SOIL SURVEY

St. Mary Parish
Louisiana

OUR SOIL • OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
LOUISIANA AGRICULTURAL EXPERIMENT STATION
HOW TO USE THE SOIL SURVEY REPORT

THIS SURVEY of St. Mary Parish will help you plan the kind of farming that will protect your soils and provide good yields. It describes the soils; shows their location on a map; and tells what they will do under different kinds of management.

Find your farm on the map

In using this survey, start with the soil map, which consists of the 56 sheets bound in the back of this report. These sheets, if laid together, make a large photographic map of the parish as it looks from an airplane. You can see woods, fields, roads, rivers, and many other landmarks on this map.

To find your farm on the large map, use the index to map sheets. This is a small map of the parish on which numbered rectangles have been drawn to show where each sheet of the large map is located.

When you have found the map sheet for your farm, you will notice that boundaries of the soils have been outlined and that there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil wherever they appear on the map.

Suppose you have found on your farm an area marked with the symbol Ba. You learn the name of the soil this symbol represents by looking at the map legend. The symbol Ba identifies Baldwin silt loam.

Learn about the soils on your farm

Baldwin silt loam and all the other soils mapped are described in the section, Descriptions of the Soils. Soil scientists walked over the fields and through the woodlands or traveled by boat through the swamps and coastal marshes. They dug holes and examined surface soils and subsoils; measured slopes with a hand level; noted differences in growth of crops, weeds, brush, or trees; and, in fact, recorded all the things about the soils that they believed might affect their suitability for farming or other uses.

After they had mapped and studied the soils, the scientists and other agricultural technicians judged what use and management each soil should have, and then they placed it in a management group and in a land capability class. A management group is a group of similar soils that need and respond to about the same kind of management. Management groups in a capability class have about the same degree of limitations, but these natural limitations are of different kinds.

Baldwin silt loam is in management group II-1. Turn to the section, Management Groups of Soils, and read what is said about the soils of group II-1. Here you will find out how much you can expect to harvest from Baldwin silt loam and the other soils of group II-1 under the management practices commonly used and under improved management.

Make a farm plan

For the soils on your farm, compare your yields and farm practices with those given in this report. Look at your fields for signs of poor drainage or erosion. This survey will aid you in planning new farming methods, but it is not a plan of management for your farm or any other farm in the parish.

If you find that you need help in farm planning, consult the local representative of the Soil Conservation Service or the parish agricultural agent. Members of the staff of your State agricultural experiment station and others familiar with farming in your parish will also be glad to help. The St. Mary Soil Conservation District, organized September 1945, will arrange technical help for you.

Fieldwork for this soil survey was completed in 1932. Unless otherwise specified, all statements in this publication refer to conditions in St. Mary Parish at that time.
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SOIL SURVEY OF ST. MARY PARISH, LOUISIANA

By S. A. Lytle, in Charge, and B. F. Grapton, Louisiana Agricultural Experiment Station, and Alexander Ritchie and H. L. Hill, United States Department of Agriculture

Correlation by I. L. Martin, United States Department of Agriculture

United States Department of Agriculture in cooperation with the Louisiana Agricultural Experiment Station

General Nature of the Area

St. Mary Parish has productive soils. Rainfall is abundant, and the growing season is long. These factors make it one of the principal areas in the State for growing sugarcane.

In this parish the suitability of the soils for sugarcane and other cultivated crops is closely related to the elevation at which the soils occur and to the effectiveness of natural and artificial drainage. The best agricultural soils are on the natural ridges along the principal streams. These higher lying soils represent only a small part of the total acreage. Most of the soils in the parish occupy nearly level areas at lower elevations.

About 35 percent of the land consists of coastal marshes, and a like amount consists of areas that are frequently flooded by tides or by stream overflow. Most of the coastal marshes are suitable only for seasonal grazing and wildlife, but some of the areas could be reclaimed and used for growing cultivated crops.

Location and Extent

This parish is in the south-central part of Louisiana [fig. 1]. It has a land area of approximately 387,200 acres. An additional 104 square miles is covered by inland waters. St. Mary Parish lies between the parallels 29°58' and 29°28' north latitude and the meridians 90°52'45" and 91°4' west longitude. It is bordered on the south and southwest by the Gulf of Mexico, on the north and northwest by Iberia Parish, on the northeast by St. Martin Parish, on the southeast by Terrebonne Parish, and on the east by Assumption Parish. It is somewhat rectangular in shape; its longest axis runs from northwest to southeast. Amelia is 37 miles southeast of Jeanerette, which is in Iberia Parish just across the parish line. From Fisher Island on the northern boundary to Point Chevreuil along the gulf is a distance of 29 miles.

Franklin, the parish seat, is in the north-central part of the parish. It is 26 miles northwest of Morgan City and 90 miles west of New Orleans.

Physiography and Relief

St. Mary Parish occupies part of three deltas of the Mississippi River, each of which has built up from alluvial materials derived from different sources and deposited during different ages. Much of the alluvium was left by the Red River, the Mississippi River, and by the combined Mississippi and Ohio Rivers during the time that these streams flowed through the channel now occupied by Bayou Teche (5). This alluvium varies in texture. It is derived from different sources and is of different ages. It occurs in areas that differ distinctly in relief and can be identified as follows: (1) Nearly level and gently sloping natural levee ridges formed from sediments deposited during the overflow of streams, (2) low or depressed coastal-marsh areas built up from sediments deposited in the gulf, and (3) rolling to hilly areas over salt domes formed from older alluvial deposits. A typical cross section of the parish shows elevations of some of the soils and land types (fig. 2). On the following pages each of the three major areas of relief are described.

Natural levee ridges.—These ridges have been built up from alluvial sediments deposited along Bayou Teche,
Cypremort, Sale, and other large and small streams. They range in elevation from near gulf level to 16 feet. In relief they are level to gently sloping. Some natural levee ridges are buried beneath the marshes.

When a stream overflows, the coarser alluvial materials—fine sands and silts—are deposited near the stream channel. The finer sediments—silty clays and clays—are carried in suspension and deposited farther from the channel in back-swamp areas. After repeated floods, ridges of medium-textured soil material are built up near the bank of the stream channel. Most of these natural levee ridges have a short gentle slope of 2 to 5 percent from the ridge crest to the stream channel and a longer slope of less than 1 percent from the ridge crest to the back swamp.

The widest, highest, and longest ridges are along Bayou Teche in the northwestern part of the parish. Here, the ridges are 6 miles wide and have a maximum elevation of 16 feet. These ridges extend from northwest to southeast and become progressively narrower and lower in elevation. At Franklin they are about 3.5 miles wide and as much as 12 feet in elevation, but at Amelia they are only 0.4 mile wide and have a maximum elevation of only 8 feet. Two natural levee ridges that differ in age and elevation and in kind of alluvium occur in most places along Bayou Teche. Near the Teche channel is a lower ridge of red and brown alluvium, deposited by the Red River when it followed this former Mississippi River channel. The higher natural levee ridge is made up of grayish-brown and gray alluvium, most of which was deposited by the Mississippi River.

The natural levee ridges of Bayous Cypremort and Sale extend southwest from the ridge of Bayou Teche to the gulf. The ridge of Bayou Cypremort, which is 18 miles long, extends from the Home Place plantation to Cypremort Point on Vermilion Bay. In elevation it ranges from 8 feet in the north to sea level in the south. The ridge of Bayou Sale is about 17 miles long. It extends from the post office of Bayou Sale, where the maximum elevation is 9 feet, to Bayou Sale Bay, where the elevation is about 2 feet.

A few smaller natural levee ridges extend at right angles from Bayou Teche. They represent old crevasse channels or distributaries that have been completely filled with sediments. These ridges range in elevation from 1 to 12 feet above the swamp. Some of them can be seen at the following locations: 1 mile south of Lake Fausse Pointe, sec. 13, T. 13 S., R. 8 E., and 2 miles southwest of Franklin, sec. 64, T. 14 S., R. 9 E. A remnant of a former channel of the Teche-Mississippi River system, an old semicircular channel scar made up of sediments from both the Mississippi and Red Rivers, is located west of Baldwin, 2 1/2 miles northwest of Bayou Teche.

The low natural levee ridges make up only a small part of the land area of the parish, but they are occupied by the most important agricultural soils. Most of the soils have been cultivated for at least 50 years. The soils vary in texture, internal drainage, and elevation. Consequently, their suitability for agriculture varies. The best drained and most permeable soils occur at the crests of the natural levee ridges, and these are the most desirable for farming.

The suitability of the imperfectly drained and poorly drained soils for row crops is determined mainly by how well the soils can be artificially drained.

Coastal-marsh areas.—The coastal marshes extend up to 10 miles inland from the gulf. They cover a broad plain of low relief that has an imperceptible slope toward the gulf. In general, elevations range from level in the southern part of the marshes to 1 or 2 feet in the northern and interior parts. The low natural levees along the tidal channels and large streams within the marshes rise elevations of 1 foot or less above the marshes.

The coastal marshes are frequently flooded by tides and by overflow from the many lakes, bayous, and canals. Water is on or near the surface of the soil much of the year. Some places are flooded by tidal waters to a depth of as much as 18 inches. The occasional storm tides cover some areas with as much as 6 feet of water.

The vegetation of the coastal marshes consists of a thick cover of marsh grasses, sedges, and other water-tolerant plants. Because it is normally wet, the land is used mainly for seasonal grazing, trapping, and wildlife.

Bordering and within the coastal marshes are areas of swamps and bottom lands that are made of uplifted sediments derived from the Mississippi River or from mixed sediments derived from the Mississippi and Red Rivers. These areas occur in the northern, eastern, and southeastern parts of the parish. They are level, but there are undulating and range in elevation from sea level in the southeastern part to 5 feet on the delta of the Atchafalaya River in the northern part.

The peat and muck soils in the swamps are underlain
by alluvial deposits. Most of the areas of swamps and bottom lands are covered by a dense forest of cypress, tupelo-gum, swampbay, and swamp maple. The swamps and bottom lands are frequently flooded and are therefore used principally for seasonal grazing and for forests. In the past they have produced large quantities of timber.

*Rolling to hilly areas over salt domes.*—The forested soils on salt domes have the highest elevations and the steepest slopes (5 to 20 percent) and are the most severely eroded of any of the soils in the parish. In topography, they present a striking contrast to the surrounding low areas of marshlands. The elevation ranges from marsh level to more than 100 feet (10).

These salt domes are occupied by soils that have developed from alluvium of the Pleistocene epoch. This old alluvial material was washed mainly from areas of loess. The salt domes occur in 2 isolated areas within the coastal marshes. One, which covers about 1,600 acres, is Cote Blanche Island in the southwestern part of the parish. It is almost circular and has a maximum elevation of more than 100 feet. The other, Belle Isle in the southern part of the parish, is somewhat triangular and has an elevation of 80 feet. It occupies about 240 acres.

**Drainage**

The Atchafalaya River, which drains into the Gulf of Mexico, is the principal stream in the parish. This river enters the parish from the northwest. At present the Atchafalaya River is depositing alluvial sediments over a large delta in the Grand and Six Mile Lakes and along its entire course through Berwick Bay, the Lower Atchafalaya River, and into the gulf.

Other large streams in the parish are Bayous Teche, Shaffer, and Chene. Bayou Teche enters the parish from the northwest. It follows a winding course for about 42 miles and combines with an inactive segment of the Lower Atchafalaya River near Patterson. Within the parish, the winding Teche-Mississippi River system is approximately 66 miles long.

Most of the streams within the coastal marshes are near sea level; their direction of flow is generally determined by the direction and velocity of the winds and by the resulting tides. Like the Atchafalaya River, Bayous Shaffer and Chene flow toward the gulf. These streams often flood large areas. The Charenton and Hanson canals extend from Bayou Teche to the gulf, and the Wax Lake outlet canal extends from Six Mile Lake to the gulf. These canals have alleviated the danger of flooding by waters that were formerly impounded in Grand and Six Mile Lakes and Bayou Teche. The Intracoastal Waterway crosses the northern part of the coastal-marsh area. Many small canals have been constructed in this area for use in exploring for oil and gas and for use in producing it.

**Water Supply**

The parish is well supplied with water for livestock and for industrial use. There are many fresh-water lakes. A number of canals and streams cross the parish. In the grazing areas of the back swamps and marshes, the water for livestock is obtained from bayous and canals. The water needed for the sugarmills, canning factories, and petroleum refineries is obtained from fresh-water bayous and canals. Irrigation water for the rice fields is generally taken from Bayou Teche.

In Franklin, part of the water supply is obtained from wells that are 350 to 500 feet deep. This water comes from the water-bearing sands of the Pleistocene sediments. Fresh water is also piped from Grand Lake. Sediments from the delta of the Atchafalaya River are rapidly filling Grand Lake, however, and in the future it may become necessary for Franklin to rely only on the deep wells as a source of water. Morgan City and Berwick obtain water from the Lower Atchafalaya River. Patterson gets its supply from Bayou Teche.

Some water for domestic use is obtained from wells that are less than 40 feet deep. These shallow wells frequently become saline or brackish, especially during prolonged droughts. In the rural areas, a common practice is to collect water that runs off houses and buildings during rains. This water is stored in wooden or metal cisterns for use in the homes.

**Climate**

St. Mary Parish has a subtropical marine climate. The many lakes and bayous, the proximity of this area to the gulf, and the general southerly winds all tend to prevent sudden changes in temperature. Extremes in temperature seldom occur either in summer or winter. Data on climate for St. Mary Parish are given in Table 1. This information was compiled from records kept at the United States Weather Bureau Station at Franklin.

The summers are long and warm. Temperatures range from 55°F to 104°F, but the average summer temperature is 81.5°F. The fall months are generally mild. Winters are fairly mild with only a few cold days. Springlike weather commonly begins in February, and by April the weather is warm and mild.

The average annual precipitation is 66.84 inches. Rainfall is well distributed throughout the growing season. It is heaviest during the period from June through August, when there is an average of 21.77 inches. The lowest amount of precipitation—an average of 14.28 inches—occurs from December through February.

Sugar cane, corn, and other crops are seldom damaged through lack of moisture. Occasionally, however, the soils are either too wet or too dry during short periods in August and September, and the planting of sugarcane is delayed. Heavy rains that make fields muddy during November and December sometimes delay the harvesting of sugarcane. During September and October, heavy rainfall is likely to cause the sugarcane to maturate late and to have a low content of sugar. Frequent showers occur late in spring and in summer. Occasionally, 3 inches or more of rain falls within a 24-hour period, generally during tropical storms.

The prevailing winds are from the south and southeast. Breezes from the gulf modify high temperatures in summer and early in fall. Occasionally, storms, with high winds and heavy rains, cause tides to flood large areas of the coastal marshes to a depth of several feet. Strong northerly winds sometimes cause the weather to be cold for a few days during winter.

The humidity ranges from moderate to high throughout the year. It is highest from May through September and lowest during winter.
St. Mary Parish has an average growing season of 278 days. Temperatures below 32°F. are recorded on only a few days of the year. The average date of the first killing frost in fall is November 26, and that of the last killing frost in spring is February 21. Killing frosts, however, have occurred as early as October 31 and as late as April 3.

Temperatures below freezing damage the sugarcane. When planted, the sugarcane must be covered with 4 to 6 inches of soil to prevent frost damage. A frost in November or early December, when most of the crop is still unharvested, may be costly. The crop may deteriorate if it is not harvested soon after freezing, especially if the weather turns warm. If a killing frost occurs early in the harvesting season, however, facilities are not adequate to harvest a large crop in a short time.

Vegetation

Some of the plants in St. Mary Parish will grow only on dry soils and some only on wet soils. Others will grow only in fresh water, and still others only in brackish water. The type of vegetation varies throughout the parish.

The driest soils, which are on high terraces over salt domes, have a cover of live oak, red oak, white oak, hickory, sweetgum, and hackberry trees. The uncultivated soils on the natural levee ridges of the low Mississippi River terraces have a dense stand of small live oak, water oak, red oak, sweetgum, and hackberry trees. Volunteer grasses on these soils are bluestem, vasyegrass, dalligrass, bermedagrass, johnsongrass, and eragrass.

The soils of the bottom lands support a dense stand of cypress, tupelo-gum, swampbay, swamp maple, willow, sycamore, and cottonwood. On the organic soils of the swamps, the plant cover ranges from dense forest to scattered trees, mainly tupelo-gum and cypress with some swampbay and swamp maple.

In the fresh water marshes and nearly fresh water marshes, the luxuriant plant cover generally consists of pure stands of common reed (Phragmites comminus), paillefinte (Panicum hemitomon), cat tail (Typha latifolia), bulrush (Serranus validus), and cutgrass (Zizania paludosa). These plants also are dominant in some areas of the fresh water and nearly fresh water marshes in which brackish-water plants also grow (1, 3, 4).

The dominant vegetation of the brackish marshes ranges from nearly pure stands of cordgrass (Spartina patens) or three-square (Serranus olneyi) to mixed stands of plants, including both the plants common to brackish water and those common to nearly fresh water. Where the species are mixed, those common to brackish water are dominant. In such mixed areas are big cordgrass (Spartina cynosuroides), leafy three-square (Serranus robus tus), switchgrass (Panicum virgatum), delta potato (Sagittaria lancifolia), cordgrass, three-square, and cutgrass.

Near the coast, a few small areas of saline marsh soils support saltgrass (Distichlis spicata), sea-oxyeye (Borrichia frutescens), and blackrush (Juncus roemarianus), which have a salt tolerance of at least 2 percent (8).

Settlement, Organization, and Population

Up to 1803, when the United States purchased the Louisiana Territory from France, the ownership of the area that is now St. Mary Parish shifted back and forth between Spain and France. The area was thinly populated, and settlement did not progress rapidly. Travel into the area that is now St. Mary Parish was restricted by the almost inaccessible Des Allemands and Chacahoula Swamps that separated the area from the New Orleans settlement to the east.

The earliest inhabitants were largely Chitimacha (Chettimanche) Indians who lived along the shores of the present Grand Lake. In about 1765, French Acadian farmers came into the area. Some of them settled along Bayou Teche. Other settlers came from France and Spain. After the Revolutionary War, settlers came from the eastern seaboard and England and established villages along Bayou Teche and the Atchafalaya River (9).

St. Mary Parish was organized in 1811. Franklin, which is on Bayou Teche in the north-central part of the parish, became the parish seat. This town was founded in 1800. It is now the principal trading center for a large part of the parish. In 1950, it had a population of 6,144.

Morgan City, formerly called Brashear City, is in the eastern part of the parish. It was founded in 1850 and at that time was the western terminus of the New Orleans-Opelousas and Great Western Railroad. Because of its location on Berwick Bay, Morgan City is an important part of the Intracoastal Waterway and is a principal trading center. It is also the home port of a large part...
of the shrimp fleet. This town, the largest in the parish, had a population of 9,759 in 1950.

Berwick, which is separated from Morgan City by Berwick Bay, is the oldest settlement in the parish. It is an important port and trading center. Its population was 2,619 in 1950.

Patterson, near Bayou Teche in the eastern part of the parish, is about 7 miles west of Berwick. This settlement was begun in 1891 as a sawmill community. Later it was the site of a large sawmill used to process cypress trees. After most of the trees were cut, employment declined and the population of the city decreased. Since 1940, Patterson has been an important shrimp-packing center. Its population in 1950 was 1,338.

The town of Baldwin is in the northwestern part of the parish. It is about 8 miles southeast of Jeanerette, which is in Iberia Parish. Baldwin, like Patterson, was once a thriving sawmill community, but its population declined after the sawmill closed in 1929. It is now a trading center for the rural areas in the western part of the parish. Its population in 1950 was 1,138.

A government reservation of 1,000 acres is located near Charenton. Approximately 180 Chitimache Indians live on or near this reservation.

The total population of St. Mary Parish in 1950 was 35,845, about 60 percent of which was rural. This represented an increase of 14 percent over the 1940 population. Much of this gain resulted from increased activity in the oilfields and gasfields.

Most of the farms and plantations are near streams. In general, there is a continuous row of farms and plantations along the highways that run parallel to the principal streams. On many of the large plantations, there is a small settlement of 20 to 30 dwellings that house the owner or manager, the tenants, and the laborers. Other buildings are barns, implement sheds, and machine shops. On many of the plantations, there is a general store at the plantation headquarters. Settlements of considerable size have been established near each of the sugar mills in the parish.

Industries

The processing of sugarcane into raw and refined sugar is the most important agricultural industry in the parish. Nine sugar mills, in which raw sugar is produced, are scattered throughout the parish. In one of these mills, the raw sugar is made into refined sugar. According to U. S. Census of Agriculture, a total of 549,018 tons of sugarcane was harvested for sugar or for sale to mills in 1954. This accounted for about 11 percent of the total sugar production of the State’s 20 parishes that produce sugar. About 1,800 workers are employed in the sugar mills.

There are several oilfields and gasfields in the parish. The production of oil and gas and the exploration for them provide employment for many people, some of whom represent contracting companies from other States.

Commercial fishing and the processing of seafood have expanded rapidly in recent years. Plants that process seafood are located at Franklin, Morgan City, Berwick, and Patterson. Shrimp, oysters, and fish are shipped to eastern and northern markets or are sold locally.

Hunting and trapping are important in the marsh and swamp areas.

Shipbuilding companies construct boats and oil-drilling equipment at Morgan City, Berwick, and along Bayou Teche, west of Berwick. Many shrimp trawlers are built each year. Fishnets, barrels, and wooden boxes are also manufactured in Morgan City and Berwick. Boats, barges, motors, and farm machinery are built and repaired in Franklin, Berwick, and Morgan City. The construction and maintenance of pipelines for oil, gas, and water constitute a large enterprise. Other industries in the parish include an ironworks located at Franklin, two carbon black plants, and several lumbermills.

Transportation

The early settlers of St. Mary Parish traveled mostly by boat or on horseback. There were no roads or bridges in the area, so the early plantations were established along navigable bayous. Land travel followed the towpaths along the bayous. These towpaths, called cordelle roads by the French, were made by workers who pulled sailboats with ropes when there was not enough breeze to move the boats. The cordelle roads were the forerunners of the present highways in the parish.

In 1881 a railroad bridge was completed across the Lower Atchafalaya River at Morgan City, and the first train of what was then the New Orleans-Opelousas and Great Western Railroad passed through the parish, linking New Orleans with Houston, Tex. (6). The line of the southern Pacific Railway now passes through the parish and serves all the larger towns. A spur line of the Southern Pacific extends from Baldwin, along the Bayou Cypremort ridge, to the salt mines on Weeks Island in Iberia Parish and to the carbon black plant on the Ivanhoe plantation. Another spur line extends down Bayou Sale from the post office at Bayou Sale to the carbon black plant on the North Bend plantation. A branch line of the Missouri Pacific Railroad transports freight from Franklin northwest to Alexandria in Rapides Parish.

United States Highway No. 90 extends across the parish from northwest to southeast and connects most of the larger towns. Approximately 60 miles of concrete and asphalt highways and about 180 miles of shell and gravel roads serve all parts of the parish. Bus lines and truck lines operate on daily schedules over most of the principal highways.

The bayous, rivers, lakes, canals, and small streams that form an intricate network are important arteries of water travel. The parish has nearly 600 miles of waterways, many of which are navigable. The Intracoastal Waterway extends across the northern part of the coastal marshes. It is the main artery of the inland water route between New Orleans and Orange, Tex. A maintained channel extends through the shallow Six Mile and Grand Lakes into the Atchafalaya River basin and then into the main channel of the Atchafalaya River.

Important waterways used for the transportation of freight are Bayous Teche, Bœuf, Chene, Shaffer, the Lower Atchafalaya River, Charenton Canal, Franklin Canal, and the outlet channel of Wax Lake. Freight is transported over a waterway extending from Morgan City to the Mississippi River at Plaquemine in Iberia Parish. The products carried by rail, truck, and boat are mainly sugarcane, sugar, molasses, sirup, seashells, shrimp, oysters, crude petroleum and petroleum products,
chemicals, sulfur, drilling mud, gravel, sand, pipe and oil-well supplies, and fertilizers.

The Harry P. Williams Memorial Airport, which is west of Patterson, is the only airport in the parish.

**Agriculture**

The agriculture of St. Mary Parish is based primarily on the growing of sugarcane, but corn, rice, and soybeans are also grown. On the following pages important features of the agriculture of the parish are described. The statistics used are taken from reports published by the United States Bureau of the Census.

**Agricultural History of the Parish**

In the area that is now St. Mary Parish, Indians grew the first food crops. They planted these crops—maize, beans, squash, potatoes, and peas—along what is now Bayou Teche and Grand Lake. When the early settlers arrived, they also planted their crops on small farms that fronted on Bayou Teche or on other waterways.

The settlers grew cotton, rice, indigo, corn, and sugarcane on small farms. Most of these farms were Spanish land grants; each holding included frontage on a navigable bayou and extended back from the stream for a distance of 40 arpents. At first, indigo was the principal cash crop, but cotton began to increase in importance. After the process of granulating sugar was perfected in 1794, sugarcane also became more important. At the time of the Louisiana Purchase in 1803, cotton had become the leading crop in the parish. Planters began to enlarge their holdings by buying cheap back lands, which, if more than 40 arpents from the bayous, cost only $1.25 an acre. The number of small farms declined.

Sugarcane did not become the principal crop in the parish until the War of 1812, when the British blockade kept out sugar from foreign sources. Then cotton prices began to decline, and many former cotton farmers turned to growing sugarcane. By 1860, the parish was the principal sugar-producing area in the State. During the 1860–61 season, 170 sugarhouses produced 27,229 hogsheads of sugar. Sugar production dropped sharply during the Civil War so that during the 1864–65 season only 2 sugarhouses were operating.

It was not until 1934 that sugarcane again became the principal crop in the parish. Yields increased from 80,900 tons in 1905 to 54,018 tons in 1954. Rice has become more important in recent years. In 1954, 49,092 barrels of rice were harvested.

The need for adequate drainage in fields used to grow sugarcane and corn was recognized by the early planters. As early as 1847, the drainage wheel was used in the parish. This wheel was powered by steam and threw water from the main drainage ditches into the back swamps. A typical drainage wheel was 25 feet in diameter and 5 feet wide; the buckets were 5 feet wide and 6 feet deep. Much of the fieldwork on farms consisted of constructing and maintaining the drainage ditches and protective levees.

**Land Use**

About 162,162 acres, or more than 41 percent of the total acreage, was in farms in 1954. This compares with 104,902 acres, or about 27 percent, in 1945.

The number of farms decreased from 530 in 1930 to 417 in 1954. The average size of farms increased from 232 acres to 389 acres. In 1954, more than 53 percent of the farmland was in crops, 10 percent was in pasture, and about 32 percent was woodland. The rest was used for miscellaneous purposes.

**Types and Sizes of Farms**

In 1954, 30.4 percent of the farms in St. Mary Parish were miscellaneous and unclassified. The rest were classified by major source of income as follows:

<table>
<thead>
<tr>
<th>Type of Farm</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash grain</td>
<td>4.2</td>
</tr>
<tr>
<td>General farms</td>
<td>4.0</td>
</tr>
<tr>
<td>Field-crop farms other than vegetable and fruit</td>
<td>65.4</td>
</tr>
<tr>
<td>Livestock farms other than dairy and poultry</td>
<td>2.7</td>
</tr>
<tr>
<td>Field crops</td>
<td>61.2</td>
</tr>
</tbody>
</table>

There were many large farms in the parish in 1954. Of these farms, 33 were 1,000 or more acres in size, 28 were between 500 and 999 acres, 66 were between 220 and 499 acres, and 84 were between 100 and 219 acres. There were 173 farms of less than 49 acres.

**Crops**

Sugarcane is the most important cultivated crop in the parish, but corn, rice, hay, and green-manure crops are also grown. There has been some increase in the acreage planted to rice. In Table 2 the acreage of the principal crops is listed for the years 1929, 1939, 1949, and 1954.

From 1929 to 1949, the total acreage used for cultivated crops increased, partly as the result of improvements made in farm machinery. During this period, most of the soils that did not need to be completely reclaimed or drained by pumps were cultivated. In a few areas, levees were built and floodgates and pumps were installed to help regulate the moisture so that the soil would be suitable for row crops.

