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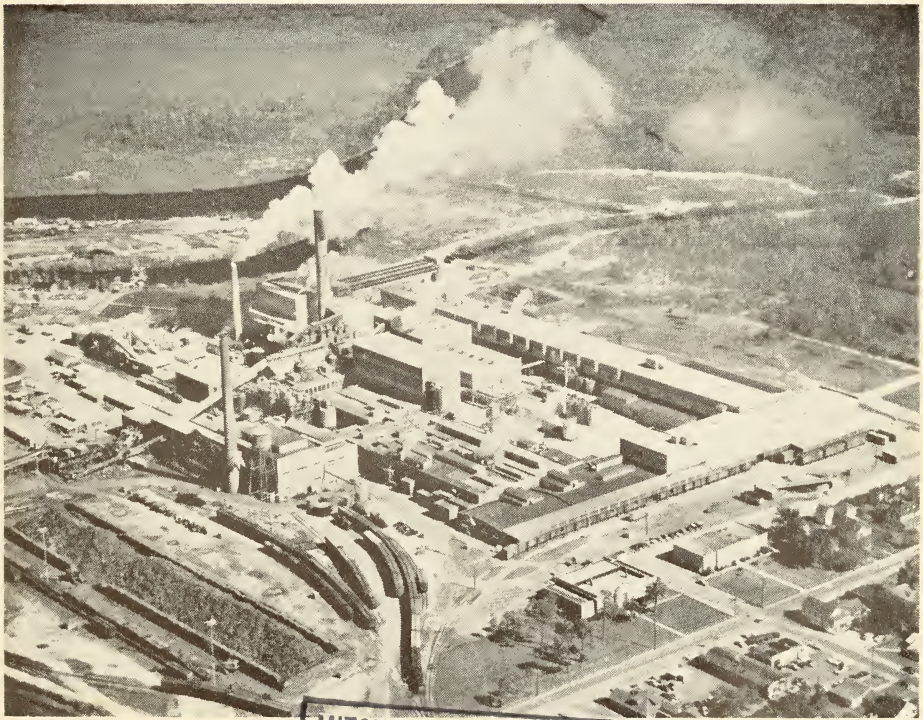

MISSISSIPPI STATE UNIVERSITY

AGRICULTURAL EXPERIMENT STATION

HENRY H. LEVECK, Director

STATE COLLEGE MISSISSIPPI

This bulletin is published to help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodlands; add to the soil scientist's fund of knowledge and aid teachers of science in public schools.

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SURVEY PARTY FOR JACKSON COUNTY

Soil survey made by J. H. Dent and W. A. Cole, Party Chiefs, M. E. Shaffer, L. H. Watts, V. C. Allgood, Soil Conservation Service; R. E. Fulgham, Mississippi Agricultural Experiment Station; and Y. H. Havens, Soil Conservation Service Soil Correlator.

The Mississippi Agricultural Experiment Station cooperated with the Soil Conservation Service to carry out the soil survey of Jackson County.

ON COVER:

This International Paper Mill at Moss Point is one of the major sources of income for farmers of Jackson County. The mill buys a great portion of the county's forest products and employs many people.

Jackson County Soils

By Robert E. Fulgham and H. B. Vanderford

This bulletin describes the soils of Jackson County in detail. It is intended for use with a special soil map of any farm or area of land which may be obtained from the Soil Conservation Service or the County Agent's office in Pascagoula, Mississippi.

This soil survey was conducted as a cooperative effort of the Mississippi Agricultural Experiment Station, the Soil Conservation Service and the taxpayers of Jackson County. The Experiment Station and other agencies involved deeply appreciate the financial support of the Board of Supervisors and the splendid personal cooperation of the citizens of Jackson County.

In order to prepare this bulletin and the map, a county-wide soil survey was made. Soil surveyors with the Mississippi Agricultural Experiment Station and the Soil Conservation Service, working together, studied almost every acre of land in the county. This was done to classify the soils and to find out which are best suited for the various crops, pastures, forests, and other uses.

The soils of Jackson County are not so uniform that every spot in an area mapped as one particular type of soil will be identical. Due to past management and past land use, all of the same soil types will not produce the same crop yields. It must be understood that the different soil types or mapping units will have some range in properties within each soil type.

