7	1.67	106.6	16.6	14.1-24.0	20.0	4.8	12.63	Silty clay loam	Silty clay loam	A-6(10)	CL.
23.2	1.67	106.6	16.6	14.1-24.0	23.1	4.8	12.63	Silty clay loam	Silty clay loam	A-6(10)	CL.
25	1.62	98.9	21.6	N.D.-25.3	18.5	N.D.	N.D.	Silty clay loam	Silty clay loam	A-7-6(11)	CL.
14.9	1.86	106.6	16.6	14.1-24.0	24.0	4.8	12.63	Sand and clay	Silty clay loam	A-6(10)	CL.
16	1.69	99.6	18.5	22.8	0	N.D.	N.D.	Silt loam	Silt	A-4(8)	ML.
14	1.64	98.6	20.2	16.1-26.2	0	N.D.	N.D.	Silty clay loam	Silty clay	A-7-6(12)	ML-CL.
18	1.67	97.1	20.9	N.D.-26.6	0	N.D.	N.D.	Silty clay loam	Silty clay	A-7-6(14)	CL.
18	1.67	97.1	20.9	N.D.-26.6	0	N.D.	N.D.	Silty clay loam	Silty clay	A-7-6(12)	CL.
17	1.70	99.6	18.5	N.D.-22.8	0	N.D.	N.D.	Silt loam	Silt	A-4(8)	ML.
13	1.74	98.6	20.2	16.1-26.2	0	N.D.	N.D.	Silty clay loam	Silty clay	A-7-6(12)	ML-CL.
13	1.74	97.1	20.9	N.D.-26.6	0	N.D.	N.D.	Silty clay loam	Silty clay	A-7-6(14)	CL.
19.8	1.77	99.9	22.2	N.D.-24.8	0	5.4	5.68	Silty clay	Silty clay	A-6(12)	CL.
16.7	1.84	106.6	16.6	14.1-24.0	0	4.8	12.63	Silt loam	Silty clay loam	A-6(9)	CL.
16.5	1.73	110.4	15.8	12.9-19.2	0	N.D.	N.D.	Sandy clay loam	Clay loam	A-4(3)	CL.

TABLE 8.—*Engineering*

Soil name and location of sample	Parent material	Louisiana Department of Highways laboratory report number	Depth	Horizon	Mechanical analyses				Liquid limit	Plasticity index		
					Percentage passing sieve—		Percentage smaller than—					
					No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.			0.005 mm.	0.002 mm.
Richland silt loam: SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 20, T. 8 S., R. 3 E., 0.1 mi. E. of curve in gravel road, 4 mi. SE. of Church Point.	Loesslike old general alluvium, Pleistocene terrace Prairie formation.	601041	4-12	A <sub>p2</sub>	100	100	92	65	18	12	27	3
		601042	16-26	B <sub>2</sub>	100	100	90	66	33	25	40	16
		601043	26-40	B <sub>3m</sub>	100	100	92	69	27	19	38	12
Wet alluvial land: SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 10 S., R. 1 W., 100 ft. E. of highway, 240 ft. N. of ferry, 1 mi. N. of Estherwood.	Recent local alluvium.	601044	2-10	A <sub>12</sub>	100	100	96	84	65	51	54	32
		601045	16-32	C <sub>1g</sub>	100	100	94	81	56	45	44	22
		601046	32-50	C <sub>2g</sub>	100	100	94	77	46	36	38	17
Wrightsville silt loam: NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 9 S., R. 1 E., 1.5 mi. W. on private road, 10 ft. S. of road ditch, 3 mi. N. of Crowley.	Old general alluvium, Pleistocene terrace Prairie formation.	601065	4-20	A <sub>2g</sub>	100	93	86	65	23	16	27	9
		601066	20-40	B <sub>2g</sub>	100	96	90	71	37	30	36	17
		601067	40-90	C <sub>g</sub>	100	91	84	64	34	27	41	24