### Table 2. Acreage of the principal crops grown

<table>
<thead>
<tr>
<th>Crop</th>
<th>1929</th>
<th>1939</th>
<th>1949</th>
<th>1954</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugarcane</td>
<td>20,686</td>
<td>22,156</td>
<td>44,787</td>
<td>29,943</td>
</tr>
<tr>
<td>Corn</td>
<td>13,041</td>
<td>14,094</td>
<td>7,187</td>
<td>9,686</td>
</tr>
<tr>
<td>Soybeans</td>
<td>8,021</td>
<td>11,653</td>
<td>11,441</td>
<td>10,396</td>
</tr>
<tr>
<td>Rice</td>
<td>3,775</td>
<td>2,828</td>
<td>3,803</td>
<td>6,833</td>
</tr>
<tr>
<td>Cowspeas</td>
<td>1,227</td>
<td>641</td>
<td>149</td>
<td>59</td>
</tr>
<tr>
<td>Hay</td>
<td>4,613</td>
<td>4,889</td>
<td>2,756</td>
<td>2,404</td>
</tr>
<tr>
<td>Annual legumes</td>
<td>3,903</td>
<td>4,236</td>
<td>1,928</td>
<td>1,094</td>
</tr>
<tr>
<td>Lespedeza</td>
<td>(2)</td>
<td>131</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>113</td>
<td>(5)</td>
<td>152</td>
<td>446</td>
</tr>
<tr>
<td>Timothy and clover</td>
<td>26</td>
<td>(5)</td>
<td>132</td>
<td>0</td>
</tr>
<tr>
<td>Other tame hay</td>
<td>123</td>
<td>88</td>
<td>(2)</td>
<td>84</td>
</tr>
<tr>
<td>Sweetpotatoes</td>
<td>703</td>
<td>266</td>
<td>247</td>
<td>107</td>
</tr>
<tr>
<td>Irish potatoes</td>
<td>567</td>
<td>179</td>
<td>44</td>
<td>24</td>
</tr>
</tbody>
</table>

1. Not reported.
2. Includes wild hay.
3. Does not include acreage for farms with less than 15 bushels harvested.
4. Does not include acreage for farms with less than 20 bushels harvested.
As a result of the Federal Acreage Allotment Program, some of the low-lying, poorly drained soils, formerly used to grow sugarcane but poorly suited to that purpose, were transferred to other uses. Some of these soils are now used for corn, and some are idle or pastured.

**Sugarcane**

The agricultural economy of the parish is based on sugarcane. Normally, three crops can be obtained from a single planting, but yields of the third crop, or second-year stubble cane, are frequently poor. The low yields may result from poor drainage and poor aeration caused by the row middles being compacted by heavy machinery; from diseases such as root rot, red rot, mosaic, and raton stunting; from winterkilling; or from the loss of plant nutrients. Sugarcane borers also lower the yields. Good to excellent yields have been obtained from third- and fourth-year stubble where cane was planted following a well-sodded improved pasture.

Good soil drainage and ample moisture are needed for sugarcane to make profitable yields. Poorly drained soils remain saturated for a considerable time after heavy rains and are unfavorable for the growth of roots. In addition, the plants are likely to deteriorate or be damaged by root diseases.

Most of the cultivated soils can be adequately drained for sugarcane if the rows are run with the slope and are thrown up as ridges 16 to 20 inches high. The rows are usually 6 feet apart. Each rowmiddle functions as a drainage ditch. The cane is planted in the rows, several inches above the row middles. In addition, deep ditches that are properly spaced and the correct size are needed in many areas to drain the soils adequately for sugarcane.

Widely spaced lateral ditches, which provide for larger fields or cuts, are used to help drain the better drained soils. Closely spaced lateral ditches, resulting in narrower fields or cuts, are needed for more intensive artificial drainage of the finer textured, level or nearly level soils. These lateral ditches are run with the slope and parallel to the cane rows. Quarter drains are placed at right angles to the rows to remove drainage water from the ends of cuts and from low spots in the field.

Cut crowning is a good practice to improve drainage for sugarcane, corn, soybeans, and pastures, especially on fields or cuts where the interior is lower than the edges. In cut crowning the soil is either plowed or graded to the center of the area between the lateral ditches. This makes the cut highest in the center, from where it slopes to the lateral ditches along its boundaries with a fall of 0.3 to 0.5 foot in 100 feet.

In preparing the soil for a new crop of sugarcane, the planter lists the fields into rows. Some fields are plowed flat before the rows are made. Yields are generally low if the rows are made by listing out old rows and building up the new ones over the old compacted middles.

Between August 1 and November 1, the sugarcane is planted on the tops of the rows and covered with about 4 inches of soil. Normally, 20 to 30 percent of the sugarcane germinates, and from 2 to 4 tons of sugarcane per acre must be planted to insure a good stand. A winter-legume crop of alfalfa or medic is sometimes planted in the row middles.

The new growth of stubble cane comes from the lowest nodes that are left after the previous crop is cut. The row middles, which have become compacted by heavy machinery during the previous year, are commonly plowed out early in spring. Deep plowing brings the compacted soil and old cane trash to the surface. This improves drainage and aeration and makes the trash decompose faster.

The tops of the sugarcane plants and a few inches of soil are shaved off the top of the row when the soil begins to warm in the spring. Shaving kills the weeds at the top of the row. Removing part of the soil permits the cane to start growing earlier. It is a good practice to shave off the cane, especially if there is much new growth that is badly infested with sugarcane borers.

The cane is fertilized when it has been determined that there is a proper stand. The fertilizer is applied along the row, a foot or more from its crest, and the soil is thrown to the cane in one operation. A disk cultivator with a distributor attachment is commonly used for this job. The crop is cultivated at least three times to loosen the soil and to kill the weeds.

Harvesting begins about the second week in October, but the exact date depends upon the weather and the results of sucrose tests. The mechanical cane harvester cuts the cane at the bottom, removes the tops, and window drops the cane across two stubble rows. The few leaves that are left on the cane soon become dry and are burned off. The cane is placed in piles by a tractor-driven rake. It is then picked up mechanically, placed in a tractor-drawn wagon, and delivered to the sugarmill.

**Rice**

The total acreage in rice is small at present; however, many of the soils are well suited to rice. Rice is commonly grown on the fine-textured soils of the back lands. Normally, it is grown in a 2- or 3-year rotation consisting of either 1 year of rice and 1 year idle, or of 2 years of rice and 1 year idle.

Levees, 8 to 12 inches high are built up on the contour on the rice field at sites of equal elevation. The levees are spaced so that the entire ricefield can be flooded to a depth of 4 to 6 inches. Irrigation ditches are used to flood the field and then to remove the water. The seedbed is prepared by flat breaking, disk ing, and rolling.

Rice is planted in spring or early in summer. A grain seeder is commonly used for planting, and fertilizer is applied at planting time. When the rice reaches a height of 4 to 6 inches, the field is flooded and kept flooded until nearly harvest time, when it is drained. The rice is harvested with a combine.

**Corn**

In this parish corn is commonly rotated with sugarcane. Much of the corn is used on the farm. The small amount that is surplus is sold locally.

The corn is planted early in spring. It generally follows stubble cane in the rotation. The cane rows are disked down, and the field is normally plowed flat. Then the rows are again built up, and the corn is planted on top of the rows. The corn is cultivated two or more times during the growing season.

**Soybeans**

Soybeans are the most important summer-legume crop in the parish, but some cowpeas and velvetbeans are grown. At least 2 weeks before the sugarcane is planted, soybeans or another legume crop are plowed under to
provide green manure. In most fields soybeans are planted with the corn, but in some they are grown alone. If soybeans are grown alone, a flat seedbed is prepared and the seeds are either drilled or broadcast.

Hay

Most of the hay is used on the farm. Much of it is cut from small, unimproved permanent pastures or from the headlands and roads between the cuts or fields of sugarcane. Johnsongrass, dallisgrass, vaseygrass, bermudagrass, and crabgrass are cut for hay. In a few small fields, whiteclover, common lespezea, and alfalfa are grown for hay. If there is a shortage of other forage plants, soybeans are cut for hay.

Other crops

Garden vegetables, Irish potatoes, and sweetpotatoes are grown on most plantations and farms for home use. The principal tree fruits are figs, oranges, pears, and peaches. There are a number of pecan trees in the parish.

Rotations

The principal crops of the parish are grown in rotations. Sugarcane is commonly grown in a 4-year rotation consisting of 3 years of sugarcane followed by 1 year of corn, 1 year of soybeans, or 1 year of corn and soybeans grown together. Under this rotation approximately three-fourths of the cropland would ordinarily be in sugarcane each year and one-fourth in corn, soybeans, or fallow. As a result of the Federal Acreage Allotment Program, however, the acreage in sugarcane has been reduced so that now less than three-fourths of the total cropland is used for that crop.

After 3 years in sugarcane, many fields become badly infested with johnsongrass, the principal noxious weed in cultivated fields in this area. Johnsongrass can be controlled by fallowing the soils, that is, plowing the infested fields 6 to 8 times during the summer. The weed is controlled somewhat better by this method than by growing corn under clean cultivation.

Rice is commonly grown in a 2-year rotation consisting of 1 year of rice and 1 year idle. It is also grown in a 3-year rotation consisting of 2 years of rice and 1 year idle or of volunteer pasture.

Fertilizers

A legume crop such as soybeans or cowpeas is commonly plowed under as green manure before sugarcane is planted. Most of the crops cultivated in the parish receive annual applications of commercial fertilizer. During the 1952-53 season, 1,945 tons of fertilizer was applied to crops. Of this, 70 percent was nitrogen fertilizer, 22 percent was complete fertilizer, and 8 percent was phosphite and potash fertilizer.

For sugarcane, the common practice is to apply 40 pounds of nitrogen per acre to plant cane and 60 pounds of nitrogen per acre to stubble cane. A few planters apply phosphate and potash to sugarcane.

Corn is fertilized with 50 pounds of nitrogen per acre and 100 to 200 pounds of a complete fertilizer at planting time. A sidedressing of 50 pounds of nitrogen is applied later.

Often fertilizer is not used on rice, especially if a rank growth of volunteer vegetation has been turned under. If the rice is fertilized, 200 to 400 pounds of a complete fertilizer per acre is commonly applied.

Soybeans are frequently planted without fertilizer. Some farmers increase their yields by applying 100 to 200 pounds of a complete fertilizer per acre. Soybeans produce higher yields on the sandy front lands if they are fertilized with 100 pounds of 20 percent superphosphate.

Some superphosphate, basic slag, rock phosphate, and complete fertilizer have been applied to improved pastures. Most of the highly productive pastures are fertilized with 200 to 400 pounds of 20 percent superphosphate per acre, or the equivalent, and 50 pounds of potash as muriate of potash. In addition, about 1 ton of lime per acre is applied to pastures on acid soils.

Both dry and liquid nitrogen fertilizers are used. Of the total amount of nitrogen fertilizer applied to crops in 1950-51, 28 percent was applied as anhydrous ammonia and 65 percent as ammonium nitrate. Recently, however, the amount of liquid nitrogen used has increased steadily, while the amount of dry nitrogen used has decreased. During the 1954-55 season, 64 percent of the nitrogen was applied as anhydrous ammonia and 25.7 percent as ammonium nitrate.

Pastures

The acreage in pasture has increased in this parish during recent years. In 1954, 16,705 acres, or a little more than 10 percent of the total land in farms, was in pasture. Of this, 4,320 acres was in improved pasture. The improved pastures are seeded to whiteclover, dallisgrass, lespezea, and bermudagrass. Some are also seeded to oats or ryegrass for winter grazing.

Besides the pastures on livestock farms, most plantations have pastures of from 3 to 15 acres located near the plantation headquarters. These pastures provide forage for workhorses, mules, and milk cows.

Unimproved grass pastures of dallisgrass, vaseygrass, bermudagrass, paniegrass, and bluestem provide good seasonal grazing. Some farmers fence low-lying, poorly drained fields near the swamps and use them for pasture. Fairly large areas within the swamps provide fair to poor seasonal grazing and browsing. In small, moderately well drained, easily accessible areas of the coastal marshes, paille finue, feathergrass, and big cordgrass provide excellent grazing. Rice fields are grazed after the crop is harvested.

Livestock and Livestock Products

Large-scale livestock farming does not fit well into the agricultural economy of St. Mary Parish. Nevertheless, part of the acreage withdrawn from use for sugarcane is now in livestock farms. The number of livestock farms increased from 6 in 1950 to 20 in 1954. The number of cattle and other livestock on farms and plantations in 1930, 1940, 1950, and 1954 is shown in [table 3].

Each plantation keeps a few milk cows. In 1954, there were 289 milk cows in the parish. Most of the milk is used locally, but 21,738 gallons of whole milk was sold in 1954. Hogs are raised mostly for home use.

3 Louisiana Department of Agriculture and Immigrant, report of fertilizer sold in Louisiana by grades. [Micrographed.] 1952-53.
### Table 3—Number of livestock on farms and plantations

<table>
<thead>
<tr>
<th>Livestock</th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1954</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and calves.</td>
<td>2,809</td>
<td>2,639</td>
<td>3,591</td>
<td>5,605</td>
</tr>
<tr>
<td>Horses and mules</td>
<td>2,879</td>
<td>1,686</td>
<td>1,266</td>
<td>697</td>
</tr>
<tr>
<td>Hogs and pigs</td>
<td>4,895</td>
<td>1,509</td>
<td>1,820</td>
<td>1,178</td>
</tr>
<tr>
<td>Sheep and lambs</td>
<td>163</td>
<td>43</td>
<td>73</td>
<td>24</td>
</tr>
<tr>
<td>Chickens</td>
<td>30,640</td>
<td>19,261</td>
<td>24,958</td>
<td>20,553</td>
</tr>
<tr>
<td>Turkeys raised</td>
<td>242</td>
<td>67</td>
<td>545</td>
<td>84</td>
</tr>
<tr>
<td>Ducks raised</td>
<td>294</td>
<td>123</td>
<td>1,092</td>
<td>312</td>
</tr>
</tbody>
</table>

1 Over 3 months old.  
2 Over 6 months old.

Some plantations still have a number of workmules and a few saddle horses; although most of the farm power is now supplied by tractors. In 1954, there were 697 horses and mules in the parish, as compared with 1,266 in 1950.

Poultry and poultry products account for a small part of the annual farm income. In 1954, 4,744 chickens and 47,941 dozen eggs were sold.

### Farm Tenure

In 1954, approximately 41 percent of the farms were operated by owners, 20 percent by part owners, 4 percent by managers, and 25 percent by tenants. The percentage of tenancy was more than 3 percent lower in 1954 than in 1945. About 21 percent of the tenants pay cash rent; the others are share-cash or share-crop tenants.

### Farm Equipment and Labor

Farming is highly mechanized on the larger sugar plantations. In 1954 there were 866 tractors on 208 farms, 489 motor trucks on 239 farms, 34 grain combines on 26 farms, and 18 pick-up hay balers on 18 farms. Other equipment included cane-harvesting machines, cane loaders, ditching machines, grading machines, hoists, wagons, cultivators, disks, and other tractor attachments. Electricity is available in most rural areas.

The purchase and repair of farm equipment are major items of farm expense. As a result, many farmers find it profitable to hire some equipment instead of buying it. Much of the work on a sugarcane plantation requires hand labor to maintain field drainage facilities and to plant, hoe, and harvest the sugarcane. Most of the fieldhands and tractor operators are paid in cash.

### How a Soil Survey is Made

The scientist who makes a soil survey examines soils in the field, classifies the soils in accordance with facts that he observes, and maps their boundaries on an aerial photograph or other map.

**Field Study.**—On the agricultural soils of this parish, the soil surveyor has dug or bored many holes to see what the soils are like. The holes are not spaced in a regular pattern but are located according to the lay of the land. The marshes and swamps were surveyed in less detail than the cultivated soils. The coastal-marsh areas in the eastern part of the parish are easily accessible. They were observed at sites a quarter of a mile to 2 miles apart. The coastal-marsh areas west of Bayou Sale ridge are not easily accessible either by boat or on foot. The soils were observed at sites a quarter of a mile to 3 miles apart.

In most soils there are several distinct layers, called horizons, which collectively are known as the soil profile. Each layer is studied to see how it differs from others in the profile and to learn the things about the soil that influence its capacity to support plants.

Color is usually related to the amount of organic matter. The darker the surface soil, as a rule, the more organic matter it contains. Streaks and spots of gray, yellow, and brown in the lower layers generally indicate poor drainage and poor aeration. The very dark gray or black Iberia soils contain larger amounts of organic matter than the brown Cypremort soils.

Texture, or the content of sand, silt, and clay, is determined by the way the soil feels when rubbed between the fingers and is later checked by laboratory analysis. Texture determines how well the soil retains moisture, plant nutrients, and fertilizer, and whether it is easy or difficult to cultivate. The fine-textured Iberia clay retains moisture, fertilizers, and plant nutrients longer than the Cypremort soils.

Structure, or the way the individual soil particles are arranged in larger grains and the amount of pore space between grains, gives us clues to the ease or difficulty with which the soil is penetrated by plant roots and by moisture. Plant roots, air, and moisture easily penetrate the clay subsoil of Baldwin silty clay loam (which has a strong medium angular blocky structure). Alligator clay has a clay subsoil with massive structure that is unfavorable for the free movement of plant roots, air, and moisture.

Consistence, or the tendency of the soil to crumble or to stick together, indicates whether it is easy or difficult to keep the soil open and porous under cultivation. Cypremort very fine sandy loam has a loose consistence when dry. It is friable when moist and nonsticky when wet. It is open and porous within a wide range of moisture content. Iberia clay has a hard consistence when dry. It is firm when moist and plastic when wet. This soil is usually sticky and cloddy when cultivated.

Other characteristics observed in the course of the field study and considered in classifying the soil include the following: The depth of the soil over compact layers; the steepness and pattern of slopes; the degree of erosion; the nature of the underlying parent material from which the soil has developed or is being formed; and the reaction of the soil as measured by chemical tests. Reaction refers to the degree of acidity or alkalinity of a soil mass, expressed in either pH value or in words, as follows:

- Extremely acid... below 4.5  
- Very strongly acid... 4.5-5.0  
- Strongly acid... 5.1-5.5  
- Slightly acid... 6.1-6.5

**Classification.**—On the basis of the characteristics observed by the survey team or determined by laboratory tests, soils are classified by series, types, and phases. As an example of soil classification, consider the Patoutville series of St. Mary Parish. This series is made up of...
the following two soil types, one of which is subdivided into phases:

<table>
<thead>
<tr>
<th>Series</th>
<th>Type</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patoutville</td>
<td>Silt loam</td>
<td>(Not divided into phases.)</td>
</tr>
<tr>
<td></td>
<td>Very fine sandy loam</td>
<td>Eroded gently sloping</td>
</tr>
</tbody>
</table>

Soil series.—Soils similar in kind, thickness, and arrangement of soil layers, are normally designated as a soil series. In a given area, however, it frequently happens that a soil series is represented by only one soil type. Each series is named for a place near which it was first mapped.

Soil type.—Soils having the same texture in the surface layer and similar in kind, thickness, and arrangement of soil layers are classified as one soil type.

Soil phase.—Because of differences other than those of kind, thickness, and arrangement of layers, some soil types are divided into two or more phases. Slope variations, degree of erosion, depth of soil over the substratum, or natural drainage are examples of characteristics that suggest dividing a soil type into phases.

The soil phase (or the soil type if it has not been subdivided) is the unit shown on the soil map. It is the unit that has the narrowest range of characteristics. Use and management practices therefore can be specified in more detail than for soil series or yet broader groups that contain more variation.

Miscellaneous land types.—Fresh stream deposits or areas of swamps and marshes are not classified into types and series, except for Baldin silt loam, salty variant, but are identified by descriptive names, such as Local alluvium, poorly drained, and Swamp, clays and mucky clays.

Soil complex.—When two or more soils are so intricately associated in small areas that it is not feasible to show them separately on the soil map, they are mapped together and called a soil complex. In St. Mary Parish, Buzin-Portland-Perry soils, nearly level phases, is an example of a soil complex.

**Soil Associations**

A soil association is an area of land in which one or more soil types occur in a characteristic pattern. The soils in an association may differ widely in important characteristics. Each area of the association, however, has a certain repeating pattern of the same important soil types and of other features that give it a characteristic landscape.

The soil associations recognized in St. Mary Parish are shown on the soil association map at the back of this report. Each association is identified on the map by a number and a color. The name of each association describes important characteristics common to all the soils of the association, in most cases texture and relief.

**Silty Soils, Gently Sloping to Steep, Over Salt Domes: Richland and Lintonia Soils**

This association is comprised of gently sloping to steep undifferentiated silty Richland and Lintonia soils. It lies mainly in two areas next to the coastal marsh. These areas occur as forested soils over salt domes on Cote Blanche Island in the southwestern part of the parish and on Belle Isle in the southern part. They are at elevations that range from sea level to more than 100 feet.

The soils of this association have developed on terraces from old alluvium washed from areas of loess. This old loessal alluvium over salt domes once lay buried under deposits of more recent alluvial material. It was forced to the surface by stresses within the earth, accompanied by the intrusion of salt plugs from deep-seated salt beds, and it now lies at elevations of more than 100 feet above sea level.

The high temperatures and large amount of precipitation have caused much of the plant nutrients and bases to leach out of these soils. As a result the soils are medium acid to very strongly acid and are low in organic matter.

The Lintonia soils are well drained. The Richland soils are moderately well drained and have a well-developed fragipan (dense, brittle layer) beginning at depths of about 18 inches. These soils have been severely damaged by sheet and gully erosion. They are not suited to tilled crops and are used for growing trees and for seasonal grazing. The present vegetation consists mainly of a dense stand of mixed hardwoods.

**Silty and Loamy Acid Soils on Low Terraces: Patoutville**

This association is comprised of the silty and loamy Patoutville soils. The areas are small. They occur in the western part of the parish, where they lie next to areas of Baldwin and Cypremort soils and at about the same elevation. The soils have developed on low terraces of level to nearly level relief and are imperfectly drained. Their parent material was medium-textured, slightly acid to mild alkaline alluvium of the late Pleistocene epoch. The native vegetation consisted mainly of grasses, but mixed hardwoods grew on small scattered areas.

The soils of this association are older and more leached of bases and plant nutrients than soils in adjacent areas. They have a medium acid to strongly acid surface soil and subsoil and a slightly acid to mildly alkaline subsoil. They are moderately productive and locally important for row crops.

**Silty, Loamy, and Clayey, Slightly Acid Soils on Low Mississippi River Terraces: Baldwin, Iberia, Cypremort, and Jeanerette**

This association is comprised of silty, loamy, and clayey soils of the Baldwin, Iberia, Cypremort, and Jeanerette series. Most of the soils are slightly acid. They occur on the ridges of the natural levees along Bayou Teche, Cypremort, and Sale and along smaller streams.

The largest areas of the association occur on the natural levee ridges along Bayou Teche, which extends northwest to southeast across the northern part of the parish. Other large areas occur on the ridges along Bayou Cypremort in the southwestern part of the parish and along Bayou Sale, which extends through the central part of the parish from the Bayou Teche natural levee southward to the gulf.

The natural levees along the bayous have been built up to well above the level of the marshes by the sediments that were deposited along the stream channels during floods. The ridges in the northwestern part of the parish and along Bayou Teche rise to elevations of 5 to 16 feet and are 6 miles wide. The ridges become progres-
ST. MARY PARISH, LOUISIANA

sively narrower and lower farther south and east and at Amelia, in the eastern part of the parish, their elevation is 3 to 6 feet and their width is 0.2 to 0.4 mile.

The soils of this association are nearly level and are moderately well drained to poorly drained. They are older than the soils of the bottom lands and have fairly well developed profiles. They have formed from slightly acid to moderately alkaline alluvial sediments. Part of these sediments were deposited by the Mississippi River and its distributaries during the time when the river followed the present channel of Bayou Teche. Some were deposited by the Red River, which also followed the Bayou Teche channel at one time.

The soils are well supplied with plant nutrients. They are the best for cultivated crops of any soils in the parish. Because of differences in texture and in slope and elevation, they differ somewhat in ease of cultivation and in need for artificial drainage. Most of the areas are used for row crops, but the smaller areas are in pasture or forest.

The soils of this association are separated into three groups. These are—

1. Soils of the front lands of the natural levee ridges.
2. Soils of the back lands of the natural levee ridges.
3. Soils of the mixed lands of the natural levee ridges.

Soils of the front lands of natural levee ridges.—This area is comprised of soils that are known locally as front lands. In it are all of the Cypermorts soils; Baldwin very fine sandy loam; Baldwin silt loam; Baldwin silt loam, low phase; Baldwin silt loam, compacted phase; and Baldwin silt loam, dark-colored surface phase.

These soils are the best drained and the coarsest textured of any of the soils of the natural levee ridges and occur at the highest elevations. They lie on or near the crests of the ridges and at slightly higher elevations than the soils of the mixed lands. The native vegetation under which they have developed consisted of prairie grasses and hardwood trees that grew on small scattered areas. Most of these soils have a medium acid or slightly acid surface layer and subsoil and a slightly acid or mildly alkaline substratum. They are moderately well drained to imperfectly drained. Internal drainage is medium to slow, and runoff is slow in most places. The soils receive no runoff or only slight runoff from other soils. As a result, they need less artificial drainage than the soils of the mixed lands for profitable yields of row crops. The homes on many of the farms on the front lands have their frontage on the bayous.

Soils of the mixed lands of the natural levee ridges.—This area is comprised of soils that have developed from mixed sediments of silt loam, silty clay loam, silty clay, and clay. These materials were deposited on the back slopes of the ridges when streams of the Teche-Mississippi River system overflowed their banks. The soils of the mixed lands are Baldwin silty clay loam; Baldwin silty clay loam, low phase; Baldwin silty clay; Baldwin silty clay, compacted phase; and Baldwin silty clay loam, compacted phase.

The mixed lands occupy areas intermediate in elevation between the higher front lands and the lower back lands. They are level to nearly level. The native vegetation consisted mainly of prairie grasses, but mixed hardwoods grew on small scattered areas. Most of the areas are now used for cultivated crops.

The mixed lands are imperfectly drained; both runoff and internal drainage are slow. The soils generally contain more organic matter, are finer textured, and are less well drained than the soils of the front lands. They generally contain less organic matter, are finer textured, lighter colored, and better drained than soils of the back lands. These soils have a medium acid or slightly acid surface soil, a slightly acid or neutral subsoil, and a natural or mildly alkaline substratum.

Soils of the back lands of the natural levee ridges.—This area is comprised of soils that occupy the lower back slopes of the natural levee ridges. It is made up of soils of the Iberia and Jeanerette series and includes the complex of Jeanerette-Iberia very fine sandy loams.

The soils have developed under swamp or mixed swamp and marsh vegetation. Their parent material was slightly acid to alkaline alluvium that accumulated in shallow lakes and embayments. The organic matter that is mixed with the mineral materials has colored the soils black or very dark gray.

The Iberia soils are the predominant soils of this group. They occupy level areas or depressions and are poorly drained. Their subsoils are clay or silty clay.

The Jeanerette soils comprise a smaller part of the acreage. These soils are better drained than the Iberia soils. They have developed from sediments of very fine sandy loam, silt loam, and silt loam, deposited in the water that once covered the area. Most of these sediments settled along the shore areas of former lakes. The subsoil of the Jeanerette soils forms of friable silty clay loam.

Soils of the bottom lands: Swamp, Clays and Mucky Clays; Buixin-Portland-Perry Soils; Mixed Clay Alluvium

This soil association is comprised of large areas of bottom-land soils developing from recent alluvium deposited by the floodwaters of the principal streams. Most of the areas are at elevations between sea level and 6 feet. The areas are frequently flooded and are unsuited to cultivated crops. They are used principally for forests and for seasonal grazing.

Other areas, occupied by soils known as high-bottom soils, lie well above the parts of the association that are flooded. These areas occur along the borders of the natural levee ridges and along the channels and former channels of the Teche-Mississippi River system. The high-bottom soils are used for cultivated crops and pasture.