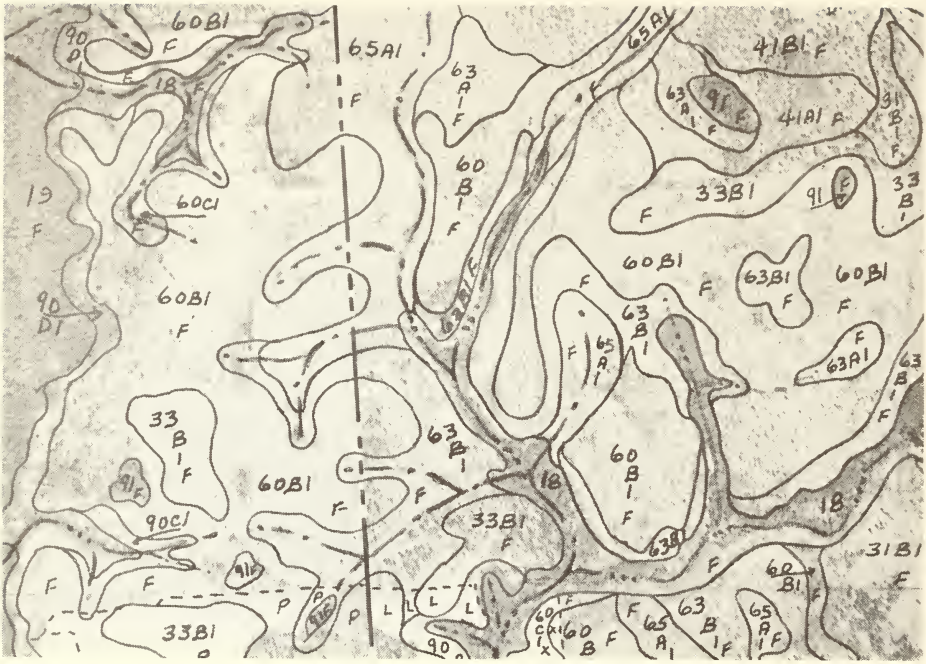
Soils must be examined to a depth of 36 inches or more for proper classification. Often two soils will have identical surface layers, but will differ greatly in the subsoil and therefore have different land uses. The subsoil regulates such important things as water-holding capacity, depth and extent of root growth, leaching of fertilizer and soil temperature which greatly affect plant growth. A cross-sectional view of a soil, including its surface, subsoil and parent material is called a soil profile. For the reasons given above a study of the entire soil profile is very important.

Jackson County is in the extreme southeastern corner of Mississippi. On the north it is bordered by George County, on the west by Harrison County, on the south by the Gulf of Mexico and on the east by Mobile County, Alabama. It is approximately 28 miles square and comprises an area of 744 square miles, or 476,160 acres.

The area now occupied by Jackson County was included among the lands which Spain and France attempted to acquire along the south coast of the new continent. A few descendants of the Latin races live in the county today. The Old Spanish Trail, a few buildings, and the Old Spanish Fort at Pascagoula remain as about the only historical evidence of these settlements in Jackson County. Old United States Highway 90 approximately follows the route of the Old Spanish Trail.

Timber, the greatest natural resource of the county, attracted people of various nationalities, who came to work in the lumber and turpentine industries rather than to acquire land. English, Italian, Russians, and some Germans and Swedes migrated to this region soon after the United States acquired possession and spread out into broadly scattered settlements over the county.

Lumber and forest products have always been important to the growth



Typical area of Jackson County soil map.

of Jackson County. After the Civil War timber was the principal source of income. In the report on the soil survey of the Scranton area made in 1909, it is stated that about 25 lumber mills were in operation at that time. Presently there are two saw-mills with a number of small mills running part-time. With the establishment of the International Paper Mill at Moss Point in 1912, the timber industry has changed from logs to pulp-wood.

During World War II, Ingall's Shipbuilding Corporation was established at Pascagoula, Mississippi. With the prospect of higher wages, many farmers have turned to industry and have planted their land in pine seedlings or let it reproduce naturally. Potentially, Jackson County is one of the most productive counties in the state. It has large, level, sandy fields, with a good water supply only a few feet below surface. When the need arises, these fields can be cleared and, with supplemental irrigation, be made to produce high yields of food crops.