test data—Continued

Physical characteristics					Textural classes		Engineering classification				
Shrinkage		Moisture-density data			Dis- per- sion	Tri- axial com- pres- sion test class	Uncon- fined com- pres- sive strength (tri- axial)	USDA	Louisiana Department of Highways	AASHO	Unified
Limit	Ratio	Maxi- mum dry density	Optimum moisture content for maximum dry density	Moisture content for 95 percent of maximum dry density							
23	1. 50	99. 6	18. 5	22. 8	0	N.D.	N.D.	Silt loam-----	Silt-----	A-4(8)-----	ML.
21	1. 62	108. 2	17. 2	12. 6-20. 8	0	N.D.	N.D.	Silty clay loam--	Silty clay-----	A-6(10)-----	CL.
24	1. 58	98. 1	22. 0	15. 0-26. 9	0	N.D.	N.D.	Silty clay loam--	Silty clay loam--	A-6(9)-----	ML-CL.
18	1. 66	90. 0	28. 2	19. 2-32. 8	3. 8	N.D.	N.D.	Silty clay-----	Heavy clay-----	A-7-6(18)---	CH.
17	1. 67	98. 3	21. 9	18. 4-27. 2	0	N.D.	N.D.	Silty clay-----	Medium silty clay.	A-7-6(14)---	CL.
17	1. 70	101. 8	18. 2	13. 0-23. 2	2. 2	N.D.	N.D.	Silty clay loam--	Silty clay-----	A-6(11)-----	CL.
18	1. 65	106. 9	18. 2	13. 7-22. 2	0	N.D.	N.D.	Silt loam-----	Silty clay loam--	A-4(8)-----	CL.
13	1. 83	108. 9	17. 1	13. 5-20. 2	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-6(11)-----	CL.
11	1. 86	106. 5	18. 1	16. 1-21. 7	0	N.D.	N.D.	Silty clay-----	Silty clay-----	A-7-6(14)---	CL.

TABLE 9.—*Estimated physical properties*

[Data are based on the mechanical analyses reported in table 8.]

Map symbol	Soil name	Soil and site description	Hydrologic soil group <sup>1</sup>	Depth from surface	Classification	
					USDA textural	Unified
AdB	Acadia silt loam, 1 to 3 percent slopes.	1 ft. of inorganic silt over 4 ft. of silty clay to fat clay, underlain by 2 ft. or more of stratified silty clay and silty sand that is underlain in some places by 6 ft. or more of silty sand. Well drained; free water at 6 ft. or more. On ridges and slopes of Pleistocene Prairie formation; parent material, old general alluvium.	D	Inches 0 to 10 10 to 60 60 to 82+	Silt loam-----	ML-----
AwA	Acadia member of Acadia-Wrightsville silt loams, 0 to 1 percent slopes.				Silty clay to clay--	CL-CH--
Sd	Sloping land, loamy and clayey sediments.				Stratified clay and very fine sandy loam.	CL-----
				82 to 120+	Loamy fine sand--	SM-----
CaA	Carroll silt loam, 0 to 1 percent slopes.	1½ ft. of inorganic silt over 6 ft. or more of silty clay. Poorly drained; free water at 3 ft. or more. In depressions on Pleistocene Prairie formation; parent material, loesslike old general alluvium.	D	0 to 16 16 to 54 54 to 90	Silt loam-----	ML-----
					Silty clay-----	CL-----
					Silty clay loam-----	CL-----
CrA	Crowley silt loam, 0 to 1 percent slopes.	1 ft. of clayey silt or silty clay over 2 ft. of silty clay or fat clay, underlain by 2 ft. or more of silty clay. Somewhat poorly drained; free water at 6 ft. or more. On broad ridges on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 13 13 to 32 32 to 45	Silt loam-----	CL-ML or CL.
CrB	Crowley silt loam, 1 to 3 percent slopes.				Silty clay loam to silty clay.	CH-CL--
MxA	Crowley member of Midland-Crowley complex, 0 to 1 percent slopes.				Silty clay-----	CL-----
IbA	Iberia silty clay, 0 to 1 percent slopes.	1 ft. of silty clay over 7 ft. or more of fat clay. Poorly drained; free water at 3 ft. or more. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 10 10 to 40 40 to 60 60 to 90	Silty clay-----	(CL)-----
					Clay-----	CH-----
					Silty clay-----	CH-----
					Silty clay-----	(CH)-----
JeA	Jeanerette silt loam, 0 to 1 percent slopes.	4 ft. or more of silty clay. Somewhat poorly drained; free water at 6 ft. or more. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	C	0 to 12 12 to 16 16 to 28 28 to 50	Silt loam to silty clay loam.	CL-----
					Silty clay loam---	(CL)-----
					Silty clay loam---	CL-----
					Silty clay loam---	CL-----
JnA	Jeanerette silty clay loam, 0 to 1 percent slopes.	9 ft. or more of silty clay. Poorly drained; free water at 3 ft. or more. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 7 7 to 34 34 to 100	Silty clay loam---	CL-----
					Silty clay-----	CL-----
					Silty clay-----	CL-----
MaA	Midland silt loam, 0 to 1 percent slopes.	3 ft. or more of silty clay. Poorly drained; free water at 3 ft. or more. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 18 18 to 30 30 to 42	Silt loam-----	CL-----
					Silty clay-----	CL-----
					Silty clay-----	CL-----
MbA	Midland silt loam, thick surface, 0 to 1 percent slopes.	2 ft. of clayey silt over 2 ft. of silty clay, underlain by 4 ft. or more of stratified clayey silt and silty clay. Poorly drained; free water at 3 ft. or more. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 24 24 to 43 43 to 90	Silt loam-----	ML-----
					Silty clay-----	CL-----
					Stratified silt and clay.	CL-----
McA	Midland silty clay loam, 0 to 1 percent slopes.	6 in. of silty clay over 3 ft. of fat clay, underlain by 4 ft. or more of silty clay. Poorly drained; free water at 3 ft. or more. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 6 6 to 18 18 to 40 40 to 90	Silty clay loam---	CL-----
					Silty clay-----	CH-----
					Silty clay-----	CH-----
MxA	Midland member of Midland-Crowley complex, 0 to 1 percent slopes.				Silt and clay-----	CL-----