The soils of this association are separated into the following two groups:

1. Soils on alluvium brought down by the Mississippi River.
2. Soils on mixed alluvium brought down by the Mississippi and Red Rivers.

Soils on alluvium brought down by the Mississippi River.—Most of these soils occur in the backswamp areas that border natural levee ridges. They have formed from thick deposits of slightly acid to moderately alkaline gray silts and clays that were deposited primarily by the Mississippi River. The group consists of Alligator clay; Alligator clay, overflow phase; Made land in swamp; and some areas of Swamp, clays and mucky clays.

The areas are poorly drained or very poorly drained, and most of those not protected by levees are frequently flooded. They are used for forests and seasonal grazing. The vegetation generally consists of a dense growth of cypress, tupelo-gum, swamp maple, and swampy pine trees.

Some areas on the fringes of the swamps occur at slightly
higher elevations. These are used for cultivated crops and pasture.

Soils on mixed alluvium brought down by the Mississippi and Red Rivers.—The soils of this group include gray sediments deposited by the Mississippi River and red and brown sediments deposited by the Red River. The soils are imperfectly drained to very poorly drained. They are slightly acid to mildly alkaline. The group is comprised of gently sloping phases, nearly level phases, and level overflow phases of Buxin-Portland-Perry soils; Sharkey-Alligator clays; Mixed clay alluvium (overflow phase); Local alluvium, poorly drained; and some areas of Swamp, clays and mucky clays, that are made up of mixed alluvium.

The soils occupy large areas in the northern and eastern parts of the parish. Some occur on the delta of the Atchafalaya River and on the shores of Grand, Six Mile, and Palourde Lakes. Other large areas are in the coastal marsh east of the outlet channel of Wax Lake. Most of these are frequently flooded. They are used for forest, seasonal grazing, hunting, and trapping.

Higher lying areas of these soils occur along the channels of streams of the Teche-Mississippi River system at elevations ranging from 4 to 15 feet above sea level. These soils of high bottoms are used for cultivated crops and pasture. Small but agriculturally important areas of Mowed land (Portland and Perry soil materials) occur in association with the soils of the high bottoms and soils of the low Mississippi River terraces.

Organic Soils and Clayes of the Marshes

This soil association is made up of organic soils and clays of the coastal marshes. It comprises more than one-third of the land area of the parish. Some of the principal soils are Brackish marsh, peat; Brackish marsh, muck; Brackish marsh, clays and mucky clays; Drained marsh, clays; and Fresh water marsh, clays and mucky clays. The areas are in the southern part of the parish along the Gulf of Mexico. They extend 5 to 10 miles inland. On the north they are bordered by the organic soils of the swamps, the soils of the bottom lands, and the soils on the low terraces of the natural levee ridges.

The coastal marsh on which these soils occur is a broad, flat plain of low relief that has an imperceptible slope toward the gulf. Much of it is frequently flooded by shallow tidal waters. Other areas are likely to be flooded by the overflow of streams. Low ridges, ranging from a few inches to a foot or more in height above the marsh, have been built up along the tidal channels and large streams. The low natural levee ridges of Bayou Sale and Cypermont extend across this area in a northeast to southwest direction.

The marsh areas contain an intricate network of bayous and canals, many of which are navigable. There are also many shallow lakes of various sizes, and most of these are near sea level.

The soils of this association are made up of silts, silty clays, and clays from recent alluvium and marine silts and clays. In places these materials are overlain by peats and mucks of varying thickness (7).

The clay soils of the coastal marsh have a gray or grayish-brown surface layer of clay, silty clay, or mucky clay, 4 to 12 inches thick, that contains varying amounts of organic matter. The surface layer is underlain by gray, plastic, massive clay or silty clay. In some places thin lenses of peat or muck occur at depths of 3 to 10 feet or more.

The peat soils are brown or black and are made up of fine to coarse fibrous materials. The fibrous materials are partly decomposed and contain from 50 percent to more than 80 percent organic matter. The surface layers of the peat soils commonly consist of a mat of the coarse remains of recent plants.

The mucks are dark gray or black. They are made up of very finely divided organic materials that are in a much more advanced state of decomposition than the materials in the peat soils. The muck soils contain from 15 to 50 percent organic matter and varying amounts of mineral soil materials. The layers of muck range from less than 2 feet to more than 6 feet in thickness and overlie silts and clays.

Organic soils of the marshes contain considerable amounts of sulfates and chlorides, especially where there are large amounts of organic matter. Experience in other areas shows that the peat and muck soils become extremely acid when they are drained and oxidized.

Because of the subtropical climate and abundant water, the areas of this association are covered by a thick growth of plants. The vegetation varies according to the degree of salinity or freshness of the water and according to the length of time that saline or fresh waters have been dominant or how frequently they occur.

Marsh vegetation on sites dominantly influenced by fresh water or nearly fresh water consists of plants that have a salt tolerance of up to 0.5 percent (8). These plants are common on the margin of the marshes farthest from the gulf and on other sites that receive enough fresh water to flush out the salts left by former inundations of salt water.

The brackish-water vegetation consists of plant species that have a salt tolerance of 0.5 to 2.0 percent salt. Most of this vegetation occurs along the gulf and at various distances inland on sites that are frequently flooded by saline or brackish waters. Precipitation is generally the only source of fresh water in these areas.

Small scattered areas of marshland near the coast are covered by vegetation that is tolerant of salt water. Marsh plants that grow in such salt water sites have a salt tolerance of 2.0 to 5.0 percent salt.

A few important areas of marshland, most of which are small, have been reclaimed for agriculture. These areas occur along the landward border of the coastal marsh. The largest are in the western and southwestern parts of the parish next to and at about the same elevations as areas occupied by soils of the Alligator and Iberia series. The reclaimed soils are Drained marsh, clays; and Baldwin silt loam, salty variant.

Organic Soils of the Swamps

This association is comprised of large areas of alluvial silts and clays that have surface layers high in organic matter. It occurs as fringe areas between the higher lands of the natural levees and the lower marshlands. Most of this association occurs west of Bayou Sale ridge and between this ridge and Wax Lake. The principal soils are Swamp, peat, and Swamp, muck.

Swamp, peat, occurs in lake or basin areas where the organic materials are covered by water. As a result, little oxidation takes place. A few inches to 2 feet of water covers Swamp, peat, most of the time. Swamp, muck,
occurs in sites that are under water only part of the time. During times when the soil is exposed to the air, the organic matter decomposes more completely.

Neither of these soils receives much alluvium, but both receive considerable fresh water from higher areas. Most areas are covered by a dense growth of cypress and tupelo-gum trees.

**Descriptions of the Soils**

In the following pages, the soils and miscellaneous land types mapped in St. Mary Parish are described in detail. At the back of this report is a set of maps that shows the location and distribution of each soil and land type. The approximate acreage and proportionate extent of each soil and land type are given in Table 4.

**Alligator Series**

The Alligator series consists of poorly drained soil of very poorly drained fine-textured soils of the Mississippi River bottom lands. The soils occupy backswamp areas along the edges of the natural levee ridges. They are associated with the Iberia and Sharkey soils. They occur in level or depressed areas that are generally the catch basins for runoff water from the natural levee ridges.

**Alligator clay** (Aa).—This is a poorly drained soil of the Mississippi River bottom lands. It occupies level or depressed areas on the edges of the natural levee ridges. This soil occurs at elevations of 2 to 5 feet, which is slightly higher than the associated Swarm, clays and mucky clays, and slightly lower than the associated Iberia and Sharkey soils. It does not have the dark-gray surface layer and the good structure typical of many of the Iberia and Sharkey soils.

This soil is artificially drained by open ditches and is protected from overflow by levees. Some areas occur at high enough elevations and have enough slope to be drained by gravity. As a rule, however, the excess water is removed from the fields by pumping.

The native vegetation consisted of water oak, sweetgum, hackberry, cypress, swamp maple, ash, and tupelo-gum.

Typical profile:

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color</th>
<th>Texture</th>
<th>Structure</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3</td>
<td>gray plastic clay</td>
<td>mottled very dark grayish brown</td>
<td>weak fine granular</td>
<td>slightly acid</td>
</tr>
<tr>
<td>3 to 10</td>
<td>gray plastic clay</td>
<td>mottled yellowish brown</td>
<td>massive</td>
<td>slightly acid</td>
</tr>
<tr>
<td>10 to 30</td>
<td>gray plastic clay</td>
<td>a few, large, prominent motles of pale brown</td>
<td>massive</td>
<td>slightly acid to neutral</td>
</tr>
<tr>
<td>30 to 42</td>
<td>gray plastic clay</td>
<td>in places mottled light yellowish brown</td>
<td>massive</td>
<td>neutral</td>
</tr>
</tbody>
</table>

The reaction of the substratum ranges from slightly acid to mildly alkaline. Runoff is slow to very slow. Internal drainage is very slow, and the water table is generally high. This soil contains moderate amounts of plant nutrients, but the feeding zone for roots is limited by the texture and structure of the soil and by the high water table.

**Use and management.**—This soil is in management group III-4. When prices are good it is used mainly to grow sugarcane and corn, but it is the first soil to be diverted from intensive cultivation when prices decline. Some irrigated rice is grown. Crop yields are generally fair to moderate, and native pasture and hay crops are good. Nitrogen is commonly used on all the crops.

**Table 4**—Approximate acreage and proportionate extent of the soils

<table>
<thead>
<tr>
<th>Soil</th>
<th>Area</th>
<th>Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alligator clay</td>
<td>5,213</td>
<td>1.3</td>
</tr>
<tr>
<td>Alligator clay, overflow phase</td>
<td>650</td>
<td>0.2</td>
</tr>
<tr>
<td>Baldwin silt loam</td>
<td>13,952</td>
<td>3.6</td>
</tr>
<tr>
<td>Baldwin silt loam, low phase</td>
<td>727</td>
<td>0.2</td>
</tr>
<tr>
<td>Baldwin silt loam, compacted phase</td>
<td>726</td>
<td>0.2</td>
</tr>
<tr>
<td>Baldwin silt loam, dark-colored surface phase</td>
<td>1,311</td>
<td>3.3</td>
</tr>
<tr>
<td>Baldwin silt loam, silty variant</td>
<td>355</td>
<td>0.1</td>
</tr>
<tr>
<td>Baldwin silty clay loam</td>
<td>11,533</td>
<td>3.0</td>
</tr>
<tr>
<td>Baldwin silty clay loam, low phase</td>
<td>988</td>
<td>0.2</td>
</tr>
<tr>
<td>Baldwin silty clay loam, compacted phase</td>
<td>2,763</td>
<td>0.7</td>
</tr>
<tr>
<td>Baldwin silty clay</td>
<td>8,487</td>
<td>2.2</td>
</tr>
<tr>
<td>Baldwin silty clay, compacted phase</td>
<td>2,167</td>
<td>0.6</td>
</tr>
<tr>
<td>Brackish marsh, clays and mucky clays</td>
<td>2,959</td>
<td>0.3</td>
</tr>
<tr>
<td>Brackish marsh, muck</td>
<td>30,258</td>
<td>7.8</td>
</tr>
<tr>
<td>Brackish marsh, peat</td>
<td>45,120</td>
<td>11.6</td>
</tr>
<tr>
<td>Buxin-Portland-Perry soils, gently sloping phases</td>
<td>3,096</td>
<td>0.8</td>
</tr>
<tr>
<td>Buxin-Portland-Perry soils, nearly level phases</td>
<td>3,254</td>
<td>0.8</td>
</tr>
<tr>
<td>Buxin-Portland-Perry soils, level over phases</td>
<td>17,202</td>
<td>4.4</td>
</tr>
<tr>
<td>Cypress plant very fine sandy loam</td>
<td>8,104</td>
<td>2.1</td>
</tr>
<tr>
<td>Cypress plant silty loam</td>
<td>2,877</td>
<td>0.7</td>
</tr>
<tr>
<td>Cypress plant silty clay loam, eroded phases</td>
<td>8,452</td>
<td>2.2</td>
</tr>
<tr>
<td>Drained marsh, clays</td>
<td>452</td>
<td>0.1</td>
</tr>
<tr>
<td>Fresh water marsh, clays and mucky clays</td>
<td>41,578</td>
<td>11.0</td>
</tr>
<tr>
<td>Iberia silt loam</td>
<td>2,344</td>
<td>0.6</td>
</tr>
<tr>
<td>Iberia silt loam, thin silt loam</td>
<td>4,369</td>
<td>1.2</td>
</tr>
<tr>
<td>Iberia silt loam, thin silt loam, compacted phase</td>
<td>2,808</td>
<td>0.7</td>
</tr>
<tr>
<td>Iberia clay</td>
<td>7,712</td>
<td>2.0</td>
</tr>
<tr>
<td>Iberia clay, compacted phase</td>
<td>1,140</td>
<td>0.3</td>
</tr>
<tr>
<td>Iberia clay, compacted thin silt loam</td>
<td>1,418</td>
<td>0.4</td>
</tr>
<tr>
<td>Jeannette silt loam</td>
<td>437</td>
<td>0.1</td>
</tr>
<tr>
<td>Jeannette silt loam, thin silt loam</td>
<td>1,953</td>
<td>0.5</td>
</tr>
<tr>
<td>Jeannette silt loam, thin silt loam, compacted phase</td>
<td>1,122</td>
<td>0.3</td>
</tr>
<tr>
<td>Jeannette-Iberia very fine sandy loams</td>
<td>1,237</td>
<td>0.3</td>
</tr>
<tr>
<td>Local alluvium, poorly drained</td>
<td>394</td>
<td>0.1</td>
</tr>
<tr>
<td>Made land (Portland and Perry soil materials)</td>
<td>1,677</td>
<td>0.4</td>
</tr>
<tr>
<td>Made land in marsh</td>
<td>5,320</td>
<td>1.4</td>
</tr>
<tr>
<td>Made land in swamp</td>
<td>1,881</td>
<td>0.5</td>
</tr>
<tr>
<td>Mixed clay alluvium (overflow phases)</td>
<td>6,636</td>
<td>1.5</td>
</tr>
<tr>
<td>Patoutville very fine sandy loam, level phase</td>
<td>707</td>
<td>0.2</td>
</tr>
<tr>
<td>Patoutville very fine sandy loam, eroded gently sloping phase</td>
<td>214</td>
<td>0.0</td>
</tr>
<tr>
<td>Patoutville silt loam</td>
<td>469</td>
<td>0.1</td>
</tr>
<tr>
<td>Richland and虏tonia soils, severely eroded</td>
<td>1,743</td>
<td>0.4</td>
</tr>
<tr>
<td>Sharkey-Alligator clays</td>
<td>4,143</td>
<td>1.1</td>
</tr>
<tr>
<td>Swamp, clays and mucky clays</td>
<td>65,669</td>
<td>17.0</td>
</tr>
<tr>
<td>Swamp, muck</td>
<td>21,953</td>
<td>5.6</td>
</tr>
<tr>
<td>Swamp, peat</td>
<td>24,124</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Total : 387,200 | 100.0

Notes: Less than 0.1 percent.

Good management for this soil includes running the rows with the natural slope of the field and spacing open ditches closely. Some places need levees for flood protection and pumps to remove the excess water. Deep-rooted legumes should be used in the rotation whenever feasible and should be plowed under for green manure. Occasional deep plowing will help to improve the aeration of the soil. Yields are increased when 2 or 3 years of improved pasture is included in the crop rotation.

**Alligator clay, overflow phase** (Ab).—This poorly drained soil occurs on the Mississippi River bottom lands. Its profile is similar to that of Alligator clay, and the soil...
occupies similar positions. Unlike Alligator clay, it is not adequately protected by levees nor is it adequately drained by artificial means. The areas were once cultivated but are now subject to damaging overflows.

This soil occupies level or depressed areas. It is closely associated with Swamp, clays and mucky clays, but occurs at slightly higher elevations and is covered by grass and shrubs instead of forest. Small areas of this soil occupy narrow strips along Bayou Yokely and other streams.

Use and management.—This soil is in management group V–I. It has been abandoned for crops, and the protective levees and structures used for artificial drainage no longer function. If it is adequately drained and protected from overflow and the excess water is removed by pumps, this soil can be used for row crops. With proper management it would be suitable for pasture and rice.

**Baldwin Series**

The Baldwin series consists of imperfectly drained, poorly drained, level or nearly level soils of the low Mississippi River terraces. The soils have developed from older alluvium, predominantly of Mississippi River and Red River origin. They are the most extensive of the cultivated soils in the parish. Most of them have a plowable—compact layer with a massive or platy structure. This has been formed as the result of using heavy farm machinery and plowing the soil at shallow depths.

The Baldwin series consists of soils of the front lands and mixed lands. The soils occur along Bayous Cypressmert, Teche, and Sale, and along other streams of the Teche-Mississippi River system that are active or were formerly active. Large areas occur at elevations of 5 to 15 feet on the wider natural levee ridges in the northwestern and western parts of the parish. Smaller areas occur at lower elevations in the western and southwestern parts of the parish. At the southern end of the Bayou Cypressmert and Bayou Sale ridges, the soils occur at elevations of 1 to 2 feet, only slightly above the soils of the swamps and marshes. The native vegetation consisted of prairie grasses and scattered areas of mixed hardwood trees.

The Baldwin soils differ from the associated Cypressmert soils in having a grayish-brown or very dark grayish-brown instead of a brown surface layer. Their subsoil is slowly permeable clay instead of moderately permeable silty clay loam. The Baldwin soils are lower in organic matter and have a lighter colored surface layer than the Iberia soils. They are not so well drained as the Cypressmert soils but are better drained than the Iberia. They generally occur at elevations about halfway between the slightly higher Cypressmert soils and the lower Iberia soils.

**Baldwin very fine sandy loam (5m).—**This soil occupies small areas on or near the crests of the natural levee ridges. The areas are nearly level to undulating, but most of them have slopes of less than 1 percent. Many of them are in the northwestern and north-central parts of the parish, where they occur at elevations of 6 to 12 feet. Others, in the central and southern parts of the parish, occur at elevations of 5 feet or less. This soil occurs at slightly lower elevations than the associated Cypressmert very fine sandy loam and Cypressmert silt loam soils of the front lands. It occurs at slightly higher elevations than Baldwin silt loam, and its subsoil is thinner.

Typical profile:

0 to 6 inches, very dark grayish-brown friable very fine sandy loam; moderate medium granular; slightly acid.

6 to 9 inches, dark-gray compact very fine sandy loam thinly laminated with gray and very dark grayish-brown compact very fine sandy loam; strongly acid.

9 to 18 inches, pale-brown plastic clay mottled dark gray and yellowish brown; strong medium angular blocky; neutral.

18 to 42 inches, light brownish-gray friable silt loam or silty clay loam mottled with light yellowish brown; massive to weak subangular blocky; scattered light-gray hard concretions of lime; alkaline.

The subsoil ranges from slightly acid to mildly alkaline in reaction and from moderate to strong fine angular blocky to coarse angular blocky in structure.

The soil is imperfectly drained but has somewhat better drainage than Baldwin silt loam. Surface runoff and internal drainage are medium to slow. Permeability to air and moisture is easily maintained. The content of organic matter is low and the supply of plant nutrients is moderate.

Use and management.—This soil is in management group 11. Though intensive, it is an important soil for row crops. All of it is used to grow sugarcane, corn, and truck crops, but it is also suitable for pasture and hay. Crop yields are good to excellent. Drainage is improved by running the rows with the slope and using widely spaced ditches. Needed management includes plowing under green-manure crops, applying complete fertilizer, tillng with the slope, and occasionally plowing deeply to break up the plow sole.

**Baldwin silt loam (Ba).—**This nearly level soil has a finer surface soil texture and a thicker subsoil than Baldwin very fine sandy loam. It occupies slopes of less than 1 percent. The soil occurs on or near the crests of the natural levee ridges in the areas occupied by soils of the front lands.

This soil generally occurs at slightly lower elevations than the associated Cypressmert soils and at higher elevations than the associated areas of Baldwin silt loam and Baldwin silty clay. Small to large areas occur in the northwestern and north-central parts of the parish at elevations of 6 to 15 feet. Small areas occur in the southern part of the parish at elevations ranging from sea level to 5 or 6 feet. Most areas are at elevations high enough to provide good gravity drainage.

Typical profile:

0 to 6 inches, very dark grayish-brown friable silt loam; moderate fine granular; slightly acid.

6 to 11 inches, very dark grayish-brown, compact, heavy silt loam or silt clay loam (plowable layer) mottled with dark gray and gray; weak thick plastic; contains many roots and much undecomposed cane refuse; slightly acid.

11 to 21 inches, dark-gray plastic clay about 40 percent mottled with brownish yellow and light yellowish brown; moderate to strong medium and fine angular blocky; contains many roots; slightly acid.

21 to 40 inches, gray slightly plastic silt loam or silt loam, about 20 percent mottled with pale brown; weak subangular blocky; neutral.

The surface layer ranges from slightly acid to strongly acid in reaction and as much as 10 inches thick. The subsoil ranges from slightly acid to slightly alkaline in reaction.

This soil is imperfectly drained; surface runoff and internal drainage are slow. The soil contains moderate amounts of organic matter and plant nutrients.
Included with this soil are areas in which the subsoil is yellow, red, and brown and the subsoil structure is strong fine angular blocky. These characteristics are caused by a predominance of Red River sediments in the parent material.

Use and management.—This soil is in management group II-1. It is a good agricultural soil—one of the better farming soils of the parish. Most areas have been cultivated for more than a hundred years. Most of the soil is used to grow sugarcane, corn, and soybeans, but it is also suited to rice, pasture, and hay. Yields are generally good if a complete fertilizer mixture is used. Greenmanure crops, turned under, also improve yields. Good surface drainage is easily obtained by running the furrows with the slope and by using occasional widely spaced ditches. The soil drainage is improved if the plowsole layer is broken up.

Baldwin silt loam, low phase (Bd).—This soil is not so well drained as Baldwin silt loam. It occurs in small areas on slopes of less than 1 percent, at or near the crests of the very low natural levee ridges. The largest areas are along the southern parts of the low natural levee ridges of Bayous Sale and Cypremort. The lowest parts of the areas that adjoin swamps and marshes are near sea level. The areas that lie next to Cypremort soils are at elevations of about 4 feet.

The water table is usually high in this soil, and drainage is imperfect to poor. Surface runoff and internal drainage are slow to very slow. The areas are frequently ponded when water covers the adjoining areas of marshes and swamps. Artificial drainage is ineffective unless the soil is protected from flooding by dikes and the water removed by pumping. These improvements are impractical, however, because the soil occurs at such low elevations and the areas are so small, irregular, and narrow.

The natural vegetation consists of live oak, water oak, sweetgum, myrtle and hackberry trees, and a dense undergrowth of blackberries, yuupon, switch cane, palmetto, gumbrier, and honeysuckle.

Use and management.—This soil is in management group V-1. It is not suitable for tilled crops unless protected from flooding by levees and drained by pumps. Most of the several small areas are covered by trees, but some are in brush-and-grass pasture. The soil in a few small fields has been cultivated during the past 25 years, but most areas have never been tilled because they are inaccessible or are too far from the plantation headquarters or from sugar mills. The most practical uses of the soil are for forest or pasture or for hunting and trapping.

Baldwin silt loam, compacted phase (Bb).—The practice of using heavy farm machinery on this soil, flooding it frequently, and working it wet have destroyed the good structure typical of Baldwin silt loam. The subsoil has become compact and puddled. This is one of the soils of the front lands. It occurs on level or nearly level areas that have slopes of less than 1 percent at or near the crests of the natural levee ridges. The areas are small. They occur in the northwestern and northeastern parts of the parish.

Typical profile:

0 to 6 inches, grayish-brown silt loam; contains many rice roots surrounded by yellowish-brown material; weak granular and thin platy; medium acid to slightly acid.

6 to 12 inches, grayish-brown plastic clay; contains many rice roots; large and small areas of brownish-yellow and yellowish-brown materials around roots and root holes; massive; medium acid.

12 to 18 inches, grayish-brown plastic clay with many small- to medium-sized distinct mottles of yellowish brown; massive; strongly acid to medium acid.

18 to 22 inches, grayish-brown plastic clay; many small- to medium-sized distinct mottles of yellowish brown; massive to weak fine subangular blocky; medium acid.

22 to 40 inches, grayish-brown plastic clay mottled yellowish brown; massive; medium acid.

The surface layer ranges from grayish brown to very dark grayish brown in color and is as much as 10 inches thick. The upper part of the subsoil ranges in color from grayish-brown with yellowish-brown mottles to dark gray with yellowish-brown mottles. The structure of the upper part of the subsoil ranges from massive to moderate thin platy. The lower part of the subsoil ranges from predominantly grayish brown to gray in color and from massive to weak subangular blocky in structure. The reaction of the lower part of the subsoil and the substratum ranges from medium acid to mildly alkaline.

This soil is imperfectly drained. Surface runoff is slow, and internal drainage is slow to very slow. Permeability is not favorable for row crops at present. The soil contains moderate amounts of organic matter and plant nutrients.

Use and management.—This soil is in management group II-1. All of it is used to grow rice, and fair to moderate yields are obtained. The soil is well suited to this crop and to pasture and hay. Because of the nearly level relief and slow permeability, the ricefields are easily flooded and there is no appreciable loss of water. They are easily drained by gravity. Some nitrogen and complete fertilizer are commonly applied to rice. The yields are improved by using good crop rotations, including some green-manure crops, and by applying complete fertilizer.

Although the condition of this soil is poor, it produces fair yields of sugarcane and corn. Management practices needed to improve the soil tillage, structure, and permeability so that profitable yields of sugarcane and corn will be obtained include tilling with the slope, turning under green-manure crops, applying fertilizer, and rotating crops with improved pasture.

Baldwin silt loam, dark-colored surface phase (Bc).—This imperfectly drained soil has a darker colored surface layer and subsoil than typical Baldwin silt loam. It has a dark-gray or very dark-gray subsurface layer and a mottled very dark-gray subsoil. Its substratum is gray, mottled, friable silty clay loam or sandy loam. In most areas the subsoil and substratum are more alkaline than those of the typical Baldwin silt loam. This soil appears to be transitional to the Iberia soils.

The largest areas of this soil are along Bayou Cypremort. The soil occupies slopes of less than 1 percent at or near the levee ridge crests at Alice B., Ivanhoe, Florence, and Richland plantations. The areas occur at elevations of between 4 and 7 feet. They occur at slightly lower elevations than the associated Cypremort very fine sandy loam and Cypremort silt loam and at slightly higher elevations than the Iberia soils.

Typical profile:

0 to 7 inches, very dark grayish-brown friable silt loam; moderate fine granular; medium acid; surface crust, when dry, is light brownish gray with much white efflorescence.

7 to 10 inches, very dark brown compact silt loam; weak medium and thick platy; mildly alkaline.

10 to 18 inches, dark-gray plastic clay; mottled brown and dark
grayish brown; strong medium and fine angular blocky; a few small brown concretions; moderately alkaline. 18 to 24 inches, dark-gray friable silty clay loam; many small faint brown mottles; massive; moderately alkaline. 24 to 30 inches, mottled gray, dark-gray, and light olive-brown, silty clay; massive; moderately alkaline. 30 to 44 inches, gray very fine sandy loam or very fine sand; moderately alkaline.

The color of the surface layer ranges from very dark grayish brown to dark gray, and the reaction ranges from medium acid to moderately alkaline. The color of the subsoil ranges from black to very dark grayish brown, and the reaction from moderately alkaline to medium acid. Hard lime concretions occur in many places in the substratum.

This soil has slow to medium runoff and slow internal drainage. It can be tilled over a moderate range of moisture content. The soil contains moderate amounts of organic matter and plant nutrients. Its content of organic matter and plant nutrients is greater than that of Baldwin silt loam or that of the Cypremort soils. Permeability is generally favorable for all the common crops.

Use and management.—This soil is in management group II-1. All of it is used to grow sugarcane and corn, but it is also suited to pasture and hay. The yields of sugarcane and corn are good to excellent. Good management practices to increase yields are application of complete fertilizer, breaking up the plowsoil layer, and tillering with the slope so that surface water will run off more rapidly.