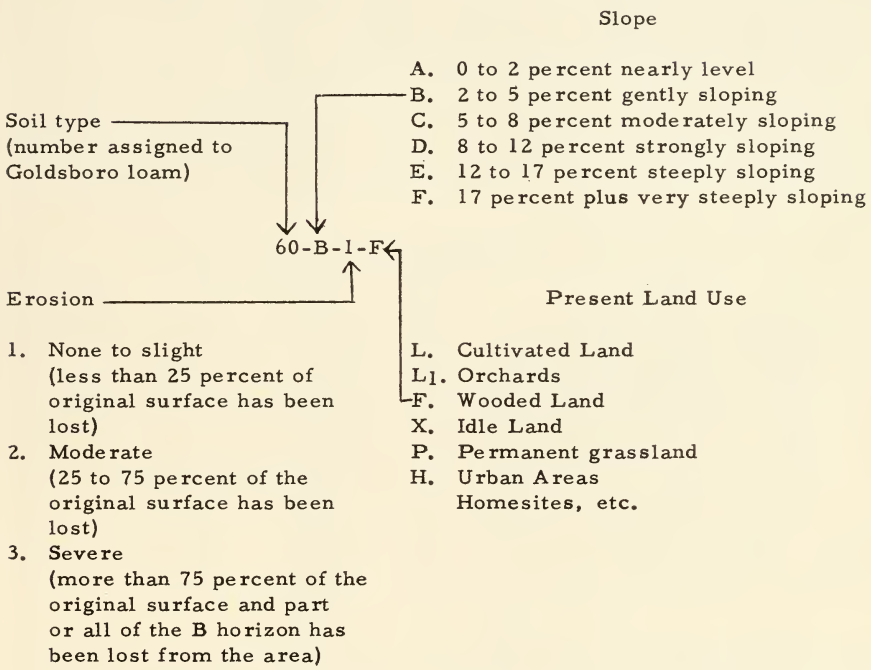
Symbols and Numbers on Soil Map

The first step in using your soil map is to examine it carefully and become familiar with the symbols used to designate certain features found on the land.

Every separate area of soil is identified on the map by a code number. The first number tells the soil type, the letter indicates the percent of slope and the second number is the amount of erosion that has taken place. The combination of the two numbers and the letter is called a mapping unit.

COMPOSITE SOIL SYMBOL

Soil type number - Slope Class - Erosion Class - Present Land Use



For example, 60B1 is analyzed as follows:

60—The soil is a moderately well-drained Goldsboro loam.

B—The soil is a gently sloping soil with a 2 to 5 percent slope.

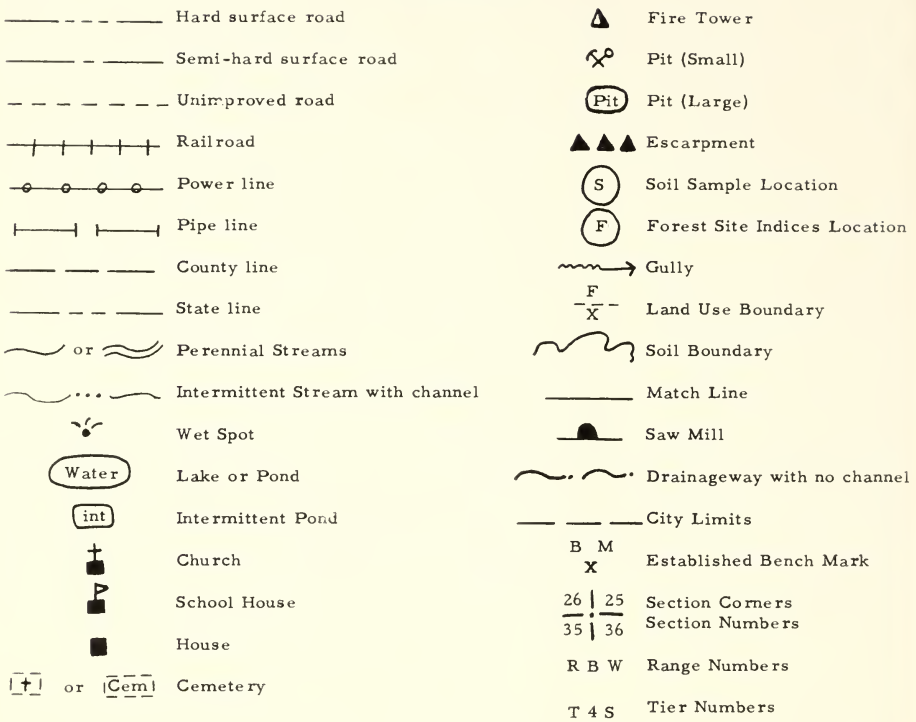
1—The soil is a slightly eroded phase (0 to 25 percent of the original surface may have been lost by erosion).