See footnotes at end of table.

and engineering classification of the soils

Items in parentheses are estimated from test data for similar soils]

Classification—Con.  AASHO	Per-centage passing sieve No. 200	Per-centage between 0.074 mm. and 0.005 mm.	Per-centage smaller than 0.005 mm.	Liquid limit	Plas-ticity index	Moisture-density		Shrinkage		Avail-able water capac-ity <sup>2</sup>	Reaction	Suitable for stabilization with <sup>3</sup> —	
						Maxi-mum dry density	Opti-mum moisture content	Limit	Ratio			Portland cement (10 per cent by weight) <sup>4</sup>	Hydrated lime (18 per cent by volume)
A-4-----	86	69	17	-----	NP <sup>5</sup>	<i>Lb. per cu. ft.</i> 107	<i>Percent</i> 16	-----	-----	<i>Inches per foot</i> 1.5	<i>pH</i> 4.5 to 6.0	(Yes)	(No)
A-7-6-----	93±2	43±7	50±4	51±3	29±4	96±2	24±2	12.6	1.83	1.6	4.5 to 5.0	(No)	(Yes)
A-6 or A-7.	90±9	58±2	32±7	39±8	20±6	106	19	11.0	1.86	1.6	5.5	(No)	(Yes)
A-2-4-----	26	26	0	-----	NP	106	14	-----	-----	1.3	6.5	(Yes)	(No)
A-4-----	100	83	17	-----	NP	100	19	-----	-----	2.4	5.0 to 5.5	(Yes)	(No)
A-7-6-----	98±2	60±4	38±2	43±6	24±5	100±1	19±1	19.0	1.76	2.4	4.5 to 5.0	(No)	(Yes)
A-4-----	94	67	27	28	10	107	18	14.0	1.83	2.4	6.0	(Yes)	(Yes)
A-4-----	94±4	71±1	23±3	25±3	7±2	106±1	17±1	17.3	1.70	2.5	5.0 to 8.0	(Yes)	(No)
A-7-6-----	97±2	46±3	51±3	48±3	25±5	101±5	22±4	13.0	1.81	2.4	5.0 to 8.0	(No)	(Yes)
A-7-6-----	96±3	55±2	41±2	45±5	25±4	105±2	19±2	12.6	1.86	2.4	6.0 to 8.0	(No)	(Yes)
(A-7-6)---	(98)	(63)	(35)	(42)	(24)	(103)	(20)	(15.9)	(1.79)	2.5	5.5 to 7.0	(No)	(No)
A-7-6-----	100	49	51	58	40	99	22	12.0	1.94	2.8	6.5 to 7.0	(No)	(No)
A-7-6-----	100	52	48	56	39	103	18	11.8	2.00	2.8	8.0	(No)	(No)
(A-7-6)---	(90)	(50)	(40)	(56)	(39)	(103)	(18)	(11.0)	(2.00)	2.8	8.0	(No)	(No)
A-6-----	93	65	28	34	18	107	17	17.7	1.95	1.8	6.0 to 7.5	(No)	(Yes)
(A-7-6)---	(90)	(55)	(35)	(42)	(23)	(101)	(21)	(15.3)	(1.88)	2.2	7.5 to 8.0	(No)	(No)
A-7-6-----	85±11	55±7	30±4	42±8	23±3	101±1	21±2	15.3	1.88	2.4	8.0	(No)	(No)
A-6-----	93±4	63±1	30±4	38±5	24±5	102±4	20±2	17.9	1.82	2.0	7.5	(No)	(Yes)
A-6-----	98	65	33	37	16	109	17	18.0	1.61	2.0	5.0 to 6.0	(No)	(Yes)
A-6 or A-7.	98±2	63±7	35±6	42±8	24±7	103±5	20±2	15.9	1.79	2.3	6.0 to 8.0	(No)	(No)
A-7-----	100	62±1	38±1	45±1	25±2	100±8	21±2	15.3	1.79	2.4	8.0	(No)	(No)
A-7-6-----	100	62±1	38±1	45±1	25±2	100±8	21±2	15.3	1.79	2.4	8.0	(No)	(No)
A-6-----	98±2	59±7	39±13	34±14	15±9	103±4	19±5	15.0	1.70	2.4	5.5 to 8.0	(No)	(Yes)
A-6-----	99±1	56±3	43±6	34±10	14±8	104±3	18±3	18.0	1.70	2.4	5.0 to 6.0	(Yes)	(Yes)
A-7-6-----	99	53±3	46±4	42±6	23±3	104±2	19±2	14.0	1.81	2.4	5.0 to 8.0	(No)	(Yes)
A-4-----	94	65	29	18	2	107	18	18.0	1.69	2.4	5.5 to 6.0	(Yes)	(No)
A-6-----	97	52	45	35	15	102	18	14.5	1.76	2.4	4.5 to 7.0	(No)	(Yes)
A-6-----	90	55	35	33	17	109	17	10.3	1.85	2.4	4.5	(No)	(Yes)
A-6-----	97±2	58±2	39±1	35±3	18±5	101±1	20±2	15.3	1.78	3.0	4.5 to 6.0	(No)	(Yes)