Baldwin silt loam, salty variant (Be).—This marshland soil is comprised of thinly stratified fine- and medium-textured alluvium, largely of Mississippi River origin. The alluvium was carried by the Bayou Cypremort and deposited along the edges of the natural levee ridge.

The mixed deposits of silt loam, silty clay loam, clay, and very fine sandy loam were laid down at marsh level and have been influenced by the tidal waters of the marsh. Salts in various amounts have accumulated in this soil, especially in areas of shallow, sinuous surface drains that developed as a result of natural runoff of the surface water. The salt content of these small drainage channels has been increased by evaporation, and the vegetation adapted to fresh or brackish water has been replaced by plants adapted to saline soils. The sites of the former sinuous surface drainageways may be traced across cultivated fields as 'salt spots' that are devoid of vegetation.

This soil occurs on low, nearly level areas that are slightly higher than the associated marsh and swamp soils. It occurs at slightly lower elevations than the Baldwin, Cypremort, and Iberia soils. The native vegetation consisted of mixed marsh plants that were adapted primarily to brackish water.

Typical profile:

0 to 6 inches, grayish-brown silt loam with a fluffy, deflocculated appearance; when dry, light gray or light brownish gray with considerable white efflorescence; weak fine granular; medium acid.

6 to 8 inches, grayish-brown compact silt loam; strong thin platy; fine faint mottles of dark grayish brown, dark yellowish brown, and yellowish brown on the thin plates; slightly acid.

8 to 18 inches, grayish-brown silty clay loam; many fine, distinct mottles of dark gray and yellowish brown; massive; mildly alkaline.

18 to 28 inches, grayish-brown heavy silty clay loam or silty clay; many, fine, prominent mottles of gray and yellowish brown; a few brown and brownish-yellow lime iron concretions and a few whitish soft lime concretions; moderate medium and fine angular blocky; moderately alkaline.

28 to 40 inches, light brownish-gray very fine sandy loam; many, fine, distinct mottles of dark gray, dark brown, and grayish brown; mildly alkaline.

The succession of the stratified fine- and medium-textured materials varies throughout the soil areas. The surface layer ranges in texture from silty clay to very fine sandy loam and in color from grayish brown to brownish gray. In reaction it ranges from medium acid to mildly alkaline. Between depths of 6 and 18 inches, the color ranges from grayish brown to predominantly gray. At some places the lime concretions are not present in the 18- to 28-inch layer, and this layer ranges from moderately alkaline to medium acid. The texture below about 28 inches ranges from very fine sandy loam to silty clay.

Surface runoff and internal drainage are slow to very slow in this soil. More than 60 years ago, dikes were built to protect the soil, the water was pumped out, and the areas were reclaimed from the marsh. The spoil banks along the Intracoastal Waterway and the levees along smaller canals now protect the soil from overflow by the normal tides.

Areas of this soil that border the swamps, Drained marsh, clays, and the Alligator soils, are usually wet. These flat, low-lying areas receive runoff water from the soils of the natural levee ridges.

Use and management.—This soil is in management group III-4. Except for the lower areas near the present marsh, which are too saline for crops, most of the soil is used to grow sugarcane, corn, and hay, and some areas are pastured. Pumps are not used to remove excess water from the areas that are farmed. The excess water is removed from these higher areas by open ditches, and crops produce good yields. To improve yields of row crops on lower lying areas, not adequately protected from tidal water and seepage water, and on areas where runoff water accumulates, planters need to construct levees and to install pumps. The soil needs fertilizer, and green-manure crops should be plowed under.

Baldwin silty clay loam (Bh).—This level to nearly level soil has a thinner and finer textured surface soil than Baldwin silt loam and occurs at lower elevations. It is on slopes of less than 1 percent. The soil commonly occupies long narrow strips within larger areas of soils of the mixed lands that are on the backslopes of the natural levee ridges. Large areas occur at elevations of 8 to 15 feet in the northwestern and north-central parts of the parish.

On the lower and smaller natural levee ridges in the northeastern, eastern, and southern parts of the parish, this soil occurs at elevations of 4 to 6 feet above sea level. It occupies areas that are slightly lower in elevation than those occupied by the Cypremort soils and slightly higher than the ones occupied by the associated Baldwin silty clay and the Alligator and Iberia soils. In its typical position on the backslopes of the natural levee ridges, the soil receives part of the runoff from the areas of front-land soils. The areas in the western and northwestern parts of the parish, however, occur on the levee crest, so they do not receive runoff. A profile of this soil is shown in figure 2.
clay or clay to silt loam. The reaction of this soil ranges from strongly acid to neutral.

This soil is imperfectly drained. Runoff and internal drainage are slow. The soil can be tilled over a moderate range of moisture content. If it is tilled with the slope, the surface water drains off through the rows or through open ditches so that most areas dry out and can be worked a short time after rains. The content of organic matter and plant nutrients is moderately high. Permeability is moderate to good in most areas.

Included with this soil are areas in which Red River sediments were predominant in the parent material. These soils have a clay subsoil in which the structure is strong fine angular blocky. In most places these soils are mottled, but in some there are stratified colors of strong brown, red, yellowish brown, and grayish brown. Soils with considerable amounts of red and brown sediments occur in the northern part of the parish along the Bayou Teeche course of the Red River and along former stream channels that carried Red River sediments.

Use and management.—Baldwin silty clay loam is in management group II–3. This is an important agricultural soil. It has been cultivated for approximately a hundred years. It is well suited to rice, pasture, and hay. Most of it is used for sugarcane, corn, and soybeans, but small areas are used for pasture or hay.

The value of the soil for row crops depends primarily upon the rate that the surface water, collected from rains and from runoff from higher lying soils, can be drained away. Deep, well-constructed, and properly spaced lateral ditches and row drainage are effective in removing surface water. The soil should be tilled with the slope.

Ordinarily, nitrogen is the only fertilizer used on this soil, but yields have been increased by using complete fertilizer. Green-manure crops should be plowed under, complete fertilizer used, and diseases, weeds, and insects controlled.

Baldwin silty clay loam, low phase (80).—This soil of the mixed lands is level to nearly level. It lies at lower elevations, has a higher water table than the other Baldwin silty clay loams, and has less effective natural drainage. It is on slopes of less than 1 percent. This soil occurs at elevations of 2 to 4 feet above sea level on the back¬slopes of the narrow natural levee ridges. It occupies small areas in the northwestern, western, and northeastern parts of the parish. The largest areas are in the southern part of the parish along Bayou Sale ridge. The soil is associated with the higher soils of front lands and with the lower Iberia, Alligator, and Swamp soils.

This soil is imperfectly drained to poorly drained. Runoff is slow to very slow, and internal drainage is very slow. The areas are often ponded when floodwaters or tidewaters cover the nearby marshes and swamps. The surface layer is slightly acid to strongly acid, and the subsoil is medium acid to mildly alkaline. The soil contains moderate amounts of organic matter and plant nutrients.

The wooded areas are covered by white oak, red oak, live oak, and sweetgum, myrtle, and bay trees.

Use and management.—This soil is in management group V-1. It is not suitable for row crops or rice. Most areas are irregular in shape and are inaccessible. The cost of constructing dikes and of removing the water by pumping is prohibitive. Good native grass pastures can be established on most of the areas. Part of the soil is under

Figure 3.—Profile of Baldwin silty clay loam observed at the Katy plantation in the northwestern part of the parish. A plow sole occurs in the upper part of the profile.

Typical profile:

0 to 6 inches, very dark grayish-brown silty clay loam; slightly plastic when wet, moderately firm when dry; moderate fine granular; medium acid.
6 to 8 inches, gray silty clay loam (plow sole layer) mottled very dark grayish brown and dark yellowish brown; compact and slightly plastic; moderate to strong medium plastic; slightly acid.
8 to 12 inches, very dark gray plastic clay mottled with yellowish brown, strong medium angular blocky; slightly acid.
12 to 28 inches, mottled gray, dark-gray, and pale-brown plastic clay; strong medium angular blocky; slightly acid to neutral.
28 to 42 inches, mottled gray, dark-gray, and pale-brown plastic silty clay or clay; massive; neutral.
forest, and part is pastured. All of it is used for hunting and trapping.

**Baldwin silty clay loam, compacted phase (Bk).—**This soil resembles Baldwin silt loam, compacted phase, but has a somewhat finer textured surface layer and occurs at lower elevations. It is a soil of the mixed lands. It occurs on slopes of less than 1 percent on the backslopes of the natural levee ridges. Small- to medium-sized areas occur throughout the parish in association with the higher lying Cypermont soils and with the lower lying Alligator soils and Baldwin silty clay, compacted phase. In the northwestern part of the parish, the soil occurs at elevations of 8 to 15 feet, and in the northeastern part, it occurs at elevations of 3 to 6 feet.

**Typical profile:**

0 to 5 inches, very dark grayish-brown friable silty clay loam; moderate fine granular; medium acid to strongly acid.

5 to 9 inches, very dark grayish-brown compact silty clay loam; mottled with gray and yellowish brown; massive to weak medium platy; medium acid.

9 to 20 inches, mottled dark gray, gray, and yellowish-brown plastic clay or silty clay; massive to weak subangular blocky; medium acid to slightly acid.

20 to 40 inches, gray friable silty clay loam mottled with yellowish brown; massive; medium to slightly acid.

This soil is imperfectly drained. Surface runoff is slow, and internal drainage is very slow. The surface layer and subsoil have become compacted as the result of growing rice on the areas. This has caused permeability to become slow and drainage and aeration to be poor, which makes the soil unfavorable, at present, for growing row crops.

**Use and management.**—This soil is in management group III–2. Because of its poor condition, it is better suited to rice than to other crops. Most of it is used to grow rice, which produces moderate to good yields. Some small areas are used to grow sugarcane, and some are used for pasture or as woodland.

Open ditches and rows that run with the slope help to drain the surface water. In addition, aeration of the soil and the drainage of the subsoil need to be improved before planters can obtain good yields of corn and sugarcane. Additional practices to improve the soil so that profitable yields of row crops can be obtained consist of growing deep-rooted legumes for green manure and including improved pastures in the rotation if it is practical to do so.

**Baldwin silty clay (B).—**This imperfectly drained soil has a finer textured surface layer than Baldwin silty clay loam and occurs at lower elevations. It is one of the soils of the mixed lands. It generally occupies long narrow strips that run parallel to the ridges. The areas are level to nearly level and have slopes of less than 1 percent.

This soil occurs on the backslopes of the broader and higher natural levee ridges in the northwestern part of the parish, at elevations of 5 to 10 feet. It occurs at elevations of 4 to 6 feet on the narrower levee ridges in the eastern and northwestern parts of the parish. Many small to large areas occur in association with the higher lying Baldwin silt loam and Baldwin silty clay loam, as well as with areas of lower lying Alligator, Iberia, and Sharkey soils.

The surface layer, to depths of 5 to 10 inches, is very dark grayish-brown silty clay or clay containing moderate amounts of organic matter. It is medium acid to strongly acid.

The subsoil, between depths of 10 and 20 inches, is very dark gray clay, mottled with yellowish brown, and has a strong fine angular blocky structure. It is medium acid to neutral.

This soil has slow runoff and slow to very slow internal drainage. It receives a part of the runoff from large areas of soils that lie at higher elevations. When the soil is drained, permeability to air, roots, and moisture is good enough so that row crops can be grown profitably. Drainage is generally adequate for growing irrigated rice. The soil contains moderate amounts of organic matter and most plant nutrients. It can be tilled within only a narrow range of moisture content.

Included with this soil are areas in which the subsoil is mottled red, strong-brown, and yellowish-brown clay and the structure is strong very fine angular blocky. These areas occur in the northern part of the parish along the Bayou Teche course of the Red River and along former stream channels that carried Red River sediments. In these included areas the subsoil color and structure were influenced by the predominance of Red River sediments in the parent materials.

**Use and management.**—Baldwin silty clay is in management group III–2. It has been under cultivation for 75 to 100 years. If adequately drained it is well suited to row crops and to rice, pasture, and hay. In this parish it is one of the most important soils planted to sugarcane and corn, and yields are moderate to good. Some small areas are pastured or used as woodland.

More artificial drainage must be provided for this soil than for Baldwin silty clay loam, and yields are somewhat lower. The runoff from higher lying soils is drained across these soils through open ditches, and the soil is generally tilled with the slope to provide row drainage. Practices to improve crop yields include improvements in artificial drainage, such as the use of properly spaced lateral ditches of adequate size, as well as main ditches and quarter ditches. Green-manure crops should be turned under. Sugarcane and corn respond to nitrogen. On some areas yields have improved after a complete fertilizer has been applied.

**Baldwin silty clay, compacted phase (Bk).—**This nearly level soil resembles Baldwin silty clay but is compacted and massive as the result of having been used to grow irrigated rice for a number of years. The soil has been flooded frequently by irrigation water, and farm machinery has been used on the wet fields. This has destroyed the strong angular blocky structure of the subsoil and has caused the surface layer and subsoil to become compacted, massive, and very slowly permeable. Most of the areas are small to moderate in size. They occur in long strips that run parallel to the levee ridges.

This is one of the soils of the mixed lands. It occupies slopes of less than 1 percent on the backslopes of the natural levee ridges. In the northwestern part of the parish, medium-sized areas of this soil occur at elevations of 8 to 12 feet. These areas lie between areas of Baldwin silty clay loam, compacted phase, which occur at slightly higher elevations, and areas of Iberia clay, compacted phase, which occur at slightly lower elevations. In the north-central part of the parish, the soil occurs at elevations of 6 to 7 feet. It occupies the ridge crests above areas of Alligator soils. In the northeastern part of the parish, the soil occurs at elevations of 5 to 6 feet and lies between areas of higher lying Baldwin silt loam, compacted phase, and lower lying Alligator soils.
The thin surface layer consists of 5 to 6 inches of very dark grayish-brown clay or silty clay. It has a moderate fine granular structure and is slightly acid.

The subsoil, between depths of 5 and 24 inches, is mottled gray, very dark gray, and brown, compact, massive, plastic clay that is medium acid to neutral.

At depths below 24 inches, the substratum is grayish-brown, massive, plastic silty clay, mottled with brown and yellowish brown. It is neutral to moderately alkaline.

Drainage is imperfect to poor. The surface runoff is slow, and internal drainage is very slow. The water table is moderately high, usually at depths of less than 2 feet. The soil contains moderate amounts of organic matter and is fairly well supplied with plant nutrients. Permeability is unfavorable for row crops if methods to improve drainage are not used intensively.

**Use and management.**—This soil is in management group III–2. It is well suited to rice, pasture, and hay. Most of it is used to grow irrigated rice, and yields are moderate to good. Small areas are used for woodland or to grow sugarcane, but the yields of sugarcane are generally low.

Management practices are needed to improve tilth, structure, and permeability if the soil is to be used for sugarcane and corn. These consist of constructing and maintaining complete drainage systems; planting deep-rooted winter and summer legume crops for 1 or 2 years and turning them under for green manure; and including improved pasture in the crop rotation.

**Brackish Marsh, Clays and Mucky Clays**

**Brackish marsh, clays and mucky clays (Af).**—This mapping unit extends along the coastline of West Cote Blanche, East Cote Blanche, and Atchafalaya Bays from Little Bay to Wax Lake Pass. The area is about one-quarter of a mile to more than 3 miles wide. It consists of alluvial silts and clays that have been reworked by waves and tides and deposited at elevations of as much as 6 to 8 inches above the organic marsh soils, which they border on the northeast quadrant. The marsh areas are level and are frequently flooded to depths of 2 to 6 inches by normal tides and by the occasional high tides that rise to heights of 6 feet. The water table is at the surface.

The vegetation consists mainly of a thick growth of plants that tolerate brackish water, but there are a few kinds that grow in water that is nearly fresh. The common plants are saltmarsh grass, black rush, couchgrass, oystergrass (Spartina alterniflora), sawgrass (Mariscus jamacensis), sea-oxygen, and cattail.

**Profile of a clay soil in this mapping unit:**

- 0 to 12 inches, gray plastic sticky clay; water table at the surface; a few brown spots along root channels; weak granular to massive; many roots of couchgrass and saltgrass; mildly alkaline.
- 12 to 44 inches, gray plastic sticky clay; a few brownish-yellow and yellowish-brown mottles; contains lenses of gray silt loam, 2 to 4 inches thick; weak medium subangular blocky; moderately alkaline.

The surface layer in places is very dark gray or very dark grayish brown clay or mucky clay. In places the underlying material is gray clay to depths of 9 feet.

The reaction is neutral to moderately alkaline. Water is on or near the surface much of the time, so there is little or no surface runoff or internal drainage.

**Use and management.**—This mapping unit is in management group VIII–1. It is used mainly for trapping and hunting. In a few places it provides good seasonal grazing.

**Brackish Marsh, Muck**

Brackish marsh, muck (Eh).—The largest area of Brackish marsh, muck, is west of Wax Lake, where it is associated with Brackish marsh, peat. It lies along West Cote Blanche Bay between Cyprermont Point and Cote Blanche Island and around Hackberry and Mud Lakes. One large area lies between an area of Brackish marsh, clays and mucky clays, and Brackish marsh, peat. Some areas occur along Horseshoe and Leopard Bayous and along Bayou Blue. Most of this organic soil is nearer the gulf than the areas of Brackish marsh, peat. It consists of a variable mixture of organic and mineral soil materials.

The predominant plants and the heights to which they grow are leafy three-square, 24 inches; three-square, 36 inches; couchgrass, 24 inches; delta potato, 36 inches; sawgrass, 48 inches; cutgrass, 48 inches; and cattail (Typha domingensis), 96 inches.

**Typical profile:**

- 0 to 8 inches, matted roots and remains of plants of the present marsh vegetation, with a black, finely divided muck matrix; strongly acid.
- 8 to 36 inches, black, finely divided muck and some coarse and fine fibrous peat; fine granular structure when dry; medium acid; 20.2 percent organic matter.
- 36 to 60 inches, gray plastic clay; massive; strongly acid; 3.7 percent organic matter.

In color the muck ranges from black to very dark brown. Its thickness ranges from 2 to 10 feet, although generally it is between 3 and 4 feet thick. In reaction it ranges from extremely acid to medium acid. The underlying clay ranges from gray to dark gray in color and in places contains lenses of black peat or muck. It is extremely acid to slightly acid.

**Use and management.**—This mapping unit is in management group VIII–1. It is used principally for hunting and trapping. A small part is firm enough to support the weight of cattle and is used for seasonal grazing. Management practices needed to keep the areas suitable for trapping are to provide suitable water so that food will grow for wildlife and to protect the areas from floods that would destroy wildlife.

**Brackish Marsh, Peat**

Brackish marsh, peat (Es).—This organic soil occupies large areas in the western part of the coastal marshes west of Bayou Sale ridge. It is covered by water much of the time. The areas extend westward to the Iberia Parish line. They are bordered on the north by the fringe of swamp that lies next to the natural levee of Bayou Teche. On the south they are bordered by areas of muck that extend from Little Bay southeastward. To some extent, Marsh Island protects the areas in the western part of the parish from the saline waters of the gulf. A profile of this organic soil is shown in figure 4.

The vegetation consists of some plants that grow in water that is nearly fresh and of some that tolerate brackish water. The plants that tolerate brackish water grow...
in pure stands on large areas, and those common to nearly
fresh water are on small areas. The plants that tolerate
brackish water and the heights to which they grow are
couchgrass, 14 to 24 inches; big cordgrass, 4 to 6 feet;
swamp grass, 4 feet; and three-square, 3 feet. Wild cow-
peas also grow in brackish water. Fresh- and nearly
fresh-water plants mixed with the brackish-water vegetation
include cutgrass, 3 to 5 feet tall; sawgrass, 3 feet tall;
cattail, 8 feet tall; and delta potato, 3 to 4 feet tall.

Typical profile:
0 to 4 inches, black muck matrix containing matted coarse-
to medium-textured fibers, the remains of vegetation of the
kind now growing.
4 to 72 inches, reddish-brown to dark reddish-brown, coarse-
to medium-textured fibrous peat; moderately laminated
or strongly laminated structure; medium acid; 76.3 percent
organic matter.
72 to 108 inches, gray plastic clay containing thin lenses of
very dark-gray clay; massive; medium acid; 10.4 percent
organic matter and 0.90 percent sodium chloride.

The peat ranges in color from black to reddish brown
and very dark brown. It is coarse to fine, fibrous, and
fetid. In thickness, it ranges from 2 to more than 11
feet; it averages 4 feet in thickness. The surface is cov-
ered in places by 2 to 6 inches of muck or mucky peat.
In large areas cypress logs and stumps are buried beneath
18 to 30 inches of peat. Reaction ranges from strongly
acid to neutral in the peat and from very strongly acid to
mildly alkaline in the clay.

Use and management.—This organic soil is in manage-
ment group VIII-1. Some of it is used for trapping.
Parts that are firm enough to support the weight of cat-
tle are used for seasonal grazing. Good practices are to
manage the water and plant species so as to insure food
and habitats for wildlife.

**Figure 4**—Profile of Brackish marsh, peat, observed west of the
ridge of Bayou Cypremort and south of the Intracoastal Waterway.
The vegetation is couchgrass.

**Buxin-Portland-Perry Soils**

The soils of the Buxin, Portland, and Perry series are
intermingled and occur in areas of irregular shape that
are too small to be separated at the scale of mapping
used. As a result, the soils are mapped together as a
complex. The Buxin soils are the most extensive in the
complex, and the Perry the least extensive.

The soils of this complex occur on bottom lands. They
are made up of reddish alluvium from the Red River,
interbedded with gray and brownish-gray alluvium depos-
it in the Mississippi River. The soil profiles reflect
the colors of the parent materials. In the profile the layers of sediments vary in sequence and in thickness,
texture, and color.

The largest area of these soils occupies the delta of the
Atchafalaya River in the northwestern part of the par-
ish. Other large areas occur along the stream channels
and along traces of former channels of the Teche-Missis-
sippi River system. Here, the soils were derived mainly
from Red River alluvium deposited when the Red River
occupied the channel of Bayou Teche, which was also a
former channel of the Mississippi River. The soils also
occur on the low natural levee ridges that lie within the
higher and broader natural levees of Bayou Teche. The
terrace soils of the higher and broader natural levee
ridges have developed mainly from sediments of the
Mississippi River.

Some areas are nearly level to gently sloping. They
have a general slope toward the adjacent stream chan-
nels. These narrow areas, well above the parts that nor-
mally are overflowed, are located along Bayou Teche,
along Bayou Boeuf from Morgan City to Amelia, and
along the Lower Atchafalaya River from Patterson to
Berwick Bay. The elevation ranges from 3 to 15 feet.

Other areas of Buxin-Portland-Perry soils occur at elev-
ations of less than 5 feet above sea level and are
subject to frequent overflow. These parts include the
delta of the Atchafalaya River and smaller areas along
Bayou Boeuf, Shaffer, and Chone, the Lower Atchafalaya
River, Wax Lake outlet channel, and Berwick Bay.

In this soil complex, the Buxin soils occupy low ridges
along small old channels that are now indistinct and occur
in areas along foot slopes: the Portland soils are on
undulating slopes at lower elevations; and the Perry soils
occupy old channels and depressions.

The vegetation on the higher areas consists of live oak,
red oak, white oak, water oak, sweet gum, and hackberry
trees. On the lower areas are bay, swamp maple, myrtle,
cypress, and tupelo-gum. The areas of the Atchafalaya
River delta that have been built up most recently are
covered by a dense stand of willow trees that range from
2 to 4 inches in diameter and from 60 to 90 feet in height.
Older areas of the delta have a thick stand of cypress and
tupelo-gum.

**Buxin-Portland-Perry soils, gently sloping phases**

These soils occur as narrow areas in the northern
part of the parish. They lie along the entire course of
Bayou Teche. They occupy areas between the crest of the
natural levee and the stream channel and are on
slopes that face the bayou. Relief is undulating to gently
sloping, and the slopes range from 2 to 5 percent. These
soils are well above areas that normally overflow.

The crop rows are commonly tilled with the slope, so
these soils have been damaged by moderate to severe
Use and management.—This mapping unit is in management group III–1. All of it is used to grow sugarcane and corn, and yields are moderate to good. The soils are well suited to pasture and hay but are not suited to rice. Surface drainage is adequate. Therefore, these soils are highly favored by planters. Erosion, however, has caused considerable damage.

Nitrogen fertilizers are commonly applied to sugarcane and corn. Improved yields result from the use of such management practices as (1) tilling across the slope but allowing enough slope for adequate row drainage, (2) turning under green-manure crops as often as feasible, and (3) applying more nitrogen and complete fertilizer to the crops.

Buxin-Portland-Perry soils, nearly level phases (Bs).—This mapping unit lies along Bayou Teche between the crest of the natural levee and the stream channel. The soils occur in association with the Buxin-Portland-Perry soils, gently sloping phases. They are level to nearly level but are well above areas that normally overflow. The elevations are less than 3 feet above sea level, and erosion is not a serious problem. The elevation ranges from stream level, or 3 to 5 feet, to as much as 15 feet above sea level. Most areas are slightly lower than the areas occupied by the associated Cypress and Baldwin soils.

Use and management.—This mapping unit is in management group II–1. Most areas are used to grow sugarcane and corn, but small areas are covered by trees or are pastured. The soils are well suited to continuous agriculture. Management practices and yields are similar to those for Buxin-Portland-Perry soils, gently sloping phases.

Buxin-Portland-Perry soils, level overflow phases (Br).—The soils of this mapping unit are frequently flooded. The largest area is on the delta of the Atchafalaya River in the northwestern part of the parish. Much of this delta has been built up in Grand Lake during the past 15 years, and in places it is about 6 feet high. The soils of the delta contain considerably more strata of fine sand and very fine sand than the soils of the high bottom lands.

Other areas of these soils occur along Bayous Shaffer and Chene and along the Lower Atchafalaya River and Berwick Bay. The mud flat areas of these soils are composed of mixed silt and clay sediments. Mud flats are common along the outlet channel of Wax Lake and along the Lower Atchafalaya River. In the Atchafalaya River delta area, consisting of many streams and islands, the smaller islands and the borders of the larger islands are made up of stratified silt loams and very fine sandy loams. The broad flat interiors of the larger islands consist of mixed silt and clay sediments.

In places the relief is undulating and hummocky. Most of the areas composed of clay and silty clay are at elevations of up to 3 feet. Those composed of silt loam and fine sandy loam are at elevations of 5 or 6 feet.

Areas made up of more recent delta deposits have a dense cover of small willow trees. Those consisting of older sediments are covered with cypress, tupelo-gum, and cottonwood.

Included in this mapping unit are areas of Yahola soils, which are not mapped separately in this parish.

Use and management.—This mapping unit is in management group V–2. The soils are not suitable for crops.
because they are frequently flooded. They are used for forest, seasonal grazing, hunting, and fishing.

Cypremort Series

The soils of the Cypremort series have developed from older Mississippi River alluvium mixed with some alluvium of the Red River. They are made up of stratified silts and sands that have been deposited near the stream channels during floods.

The Cypremort soils occupy front lands on the crests of the natural levee ridges of Bayous Teche, Cypremort, and Sale and smaller streams. Long narrow ridges of these soils, extending from the bayous to the back lands, swamps, and marshes, were once channels of former creevasses and distributaries that have been filled with alluvial deposits.

Most of the areas are nearly level to undulating and are on slopes of less than 1 percent. A few areas along Bayous Cypremort and Sale are on slopes of 2 to 5 percent. The Cypremort soils occupy slightly higher positions than the associated Baldwin silt loams and Baldwin very fine sandy loam.

The native vegetation consisted of prairie grasses and, on small scattered areas, hardwoods such as white oak, sweetgum, live oak, and buckberry.

These soils have been in place long enough to have developed profiles. They differ from the Baldwin soils in having a brown instead of a very dark grayish-brown surface layer and a silty clay loam instead of a clay subsoil.

The soils are moderately well drained and have been moderately leached of bases. Till is good, and the soils can be tilled over a wide range of moisture content. The moisture-holding capacity, in most places, is adequate for the growing of row crops. The soils are too permeable for irrigated rice.