Land Capability Classes for Jackson County

Several different colors may appear on your map. Each color tells you about the land: whether it is suited for cultivation or not, and the general degree of difficulty or risk involved in its safe use without damage. Each color shows one of eight classes of land that are called land capability classes. The table on land use and management shows the class and color found on the map, and also the subclass, soil type and phase found in each class. The classes are distinguished by Roman numerals as well as by the standard colors.

Classes I and II include the land that is suited for regular cultivation, and Class III can be cultivated if certain limitations are observed. The major hazard is water erosion which can be controlled by use of contours. Classes IV, V, VI, VII are not generally suited for cultivation but may

Mapping Symbols



be used for grazing or forestry. Class VIII land can only be used for wildlife or recreation.

Physical features of the land that make it risky determines the land capability class. On the map these physical features are denoted by three different symbols; "e" erosion, "w" water and "s" soil. Some land is subject to erosion if not properly protected. Other land is naturally wet, so that drains must be installed to lower the water table or remove surface water so crops can be grown. Still other land is shallow or may be very sandy causing other special conditions to arise. These three kinds of limitations make up three possible subclasses of land within each of the land capability classes.

Within Class III land, for example, all three of the land-capability subclasses occur. All Class III land is rather severely limited in its use, although it is suited for cultivation. Often all three of the subclasses—wet soils, sloping land and land with special soil textures may appear on a single farm. They are suited to different crops and should be managed in different ways. The land-capability map shows these subclasses. Table 1 lists the capability class, subclass, soil type and phase. Here are the descriptions of the seven land capability classes that appear in Jackson County:

Class I is very good land that can be cultivated safely with ordinary farming practices. Row crops can be grown intensely, provided legumes for soil building are used and fertilization is adequate.

Class II land is good, but has some limitations. Row crops should be grown on it about one-half time, with a soil builder being grown the remainder of the time. Fertilization will be needed and some conservation practices may be needed. Some of this class will need erosion control measures while other parts will need drainage of various types. Some will need surface drainage, but other areas will need subsurface drainage.

Class III land is moderately good land for cultivation. This land can be used for row crops about one-third of the time provided certain protective measures are observed. Fertilization will be needed with cover crops being grown at least two-thirds of the time. Some land will need erosion control measures while other parts will need drainage both surface and subsurface. There will be a need for supplemental irrigation on some of this class.

Class IV land is best suited to permanent hay, pasture, or forests, but on which row crops can be grown