A-7-6-----	99	38	61	61	35	94	26	9.0	1.95	2.8	5.0 to 8.0	(No)	(No)
A-7-6-----	100	47	53	65	38	102	22	15.0	1.84	2.8	8.0	(No)	(No)
A-7-6-----	91	48	43	48	32	103	21	12.7	1.97	2.8	8.0	(No)	(No)

TABLE 9.—Estimated physical properties

Map symbol	Soil name	Soil and site description	Hydrologic soil group <sup>1</sup>	Depth from surface	Classification	
					USDA textural	Unified
OvB2	Olivier silt loam, 1 to 3 percent slopes, eroded.	5 in. of inorganic silt over 4 ft. of silty clay or clayey silt, underlain by 3 ft. or more of stratified clayey silt and silty clay. Well drained; free water at 10 ft. or more. On ridges and slopes of Pleistocene Prairie formation; parent material, loesslike old general alluvium.	C	<i>Inches</i> 0 to 5 5 to 55 55 to 90	Silt loam----- Silty clay loam----- Stratified silt and clay.	(ML)----- ML-CL----- CL-----
PaA	Patoutville silt loam, 0 to 1 percent slopes.	8 in. of inorganic silt over 1 ft. of silty clay or clayey silt, underlain by 3 ft. or more of silty clay. Somewhat poorly drained; free water at 6 ft. or more. On broad ridges of Pleistocene Prairie formation; parent material, loesslike old general alluvium.	C	0 to 8 8 to 16 16 to 46	Silt loam----- Silty clay----- Silty clay loam to silty clay.	ML----- ML-CL----- CL-----
PaB2	Patoutville silt loam, 1 to 3 percent slopes, eroded.	4 in. of inorganic silt over 3 ft. of silty clay, underlain by 4 ft. or more of stratified clayey fine sand and silty clay. Well drained; free water at 6 ft. or more. On ridges and slopes of Pleistocene Prairie formation; parent material, loesslike old general alluvium.	C	0 to 4 4 to 43 43 to 97	Silt loam----- Silt loam to silty clay. Silty clay and sandy clay loam.	(ML)----- CL----- CL-----
RcB2	Richland silt loam, 1 to 3 percent slopes, eroded.	6 in. to 1½ ft. of inorganic silt over 1 ft. of silty clay, underlain by 1 ft. or more of inorganic silt. Well drained; free water at 10 ft. or more. On ridges and slopes of Pleistocene Prairie formation; parent material, loesslike old general alluvium.	C	0 to 16 16 to 26 26 to 40	Silt loam----- Silty clay loam----- Silty clay loam-----	ML----- CL----- ML-CL-----
Wa	Wet alluvial land-----	1 to 1½ ft. of fat clay over 3 ft. or more of silty clay. Poorly drained; subject to frequent overflow; free water at 3 ft. or more. On flood plains of local streams; parent material, recent local alluvium.	D	0 to 16 16 to 50	Silty clay loam, silty clay, and clay. Silty clay and silty clay loam.	CH----- CL-----
Wya	Wrightsville silt loam, 0 to 1 percent slopes.	8 ft. or more of silty clay. Poorly drained; free water at 3 ft. In depressions on Pleistocene Prairie formation; parent material, old general alluvium.	D	0 to 20 20 to 40 40 to 90	Silt loam----- Silty clay----- Silty clay-----	CL----- CL----- CL-----
AwA	Wrightsville member of Acadia-Wrightsville silt loams, 0 to 1 percent slopes.					