The Cypremort soils are moderate to low in content of organic matter. They are lower in plant nutrients than the Baldwin and Iberia soils. Nevertheless, they are moderately fertile and are suited to continuous cropping. Most pastures have been planted to row crops for more than a hundred years.

Cypremort very fine sandy loam (Cc).—This is a moderately well drained, nearly level soil of the low Mississippi River terraces. It commonly occupies small areas of front lands on the crests of the natural levee ridges. The areas are generally long, irregular in shape, and run parallel to the stream channels. The largest areas are in the northwestern part of the parish. They occur on the widest and highest parts of the natural levee ridge of Bayou Teche at elevations of 5 to 16 feet. In the southern and southwestern parts of the parish, the soil occurs at marsh level and at elevations of about 5 feet. Most areas occur at higher elevations than the associated Baldwin soils and the Buxin-Portland-Perry soils of the high bottoms.

Most areas of this soil occupy slopes of less than 1 percent. A few small areas near Bayou Sale and Cypremort are undulating and occupy slopes of 2 to 5 percent.

Typical profile:

0 to 5 inches, pale-brown, friable very fine sandy loam; weak fine granular; slightly acid.

5 to 10 inches, light brownish-gray, compact, dense very fine sandy loam (plowsoil layer) mottled gray and yellowish brown; weak platy to massive; slightly acid.

10 to 24 inches, brown friable silty clay loam or fine sandy clay loam mottled with brownish yellow and gray; weak coarse angular blocky; slightly acid to mildly alkaline.

24 to 42 inches, mottled gray, yellowish-brown, and brownish-yellow friable silty clay loam or very fine sandy loam; slightly acid to mildly alkaline.

The combined surface and subsurface layers range in thickness from 8 to 12 inches. In reaction they range from medium acid to slightly acid. The plowsoil layer ranges from 4 to 8 inches in thickness. In many places it occurs in both the lower surface layer and in the upper part of the subsoil. In many places the structure of the subsoil is moderate coarse angular blocky.

Surface runoff and internal drainage are medium in this soil. The water table is low, and permeability to moisture and air is good. Crops are rarely damaged by drought. The soil contains low to moderate amounts of organic matter and plant nutrients.

Use and management.—This soil is in management group I-1. It is one of the best soils in the parish for row crops. All of the areas have been cultivated, and most have been used for sugarcane and corn for more than a hundred years. The soil is well suited to pasture and hay.

Larger amounts of complete fertilizer are needed on this soil than on the Baldwin and Iberia soils. Legume crops should be grown as often as feasible in the rotation and turned under as green manure.

Cypremort silt loam (Ca).—Except for the texture of the surface layer, this soil resembles Cypremort very fine sandy loam. It has the same degree of slope, occurs at the same elevations, and is associated with the same soils. The areas are small. They occur throughout the parish on natural levee ridges.

Use and management.—This soil is in management group I-1. It is an excellent soil for row crops, but it is also well suited to pasture and hay. It is not suited to rice. All of the areas are used for row crops or soybeans. The yields of sugarcane, corn, soybeans, and truck crops are high. The soil needs complete fertilizer for high yields, and green-manure crops should be plowed under whenever feasible.

Cypremort silt loam, eroded phase (Cb).—This soil differs from Cypremort silt loam in the texture of the surface layer and in slope. Also, because the soil has commonly been tilled with the slope, much of its surface layer has been lost through erosion. In the typical soil the combined surface soil and subsurface layer are only 4 to 6 inches thick, as compared with 10 to 12 inches in the nearly level areas of Cypremort silt loam. Most areas have a thin very slowly permeable plowsoil layer in the lower part of the surface layer and in the upper part of the subsoil.

This soil occurs on slopes of 2 to 5 percent. Small isolated areas in the northern and western parts of the parish occur at elevations of 5 to 8 feet. They are associated with Baldwin silt loam and Baldwin silt clay loam. Long, narrow areas lie parallel to Bayou Sale in the southern and south-central parts of the parish.

Runoff from this soil is medium to rapid, and internal drainage is medium. The soil can be tilled over a moderate range of moisture content. The moisture-holding capacity is moderately good, but crops may be damaged by drought during extended dry spells. The soil is slightly acid to medium acid.

Use and management.—This soil is in management group III-1. It is well suited to row crops, pasture, and hay.
Most of it is used to grow sugarcane and corn. Areas in woodland have been retired from cultivation or have never been cultivated because they were too small and irregular or because they were not accessible.

Management practices to increase or maintain the yields of row crops consist of tilling across the slope but allowing enough slope for adequate drainage but a minimum of erosion, applying complete fertilizer, and plowing under green-manure crops.

**Drained Marsh, Clays**

**Drained marsh, clays (Ad).—** This mapping unit occurs at elevations 2 to 3 feet above sea level. It is associated with the swamplands, on the lower elevations, and with the Alligator and Iberia soils and Baldwin silt loam, salty variant, which occur at slightly higher elevations.

Unlike the Alligator soils, Drained marsh, clays, has a very dark-gray, very dark-brown, or black surface layer. Like Iberia clay, compacted, thin solum phase, its surface layer immediately overlies a layer of gray massive clay, but its surface layer differs from that of the Iberia soil in containing considerable amounts of uncomposed or partly decomposed peaty materials. The native vegetation consisted of fresh-water marsh plants.

**Typical profile:**

- 0 to 5 inches, very dark-brown mucky clay containing much partially decomposed organic material; yellowish-brown mottles along root channels; moderate fine granular; strongly acid.
- 5 to 18 inches, gray plastic clay mottled with dark gray; large yellowish-brown mottles along roots and next to partly decomposed plant materials; massive; medium acid.
- 18 to 30 inches, gray plastic clay with yellowish-brown and yellowish-red mottles around roots and around former root channels; thin layers of partly decomposed fibrous organic materials; massive; slightly acid.
- 30 to 42 inches, gray plastic clay mottled with dark grayish brown and yellowish red; massive; medium acid.

The surface layer ranges from strongly acid to slightly acid, and the clay layer immediately below ranges from medium acid to slightly acid. Surface runoff and internal drainage are very slow.

**Use and management.**—This mapping unit is in management group V–1. It has been protected from overflow by dikes, and pumps have been used to drain off the excess water. Most of the areas have been used to grow rice and sugarcane. Some of the drainage and flood-protection structures have been abandoned. Most of the soil is now idle or in forest, but small areas are used for crops. Yields of rice are good. The soil is well suited to pasture and hay.

By using artificial drainage, protecting the areas by dikes, using pumps to remove the excess water, and growing crops that will improve the structure, the soil can be made suitable for sugarcane and corn. Its use for row crops is governed by the cost of draining it as compared to the income that can be expected from the crops that are grown.

**Fresh Water Marsh, Clays and Mucky Clays**

**Fresh water marsh, clays and mucky clays (Ae).—** This mapping unit occurs mainly in one large area. It extends from Wax Lake on the west to the eastern boundary of the parish and almost continuously from the Intracoastal Waterway on the north, southward to the coastline. Along the coast the marsh clays extend from Wax Lake Pass to the mouth of the Lower Atchafalaya River. The area is frequently flooded by fresh water from the Atchafalaya Basin. The fresh water is carried into and through the marshland by the Wax Lake outlet channel, by the lower Atchafalaya River, and by Bayous Shaffer and Chene. The water and its sediments are distributed throughout the area by many bayous and canals.

Except for the natural levees, which in places rise to 1 or 2 feet above the marshlands, the area is low and level. Some of it is flooded by salt water when tides are high. The salt water is removed quickly, however, by floods of fresh water received during periods of high rainfall.

The soil materials consist of alluvial silty clays and clays. In this part of the parish there is an accumulation of sediments from both the Red and Mississippi Rivers. The brown alluvium, which forms a mantle over this soil in many places, is of Red River origin. The brown and gray silty clays, clays, and mucky clays in these places are underlain at depths of 12 to 24 inches by gray massive clays.

The marsh vegetation common to this soil consists of fresh-water species or of plants typical of water that contains little salt. The predominant species and the heights to which they grow are common reed, 10 or 12 feet; paille finne, 4 or 5 feet; cattail, 8 feet; delta potato, 3 feet; bullrush, 5 to 6 feet; cutgrass, 3 to 4 feet; and switchgrass, 4 feet.

**Profile of a mucky clay soil in this mapping unit:**

- 0 to 12 inches, mat of coarse plant residue of the present vegetation with a matrix of dark-gray clay or silty clay; slightly acid.
- 12 to 20 inches, dark grayish-brown mucky silty clay containing medium and fine fibrous partly decomposed parts of plants; plastic when wet, hard and firm when dry; massive; slightly acid; contains 9.3 percent organic matter and 0.63 percent sodium chloride.
- 20 to 36 inches, dark-gray mucky clay; plastic and sticky when wet, hard when dry; massive; slightly acid; contains 7.8 percent organic matter.
- 36 to 108 inches, gray clay; massive; plastic; strongly acid.

The surface layer ranges from gray to dark gray or brown. It ranges from clay to mucky clay or mucky silty clay in texture. In places a thin 2- to 4-inch layer of muck occurs on the surface. In a few places the mucky clay surface layer is 4 feet thick over clay. The profile ranges from very strongly acid to mildly alkaline.

**Use and management.**—This mapping unit is in management group VII–1. Because of overflow and inaccessibility, it is used primarily for hunting and trapping. A few areas are used for seasonal grazing. If protected by levees, and if pumps are used to remove excess water, the land would be suitable for cultivated crops. Because of the occasional tides, which rise to heights of 6 feet, it is not practical to reclaim the land for agricultural uses at the present time.

**Iberia Series**

The soils of the Iberia series occupy low stream terraces. They have developed from old alluvium deposited by the Mississippi River and its distributaries during the late Pleistocene or early Recent epoch. The parent materials of these soils consisted of alkaline slack-water clays, underlain at shallow depths by more friable alkaline to calcareous strata. When streams
overflowed, the fine-textured sediments were carried across the higher parts of the natural levee ridges and were deposited in the shallow lakes and embayments that were on the other side of the ridges or that extended into them. A thick cover of marsh and swamp vegetation grew in the shallow lakes and embayments. As the plants died and decayed and alluvium was deposited, the areas were built up to elevations that were above the level of the marshes and swamps. The organic matter from the vegetation made the soils dark colored.

The surface layer of most of the Iberia soils is very dark gray or black and is slightly acid to neutral. In contrast, the surface layer of the Baldwin soils is grayish brown or very dark grayish brown and is slightly acid to medium acid. The Iberia soils are not so well drained as the Baldwin soils. They are darker colored than the Alligator soils and are older than the Alligator and Sharkey soils, which are made up of recent alluvium. The Iberia soils occur at slightly lower elevations than the associated Cypremort and Baldwin soils and at higher elevations than the Alligator and swamp soils.

**Iberia silt loam** (lf).—This soil is one of the best agricultural soils of the back lands. Some of it occupies nearly level areas along the highest parts of the backside of the natural levee ridges in the southwestern and northwestern parts of the parish. Here, it lies at elevations of 4 to 10 feet and is associated with the Baldwin soils and with the finer textured Iberia soils. This soil also occurs in the western part of the parish at elevations of 3 to 5 feet. These areas occur in association with Iberia clay and with the Patoutville soils.

The native vegetation consisted of mixed marsh plants and trees that grow in swamps.

**Typical profile:**

- 0 to 8 inches, very dark-gray friable silt loam; moderate fine granular; slightly acid.
- 8 to 10 inches, very dark-gray compact clay mottled with yellowish brown and dark grayish brown; moderate medium platy; neutral.
- 10 to 26 inches, grayish-brown plastic clay mottled with gray and yellowish brown; strong fine and medium angular blocky; mildly alkaline.
- 26 to 42 inches, grayish-brown slightly sticky silt clay or silt loam mottled gray, yellowish brown, and pale brown; weak medium angular blocky; few large, soft fine concretions; few small, brown and black concretions; moderately alkaline.

The color of the surface layer ranges from dark gray to black. A plowsole occurs in many places in the subsurface layer and in the upper part of the subsoil. The substratum ranges in texture from silty clay to silt loam.

This soil is high in organic matter and in most plant nutrients. It is imperfectly drained to poorly drained and has a moderately high water table. Runoff is slow, and internal drainage is slow to very slow.

**Use and management.**—This soil is in management group II-3. It has been cultivated for from 50 to 100 years. The usual crops have been sugarcane, corn, and soybeans.

The soil is well suited to rice and pasture and is also suited to hay. If properly drained it produces moderate yields of row crops. The surface layer dries out rapidly, and the soil can be tilled soon after heavy rains. Most areas occur at high enough elevations and have enough slope for surface water to run off if the rows are run in the right direction and lateral ditches are spaced properly.

The runoff from the higher lying areas is effectively carried off by the lateral ditches. Floodwaters used for rice are removed by gravity drainage.

In addition to drainage, the soil needs nitrogen and complete fertilizer. Nitrogen and small amounts of mixed fertilizer are generally used for all field crops. The soil also needs occasional deep plowing to break the plowsole.

**Iberia silt loam** (lf) — This important agricultural soil occupies small- to medium-sized areas mostly in the southwestern, western, northwestern, and central parts of the parish. It occurs on the higher parts of the back lands at elevations of 3 to 8 feet. This soil is associated with Iberia clay and with the Alligator and swamp soils, which all occur at slightly lower elevations. It occurs at lower elevations than the associated Cypremort and Baldwin soils and Iberia silt loam. Relief is nearly level, and slopes are less than 1 percent. A profile of this soil is shown in **Figure 3**.

**Figure 3.** Profile of Iberia silt loam observed at the Katy plantation in the northwestern part of the parish.
Typical profile:
0 to 4 inches, very dark-gray silty clay loam; slightly hard when dry, friable when slightly moist; moderate fine granular; many roots; very slightly acid.
4 to 12 inches, very dark-gray silty clay loam (plowsol layer); massive to weak thick platy; many roots; neutral.
12 to 16 inches, black silty clay or clay; slightly plastic and sticky when wet; moderate to strong fine angular blocky; many roots and a few small concretions; neutral.
16 to 26 inches, black clay; plastic when wet; strong fine angular blocky; a few roots and a few small, round, brown concretions; neutral.
26 to 40 inches, mottled gray and light brownish-gray silty clay; a few large, prominent motles of brownish yellow and tongues of black soil material; slightly plastic when wet; massive; mildly alkaline.

The surface layer ranges from very dark brown to black. The texture of the substratum ranges from silty clay to silty clay loam.

This soil is poorly drained. It has slow surface runoff and slow to very slow internal drainage. The water table is generally at depths of 16 to 18 inches. The soil can be tilled over a moderate range of moisture content because it dries out soon after rains. It contains moderate amounts of organic matter and is generally high in most plant nutrients.

Included with this soil are small- to medium-sized forested areas that have a strong fine granular structure in the surficial layer instead of massive or platy. Some of these areas occur southwest of the Cypremort sugar mill, along the lower part of the natural levee of Bayou Cypremort and along the western border of the parish. The areas occur at elevations of 3 to 4 feet and are associated with the lower lying swamp soils and with the higher lying Baldwin soils.

Use and management.—This soil is in management group II-3. Except for the low-lying forested areas, it is used to grow sugarcane and corn. It is also well suited to pasturage, hay, and rice. If it is adequately drained and properly fertilized, yields of crops are good.

Iberia silty clay loam, thin solum phase (1g).—This nearly level soil of the back lands occurs on the backscapes of the natural levees. Small- to medium-sized areas occur in the western and northwestern parts of the parish at elevations of 3 to 10 feet above sea level. In the southwestern part, the soil occurs at elevations of 4 to 5 feet and is associated with other Iberia soils and with the Jeanerette soils.

The combined surface and subsurface layers in this soil consist of 4 to 7 inches of black or very dark-gray silty clay loam, as compared to 10 to 14 inches in Iberia silty clay loam. The soil occupies slopes of less than 1 percent.

Typical profile:
0 to 2 inches, very dark-gray silty clay loam; strong fine granular; slightly acid.
2 to 4 inches, very dark-gray, compact silty clay loam; massive to weak medium subangular blocky; slightly acid.
4 to 8 inches, very dark-gray, compact, plastic clay; many, medium, distinct motles of pale brown; weak thick platy; mildly alkaline.
8 to 12 inches, grayish-brown plastic clay mottled with gray and dark gray; strong fine angular blocky; mildly alkaline.
12 to 30 inches, grayish-brown plastic and sticky clay mottled with dark gray; moderate to weak medium angular blocky; mildly silty to strongly silty; mildly alkaline.
30 to 40 inches, olive-gray silty clay loam mottled with dark gray and yellowish brown; massive; mildly alkaline.

The surface layer ranges in texture from silty clay loam to silt loam. In some places the subsurface layer is as much as 5 inches thick.

This poorly drained soil has slow runoff and very slow internal drainage. The rooting zone is restricted to the shallow surface soil and subsurface layer, as these are generally sufficiently drained for root development.

Use and management.—This soil is in management group II-3. It is an important agricultural soil. All of the areas are drained by lateral ditches, and rows are run with the fall of the land to provide drainage. Sugarcane and corn are grown, but the soil is also suited to rice, pasture, and hay. Yields are fair to good, depending to a great extent upon the drainage, the use of fertilizer, and upon other management practices. Better yields are obtained by using more effective methods to improve drainage, plowing under green-manure crops, and using complete fertilizer.

Iberia clay (1a).—This important soil of the back lands occupies large level to nearly level areas on the lower backscapes of the natural levee ridges. Some of the areas lie next to swamps. This soil occurs at elevations of 2 to 6 feet. It is associated with swamp soils that occur at slightly lower elevations, and with the higher lying Iberia silty clay loam, Baldwin silty clay, and Baldwin silty clay loam.

Typical profile:
0 to 5 inches, very dark-brown firm clay or silty clay; strong fine granular; contains many roots; slightly acid.
5 to 10 inches, black plastic silty clay or clay (plowsol layer); massive to weak medium platy; contains many roots; neutral.
10 to 14 inches, black plastic clay; strong fine angular blocky; slightly alkaline.
14 to 26 inches, dark-gray plastic clay mottled with grayish brown and yellowish brown; strong fine angular blocky; mildly to moderately alkaline.
26 to 36 inches, mottled grayish-brown, brownish-gray, and yellowish-brown plastic clay; massive; moderately alkaline.
36 to 42 inches, mottled grayish-brown, gray, and yellowish-brown friable silty clay or silt loam; massive; mildly alkaline.

A few lime concretions commonly occur in the substratum of this soil. The massive or platy plowsol layer does not occur in a few small areas that are under forest and have never been cultivated.

This soil is poorly drained. Surface runoff is slow, and internal drainage is slow to very slow. The soil is fairly permeable to moisture, roots, and air. It can be tilled within only a narrow range of moisture content, and tilth is fair to poor. The soil contains considerable amounts of organic matter and plant nutrients.

Use and management.—This soil is in management group III-3. It is one of the important agricultural soils of the parish. Most areas are under cultivation, but a small part is used as woodland or pasture. The soil is generally used to grow sugarcane and corn, but it is also well suited to rice, pasture, and hay. Fair to good yields are obtained if the areas are artifically drained. Nitrogen is normally used for sugarcane and corn.

In many places the soil is not adequately drained because the open ditches are improperly constructed and maintained or because rows are not run with the natural fall of the land. In many places the ditches are too far apart for effective removal of the surface water and, as a result, the water remains in the middle of the rows for several days after rains. Low-lying areas, where surface
drainage is ineffective because of the height of the tides or floodwaters in adjoining areas, need to be protected by levees, and the excess water should be pumped out when the soil is used for row crops.

Management practices needed to increase yields consist of constructing and maintaining ditches of adequate size and proper spacing, running the rows with the natural fall of the land to provide row drainage; growing green-manure crops in the rotation whenever feasible; plowing deeply to break up the plowsleve layer; and using larger amounts of fertilizer.

Iberia clay, thin solum phase (1d).—This soil occupies small- to medium-sized areas near other soils of the back lands; it is on the lower back slopes of the levees next to the swamps. This soil differs from Iberia clay in having only 5 to 7 inches of soil material over the subsoil instead of the 10 to 14 inches typical of Iberia clay. It occurs at elevations between 3 and 9 feet above sea level in the western, northwestern, and north-central parts of the parish. It occurs at lower elevations than the associated Jeanerette and Cypremort silt loam, and at higher elevations than the associated swamp soils. The areas are level to nearly level.

This soil is poorly drained. The water table stands at depths of 12 to 16 inches. Runoff and internal drainage are slow to very slow. Most areas are drained by ditches, and rows are run with the slope to provide row drainage. Nevertheless, the water generally drains off slowly. The rooting zone is restricted to the shallow upper layers, and the soil is therefore less desirable for row crops than Iberia clay. The soil is slightly acid to mildly alkaline.

Included with this soil are small- to medium-sized areas under forest. These occur at low elevations and are closely associated with the swamp soils. Drainage of these areas by gravity flow of the water is governed by the level of the floodwaters or tidal waters in the swamp areas.

Use and management.—Iberia clay, thin solum phase, is in management group III–3. Most of it is used to grow sugarcane and corn, and yields are fair to good. It is also suitable for rice and pasture. Increased yields are obtained by improving drainage, using larger amounts of complete fertilizer, and turning under green-manure crops. If used for row crops, the areas of included soils must be protected by levees, and pumps must be used to remove excess water.

Iberia clay, compacted phase (1b).—This poorly drained soil of the back lands resembles Iberia clay except that it has a compact, puddled surface layer and subsoil. These have developed as the result of flooding the soil and using heavy farm machinery on the fields. The soil occurs on the lower back slopes of the natural levees next to the swamps. It occupies level or nearly level areas that occur at elevations of 4 to 8 feet. Associated with this soil are the higher lying Baldwin silty clay loam and Baldwin silty clay and the lower lying Iberia clay, thin solum phase, and the swamp soils.

Typical profile:

0 to 5 inches, very dark-brown plastic clay or silty clay that is yellowish red around roots; moderate fine granular; contains many rice roots; neutral.

5 to 12 inches, very dark-brown, slightly plastic, compact silty clay that is yellowish red around roots; massive; many rice roots; neutral.

12 to 18 inches, grayish-brown plastic and sticky clay mottled with dark gray; massive; mildly alkaline.

18 to 40 inches, dark grayish-brown plastic clay mottled with dark gray; massive; mildly alkaline.

The surface layer ranges from neutral to slightly acid. It is very dark gray, black, or very dark brown. At depths between 5 and 12 inches, the soil material ranges from very dark brown to black, from neutral to slightly acid, and from platy to massive. In places the subsoil contains lime concretions.

Surface runoff is slow to very slow in this soil, and internal drainage is very slow. Because of the compacted clay surface soil and subsoil, permeability is slow. The water table is commonly high—at depths of 12 to 16 inches below the surface of the soil. Tillage is generally poor. The soil occurs at elevations high enough so that drainage by gravity is fair.

Use and management.—This soil is in management group III–3. It is well suited to rice, and yields are moderate to good. It is also well suited to pasture and hay. It does not have adequate artificial drainage for row crops to grow well. Some small fields have been drained and planted to sugarcane, however, and yields are fair.

Proper management practices are needed to improve the tilth, structure, and permeability of this soil so that sugarcane and corn can be grown profitably. These include constructing lateral and main ditches, which should be properly spaced; tilling with the slope to provide row drainage; and turning under deep-rooted legumes for green manure for 1 or 2 years. The legume should be followed by 2 or 3 years of improved pasture, where feasible, and then by a row crop.

Iberia clay, compacted, thin solum phase (1c).—This poorly drained soil of the back lands occupies small- to medium-sized areas on the lower back slopes of the natural levees. The areas border swamps. The soil occurs in the western part of the parish at elevations of 3 to 5 feet. It is associated with the Alligator and swamp soils, which occur at lower elevations, and with Iberia silt clay loam and Iberia clay, which are at higher elevations.

This soil differs from Iberia clay, compacted phase, in having only 4 to 6 inches of very dark gray, black, or very dark-brown soil material overlying the subsoil instead of 10 to 14 inches. For many years the soil has been used to grow rice, and the surface layer and subsoil have become dense, compact, and puddled.

Use and management.—This soil is in management group III–3. It is well suited to rice, and most of it is used for that purpose. Sugarcane has been grown on a few small areas that have been drained, but yields are low. To use the soil profitably for row crops, planters must provide adequate drainage and improve the structure.

Jeanerette Series

The soils of the Jeanerette series occur on low terraces. They have developed from old alluvium deposited by the Mississippi River and its distributaries during the late Pleistocene or early Recent epoch. The parent materials were silt loams, silty clay loams, and very fine sandy loams that were deposited in the shallow rim lakes and embayments that bordered the natural levee ridges. These medium-textured parent materials consisted of alluvial wash from adjacent higher areas and deposits from former streams.
The soils of the Jeanerette series occur in the highest parts of the back lands. The largest areas are in the western part of the parish. Scattered small areas are located in the southwestern, northwestern, and central parts, and the total acreage is small.

The native vegetation consisted of a dense growth of marsh and swamp plants. As the remains of these plants accumulated and mixed with the sediments, the areas were built up to well above the areas that normally overflow. The soils that were formed are friable, dark colored, and moderate to high in organic matter. Most of the soils occur at elevations of 4 to 5 feet. They occupy slightly higher positions than the associated Iberia soils but lower positions than the associated Patoutville soils.

The Jeanerette soils range from moderately well drained to imperfectly drained. If the water table is kept at a low level by draining off the surface water, they are the best agricultural soils of the parish. The water table is generally lower than the water table underlying the Iberia soils.

The Jeanerette soils differ from the Iberia soils in having a subsoil of friable silty clay loam instead of plastic clay. They have a darker colored and more alkaline surface layer than the Patoutville and Baldwin soils.

Jeanerette silt loam (Ja).—This soil of the low Mississippi River terraces occupies a small acreage in the western part of the parish. The largest single area is 1/2 miles southwest of the sugar mill at Albion. This soil occurs in association with Jeanerette silt loam, thin solum phase, and, in depressions, in association with the Patoutville soils. It lies at elevations of 4 to 5 feet.

Typical profile:

0 to 10 inches, very dark-brown friable silt loam; moderate fine granular; small lime concretions scattered on the surface; mildly alkaline.

10 to 15 inches, very dark-brown compact silt loam; moderate fine granular; moderately alkaline.

15 to 20 inches, very dark-brown compact silt loam; dense mottled, angular blocky; scattered, small, round, brown and black, hard concretions; moderately alkaline.

20 to 30 inches, pale-brown friable silt loam or silty clay loam mottled with gray; scattered, small, hard, brown and black concretions; moderately alkaline.

30 to 40 inches, light olive-yellow friable silt loam mottled with gray and brownish yellow; marly; about 50 percent of marly material is yellowish hard lime concretions, and 5 percent is brown and black concretions; moderately alkaline.

The reaction ranges from moderately alkaline to neutral in this soil. The texture of the subsoil ranges from silty clay to silty loam. A whitish efflorescence is commonly observed on the dry surface soil. Some areas do not have lime concretions or in or in the surface layer.

This imperfectly drained soil is fairly high in organic matter and in most plant nutrients. It is permeable to roots, air, and water. The surface soil has good moisture-holding capacity. Tilth is good, and the soil can be tilled within a moderate range of moisture content. The subsoil is friable and moderately permeable; internal drainage is medium. The soil occupies level or nearly level areas. It receives runoff from higher areas. Drainage ditches, however, remove the surface water and keep the water table at about 20 to 24 inches below the surface of most areas.

Use and management.—This soil is in management group II-2. It is one of the most productive soils in the parish. All the areas are used for sugarcane or corn, and yields are good to excellent. Nitrogen fertilizer is commonly used for these row crops. Adequate drainage can be easily provided through main and lateral ditches and row drainage. Open ditches should be widely spaced and of adequate size. They will help to keep the water table low.

Jeanerette silt loam, thin solum phase (Jb).—This is a soil of the low Mississippi River terraces. It occurs in small areas in the western, northwestern, and southwestern parts of the parish. The areas are level or nearly level. This soil occurs at slightly higher elevations than the associated Iberia soils and at lower elevations than the Cypernort and Baldwin soils. Most of the areas are 4 or 5 feet above sea level, but a few small areas north of Charenton occur at elevations of 8 or 9 feet.