<sup>1</sup> Four hydrologic soil groups are defined in Soil Conservation Service Engineering Handbook, Section 4, Hydrology, Supplement A. They are based on the intake of water in soils not protected by plants, at the end of long-lasting storms that occur after the soil is already wet and swelled.

Group A contains deep sands that have little silt and clay. These soils absorb the most rainfall and lose the least in runoff.

Group B contains soils that are mostly sandy and less deep than the soils in Group A. Soils in Group B absorb more water than average even after they are thoroughly wet.

Group C includes shallow soils and soils that contain large amounts of clay and colloidal particles but less than those in Group D. Soils in Group C absorb less rainfall than average after they are thoroughly wet.

and engineering classification of the soils—Continued

Classification—Con. AASHO	Per-centage passing sieve No. 200	Per-centage between 0.074 mm. and 0.005 mm.	Per-centage smaller than 0.005 mm.	Liquid limit	Plas-ticity index	Moisture-density		Shrinkage		Avail-able water capac-ity <sup>2</sup>	Reaction	Suitable for stabilization with <sup>3</sup> —	
						Maxi-mum dry density	Opti-mum moisture content	Limit	Ratio			Portland cement (10 per-cent by weight) <sup>4</sup>	Hydrated lime (18 per-cent by volume)
(A-4)-----	(98)	(88)	(10)	-----	(NP)	<i>Lb. per cu. ft.</i> (100)	<i>Percent</i> (19)	-----	-----	<i>Inches per foot</i> 2.0	<i>pH</i> 5.0 to 5.5	(Yes)	(No)
A-6-----	96±4	69±2	27±5	39±2	14±4	102±6	19±3	22.9	1.62	2.8	4.5 to 6.5	(Yes)	(Yes)
A-6-----	94	70	24	28	12	98	22	14.5	1.82	3.2	6.0 to 7.5	(Yes)	(Yes)
A-4-----	98±1	88±2	10±1	-----	NP	100	19	-----	-----	2.4	5.5 to 6.5	(Yes)	(No)
A-7-6-----	100	60±2	40±2	43±1	18	99	20	16.5	1.69	2.5	5.5 to 6.5	(No)	(Yes)
A-7-6-----	99±1	65±2	34±2	44±2	20±2	97	21	15.0	1.68	2.5	6.0 to 6.5	(No)	(Yes)
(A-4)-----	(98)	(88)	(10)	-----	(NP)	(100)	(19)	-----	-----	2.4	6.0	(Yes)	(No)
A-6-----	83±7	56	27	32±6	16±3	103	19	18.2	1.80	2.5	5.5 to 6.0	(No)	(Yes)
A-4-----	51	28	23	25	9	110	16	16.5	1.73	2.5	6.0 to 7.0	(Yes)	(Yes)
A-4-----	100	82	18	27	3	100	19	23.0	1.50	2.4	5.0 to 5.5	(Yes)	(No)
A-6-----	100	67	33	40	16	108	17	21.0	1.62	2.6	5.0	(No)	(Yes)
A-6-----	100	73	27	38	12	98	22	24.0	1.58	3.0	5.5	(Yes)	(Yes)
A-7-6-----	100	35	65	54	32	90	28	18.0	1.66	2.6	5.0 to 5.5	(No)	(Yes)
A-6 or A-7-6.	100	49	51	41±3	19±3	100	20	17.0	1.68	2.8	4.5	(No)	(Yes)
A-4-----	93	70	23	27	9	107	18	18.0	1.65	1.6	4.5 to 5.0	(Yes)	(Yes)
A-6-----	96	59	37	36	17	109	17	13.0	1.83	1.6	4.5 to 5.5	(No)	(Yes)
A-7-6-----	91	57	34	41	24	107	18	11.0	1.86	1.6	4.5 to 7.5	(No)	(Yes)

Group D consists mostly of clays that increase greatly in volume when they absorb water. This group contains some shallow soils that have nearly impermeable layers near the surface. Soils in Group D absorb the least amount of rainfall and lose the most in runoff.

<sup>2</sup> Based on data from preliminary Irrigation Guide for Louisiana, Soil Conservation Service.

<sup>3</sup> Type and amount of admixture needed for adequate stabilization should be determined by laboratory tests.

<sup>4</sup> Estimated for material passing No. 40 sieve. Some of the soil material shown as unsuitable for stabilization with portland cement may be stabilized with it after the material has been treated with a small amount of hydrated lime.

<sup>5</sup> Nonplastic.

TABLE 10.—Engineering

Soil or land type	Estimated construction work-weeks per year	Depth to zone of saturation	Suitability as source of—		Suitability for roads and airfields			Suitability for dams and levees
			Topsoil <sup>2</sup>	Sand and gravel <sup>3</sup>	Base course	Subbase	Subgrade <sup>3</sup>	
Acadia silt loam, 1 to 3 percent slopes (AdB).	30, to a depth of 82 inches; 40, at a greater depth.	More than 6 feet.	Fair, to a depth of 82 inches; not suitable at a greater depth.	Not suitable to a depth of 6 to 15 feet. Underlain by 6- to 10-foot deposit of poorly graded fine sand (26 percent silt).	Not suitable to a depth of 82 inches; poor at a greater depth.	Not suitable to a depth of 82 inches; poor at a greater depth.	Poor to a depth of 82 inches; good at a greater depth.	Fair---
Acadia-Wrightsville silt loams, 0 to 1 percent slopes (AwA).	30-----	More than 6 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Carroll silt loam, 0 to 1 percent slopes (CaA).	20-----	More than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Crowley silt loam, 0 to 1 percent slopes (CrA).	30-----	More than 6 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Crowley silt loam, 1 to 3 percent slopes (CrB).	30-----	More than 6 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Iberia silty clay, 0 to 1 percent slopes (IbA).	20-----	More than 3 feet.	Good-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Poor---
Jeanerette silt loam, 0 to 1 percent slopes (JeA).	30-----	More than 6 feet.	Excellent--	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Jeanerette silty clay loam, 0 to 1 percent slopes (JnA).	20-----	More than 3 feet.	Good-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Midland silt loam, 0 to 1 percent slopes (MaA).	20-----	More than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Midland silt loam; thick surface, 0 to 1 percent slopes (MbA).	20-----	More than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Poor-----	Fair---
Midland silty clay loam, 0 to 1 percent slopes (McA).	20-----	More than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Poor---
Midland-Crowley complex, 0 to 1 percent slopes (MxA).	20-----	More than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Poor---
Olivier silt loam, 1 to 3 percent slopes, eroded (OvB2)	40-----	More than 10 feet.	Good-----	Not suitable.	Not suitable.	Not suitable.	Fair-----	Fair---
Patoutville silt loam, 0 to 1 percent slopes (PaA).	30-----	More than 6 feet.	Good-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---

See footnotes at end of table.