This soil contains less organic matter and has a thinner surface soil and subsoil than Jeanerette silt loam. It appears to have developed in isolated bodies of water or on lake shores where conditions were unfavorable for large amounts of organic material to accumulate.

Typical profile:

0 to 10 inches, very dark-brown friable silt loam; moderate fine granular; a few iron and lime concretions on the surface; whitish gray efflorescence on surface when dry; moderately alkaline.

10 to 12 inches, very dark-brown compact silty clay loam (plowzone layer); moderate medium plate; moderately alkaline.

12 to 15 inches, dark grayish-brown, compact, massive silty clay loam or fine sandy clay loam; many small, hard lime concretions, and a few brown and black, hard concretions; moderately alkaline.

15 to 20 inches, grayish-brown loamy fine sand or very fine sandy loam; very dark-brown, soft iron concretions; moderately alkaline.

20 to 26 inches, light brownish-gray loamy very fine sand or sandy loam mottled with brown and gray; moderately alkaline.

26 to 34 inches, light brownish-gray loamy very fine sand or sandy loam mottled with light yellowish brown; many hard lime concretions; moderately alkaline.

In places there is an abrupt transition from the surface soil to a layer that contains many concretions of iron and lime. The surface soil is dark brown, very dark brown, or very dark gray.

This soil contains moderate amounts of organic matter and is fairly well supplied with most plant nutrients. It is moderately permeable. Reaction ranges from moderately alkaline to neutral, and drainage from imperfect to moderately good. Surface runoff is slow, and internal drainage is medium to slow. The water table is moderately low. The soil receives runoff from higher areas, but it is adequately drained by row drainage and widely spaced open ditches.

Use and management.—This soil is in management group II-2. All of it is cultivated. Most of it occurs in small areas, all of which are used for sugarcane, corn, and soybeans. This soil is not so productive as the deeper Jeanerette silt loam. It is not suited to rice but is well suited to pasture and hay.

The surface soil, which is 10 to 12 inches thick, is favorable for plant growth. Low yields are common on small areas that have a thick scattering of lime and iron concretions on the surface or at shallow depths. Yields of sugarcane may be increased by plowing under greenmanure crops and by using the proper kinds and amounts of fertilizer.

Jeanerette silty clay loam, thin solum phase (Jc).—Except for the texture of the surface layer, this soil of
the low Mississippi River terraces is similar to Jeanerette silt loam, thin solum phase. It occurs in small areas of the back lands in the western part of the parish. It is associated with the Patoutville soils and with Jeanerette silt loam. Other small areas occur in the northwestern part of the parish between the higher areas of Baldwin silt loam and the lower areas of Iberia clay.

Use and management.—This soil is in management group 11–2. It is used and managed in about the same way as Jeanerette silt loam, thin solum phase.

Jeanerette-Iberia Complex

The Jeanerette and Iberia soils are so intermingled in areas of irregular shape that it was not feasible to map them separately. They were therefore mapped as a single unit.

Jeanerette-Iberia very fine sandy loams (Jd).—Jeanerette very fine sandy loam and Iberia very fine sandy loam occur on low terraces of the Mississippi River. They occupy small- to medium-sized areas in the southwestern, western, northwestern, and central parts of the parish. Most of the areas occur at elevations intermediate between those occupied by the higher Cypremort and Baldwin soils and those occupied by the lower Iberia soils. At the Alice B. and Irvanoo plantations these soils occur on the crests of the low natural levee ridges, about 4 or 5 feet above sea level. Relief is level to nearly level.

These soils contain moderate amounts of organic matter and are well supplied with most plant nutrients. They are poorly drained to moderately well drained. Surface runoff is slow, and internal drainage is medium to slow.

Typical profile of Jeanerette very fine sandy loam:

- 0 to 8 inches, very dark grayish-brown friable very fine sandy loam; moderate fine granular; slightly acid.
- 8 to 12 inches, light brownish-gray silt loam or very fine sandy loam; moderate fine granular; slightly acid.
- 12 to 15 inches, light brownish-gray silt loam or very fine sandy loam; moderate fine granular; slightly acid.
- 15 to 20 inches, light brownish-gray silt loam or very fine sandy loam; moderate fine granular; slightly acid.
- 20 to 30 inches, very dark gray plastic clay; few mottles of pale brown; moderate fine angular blocky; slightly acid.
- 30 to 40 inches, dark-gray friable silt loam or silty clay loam mottled with pale brown; neutral.

The surface layer ranges from slightly acid to neutral in reaction, and in places it is very dark gray. The subsoil ranges from slightly acid to neutral in reaction, and the substratum, from neutral to mildly alkaline.

Surface runoff and internal drainage are slow in Iberia very fine sandy loam. The friable surface soil has good tilth. It can be worked within a wide range of moisture content. Permeability of the soil to air, roots, and moisture is generally favorable for crops.

Use and management.—This mapping unit is in management group 11–2. All of the areas are used to grow sugarcane, corn, or soybeans. The soils are well suited to pasture and hay. They are generally well supplied with organic matter and plant nutrients, and yields are moderate to high. Fields are easily drained by row drainage and widely spaced ditches.

A few small areas in the southwestern part of the parish have a thick scattering of lime concretions on the surface or at shallow depths. These places, locally called "salt spots," are not well suited to crops because of the concentration of salts.

Yields can be increased on Jeanerette-Iberia very fine sandy loams if row drainage and lateral ditches are kept in good condition and if the proper kinds and amounts of fertilizer are used.

Local Alluvium

Local alluvium, poorly drained (La).—This land type consists of practically all the poorly drained bottom lands that lie along Bayous Sale and Cypremort and along smaller streams that drain the slopes between the natural levee ridges. It is made up of alluvium that was washed from the adjacent stream slopes and deposited in narrow bands along the stream channels. Little of this material has moved far downhill.

Most of the soil materials are clays and silty clays, mixed with some thin strata of silt loams and very fine sandy loams. They are typically gray in color. The areas are frequently flooded during heavy rains. The reaction ranges from strongly acid to neutral.

Use and management.—This land type is in management group V–2. It is not suited to cultivated crops, because the areas are narrow and often flooded. The soil is fine textured and lacks favorable structure. Most of it is used for pasture or as woodland.

Made Land

Made land (Portland and Perry soil materials) (Mc).—This mapping unit is made up of mixed sediments of the Mississippi and Red Rivers. These materials have been piled along streams or pumped over the natural levee ridges during the construction of canals or during the process of maintaining the canals and bayous. Most of this mapping unit occurs in association with the Cypremort and Baldwin soils on small areas within the mixed lands of the natural levee. It has about the same suitability for crops as the Cypremort and Baldwin soils. It is
comprised of layers of sediments of varying thickness, texture, and color.

This mapping unit occurs at higher elevations—5 to 15 feet above sea level—than the Made lands of the marshes and swamps. It differs from them in being predominantly brown instead of gray and in being moderately well drained to imperfectly drained instead of poorly drained. Surface runoff and internal drainage are medium to slow. Relief is suitable for effective gravity drainage. The reaction is slightly acid to mildly alkaline.

Use and management.—This mapping unit is in management group II—1. Most of the areas are used for sugar cane and corn, but some are in woodland or pasture. Crop yields are generally good. The areas need about the same management and yields are about the same as on the Baldwin silty clay loams. A few spoil-bank areas are too small or too inaccessible for agricultural use.

Made land in marsh (Ma).—This mapping unit consists of soil materials that have been excavated and pumped from canals and bayous. The materials were piled along the streams or pumped over large areas of the coastal marsh. Made land in marsh is associated with fresh water marsh, clays and mucky clays; Brackish marsh, muck; and Brackish marsh,peat.

Most areas are at or near the level of the marsh, but areas along the canals occur at elevations of 5 or 6 feet. The vegetation consists of fresh-water plants such as common reed, cutgrass, big cordgrass, paille finne, cattail, switchgrass, delta potato, and couchgrass.

The soil materials are gray plastic clays and silty clays that have a few yellowish-brown mottles. They are strongly acid to slightly acid.

Use and management.—This mapping unit is in management group VII—1. Only small areas are high enough to be suited to cultivated crops, and most of these are inaccessible. This mapping unit generally occurs at higher elevations and is somewhat better suited to grazing than the other marsh soils. It is also used for trapping and hunting.

Made land in swamp (Mb).—This mapping unit is made up of large areas of materials that have been dredged or pumped from canals. The soil materials were piled along the canals or pumped over large areas of swamp. The mapping unit occurs within the areas occupied by swamp, clays and mucky clays, and Sharkey-Alligator clays, both of which are poorly drained bottom lands of the Mississippi River. The areas are a few inches to 6 feet above the general level of the swamp. All of them are in forests of willow, sweetgum, pecan, swamp maple, myrtle, cypress, and blackberry.

The soil materials consist of poorly drained light-gray clays or silty clays that have a few lenses of gray fine sand. Typically, they have some yellowish-brown mottlings. The reaction is medium acid to mildly alkaline.

Use and management.—This mapping unit is in management group V—2. Areas that are most easily accessible are too narrow or too small for cultivation. Most areas are too low in elevation to be used for agriculture and are used principally for forests, seasonal grazing, hunting, and trapping.

Mixed Clay Alluvium

Mixed clay alluvium (overflow phase) (Mf).—This mapping unit is made up of mixed alluvium deposited by the Mississippi and Red Rivers. It occurs in forested swamps along the shore of Six Mile Lake and on Drew, Little, Berwick, Middle, and Morgan islands where the alluvium has been deposited by the Atchafalaya River. The alluvial materials are predominantly clays and silty clays. This mapping unit occurs at elevations ranging from sea level to as much as 5 feet. The vegetation is mainly pecan, cypress, willow, buttonbush, live oak, haw, and tupelo-gum trees. In open-swamp areas there is an undergrowth of hickory (Carya ovata), cattail, and hickories (Carya alba and Carya glabra), pickrelweed (Pontederia cordata), and delta potato.

In most places the profile is similar to that of the soils of the Perry series. In contrast to some areas of Swamp, clays and mucky clays, it has many red, reddish-brown, and yellowish-red mottles scattered throughout the gray alluvium; a moderate to strong granular structure in the surface layer; and, in most places, a moderate to strong angular blocky structure in the substratum. The layers are not so thinly stratified as to texture and color as those of the Buxin-Portland-Perry soils.

In a few places, the surface is covered by an overwash of 2 to 10 inches of brown thinly stratified silt loam and very fine sandy loam.

This mapping unit is frequently inundated and is poorly drained. Surface runoff is slow to very slow, and internal drainage is very slow. The soil is medium acid to neutral.

Use and management.—This mapping unit is in management group V—2. It is used principally for forests, hunting, trapping, and seasonal grazing.

Patoutville Series

The Patoutville soils occur on stream terraces. They have developed from old, slightly acid to mildly alkaline alluvium. This material was deposited by the Mississippi River and its distributaries late during the Pleistocene epoch. The soils occur in small areas in the western part of the parish, at elevations of 5 to 10 feet. They occupy low ridges in association with the Iberia and Jeanerette soils. Most areas are level or nearly level, but small areas are on slopes of 2 to 4 percent. The native vegetation consisted of prairie grasses. All areas of these soils have been used for row crops for at least 50 years.

The Patoutville soils, in general, are imperfectly drained. They are more acid, lower in plant nutrients, and less productive of row crops than the Cypressblack, silt loam, and Baldwin very fine sandy loam. They are more acid and have a lighter colored surface soil than the Jeanerette and Iberia soils. The Patoutville soils differ from the Baldwin soils in having a silty clay loam subsoil that has a weak to moderate angular blocky structure instead of a clay subsoil with strong fine angular blocky structure. They differ from the associated Olivier soils, which occur in Iberia Parish, in having a substratum that is slightly acid to neutral instead of strongly acid.

Patoutville very fine sandy loam, level phase (Pc).—This soil occupies level areas in the western part of the parish. It occurs on ridges and benches, at elevations of 5 to 10 feet, slightly above the lower lying soils of the Iberia and Jeanerette series.

Typical profile:
0 to 4 inches, dark grayish-brown friable very fine sandy loam; moderate thin platy and moderate fine granular; many
small, brown and black, rounded concretions on surface and throughout the layer; strongly acid.

4 to 12 inches, dark-gray, compact, firm very fine sandy loam; strong medium plats; many small, round, brown and black concretions; medium acid.

12 to 20 inches, dark reddish-brown to dark-brown compact silty clay loam mottled with strong brown and yellowish red; moderate medium angular blocky; many small, round, brown and black concretions; medium acid.

20 to 30 inches, yellowish-brown friable silty clay loam with mottles and tongues of dark-gray silt loam; moderate medium subangular blocky; many small, round, brown and black concretions; medium acid.

30 to 42 inches, grey or grayish-brown friable silt loam mottled with yellowish brown; contains a few large brown and black concretions that are hard or soft; neutral.

The 0- to 4-inch surface layer ranges from dark grayish brown to brown in color and from strongly acid to medium acid in reaction. The 4- to 12-inch layer is dark gray or brown. The upper subsurface layer (12 to 20 inches) has a massive or weak to moderate medium angular blocky structure in places and is medium acid to neutral. The lower subsurface layer (20 to 30 inches) ranges from massive to moderate medium angular blocky.

Surface runoff, internal drainage, and permeability are all slow. Open ditches and rows running with the slope provide fair to good drainage. The water table is at moderately low depths. Tilth of the surface soil is favorable over a moderately wide range of moisture content. Crop yields, though about average for the parish, as a rule are lower than on Cypremort soils, Baldwin silt loam, and Baldwin very fine sandy loam.

Use and management.—This soil is in management group II–1. All of it is used to grow sugarcane and corn. Yields are about the same as those for Patoutville very fine sandy loam, level phase. They can be increased by using fertilizer properly, plowing under green-manure crops, improving drainage, and occasionally plowing deep to break up the slowly permeable impervious plowable layer.

Richland and Lintonia Soils

In St. Mary Parish, the soils of the Richland and Lintonia series are mapped as a single unit. They occur in an intricate pattern on areas of irregular shape. They have developed over salt domes from alluvium of the late Pleistocene epoch. The parent material has washed from areas of bays, but in places it may have been mixed with sediments that were deposited by the wind at the place where the soil developed.

In other parts of the parish these older alluvial sediments, similar to the parent materials of these soils, are buried under 50 to 100 or more feet of more recent alluvium. In areas of Richland and Lintonia soils, however, the weight of the sediments caused stresses to develop within the earth. Continued pressure pushed the salt beds upward. As a result, the older alluvium was forced to the surface and now lies at elevations of more than 100 feet.

Richland and Lintonia soils, severely eroded undulating to hilly phases (Pa).—This mapping unit is made up of areas of Richland and Lintonia soils. The soils occur within the areas of coastal marsh in the southern and southwestern parts of the parish. These soils have been severely damaged by sheet and gully erosion. The original surface soil and subsurface layer have been removed, in places, along with a considerable part of the subsoil. In large areas the surface soil is only 3 to 4 inches thick.

The natural vegetation was a dense stand of mixed hardwoods that included live oak, red oak, white oak, hickory, sweet gum, and hackberry.

The Richland silt loams are moderately well drained terrace soils. They are moderately permeable and are leached. The surface layer consists of brown friable silt loam and the subsoil is brown or yellowish-brown somewhat compact silty clay loam. At depths of 18 inches or more is a mottled, weakly cemented fragipan layer.

The surface layer of the Richland soils is medium acid to strongly acid, and the subsoil is strongly acid to very
strongly acid. Surface drainage and internal drainage are medium.

Typical profile of Richland silt loam, severely eroded undulating to hilly phase:

0 to 6 inches, brown friable silt loam; moderate fine granular; medium acid.
6 to 12 inches, dark yellowish-brown silt loam; strong fine granular; strongly acid.
12 to 20 inches, dark yellowish-brown compact silt loam; strong medium subangular blocky; very strongly acid.
20 to 32 inches, dark yellowish-brown compact, firm silt loam or silty clay loam; distinct large motles of gray, pale brown, and yellowish brown; weak medium subangular blocky; very strongly acid.
32 to 64 inches, dark yellowish-brown friable silt loam or silty clay loam; a few distinct large and small motles of pale brown; weak medium subangular blocky; strongly acid.
64 to 100 inches, medium light-gray and brownish-yellow plastic clay; massive to weak medium angular blocky; very strongly acid.

Lintonia silt loams are similar to Richland silt loams in color, texture, parent material, and reaction but have no fragipan layer. They occur on slopes of 8 to 20 percent. Surface drainage is rapid, and internal drainage is medium.

Typical profile of Lintonia silt loam, severely eroded undulating to hilly phase:

0 to ½ inch, dark-brown decayed or partly decayed leaves, twigs, and other organic matter.
½ to 2 inches, brown friable silt loam; weak medium to fine granular; medium acid.
2 to 26 inches, brown friable silty clay loam; moderate medium subangular blocky; very strongly acid.
26 to 48 inches, brown friable silt loam; weak medium granular; very strongly acid.
48 to 62 inches, yellowish-brown compact silt loam; streaks of gray and brown silt loam; very strongly acid.

In many places the layer of forest litter is absent. Because of the effects of very severe erosion, the surface layer is only 2 to 4 inches thick in many areas. The subsoil ranges in color from brown to reddish brown.

Use and management.—This mapping unit is in management group V-1. The largest areas are in forest; small areas are used for sugarcane, for pasture, or are idle. These soils are well suited to rice.

All areas need to be artificially drained to grow row crops. If adequately drained, these soils produce moderate to good yields of sugarcane and corn. Gravity drainage is effective in some places, especially those adjoining areas of Baldwin soils at relatively high elevations. Lower lying areas, however, must be protected by levees and surface water must be pumped out.

Swamp, Clays and Mucky Clays

Swamp, clays and mucky clays (Sa and Ac).—This mapping unit is comprised of poorly drained and very poorly drained soils derived from Mississippi River materials and from mixed Mississippi River and Red River alluvium. The soils do not have a thick organic surface layer like that of Swamp, muck, and Swamp peat.

Large areas of this mapping unit occur in woodland and swamps throughout the parish, between the Iberia soils on the lower parts of the natural levee ridges and the lower lying Swamp, muck, and Swamp peat, and the organic soils of the coastal marshes. Other large areas lie in the northern part of the parish along the shores of Grand, Six Mile, and Palourde Lakes in association with, and at the same elevation as, Mixed clay alluvium (overflow phase). These sites are lower than those occupied by the associated Sharkey-Alligator clays; and they are frequently overflown. In the southeastern part of the parish, east of the Wax Lake outlet channel, large areas of these soils occur in association with areas of Fresh water marsh, clays and mucky clays, but at slightly higher positions.

Much of the soil is level or in depressions. Along the borders of the natural levee ridges, these soils occur in depressions that are catch basins for water that runs off soils on the ridges. The elevation ranges from sea level to 3 feet. Large areas are frequently inundated by tidal waters and stream overflow.

Most areas have a dense stand of the following swamp trees: Willow, bay, swamp maple, myrtle, cypress, tupelo-gum, pecan, palmetto, and buttonbush. Areas at higher elevations support dense forests of oak, sweetgum, and hackberry. In lower sites that have an open stand of trees there is an undergrowth of marsh plants.
that includes lizards, delta potato, cutgrass, and cattail. Profile of a clay soil in this mapping unit:

0 to 1½ inches, very dark grayish-brown plastic clay; weak fine granular; medium to slightly acid; water table 2 inches below surface.

1¼ to 20 inches, gray plastic and sticky clay; a few, medium, distinct mottles of strong brown around roots and root channels; massive; medium to slightly acid.

20 to 44 inches, gray plastic wet clay; a few, large, prominent mottles of yellowish brown; a few, small, round, brown and black concretions; massive; mildly alkaline.

The surface soil is gray, very dark gray, brown, or very dark grayish brown, and it is medium acid to slightly acid. It ranges from clay to silty clay or mucky clay in texture and from ½ to 5 inches in thickness. The substratum is mildly alkaline to slightly acid. It is commonly gray or gray, mottled with yellowish-brown clay or silty clay. In some areas the profile is free of mottling throughout.

Included in this mapping unit are soils similar to Sharkey clay. The surface soil, to a depth of 8 inches, is brown or very dark-gray moderate fine granular clay, silty clay, or mucky clay that is medium to slightly acid. The layer between 8 and 20 inches is dark-gray or brown clay or silty clay mottled with gray; this material is medium acid to mildly alkaline and weak to moderate subangular blocky in structure. Below a depth of about 20 inches, there is gray clay or silty clay that is mottled yellowish brown and is slightly acid to mildly alkaline in reaction.

Surface runoff is very slow or ponded, and internal drainage is very slow or lacking. Water is near or on the surface much of the time.

Use and management.—This mapping unit is in management group V-2. It is one of the most extensively forested soils of the parish. It is also used for seasonal grazing, hunting, and trapping. Most areas are frequently flooded, and are therefore unsuited to crops. A few small areas that lie next to the edges of the natural levee ridges are high enough for efficient gravity drainage and are suited to pasture and hay crops. Constructing artificial drainage systems and dikes and pumping water from fields are necessary to make the soil suitable for row crops and rice.

Swamp, Muck

Swamp, muck (Md).—This organic soil occurs in a large area between Wax Lake and the Bayou Salas ridge. This low area is frequently inundated by runoff from higher areas to the north and west, and water is on or near the surface at all times. Some alluvial sediments are deposited when the outlet channel of Wax Lake overflows.

This organic soil differs from Swamp, peat, in that the surface layer consists of black or brown finely divided muck instead of fibrous peat materials. Swamp, muck, has accumulated under conditions that have caused plant remains to decompose to a greater degree than in Swamp, peat. The muck is nonsticky when wet and very friable when dry. The amount of organic matter ranges from 15 to 50 percent. The amount of mineral soil materials varies.

The vegetation normally consists of thin, open stands of swamp maple, myrtle, bay, and willow, a few cypress and tupelo-gum trees, and a luxuriant growth of fresh-water plants, including lizards, delta potato, cutgrass, and common cattail. The trees are typically shorter and smaller than those on Swamp, peat.

Typical profile:

0 to 18 inches, very dark-gray finely divided mud containing remains of swamp and marsh vegetation; very strongly acid.

18 to 72 inches, dark-gray silty muck; few roots; extremely acid.

72 to 108 inches, gray plastic clay; massive; extremely acid.

The muck ranges in texture from silty muck to peaty muck. It ranges from 1 to 8 feet in thickness but is generally 2 to 3 feet thick. It is very strongly acid to slightly acid in reaction. The muck is underlain by alluvial silty clay or clay. The clay substratum ranges in reaction from extremely acid to neutral.

Use and management.—This mapping unit is in management group VII-2. It is used chiefly for forests, trapping, hunting, and some seasonal grazing.

Swamp, Peat

Swamp, peat (Me).—This organic soil occupies large areas in the western part of the parish. On the south, or bay side, it is associated with the marsh soils. On the inland margin it lies next to Swamps, clays and mucky clays, which extends along the sides of the natural levees of Bayou Cypremort, Salen, and Teche.

Most areas are covered by water-tolerant vegetation. There is a dense stand of cypress, tupelo-gum, and swamp maple trees. Where the stand is thin, there is an undergrowth of marsh plants such as agatorweed, cattail, hibiscus, delta potato, cutgrass, and lizards.

No well-defined stream flows through the areas of this flat or depressed swamp soil, but the areas are crossed by several major drainage canals. Several inches of water is on the surface most of the time. Frequently the water is as deep as 2 feet. This swamp soil is affected little by saline tidal waters. During storm tides, the rainfall is unusually heavy. Except in small areas, rainwater and runoff from higher areas supply enough fresh water to prevent damage through the encroachment of saline waters. Northwest, west, and southwest of the post office at Louisa, near the Iberia Parish boundary, are small areas of dead cypress trees that outline the areas where saline waters have encroached upon the swamp.

Typical profile:

0 to 48 inches, dark reddish-brown coarse to medium-textured woody peat containing small and large fragments of wood; granular structure that gives the appearance of very coarse sawdust; strongly acid; 33.0 percent organic matter.

48 to 94 inches, gray, dense, plastic clay with thin lenses of dark-gray clay; massive; contains small fragments of logs and stumps; neutral.

Swamp, peat, ranges from dark reddish brown to black. It has a very coarse granular, a fine to coarse blocky, or a fine to coarse fragmental structure (2). In areas where abundant remains of marsh vegetation have accumulated, the soil is coarse to fine fibrous. The peat surface layer ranges from 3 to 10 or more feet in thickness but is usually 3 to 4 feet. It overlies clay or silty clay. The surface soil ranges from strongly acid to slightly acid in reaction, and the underlying clay, from strongly acid to neutral.

Use and management.—Swamp, peat, is in management group VII-2. This organic soil provides little grazing. It is used mostly for forest and for hunting and trapping.
Use and Management of the Soils

This section consists of four main parts. In the first, the capability classes are defined. In the second, groups of soils within the capability classes are discussed as management groups and use suitability and management suggestions are described for each group. In the third, the soils are grouped according to their suitability for rice, and in the fourth, they are grouped according to their suitability for improved pasture.

Capability Grouping of Soils

The capability classification is a means of showing the comparative suitability of different soils for agricultural uses. The classification of a particular soil depends on the variety of uses to which the soil is suited, its susceptibility to erosion or other damage if it is cultivated, and the kind of management it needs to protect it from erosion or excess water and to maintain its productivity.

Eight general capability classes are recognized. In classes I, II, and III are soils that are suited to annual or periodic cultivation.

Class I soils are those that have the widest range of use. They are well or nearly well drained, productive, at least fairly well drained, and easy to work. They do not erode readily, even if cultivated frequently, and will remain productive if managed with normal care.

Class II soils do not have quite so wide a range of suitability as class I soils. Class II soils are slightly wet or somewhat limited in depth and consequently need moderate care to remove excess water.

Class III soils can be cropped regularly, but they have a narrower range of use and need still more careful management than the soils in class II.

Class IV soils are suited to only occasional cultivation or can be cultivated only under very careful management. (Because only small areas of class IV soils occur in St. Mary Parish, they have been included with the class VI soils.)

In classes V, VI, and VII are soils that ordinarily are not suited to cultivation but that can be used for pasture, for range, or for forest. Class V soils are level or nearly level but are wet or otherwise unsuited to cultivation. Class VI soils are not suitable for crops, because they are steep or otherwise limited, but they give fair yields of forage or forest products. Some class VI soils can be cultivated enough so that forest trees can be set out or pasture plants seeded. Class VII soils are not suited to cultivation and are severely limited for pasture or woodland.

Class VIII soils have practically no agricultural use. They produce little vegetation that can be harvested or grazed. They may provide recreational areas or shelter for wildlife.

Capability Classification of St. Mary Parish Soils

The capability classes in which the soils of St. Mary Parish have been placed are described below.

Class I.—Nearly level, well-drained, productive soils that have few limitations for use; suitable for intensive cultivation without special practices other than those used for good farming anywhere.

Class II.—Soils suited to tilled crops, pasture, and trees but subject to moderate limitations when tilled.

II-1.—Medium-textured, moderately well drained, moderately well drained, moderately permeable soils that are level or nearly level.

II-2.—Medium-textured, poorly drained, slowly permeable soils that are level or nearly level and that receive moderate amounts of runoff water from soils at higher elevations.

II-3.—Medium-textured and moderately fine textured, imperfectly drained and poorly drained, slowly permeable soils that are level or nearly level and that receive large amounts of runoff water from soils at higher elevations.

Class III.—Soils suited to tilled crops, pasture, and trees but that have moderately severe limitations when tilled.

III-1.—Medium-textured, imperfectly drained to moderately well drained, moderately permeable soils on severely eroded gentle slopes.

III-2.—Fine-textured, imperfectly drained, slowly permeable and very slowly permeable soils that are level or nearly level and that receive moderate amounts of runoff water from other areas.

III-3.—Fine-textured, poorly drained, slowly permeable and very slowly permeable soils that are level and that receive large amounts of runoff water from other areas.

III-4.—Fine-textured and medium-textured, poorly drained and very poorly drained, slowly permeable soils that are level and receive large amounts of runoff water from other areas.

Class IV.—Soils not suited to cultivation because of standing water or frequency of overflow; suitable for pasture or for use as woodland.

IV-1.—Fine-textured and medium-textured, poorly drained, very slowly permeable soils on low ridges and marsh and swamp borders that are either only slightly above areas that normally are overflowed or are protected against overflow.

IV-2.—Fine-textured and medium-textured, poorly drained and moderately well drained soils of the bottom lands that are subject to frequent flooding.

Class VI.—Soils ordinarily not suited to cultivation because of steep slopes, shallowness, or severe erosion but suitable for pasture or for use as woodland.

VI-1.—Deep, moderately well drained, slowly permeable, severely eroded soils on gentle and steep slopes.

Class VII.—Soils not suited to cultivation because of wetness or inaccessibility.

VII-1.—Poorly drained, frequently flooded soils.

VII-2.—Organic soils of the swamps that have water on or near the surface most of the time.

Class VIII.—Soils not suited to the growing of commercial vegetation but that furnish food for wildlife.

VIII-1.—Brackish-water clays and organic soils of the marshlands; usually wet and subject to frequent overflow; unstable for livestock to walk on.

Management Groups of Soils

The soils and miscellaneous land types of St. Mary Parish have been placed in 14 management groups, each comprised of soils that need and respond to about the
same kind of management. The common management practices used and the improved management practices needed for higher yields are described for each group. Approximate yields per acre are given for crops grown under both types of management.

In this parish, the suitability of the individual soils for row crops is determined largely by the rate at which excess water drains off, either naturally or by artificial means. The effectiveness of soil drainage is determined mainly by the texture of the soil, the degree of slope, and the elevation at which the soil occurs. On most soils that lie at elevations of 4 feet or more, the surface water runs off and the soil can be drained by the natural gravity flow of the excess water. But most soils that lie at lower elevations require protective levees to control flooding and pumps to remove excess water.

The suggestions as to the kinds and amounts of fertilizer to be used are meant to serve only as a general guide. For specific fertilizer recommendations applicable to crops grown on an individual soil, consult the Louisiana Agricultural Experiment Station, the local representative of the Soil Conservation Service, or the county agricultural agent. Soil sample analyses and fertilizer recommendations for specific crops are services of the soils laboratory of the Louisiana State University.

Management group I-I

This group is made up of medium-textured, moderately well drained, permeable soils that occupy level to nearly level areas at the crests of the natural levee ridges. The soils are easily tilled.

The soils are moderately well supplied with plant nutrients and are fair to moderately high in organic matter. No appreciable amounts of plant nutrients have been lost through water erosion. Nevertheless, the soils are deficient in nitrogen and somewhat deficient in phosphorus and potassium. The friable surface layer and subsoil are permeable to water, and plant roots penetrate easily. Reaction ranges from medium acid to slightly acid. The following soils are in management group I-I:

- Cyprus loam very fine sandy loam.
- Cypress loam silty loam.

Use and management.—The soils of this group I-I are used entirely for row crops. The principal management problem is that of keeping the soils fertile. Most crops grown on these soils respond to fertilizers. The soils are suited to intensive use if properly managed.

A 4-year rotation consisting of 3 years of sugarcane and either 1 year of corn or 1 year of corn and soybeans is generally followed. About 40 pounds of nitrogen per acre is commonly applied to plant cane, and 60 pounds per acre to stubble cane. Corn generally receives 50 pounds or more of nitrogen per acre. The approximate acre yields obtained under these management practices are 20 to 25 tons of plant cane, 18 to 22 tons of first-year stubble cane, 14 to 17 tons of second-year stubble cane, and 40 to 50 bushels of corn.

Yields of sugarcane can be increased by applying 60 to 80 pounds of nitrogen per acre to plant cane, 100 pounds of nitrogen to stubble cane, and 25 to 40 pounds of available phosphoric acid (P₂O₅) and 40 to 60 pounds of available potash (K₂O) per acre to both plant cane and stubble cane. Average acre yields obtained after such applications have been made arc 28 to 30 tons of plant cane, 22 to 25 tons of first-year stubble cane, and 18 to 22 tons of second-year stubble cane.

Corn that is fertilized with 50 pounds of nitrogen, 50 pounds of available phosphoric acid, and 50 pounds of available potash per acre and sidedressed with 50 pounds of nitrogen should yield 55 to 65 bushels per acre.

Management group II-E

The soils of group II-E are medium textured, imperfectly drained, and slowly permeable. They occur near the crests of the natural levee ridges. The soils are level or nearly level. Surface runoff and internal drainage are slow.

These soils have a friable surface layer and are easily tilled. They are moderate to low in organic matter and plant nutrients. In general, they are slightly acid to medium acid. The following soils are in management group II-E:

- Baldwin very fine sandy loam.
- Baldwin silty loam.
- Baldwin silty loam, compacted phase.
- Baldwin silty loam, dark-colored surface phase.
- Buxton-Portland-Perry soils, nearly level phases.
- Buxton-Portland-Perry soils, slightly sloping phases.
- Patowmack silt loam.
- Patowmack silt loam.

Use and management.—The soils of group II-E have been used for row crops for the past 50 to 100 years or more. The principal management problems consist of providing adequate soil drainage and keeping the soil fertile.

The soils are drained by running the crop rows with the slope. Widely spaced ditches help to remove excess water and to keep the water table below a depth of 2 feet. The crop rotation commonly used consists of 3 years of sugarcane followed by 1 year of corn or soybeans or by 1 year of fallow. Plant cane is generally fertilized with 40 pounds of nitrogen per acre, and stubble cane with 60 pounds of nitrogen. Corn commonly receives applications of 50 pounds of nitrogen at planting time; an additional 50 pounds is applied as a side dressing. Approximate yields per acre are 20 to 25 tons of plant cane, 18 to 20 tons of first-year stubble cane, 16 to 18 tons of second-year stubble cane, and 40 to 50 bushels of corn.

Yields of sugarcane can be increased by turning under green-manure crops. In addition, 60 pounds of nitrogen per acre should be applied to plant cane, 100 pounds of nitrogen to stubble cane, and 40 pounds of phosphoric acid and 60 pounds of potash per acre to both plant cane and stubble cane. Approximate yields per acre obtained under this system of management are 30 to 32 tons of plant cane, 25 to 28 tons of first-year stubble cane, and 20 to 24 tons of second-year stubble cane.

Corn should yield between 65 and 75 bushels per acre if it is fertilized with 50 pounds of nitrogen, 40 to 50 pounds of available phosphoric acid, and 60 pounds of potash per acre at planting time and sidedressed with 50 pounds of nitrogen.

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4 The amount of fertilizer needed as expressed in the amount of available nitrogen, phosphoric acid (P₂O₅), and potash (K₂O).
5 Louisiana Agricultural Experiment Station. Fertilizer recommendations for Louisiana. [Mimeographed.] 1954-55.
Pastures are commonly fertilized with 1 ton of agricultural lime per acre and 200 pounds of a complete fertilizer. Yields of improved pasture can be increased by applying an additional 60 to 100 pounds of available phosphoric acid (P₂O₅) and 50 pounds of available potash (K₂O) per acre.

**Management group II-2**

The soils of group II-2 are medium textured, imperfectly drained or moderately well drained, and moderately permeable. They are level or nearly level and have slopes of less than 1 percent. These soils occur along the borders of the natural levee ridges. Consequently, they receive much runoff water from higher areas. Surface runoff is slow.

Most of the soils have a friable surface layer and subsoil. The organic-matter content ranges from medium to high. Most of the soils are well supplied with calcium, phosphorus, and magnesium but are low in potassium.

**Use and management.**—The soils of management group II-2 are good to excellent for row crops. They are also suited to pasture and hay. In some small spots, where many lime concretions occur on or near the surface, crop yields are commonly low. As for the soils of group II-1, most of the principal management problems consist of removing excess surface water promptly and keeping the soil fertile.

The management practices generally used on these soils are similar to those used on soils of management group II-1. Average yields per acre under common management are 25 to 30 tons of plant cane, 20 to 28 tons of first-year stubble cane, 18 to 20 tons of second-year stubble cane, and 65 bushels of corn.

Yields can be increased by applying larger amounts of nitrogen, phosphoric acid, and potash than are commonly used and by improving the drainage. If 60 pounds of nitrogen per acre is applied to plant cane and 100 pounds to stubble cane, in addition to 25 to 40 pounds of phosphoric acid and 50 pounds of potash to both plant cane and stubble cane, the approximate yields per acre should be 30 to 35 tons of plant cane, 28 to 32 tons of first-year stubble cane, and 25 to 20 tons of second-year stubble cane.

Corn yields can be increased by turning under green-manure crops, by applying 300 to 400 pounds of a complete fertilizer and 50 pounds of nitrogen per acre at planting time, and by sidedressing with 50 pounds of nitrogen per acre. Under this management, corn should yield 75 to 85 bushels per acre.

**Management group II-3**

The soils of group II-3 are medium textured to moderately fine textured, imperfectly drained to poorly drained, and slowly permeable. The areas are level to nearly level and have slopes of less than 1 percent. These soils receive moderate amounts of runoff water from soils at higher elevations. Surface runoff and internal drainage are slow.

These soils have a moderately friable surface soil and a clay subsoil. They contain moderate amounts of organic matter and are well supplied with most plant nutrients. In general, the reaction is slightly acid to mildly alkaline. The following soils are in management group II-3:

- Baldwin silty clay loam.
- Iberia silt loam.
- Iberia silty clay loam, thin solum phase.
- Iberia silty clay loam, very fine sandy loams.

**Use and management.**—Group II-3 is made up of good agricultural soils that are used mainly to grow sugarcane, corn, and soybeans. Under proper management the soils can be used for rice, hay, and pasture.

The management commonly used for soils of this group is similar to that used for soils of group II-1, and under common management, yields are about the same. The yields can be increased by using larger amounts of a complete fertilizer than are commonly used and by adding larger amounts of nitrogen.

**Management group III-1**

The soils of this group are medium textured and are moderately well drained to imperfectly drained. They occupy slopes of 2 to 5 percent. The soils are severely eroded. The erosion has been caused, in part, by the common practice of running crop rows with the slope. The soils are fair to good for agriculture, but each soil has at least one undesirable characteristic that limits its suitability.

The surface layer of these soils is friable to moderately friable. Tilth is good, and the soils can be cultivated over a fairly wide to wide range of moisture content. Crops are sometimes damaged by drought during occasional dry spells. The soils are slightly acid to strongly acid in reaction. They contain fair amounts of organic matter and other plant nutrients.

The following soils are in management group III-1:

- Buxin-Portland-Perry soils, gently sloping phases.
- Cypremort silty clay loam, eroded phase.
- Patoutville very fine sandy loam, eroded gently sloping phase.

**Use and management.**—Most of the acreage is used to grow sugarcane, corn, and soybeans, but these soils are not so productive as the soils of management groups II-1, II-2, and II-3. The principal management problems are concerned with controlling erosion and keeping the soil fertile.

A 4-year rotation consisting of 3 years of sugarcane followed by either 1 year of corn or by 1 year of soybeans in common use. Generally, 40 pounds of nitrogen per acre is applied to plant cane, 60 pounds of nitrogen to stubble cane, and 50 pounds of nitrogen to corn. Under these practices, the approximate acre yields are 20 tons of plant cane, 14 to 18 tons of stubble cane, and 40 to 50 bushels of corn.

Yields of sugarcane can be increased by tilling on the contour, plowing under green-manure crops, applying potash and phosphate fertilizers, and adding larger amounts of nitrogen. If 60 to 80 pounds of nitrogen per acre is added to plant cane, 100 pounds of nitrogen to stubble cane, and 40 pounds of phosphoric acid and 60 pounds of potash per acre to both plant cane and stubble cane, plant cane should yield about 25 tons per acre, first-year stubble cane 20 tons, and second-year stubble cane 16 to 18 tons.

Yields of corn can be increased by tilling on the contour, plowing under green-manure crops, applying 300 to 400 pounds of a complete fertilizer and 50 pounds of nitrogen per acre at planting time, and side-dressing the crop with...
50 pounds of nitrogen per acre. Under this treatment, corn should yield 55 to 65 bushels per acre.

If well managed, improved pastures on these soils produce good to excellent yields. Agricultural lime and a complete fertilizer should be added to the pastures.

**Management group III-2**

The soils of group III-2 are fine textured, imperfectly drained, and slowly to very slowly permeable. They are level or nearly level. The soils receive moderate amounts of runoff water from higher lying areas. Surface runoff and internal drainage are very slow. In general, tilth ranges from fair to poor. The following soils are in management group III-2:

- Baldwin silty clay.
- Baldwin silty clay, compacted phase.
- Baldwin silty clay loam, compacted phase.

**Use and management.—**Of the soils of this group, only Baldwin silty clay, used to grow row crops. Baldwin silty clay, compacted phase, and Baldwin silty clay loam, compacted phase, are used to grow rice. The soils used for rice have a dense, puddled, plastic clay subsoil.

Rice is commonly grown in either a 2-year rotation, consisting of 1 year of rice and 1 year of fallow, or in a 3-year rotation, consisting of 2 years of rice and 1 year of fallow. Some planters apply 200 pounds of a complete fertilizer per acre to rice. Under these management practices, the approximate yields of rice are between 10 and 15 barrels per acre.

Yields of rice can be increased by applying larger amounts of fertilizer and by using a rotation that consists of 1 year of rice, 2 or 3 years of improved pasture, and then 2 years of rice. If the rice is fertilized with 40 to 60 pounds of nitrogen, 30 to 40 pounds of phosphoric acid, and 20 to 40 pounds of potash per acre at planting time and is topdressed with 40 pounds of nitrogen, it should yield from 18 to 28 barrels per acre.

Baldwin silty clay is artificially drained and used for row crops. Open ditches and row drainage are used to remove the excess surface water. The ditches also serve to divert the runoff from higher lying areas. The sugarcane is commonly grown in a 4-year rotation consisting of 3 years of sugarcane followed by 1 year of corn or by 1 year of soybeans. The usual practice is to apply 40 pounds of nitrogen per acre to plant cane and 60 pounds of nitrogen to stubble cane. The approximate acre yields with the common management are 18 to 20 tons of plant cane, 16 to 18 tons of first-year stubble cane, and 12 to 16 tons of second-year stubble cane.

Corn usually receives applications of 50 pounds of nitrogen per acre. Yields are commonly 30 to 40 bushels per acre.

If the soils of group III-2 are used for row crops, they require more intensive management for profitable yields than the soils of group III-1. Management practices needed to improve soil drainage and soil structure when these soils are used for row crops include (1) row drainage and lateral ditches that are closely spaced, properly constructed, and well maintained; (2) plowing under deep-rooted crops for green manure; and (3) using a cropping system that will include 2 or 3 years of improved pasture to be followed by sugarcane or corn.

If these improved management practices are used and if 60 to 80 pounds of nitrogen per acre is applied to plant cane, 100 pounds of nitrogen to stubble cane, and 40 pounds of available phosphoric acid (P₂O₅) and 60 pounds of available potash (K₂O) to both plant and stubble cane, the yields per acre can be increased to about 25 tons of plant cane, 15 to 20 tons of first-year stubble cane, and 18 tons of second-year stubble cane.

Yields of corn can be increased also under good management that includes the practices mentioned to improve soil drainage and soil structure. In addition, if 300 to 400 pounds of a complete fertilizer and 50 pounds of nitrogen per acre are applied to corn at planting time and 50 pounds of nitrogen is applied as a side dressing, the approximate yields per acre should be 40 to 50 bushels.

When adequately drained and properly fertilized with complete fertilizer and lime, the soils of group III-2 produce very good pasture and hay.

**Management group III-3**

The soils of group III-3 are fine textured, poorly drained, and slowly permeable to very slowly permeable. They receive runoff from higher lying areas. The excess water runs off the surface at a moderate rate but passes through the soil very slowly because, in most areas, the surface soil and subsoil are compacted and puddled. Tilth, although generally poor, is suitable within a narrow range of moisture content. The following soils are in management group III-3:

- Iberia clay.
- Iberia clay, compacted phase.
- Iberia clay, thin solum phase.
- Iberia clay, compacted, thin solum phase.

**Use and management.—**Iberia clay and Iberia clay, thin solum phase, which are drained by row drainage and lateral ditches, are used to grow sugarcane and corn. The two compacted Iberia soils are used to grow rice. The commonly used management practices, the suggested improvements, and the corresponding yields of rice and pasture crops on these soils are similar to those of the soils of group III-2.

The soils that are used for row crops occur at lower elevations and require more intensive artificial drainage than soils of group III-2. Yields can be increased by providing closely spaced ditches and row drainage and by plowing under green-manure crops. The kinds and amounts of fertilizer that are suggested for increases in yields of row crops grown on the soils of group III-2 are suitable for the soils of group III-3. Sugarcane yields, however, probably will be lower for these soils than for the soils of group III-1.

When adequately drained, these soils produce very good pasture and hay.

**Management group III-4**

The soils of group III-4 are fine textured to medium textured, poorly drained to very poorly drained, and slowly permeable. They are level or depressed and as a result receive runoff water from higher lying areas. These soils occupy the borders of marshes and swamps. Because they occur at low elevations, the soils are difficult to drain and the water table is at or near the surface most of the time. The following soils are in management group III-4:

- Alligator clay.
- Baldwin silt loam, salty variant.
Use and management.—These soils are used to grow row crops and rice, and yields are fair to good. The soils are also suited to pasture and hay.

In areas where these soils are slightly higher than the associated marsh and swamp soils, row drainage and closely spaced ditches will provide suitable drainage for growing row crops. Areas that are almost as low as the marshes are suitable for cultivation only if protected from overflow by levees and if drained by pumps. The crop rotations, the kinds and amounts of fertilizer commonly used, and the usual crop yields obtained on these soils are similar to those described for the soils of management group III–2.

Improved management consists of using practices described under group III–2 and, in addition, intensive and special drainage practices. If these management suggestions are followed, and if the kinds and amounts of fertilizers described under group III–2 are applied, the approximate yields per acre should be 20 to 25 tons of plant cane, 16 to 20 tons of first-year stubble cane, 14 to 16 tons of second-year stubble cane, 50 bushels of corn, and 15 to 25 barrels of rice.

If adequately drained and properly fertilized, these soils will produce good pasture and hay crops.

Management group V–1

The soils of group V–1 are fine textured to medium textured, poorly drained, and very slowly permeable. They occupy level areas or depressions. The soils occur on low ridges and swamp borders and are either only slightly above areas that are normally overflowed or are protected by dikes against flooding. Surface runoff is very slow, and some areas are frequently ponded. These soils are medium to high in plant nutrients and are medium to low in organic matter. The following soils are in management group V–1:

- Alligator clay, overflow phase.
- Baldwin silt loam, low phase.
- Baldwin silty clay loam, low phase.
- Drained marsh clays.
- Sharkey-Alligator clays.

Use and management.—A few small areas of these soils are used to grow rice. The fields are protected by dikes against flooding and are drained by pumps. Large areas, slightly above parts that normally overflow, have a cover of native grass or forest. Most of these large areas could be made suitable for rice and pasture crops if they were protected from overflow and drained by pumps.

Included in management group V–1 are small areas of soils that are well above the areas that are normally flooded. These can be used for row crops in dry years. The kinds and amounts of fertilizer needed and the crop yields produced on these soils are about the same as those described under management group III–2.

Management group V–2

Group V–2 is comprised of fine-textured to medium-textured, poorly drained to moderately well drained soils of the bottom lands. These soils lie within the floodway of the Atchafalaya River and are subject to frequent flooding. Large areas occur between the Wax Lake outfall channel and the Lower Atchafalaya River. Management group V–2 is comprised of the following soils:

- Buxia-Portland-Perry soils, level overflow phases.
- Local alluvium, poorly drained.

Use and management.—The soils of group V–2 are very fertile, but they are not suited to cultivated crops or to improved pastures unless they are protected against flooding. These soils have dense to scattered stands of mixed hardwoods and are used to produce timber or for hunting and trapping.

Management group VI–1

This management group is made up of deep, moderately well drained, slowly permeable, severely eroded soils that occur on gentle to steep slopes. The slopes range from 5 to 20 percent. These soils have a cover of mixed hardwoods. The soils of management group VI–1 are mapped as a single unit—Richland and Linton soils, severely eroded undulating to hilly phases.

Use and management.—These soils are used for seasonal grazing, for forest, or for hunting and trapping. They are not suited to cultivation but are suited to forests and grazing if moderate restrictions, such as controlled grazing, are practiced. Most areas of these soils are subject to severe erosion. Some areas may be disturbed enough to plant trees or to establish permanent pasture.

Management group VII–1

This group is comprised of fine-textured, poorly drained marsh soils that are frequently flooded. The following mapping units are in management group VII–1:

- Fresh water marsh, clays and mucky clays.
- Made land in marsh.

Use and management.—These land types are used for hunting, trapping, and, in some places, for seasonal grazing. They are not suited to cultivated crops. Although the soils produce excellent native forage, they are somewhat inaccessible, and only small areas are used for grazing. Forest production is limited, because much water stands on the surface. It may be possible to reclaim these areas for agricultural uses.

Management group VII–2

Group VII–2 is comprised of organic soils of the swamps that have water on or near the surface most of the time. The vegetation consists mainly of a dense stand of tupelo-gum and cypress trees. Areas located in the southeastern part of the parish, along the northern border of the coastal marsh, are occasionally flooded by brackish, or saline, waters and are not suited to forest. These areas have a thin stand of small trees. These organic soils have surface layers of peat or muck, which range in thickness from 2 to 10 feet. Management group VII–2 is made up of the following mapping units:

- Swamp, muck.
- Swamp, peat.

Use and management.—These organic soils are used for forest, hunting, trapping, and limited grazing and browsing. They are not suited to cultivated crops. Improved forest management is the principal need. Although forest yields are good, the planting of trees is restricted to the small areas that are not subject to flooding.

Management group VIII–1

This management group is made up of brackish water clays and organic soils of the marshlands. The soils are
frequently flooded and remain wet most of the time. As a rule, the footing is unstable for livestock on the organic soils, but during dry spells some areas dry out enough to support the weight of cattle. When drained, the peat and muck soils dry out and settle at a moderate rate, as much as 6 inches annually, depending on how much the water table is lowered. In most places they are medium to high in sulfates and chlorides. Excessive soil acidity may result if these soils are drained and allowed to oxidize. The following are in management group VIII-1:

- Brackish marsh, clays and mucky clays.
- Brackish marsh, muck.
- Brackish marsh, peat.

**Use and management.**—This group of organic soils comprise the principal trapping areas in St. Mary Parish [Fig. 6]. The soils are not suited to cultivation, grazing, or forestry. Areas of Brackish marsh, clays and mucky clays, however, support a dense growth of marsh plants. Most of these areas would provide a considerable amount of forage, if they did not occupy nearly inaccessible sites along the coast.

Occasionally, tides caused by storms are so high that it is not practical to build protective dikes. Favorable habitats for wildlife can be maintained by controlling the depth and salinity of the waters that enroach on these areas.

**Figure 6.** Muskrat house at Cypremout Point, typical of wildlife habitats on Brackish marsh, muck, and Brackish marsh, peat. The vegetation is three-square.

**Suitability of the Soils for Rice**

In this section the soils and miscellaneous land types of St. Mary Parish are arranged in groups according to their relative suitability for rice.

**Group A: Soils Well Suited to Rice With Simple Artificial Drainage**

The soils of this group are medium textured to moderately fine textured, imperfectly drained, and slowly permeable. They are level to nearly level and are adequately drained by widely spaced ditches. The following soils are in group A:

- Baldwin very fine sandy loam.
- Baldwin silt loam.
- Baldwin silt loam, compacted phase.
- Baldwin silt loam, dark-colored surface phase.
- Baldwin silt clay loam.
- Baldwin silt clay loam, compacted phase.
- Buxin-Portland-Perry soils, nearly level phases.
- Iberia silt loam.
- Iberia silt clay loam.
- Iberia silt clay loam, thin solum phase.
- Made land (Portland and Perry soil materials).
- Patoutville very fine sandy loam, level phase.
- Patoutville silt loam.

**Group B: Soils Moderately Well Suited to Rice With Moderate Artificial Drainage**

These soils are fine textured, poorly drained, and very slowly permeable. Because they occupy level areas at low elevations, they require a complex system of open ditches for adequate drainage. The following soils make up group B:

- Alligator clay.
- Baldwin silt clay.
- Baldwin silt clay, compacted phase.
- Iberia clay.
- Iberia clay, thin solum phase.
- Iberia clay, compacted phase.
- Iberia clay, compacted, thin solum phase.

**Group C: Soils Moderately Well Suited to Rice With Intensive Artificial Drainage and Protective Structures**

This group consists of fine-textured, poorly drained, and very poorly drained, very slowly permeable soils and medium-textured, poorly drained, slowly permeable soils. The soils occupy level areas at low elevations, so they require protective levees, and water must be removed by pumps. The following soils are in group C:

- Alligator clay, overflow phase.
- Baldwin silt loam, low phase.
- Baldwin silt loam, silt loamy.
- Baldwin silt clay loam, low phase.
- Drained marsh, clays.
- Sharkey-Alligator clays.

**Group D: Soils Not Suited to Rice**

These soils are medium textured, moderately well drained, and moderately permeable. They occupy level to steep areas of the terraces, as well as level bottom lands, swamps, and marshes that are frequently flooded. The following soils are in group D:

- Brackish marsh, clays and mucky clays.
- Brackish marsh, muck.
- Brackish marsh, peat.
- Buxin-Portland-Perry soils, gently sloping phases.
- Buxin-Portland-Perry soils, level overflow phases.
- Cypremout very fine sandy loam.
- Cypremout silt loam.
- Cypremout silt clay loam, eroded phase.
- Freshwater marsh, clays and mucky clays.
- Jeanerette silt loam.
- Jeanerette silt loam, thin solum phase.
- Jeanerette silt clay loam, thin solum phase.
- Jeanerette-Iberia very fine sandy loams.
- Local alluvium, poorly drained.
- Made land in marsh.
- Made land in swamp.
- Mixed clay alluvium (overflow phase).
- Patoutville very fine sandy loam, eroded gently sloping phase.
- Richland and Lintonia soils, severely eroded undulating to hilly phases.
- Swamp, clays and mucky clays.
- Swamp, peat.
- Swamp, muck.

**Suitability of the Soils for Improved Pasture**

In this section the soils and miscellaneous land types are arranged in groups according to their relative suitability for improved pasture.
GROUP A: SOILS SUITTED TO IMPROVED PASTURE WITHOUT ARTIFICIAL DRAINAGE OR WITH SIMPLE ARTIFICIAL DRAINAGE

This group is made up of medium-textured, moderately permeable, imperfectly drained and moderately well drained soils that occupy level to gently sloping areas. The following soils are in group A:

- Baldwin very fine sandy loam.
- Baldwin silt loam.
- Baldwin silty clay loam.
- Baldwin silty clay loam, dark-colored surface phase.
- Buxin-Portland-Ferry soils, gently sloping phases.
- Buxin-Portland-Ferry soils, nearly level phases.
- Cypremort very fine sandy loam.
- Cypremort silt loam.
- Cypremort silty clay loam, eroded phase.
- Patoutville very fine sandy loam, eroded gently sloping phase.

GROUP B: SOILS SUITTED TO IMPROVED PASTURE WITH MODERATE ARTIFICIAL DRAINAGE

These soils are medium textured to moderately fine textured, imperfectly drained, and slowly permeable. They occupy level or nearly level areas. For improved pasture, the soils require ditch drainage. The following soils are in group B:

- Baldwin silt loam, compacted phase.
- Baldwin silt loam, salty variant.
- Baldwin silty clay loam.
- Baldwin silty clay loam, compacted phase.
- Iberia silt loam.
- Iberia silty clay loam.
- Iberia silty clay loam, thin solum phase.
- Jeanerette silt loam.
- Jeanerette silt loam, thin solum phase.
- Jeanerette silt loam, thin solum phase.
- Jeanerette-Iberia very fine sandy loams.
- Made land (Portland and Perry soil materials).
- Patoutville very fine sandy loam, level phase.
- Patoutville silt loam.