*interpretations of the soils*

Suitability for reservoirs	Open-ditch drainage			Irrigation	Land grading		Relative cost of land smoothing	Requirements for terraces and diversions
	Stability of sideslopes	Permissible maximum velocity of water	Intensity of drainage needs for agriculture		Relative cost	Permissible cut		
Good to a depth of 82 inches; limit borrow to a depth of about 6 feet; not suitable at a greater depth.	Good to a depth of 82 inches; poor at a greater depth.	4 feet per second to a depth of 82 inches; 1½ feet per second at a greater depth.	Low-----	Very slow permeability; soil crusts badly.	High-----	Up to 6 inches.	Low-----	Use maximum grade for surface drainage.
Good-----	Good-----	4 feet per second.	High-----	Very slow permeability.	Medium---	Up to 8 inches.	High-----	Not suitable.
Good-----	Good-----	4 feet per second.	High-----	Very slow permeability; soil crusts badly.	Low-----	Up to 10 inches.	High-----	Not suitable.
Good-----	Good-----	4 feet per second.	Moderate--	Very slow permeability; soil crusts badly.	Medium---	Up to 8 inches.	Medium---	Not suitable.
Good-----	Good-----	4 feet per second.	Low-----	Very slow permeability; soil crusts badly.	High-----	Up to 6 inches.	Low-----	Use maximum grade for surface drainage.
Good-----	Fair-----	4 feet per second.	High-----	Very slow permeability.	Low-----	Up to 10 inches.	High-----	Not suitable.
Fair-----	Good-----	4 feet per second.	Moderate--	Moderately slow permeability.	Low-----	Up to 10 inches.	Medium---	Not suitable.
Good-----	Good-----	4 feet per second.	High-----	Very slow permeability.	Low-----	Up to 10 inches.	High-----	Not suitable.
Good-----	Good-----	4 feet per second.	High-----	Very slow permeability; soil crusts badly.	Low-----	Up to 10 inches.	High-----	Not suitable.
Good-----	Good-----	4 feet per second.	High-----	Very slow permeability; soil crusts badly.	Low-----	Up to 18 inches.	High-----	Not suitable.
Good-----	Fair-----	4 feet per second.	High-----	Very slow permeability.	Low-----	Up to 16 inches.	High-----	Not suitable.
Good-----	Fair-----	4 feet per second.	High-----	Very slow permeability.	Low-----	Up to 6 inches.	High-----	Not suitable.
Fair-----	Fair-----	4 feet per second.	Low-----	Moderately slow permeability.	High-----	Up to 10 inches.	Low-----	Use medium grade for erosion control and drainage.
Good-----	Fair-----	4 feet per second.	Moderate--	Very slow permeability.	Medium---	Up to 6 inches.	Medium---	Not suitable.

TABLE 10.—*Engineering*

Soil or land type	Estimated construction work-weeks per year	Depth to zone of saturation <sup>1</sup>	Suitability as source of—		Suitability for roads and airfields			Suitability for dams and levees
			Topsoil <sup>2</sup>	Sand and gravel <sup>3</sup>	Base course	Subbase	Subgrade <sup>3</sup>	
Patoutville silt loam, 1 to 3 percent slopes, eroded (PaB2).	40-----	More than 6 feet.	Good-----	Not suitable.	Not suitable.	Not suitable.	Poor-----	Fair---
Richland silt loam, 1 to 3 percent slopes, eroded (RcB2).	40-----	More than 10 feet.	Excellent--	Not suitable.	Not suitable.	Not suitable.	Poor-----	Fair---
Sloping land, loamy and clayey sediments (Sd).	40-----	More than 10 feet.	Fair to a depth of 82 inches.	Not suitable to a depth of 6 to 15 feet. Underlain by 6- to 10-foot deposit of poorly graded fine sand (26 percent silt).	Not suitable to a depth of 82 inches; poor at a greater depth.	Not suitable to a depth of 82 inches; poor at a greater depth.	Poor to a depth of 82 inches; good at a greater depth.	Fair---
Wet alluvial land (Wa)-----	20-----	Surface to more than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---
Wrightsville silt loam, 0 to 1 percent slopes (WyA).	20-----	More than 3 feet.	Fair-----	Not suitable.	Not suitable.	Not suitable.	Very poor--	Fair---

<sup>1</sup> Depth to zone containing free or gravitational water; lateral movement of water is so slow that water table does not seriously affect excavation less than 15 feet deep.

<sup>2</sup> Fertilizer is needed on nearly all soils used as topsoil.

<sup>3</sup> Further field surveys required to determine suitable source in mapping unit.