GROUP C: SOILS SUITTED TO IMPROVED PASTURE WITH COMPLEX ARTIFICIAL DRAINAGE

This group consists of fine-textured, slowly permeable and very slowly permeable, imperfectly drained and poorly drained soils. They occupy level to nearly level areas. For proper drainage, the soils require cut crowning and ditch drainage. The following soils are in group C:

- Alligator clay.
- Baldwin silty clay.
- Baldwin silty clay, compacted phase.
- Iberia clay.
- Iberia clay, compacted phase.
- Iberia clay, thin solum phase.
- Iberia clay, compacted, thin solum phase.
- Sharkey-Alligator clays.

GROUP D: SOILS SUITTED TO IMPROVED PASTURE WITH EITHER COMPLEX ARTIFICIAL DRAINAGE, INCLUDING PROTECTIVE LEVERS, OR EROSION CONTROL PRACTICES

The soils of this group are medium textured, moderately fine textured, or fine textured; poorly drained to moderately well drained; and very slowly permeable to slowly permeable. Except for the Richland and Lintonia soils, which are undulating to hilly, these soils are level and occur at low elevations. The level areas require ditch drainage, protective levers, and the removal of water by pumps. On the Richland and Lintonia soils, control of erosion is necessary. The following soils are in group D:

- Alligator clay, overflow phase.
- Baldwin silt loam, low phase.
- Baldwin silty clay loam, low phase.
- Drained marsh, clays.
- Richland and Lintonia soils, severely eroded undulating to hilly phases.

GROUP E: SOILS NOT SUITTED TO IMPROVED PASTURE

In this group are fine-textured or medium-textured, poorly drained and imperfectly drained, frequently flooded soils of the bottom lands and marshes. The following soils are in group E:

- Brackett marsh, clays and mucky clays.
- Brackish marsh, muck.
- Brackish marsh, peat.
- Buxin-Portland-Ferry soils, level overflow phases.
- Fresh water marsh, clays and mucky clays.
- Local alluvium, poorly drained.
- Made land in marsh.
- Made land in swamp.
- Mixed clay alluvium (overflow phase).
- Swamp, clays and mucky clays.
- Swamp, muck.
- Swamp, peat.

FORMATION AND CLASSIFICATION OF SOILS

Soils are formed by the action of certain processes on materials deposited or accumulated by geologic action. The characteristics of the soil at any given point are determined by (1) the type of parent material; (2) the climate under which the soil material has accumulated and existed since it accumulated; (3) the plant and animal life in and on the soil; (4) the relief, or lay of the land; and (5) the length of time the forces of soil development have acted on the soil material.

FACTORS OF SOIL FORMATION

All of the five factors of soil formation have influenced the development of the soils of St. Mary Parish. Because the climate is essentially uniform, however, variations in the soils have resulted mainly from the effects of parent material, vegetation, relief, and age.

PARENT MATERIAL

The parent materials of the soils in this area are alluvial in origin, but the source and the texture of the sediments vary. Soils of the Pleistocene terraces consist of silty alluvium washed from other terraces or from loessal uplands.

Other soils occupy the natural levee ridges that have been built up from alluvium deposited by the Mississippi and Red Rivers. Soils of the natural levee ridges vary considerably in texture. The front lands, or crests of the natural levee ridges, are made up of silt and very fine sand, the mixed lands of clay and silty clay, and the back lands of materials ranging from silt loam to clay. The soils of bottom lands are developing from slightly acid to mildly alkaline alluvium. Soils of the coastal marsh are made up of Mississippi River and Red River alluvium. In areas of the coastal marsh near the gulf, the alluvial materials have been reworked by the action of waves and tides.

CLIMATE

St. Mary Parish has a humid, subtropical marine climate. The average summer temperature is about 82°F, and the average winter temperature is about 57°F. The average annual rainfall is nearly 67 inches. The more mature soils that have developed under this climate are highly leached, low in organic matter, and weakly podzolic.
Except for the coastal areas, which have somewhat higher rainfall than areas farther inland, the climate is fairly uniform. Therefore, differences in the soils cannot be attributed to differences in climate.

Vegetation

The vegetation varies considerably in different parts of the parish. The differences in vegetation have influenced the development of the soils.

The soils that are the most highly leached and the most acid are the ones that have developed under deciduous forest. The deep-rooted plants of the forest bring bases to the surface. The bases are leached out, however, by the water that passes through the soil. The decayed forest litter causes organic acids to form, which hastens the leaching process. As a result the soils are strongly acid and generally low in organic matter. The soils that have developed under prairie grasses are not so severely leached, nor are they leached of bases to so great a depth as the forest soils.

The soils of the coastal marshes have a surface layer that consists of organic materials derived from plants. These plants are mainly grasses, reeds, sedges, rushes, and herbs. As they die they are covered by water, which retards oxidation. The remains of successive generations of plants form peats and mucks that range in thickness from 2 to 11 feet.

Relief

Differences in relief have been responsible, to a great extent, for the development of different characteristics in the soils of St. Mary Parish. Relief affects the formation of the soils through its control upon drainage and erosion. The more mature, or better developed, soils have enough slope so that the soils are well drained but are not eroded. These soils have a brown B horizon. The imperfectly drained soils on level or gently sloping areas have a yellow or a yellowish, mottled B horizon. The poorly drained soils on level or slightly depressed areas are gray and mottled. Fragipans or clay pans have developed in level or gently sloping silt soils that have yellow or gray B horizons.

Age

Differences in age account for differences in the characteristics of some of the soils of the delta. Some of the soils of the Mississippi River bottom lands and of the natural levee ridges differ from each other because of age, although they were derived from similar parent materials, have about the same relief, and have, or were developed, under, about the same vegetation and climate. The more mature soils of the natural levees display fairly well-defined genetic horizons, but the younger soils on the recent bottom lands show little profile development.

Classification of Soils

The lower categories of soil classification—series, types, and phases—are explained in the section, How a Soil Survey is Made. Briefly, a soil series consists of one or more soil forms and a soil type consists of one or more phases. Soil types or phases are the units shown on the detailed soil map.

Soil series are classified into the next broader category, the great soil groups. Each great soil group is made up of soils that have certain internal characteristics in common.

The broadest categories of soil classification is the three soil orders—zonal, intrazonal, and azonal—into which all of the great soil groups are classified.

Table 5 classifies the soil series of St. Mary Parish by great soil groups and soil orders.

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<tr>
<th>Table 5 — Soil series classified by soil orders and great soil groups and some factors that have contributed to differences in their formation</th>
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<td><strong>Zonal Soils</strong></td>
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<td>Gray-Brown Podzolic soils:</td>
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<td>Cyprremot</td>
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<td><strong>Intrazonal Soils</strong></td>
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<td>Richland</td>
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<td>Patoutville</td>
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<td>Low-Humic Gley soils:</td>
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<td>Baldwin</td>
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<td>Humic Gley soils:</td>
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<td>Iberia</td>
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<td>Jeanerette</td>
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<th><strong>Azoal Soils</strong></th>
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<td>Alluvial soils:</td>
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<td>Buxin</td>
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<td>Portland</td>
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</table>
Zonal soils

Soils of the zonal order have well-developed characteristics that reflect the dominating influence of vegetation and climate. In St. Mary Parish the zonal soils have a grayish-brown to brown surface layer and a brown B horizon. In forested areas a 1-inch layer of leaf mold commonly covers the surface. The A₂ horizon of the zonal soils is brown or grayish-brown and is well leached of bases. Some of the bases have accumulated in the B horizon. The B horizon is heavier textured than the A horizon and has some accumulation of sesquioxides. The Gray-Brown Podzolic soils are the only zonal soils in the parish.

GRAY-BROWN PODZOLIC SOILS

The Gray-Brown Podzolic soils have a thin organic covering and organic-mineral layers that overlies a grayish-brown leached layer. The leached horizon rests upon a brown illuvial horizon. In St. Mary Parish the Gray-Brown Podzolic soils belong to the Cypremort and Lintonia series.

Lintonia series.—The Lintonia soils are representative of the Gray-Brown Podzolic soils in this parish. They have developed from old silty alluvium washed from loessial uplands or terraces. These soils are well drained. Relief is gently sloping to hilly, and slopes are 5 to 20 percent. Because these soils have developed under deciduous forests and were affected by high temperatures and heavy rainfall, they are leached and weakly podzolic. They have a brown, leached A horizon and a brown, moderately leached, heavier textured B horizon. A considerable amount of colloidal material has moved from the A horizon to the B horizon. The Lintonia soils are moderately permeable. Surface runoff, however, is moderate to rapid, and the soil is severely eroded.

The following is a description of a profile of Lintonia silt loam on Cote Blanche Island:

A₁ 0 to 1/2 inch, dark grayish-brown (10YR 4/2) decayed or partly decayed forest litter from deciduous trees.
A₂ 1/2 to 8 inches, brown (7.5YR 5/4) weak medium to fine granular friable silt loam; medium acid.
B₁ 8 to 20 inches, brown (7.5YR 5/4) friable silty clay loam; moderate to medium and fine irregular angular blocky; very strongly acid.
B₂ 26 to 48 inches, yellowish-brown (10YR 6/8) friable silt loam; weak medium granular; very strongly acid.
C 48 to 62 inches, yellowish-brown (10YR 5/6) compact silt loam with some streaks of gray (10YR 6/1) and brown (7.5YR 5/4); weak medium angular blocky; very strongly acid.

Cypremort series.—The Cypremort series consists of moderately well drained soils. These soils have developed from medium-textured old alluvium derived from the Mississippi and Red Rivers. They have developed under predominantly prairie vegetation. The areas are nearly level to gently sloping and occur on the crests of the natural levee ridges.

The Cypremort soils are not leached of bases to a great a depth as the Lintonia soils. The brown A horizon has been leached of bases and colloidal materials. The brown B horizon has received some colloidal material and bases from the A horizon and is heavier textured than the A. The B horizon is moderately leached, and the C horizon is leached to some extent. The A and B horizons are slightly acid to medium acid, and the underlying parent material ranges from slightly acid to slightly alkaline.

The following is a description of a profile of Cypremort very fine sandy loam located at the DeGravelle plantation, 1/4 miles southwest of the Oaklawn plantation:
A₁ 0 to 6 inches, brown (10YR 5/3) friable very fine sandy loam; weak fine granular; light brownish gray (5Y 6/2) when dry; medium acid.
B₁ 6 to 12 inches, uniformly mottled compact sandy clay loam or fine sandy clay; large prominent mottles of light yellowish brown (10YR 6/4) and brownish yellow (10YR 6/6); streaks of dark gray (10YR 4/1); thick medium platy and coarse weak subangular blocky; medium acid.
B₂ 12 to 24 inches, light yellowish-brown (10YR 6/4) friable very fine sandy clay loam; fine prominent mottles and streaks of brownish yellow (10YR 6/6) and dark gray (10YR 4/1), particularly around root channels; massive to weak coarse subangular blocky; slightly acid.
C 24 to 42 inches, light yellowish-brown (10YR 6/4) friable very fine sandy loam; a few, coarse, distinct mottles of light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6); weak subangular blocky; neutral.

Intrazonal soils

Intrazonal soils have fairly well developed characteristics that have been influenced more by some local factor of parent material, relief, or age than by the normal effects of climate and vegetation. The characteristics of the intrazonal soils of St. Mary Parish are generally the result of the level relief and have been greatly influenced by the high or fluctuating water table. In this parish the intrazonal order is represented by the Planosols, Humic Gley, and Low-Humic Gley great soil groups.

PLANOSONS

The Planosols of this parish have well-developed characteristics. The profiles show the effects of poor drainage resulting from level or nearly level relief and high or fluctuating water table. The Richland and Patoutville soils belong to the Planosol great soil group.

Richland series.—The Richland soils have developed under the influence of a low degree of slope and a perched or moderately high water table. They are moderately podzolized and have a moderately leached A horizon and a brown, heavier textured B horizon. At depths of 18 to 30 inches, they have a weak fragipan consisting of fine, compact, mottled silt loam or light silty clay loam. The fragipan layer is underlain by the friable, acid parent material of silt loam.

The following is a description of a profile of Richland silt loam observed on Cote Blanche Island:
A₁ 0 to 6 inches, brown (10YR 5/3) friable silt loam; moderate fine granular; medium acid.
A₂ 6 to 12 inches, dark yellowish-brown (10YR 4/4) strong fine granular silt loam; strongly acid.
B₁ 12 to 20 inches, dark yellowish-brown (10YR 4/4) compact silt loam; strong medium subangular blocky; very strongly acid.
B₂ 20 to 32 inches, dark yellowish-brown (10YR 4/4) compact firm silt loam or silty clay loam; coarse distinct mottles of gray (10YR 6/3), and yellowish brown (10YR 5/6); weak medium subangular blocky; very strongly acid.
C 32 to 42 inches, dark yellowish-brown (10YR 4/4) friable silt loam; a few, coarse, distinct mottles of pale brown (10YR 6/3); weak subangular blocky; strongly acid.
Patoutville series.—The Patoutville series is made up of imperfectly drained acid soils that occur on level areas or gentle slopes. The soils have developed from old medium-textured alluvium, predominantly of Mississippi River origin. The vegetation was mainly prairie grasses, but there were small areas of deciduous trees.

The Patoutville soils are moderately podzolic; the A horizon is leached of bases and contains little organic matter. Colloidal material has accumulated in the B horizon, which is heavier textured than the A. The A and B horizons are medium acid to strongly acid.

These soils have a yellowish mottled subsoil because they have developed on level areas and because the water table is moderately high. At depths of about 10 to 20 inches, the soil is compact and contains prominent mottles and brown and black concretions. The C horizon is a friable silty clay loam or silt loam ranging from slightly acid to slightly alkaline in reaction.

The following is a description of a profile of Patoutville silt loam observed 2 miles southeast of the sugar mill at Albany plantation:

- **A_0** 0 to 4 inches, dark grayish-brown (10YR 4/2) friable silt loam; moderate fine granular; many brown and black, small concretions; medium acid.
- **A_1** 4 to 7 inches, very dark grayish-brown (10YR 3/2), compact, fine silt loam; many fine, distinct mottles of yellowish brown (10YR 5/4); moderate to strong thin platy; a few small brown and black concretions; medium acid.
- **B_1** 7 to 10 inches, uniformly mottled dark yellowish-brown (10YR 4/4) and very dark grayish-brown (10YR 3/2), very firm, dense silty clay loam containing a few fine mottles of strong brown (7.5YR 5/8); moderate medium prismatic structure, but breaks into moderate coarse subangular blocks containing many small brown and black concretions; medium acid.
- **B_2** 10 to 20 inches, mottled very dark grayish-brown (10YR 3/2), dark yellowish-brown (10YR 4/4), and grayish-brown (10YR 5/2) firm silty clay loam; weak to moderate medium subangular blocky; a few, small, prominent mottles of dark brown (7.5YR 5/8); a few small round concretions; medium acid.
- **C** 20 to 30 inches, mottled grayish-brown (5Y 3/2) and yellowish-brown (10YR 5/6) friable silty clay loam containing scattered small, strong brown (7.5YR 5/8); hard concretions and a few black concretions; compact and firm; friable and gritty when crushed; weak medium subangular blocky; slightly acid.

HUMIC GLEY SOILS

The Low-Humic Gley soils are somewhat poorly drained to poorly drained. They have a very thin surface horizon, moderately high in organic matter. This overlies gleyed mineral horizons, mottled with gray and brown. Differences in texture are not clearly defined in these horizons. The soils of the Baldwin, Perry, Sharkey, and Alligator series are the Low-Humic Gley soils of St. Mary Parish.

Baldwin series.—The Baldwin soils are moderately well drained to poorly drained. They have a moderately thin surface soil that contains a moderate amount of organic matter and a mottled gray and brown clay subsoil. These level or nearly level soils occur on the front lands and mixed lands of the natural levee ridges. They have developed from old, slightly acid to mildly alkaline alluvium deposited by the Mississippi and Red Rivers. These soils have formed under a mixed vegetation of prairie grasses and deciduous forest and contain moderate amounts of organic matter. Their genetic horizons are more clearly defined than those of the soils of the bottom lands.

Because of the heavy rainfall and high temperatures, the surface soil has been leached of bases and is slightly acid to medium acid. The clay or silty clay B horizon has been less leached of bases and is slightly acid to neutral. The clay or silty clay loam C horizon ranges from slightly acid to mildly alkaline. A high water table has caused the lower part of the B horizon and the C horizon to be somewhat gleyed.

The following describes an area of Baldwin silt loam one-half mile southwest of the Columbia sugar mill at Katy plantation:

- **A_2** 0 to 7 inches, very dark grayish-brown (10YR 3/2) friable silt loam; moderate fine granular; medium acid.
- **B_2** 7 to 10 inches, very dark grayish-brown (10YR 5/2) compact silt loam; moderate medium platy; slightly acid.
- **C_2** 10 to 12 inches, very dark gray (10YR 3/1) plastic clay; many small, faint yellowish-brown (10YR 4/4) mollies; strong medium platy; slightly acid.
- **B_2** 12 to 18 inches, dark-gray (10YR 4/1) plastic clay mottled with light yellowish brown (10YR 6/4); strong medium angular blocky; neutral.
- **B_3** 18 to 32 inches, mottled gray (10YR 5/1) and pale-gray (10YR 6/3) sticky and plastic clay; strong medium blocky; mildly alkaline.
- **C_3** 32 to 44 inches, light brownish-gray (10YR 6/2) slightly plastic silty clay loam mottled with dark brown (5YR 4/4) and dark gray (10YR 4/1); weak medium angular blocky; mildly alkaline.

Sharkey series.—The Sharkey soils of St. Mary Parish have a high water table and therefore have not been affected by the churning caused by shrinking, swelling, and cracking. Although the surface soil is dark, it does not contain large amounts of organic matter; the subsurface layers are distinctly gleyed.

HUMIC GLEY SOILS

The Humic Gley soil group consists of poorly drained or very poorly drained hydromorphic soils. The soils have moderately thick, dark-colored organic-mineral horizons that are underlain by mineral gley horizons.

In St. Mary Parish the Iberia and Jeanerette soils are in the Humic Gley great soil group. These soils have developed from old alluvium, predominantly of Mississippi River origin (fig. 7). They occupy low areas that had a native cover of marsh or swamp vegetation. The surface soils range from very slightly acid to mildly alkaline; the subsoil and parent materials are neutral to mildly alkaline. These soils have developed on sites where the water table was at shallow depths much of the time. This has caused the substratum to become waterlogged and gleyed.

Iberia series.—A description of a profile of Iberia clay, examined at Home Place plantation, 7 miles west of Baldwin, follows:

- **A_0** 0 to 4 inches, very dark-gray (10YR 3/1) to black (10YR 2/1) plastic silt clay or clay; strong fine granular; neutral.
- **A_1** 4 to 10 inches, very dark-gray (10YR 3/1) compact silt clay; moderate medium platy and moderate medium angular blocky; neutral.
- **B_2** 10 to 22 inches, very dark gray (10YR 3/1) strong medium angular blocky clay with a few, fine, distinct mollies of brown (10YR 5/3) and light yellowish brown (10YR 6/4) in the lower part; moderately alkaline.
- **B_3** 22 to 36 inches, dark-gray (10YR 4/1) plastic clay mottled with pale brown (10YR 6/3), yellowish brown (10YR 5/4), and brown (10YR 5/3); strong medium angular blocky; a few small, round, soft concretions of iron, and a few irregular soft or hard concretions of lime, one-half inch in diameter; moderately alkaline.
Azonal soils

The azonal soils lack distinct, genetically related horizons commonly because of youth, resistant parent material, or steep topography. In St. Mary Parish, the Alluvial soils belong to the azonal order.

Alluvial soils

The soils of this great soil group occur on bottom lands where recurrent floods have deposited sediments. New sediments are deposited from time to time, so the soils show little or no profile development. Because the parent materials vary, the color of the soils varies somewhat from place to place. In this parish the soils of the Portland and Buxin series belong to the Alluvial great soil group.

Portland series.—In St. Mary Parish, the Portland soils have not been separated from the Buxin and Perry soils in mapping because the areas were too small and intricately mixed. The color of the Portland soils is more grayish or grayish brown than that of the Buxin soils. A description of a profile of Portland clay, observed between the channel of Bayou Teche and United States Highway 90 near the Iberia Parish line, follows:

A 0 to 6 inches, dark-brown (10YR 4/3) clay; strong medium and fine granular; slightly acid to neutral.

C 6 to 12 inches, strong-brown (7.5YR 5/4) clay faintly mottled with gray and brown; massive; neutral.

C 18 to 36 inches, strong-brown (7.5YR 5/6) clay with medium and coarse prominent gray mottles; massive; calcareous.

Organic soils and miscellaneous land types

The organic soils and miscellaneous land types in this parish were not classified into higher categories. A list of the ones that occur in St. Mary Parish follows:

Brackish marsh, clays and mucky clays.
Brackish marsh, muck.
Brackish marsh, peat.
Drained marsh, clays.
Fresh water marsh, clays and mucky clays.
Local alluvium, poorly drained.
Made land in marsh.
Made land in swamp.
Made land (Portland and Perry soil materials).
Mixed clay alluvium (overflow phase).
Swamp, clays and mucky clays.
Swamp, muck.
Swamp, peat.
# Laboratory Determinations

Data obtained through laboratory analyses of the soil profiles are shown for the soil types in Table 6 and for miscellaneous land types in Table 7.

**Table 6.**—Exchangeable cations, base saturation, pH, and available phosphorus of certain representative soil types

<table>
<thead>
<tr>
<th>Soil type and sample number</th>
<th>Horizon</th>
<th>Depth</th>
<th>Exchangeable cations in Me. per 100 gm. of air-dry soil</th>
<th>Base saturation</th>
<th>pH</th>
<th>Available phosphorus</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Ca</td>
<td>Mg</td>
<td>K</td>
<td>Na</td>
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<td>Baldwin silt loam:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>A_0</td>
<td>0-7</td>
<td>10.6</td>
<td>3.3</td>
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<td>0.3</td>
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<td>88</td>
<td>A_1</td>
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<td>0.2</td>
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<tr>
<td>89</td>
<td>B_0</td>
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<td>8.4</td>
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<td>0.3</td>
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<td>90</td>
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<td>91</td>
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<td>0.4</td>
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<tr>
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<td>C</td>
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<td>16.7</td>
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<td>0.4</td>
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<td>Cypress hill fine sandy loam:</td>
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<tr>
<td>668</td>
<td>A_0</td>
<td>0-4</td>
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<td>2.1</td>
<td>0.1</td>
<td>0.4</td>
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<tr>
<td>667</td>
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<td>6.3</td>
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<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>668</td>
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<td>10-16</td>
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<tr>
<td>669</td>
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<td>670</td>
<td>C</td>
<td>24-42</td>
<td>6.0</td>
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<td>0.6</td>
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<tr>
<td>Iberia silty clay loam:</td>
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<td>11</td>
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<td>18.7</td>
<td>4.0</td>
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<td>12</td>
<td>A_1</td>
<td>7-11</td>
<td>18.9</td>
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<td>A_2</td>
<td>11-13</td>
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<td>14</td>
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<td>0.5</td>
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<tr>
<td>15</td>
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<td>26-40</td>
<td>15.2</td>
<td>5.4</td>
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<td>0.4</td>
</tr>
<tr>
<td>Jeannette silt loam:</td>
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<td></td>
<td></td>
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<tr>
<td>687</td>
<td>A_0</td>
<td>0-6</td>
<td>9.8</td>
<td>4.2</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>688</td>
<td>A_1</td>
<td>6-12</td>
<td>17.6</td>
<td>5.9</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
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<td>B_0</td>
<td>16-24</td>
<td>12.9</td>
<td>5.7</td>
<td>0.3</td>
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</tr>
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<td>690</td>
<td>B_1</td>
<td>24-30</td>
<td>12.2</td>
<td>5.5</td>
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<td>601</td>
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<td>30-42</td>
<td>12.7</td>
<td>5.9</td>
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<td>0.4</td>
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<tr>
<td>Patoutville silt loam:</td>
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<tr>
<td>681</td>
<td>A_0</td>
<td>0-4</td>
<td>9.4</td>
<td>2.1</td>
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<tr>
<td>682</td>
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<td>2.3</td>
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<td>B_0</td>
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<td>B_1</td>
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<td>C</td>
<td>36-48</td>
<td>10.0</td>
<td>5.5</td>
<td>0.1</td>
<td>1.2</td>
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</tbody>
</table>

1 Chemical analyses made by B. N. Driskell, associate agronomist, Louisiana Agricultural Experiment Station, Baton Rouge, La.

2 P. p. m. = Parts per million.
### Table 7—Soil pH, water soluble salts, organic matter, and nitrogen content of clays, mucks, and peats of marsh and swamp areas

<table>
<thead>
<tr>
<th>Land type and sample number</th>
<th>Depth</th>
<th>pH</th>
<th>Water soluble salts</th>
<th>Organic matter</th>
<th>Nitrogen</th>
<th>C/N ratio</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ca</td>
<td>K</td>
<td>Na</td>
<td>SO₄</td>
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<td></td>
<td></td>
<td></td>
<td>P. p. m.</td>
<td>P. p. m.</td>
<td>P. p. m.</td>
<td>Percent</td>
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<tr>
<td>Fresh water marsh, clays and mucky clays:</td>
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<td>6.6</td>
<td>0</td>
<td>20</td>
<td>800</td>
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<tr>
<td>15-A</td>
<td>0-24</td>
<td>7.2</td>
<td>10</td>
<td>20</td>
<td>800</td>
<td>60</td>
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<tr>
<td>15-B</td>
<td>24-40</td>
<td>7.2</td>
<td>10</td>
<td>20</td>
<td>800</td>
<td>60</td>
</tr>
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<td>Swamp, clays and mucky clays:</td>
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<td></td>
<td>6.1</td>
<td>0</td>
<td>20</td>
<td>150</td>
</tr>
<tr>
<td>64-A</td>
<td>0-12</td>
<td>7.2</td>
<td>10</td>
<td>20</td>
<td>220</td>
<td>840</td>
</tr>
<tr>
<td>64-B</td>
<td>12-48</td>
<td>7.2</td>
<td>10</td>
<td>20</td>
<td>220</td>
<td>840</td>
</tr>
<tr>
<td>Swamp, muck:</td>
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<td></td>
<td>4.9</td>
<td>0</td>
<td>0</td>
<td>250</td>
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<tr>
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<td>0-18</td>
<td>4.9</td>
<td>0</td>
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<td>140</td>
<td>70</td>
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<td>20-B</td>
<td>18-48</td>
<td>4.9</td>
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<td>0</td>
<td>140</td>
<td>70</td>
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<tr>
<td>32-A</td>
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<td>4.9</td>
<td>0</td>
<td>0</td>
<td>200</td>
<td>910</td>
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<td>Braekish marsh, peat:</td>
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<td>1,180</td>
<td>360</td>
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<tr>
<td>35-A</td>
<td>0-96</td>
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<td>1,180</td>
<td>360</td>
<td>10,570</td>
<td>2,100</td>
</tr>
<tr>
<td>35-B</td>
<td>96-108</td>
<td>5.6</td>
<td>1,180</td>
<td>360</td>
<td>10,570</td>
<td>2,100</td>
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<td>840</td>
<td>310</td>
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<tr>
<td>31-B</td>
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<td>5.7</td>
<td>840</td>
<td>310</td>
<td>7,120</td>
<td>3,780</td>
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<tr>
<td>Swamp, peat:</td>
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<td>380</td>
<td>70</td>
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<tr>
<td>89-A</td>
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<td>380</td>
<td>70</td>
<td>530</td>
<td>2,530</td>
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<tr>
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<td>380</td>
<td>70</td>
<td>530</td>
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</tbody>
</table>

1 Water-soluble salt values are based on air-dry weight. Determinations made in the field by a modified Wheatstone bridge show lower values, particularly for peats and mucks.

### Literature Cited

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