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interpretations of the soils—Continued

Suitability for reservoirs	Open-ditch drainage			Irrigation	Land grading		Relative cost of land smoothing	Requirements for terraces and diversions
	Stability of sideslopes	Permissible maximum velocity of water	Intensity of drainage needs for agriculture		Relative cost	Permissible cut		
Good.....	Fair.....	4 feet per second.	Low.....	Very slow permeability.	High.....	Up to 6 inches.	Low.....	Use maximum grade for surface drainage.
Poor.....	Poor.....	2½ feet per second.	Low.....	Moderately slow permeability.	High.....	Up to 16 inches.	Low.....	Use medium grade for erosion control and drainage.
Good to a depth of 82 inches; limit borrow to a depth of about 6 feet; not suitable at a greater depth.	Good.....	4 feet per second to a depth of 82 inches; 1½ feet per second at a greater depth.	Low.....	Not suitable.....	Not suitable.	Not suitable..	Not suitable.	Maximum slope for terracing, 5 percent; use maximum grade for surface drainage.
Good.....	Good.....	4 feet per second.	Not suitable.	Not suitable.....	Not suitable.	Not suitable..	Not suitable.	Not suitable.
Good.....	Good.....	4 feet per second.	High.....	Very slow permeability; soil crusts badly.	Low.....	Up to 10 inches.	High.....	Not suitable.

GUIDE TO MAPPING UNITS AND CAPABILITY UNITS

See table 1, page 4, for approximate acreage and proportionate extent of the soils. See tables 8, 9, and 10, pages 42-57, for information on the engineering properties of the soils]

Map symbol	Mapping unit	Page	Capability unit	Page
AdB	Acadia silt loam, 1 to 3 percent slopes.....	5	IIIe-2	20
AwA	Acadia-Wrightsville silt loams, 0 to 1 percent slopes.....	5	IIw-2	19
CaA	Carroll silt loam, 0 to 1 percent slopes.....	6	IIIw-1	21
CrA	Crowley silt loam, 0 to 1 percent slopes.....	7	IIw-1	18
CrB	Crowley silt loam, 1 to 3 percent slopes.....	7	IIIe-1	20
IbA	Iberia silty clay, 0 to 1 percent slopes.....	7	IIIw-4	22
JeA	Jeanerette silt loam, 0 to 1 percent slopes.....	8	IIw-4	19
JnA	Jeanerette silty clay loam, 0 to 1 percent slopes.....	9	IIw-4	19
MaA	Midland silt loam, 0 to 1 percent slopes.....	9	IIIw-1	21
MbA	Midland silt loam, thick surface, 0 to 1 percent slopes.....	10	IIIw-1	21
McA	Midland silty clay loam, 0 to 1 percent slopes.....	10	IIIw-3	22
MxA	Midland-Crowley complex, 0 to 1 percent slopes.....	11	IIIw-3	22
OvB2	Olivier silt loam, 1 to 3 percent slopes, eroded.....	11	IIw-5	20
PaA	Patoutville silt loam, 0 to 1 percent slopes.....	12	IIw-3	19
PaB2	Patoutville silt loam, 1 to 3 percent slopes, eroded.....	12	IIw-5	20
RcB2	Richland silt loam, 1 to 3 percent slopes, eroded.....	13	IIe-1	18
Sd	Sloping land, loamy and clayey sediments.....	13	IVe-1	22
Wa	Wet alluvial land.....	14	Vw-1	23
WyA	Wrightsville silt loam, 0 to 1 percent slopes.....	14	IIIw-2	21





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If you wish to file an employment complaint, you must contact your agency's EEO Counselor (<http://directives.sc.egov.usda.gov/33081.wba>) within 45 days of the date of the alleged discriminatory act, event, or personnel action. Additional information can be found online at [http://www.ascr.usda.gov/complaint\\_filing\\_file.html](http://www.ascr.usda.gov/complaint_filing_file.html).

### To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html) or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to [program.intake@usda.gov](mailto:program.intake@usda.gov).

### Persons with Disabilities

If you are deaf, are hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint, please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for

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program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

**Supplemental Nutrition Assistance Program**

For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (<http://directives.sc.egov.usda.gov/33085.wba>).

**All Other Inquiries**

For information not pertaining to civil rights, please refer to the listing of the USDA Agencies and Offices (<http://directives.sc.egov.usda.gov/33086.wba>).