Table 1. Classes of land and acreage in Jackson County

Class	Color On Map	Sub-Class	Acres	Soil No.	Soil Type and Phase
I	Green	I_1	3,834	31	Ruston and Orangeburg fine sandy loams, A1
			488	32	Orangeburg sandy loam, A1
			3,382	33	Norfolk fine sandy loam, A1
II	Yellow	IIe	12,627	31	Ruston and Orangeburg sandy loams, B1
			19,160	33	Norfolk fine sandy loam, B1
			627	41	Savannah loam, B1
			7,973	43	Bowie loam, B1
			34,858	60	Goldsboro loam, B1
			1,332	62	Fairhope very fine sandy loam, B1
		IIs	3,262	43	Bowie loam, A1
			551	41	Savannah loam, A1
			3,008	57	Lakeland loamy sand, A1, B1
			12,399	58	Eustis loamy sand, A1, B1
		IIw	17,368	60	Goldsboro loam, A1
III	Red	IIIe	3,786	31	Ruston and Orangeburg fine sandy loams, C1
			5,261	33	Norfolk fine sandy loam, C1
			4,795	43	Bowie loam, C1
			6,187	60	Goldsboro loam, C1
			568	62	Fairhope very fine sandy loam, C1
			5,926	82	Susquehanna, Bowie and Boswell soils, B1
		IIIs	4,391	44	Pheba loam, A1, B1
			1,057	57	Lakeland loamy sand, C1
			1,713	58	Eustis loamy sand, C1
			18,409	75	Klej loamy sand
		IIIw	29,850	63	Lynchburg very fine sandy loam, A1, B1
			8,334	64	Dunbar loam, A1, B1
IV	Blue	IVe	1,380	33	Norfolk fine sandy loam, D1
			1,809	31	Ruston and Orangeburg fine sandy loam, D1
			862	43	Bowie loam, D1
		IVs	5,772	75	Klej loamy sand, C1, D1
			357	59	Eustis and Lakeland sands, D1
V	Green	Vs	5,844	68	Coxville silt loam, A1, B1
			974	91	Grady soils
		Vw	47,346	19	Alluvial land
			54,751	65 (77)	Rains loam dark surface phase, A1, B1
			9,896	76 (67)	Bayboro silt loam
			1,904	74	Plummer loamy sands, dark surface phase
			7,247	78	Scranton loamy sands, A1, B1
			14,432	79	Plummer loamy sands
VI	Orange	VIe	476	31	Ruston and Orangeburg fine sandy loams, E1
			11,194	82	Susquehanna-Bowie-Boswell soils, C1, D1
			13,224	90	Sloping and Steep sandy and clayey land, C1, D1, E1
		VIs	324	57	Lakeland loamy sands, D1, E1
			815	58	Eustis loamy sands, D1, E1
			2,833	59	Eustis and Lakeland sands, A1, B1, C1, D1, E1
VII	Brown	VIIw	53,360	18	Swamp
VIII	Purple	VIIIs	2,861	100	Coastal Beach
			1,819	101	Dyne sand
			24,117	99	Tidal Marsh
Miscellaneous			1,500		Made Land

to a very limited extent with soil building and soil conserving crops being grown at least three-fourths of the time. This land will need terraces, contour cultivation, and gully control. It will require liberal and frequent fertilization and some supplemental irrigation at times.

Class V land is suitable for the production of hay, grazing or forest without any particular conservation measures. During dry years some of this land can be used for truck crops provided drainage is applied to remove both surface and subsurface water.

Class VI land can be used for permanent pasture or forest. Care should be exercised to get a good vegetative cover established and it should be maintained at all times.

Class VII land is best suited for grazing or forestry with some severe limitations. The soils in this class are moderately well to poorly drained and are subjected to flooding.

Class VIII land is suitable for wildlife or recreational purposes. Any vegetative cover should be maintained and protected.

Forestry and Its Place in Jackson County

One of the most valuable crops grown in this part of the Coastal Plain region is the pine tree. Long leaf and slash grow rapidly on practically every soil in the county except the very wet swamp land and the brackish marsh. The trees make a remarkable growth on all the Norfolk, Goldsboro, Lynchburg, Ruston, Scranton and Rains; also, they do well on the Susquehanna and Plummer soils. Any failure to consider pine forestry overlooks an opportunity for profitable utilization of the land.

Jackson County's fabulous timber resource offered early settlers opportunity for employment in logging and sawmilling operations. The vast timber wealth also accounted for the growth of certain towns and, in part, for the development of the seaport and railroad facilities; of the 476,160 acres in Jackson County, trees or forest lands account for over 375,000 acres.

On the Eustis, Lakeland and some of the Susquehanna soils grow scrub oaks known as blackjack and turkey oak. Ruston, Norfolk, and Goldsboro soils produce pine with live oak, blackjack, magnolia, and dogwood. On the Plummer, Rains, and Bayboro we find sweet bay, black gum, sweetgum, cypress, and slash pine growing quite well. In the stream bottoms grow the wateroak, willow oak, hickory, sweetgum, tupelo gum, black gum, yellow poplar, ash, cypress, sweet bay, magnolia and several other species. Table 5 gives the expected height of pine trees at maturity.

If the farmers of Jackson County would realize what a substantial return they would get from pine timber, then they would try to protect it. Each spring they let fire and a few head of range-fed cattle destroy countless numbers of pine trees, which, if protected, give promise of ultimately returning more profit than cultivated crops and livestock.

Table 2 includes data on sawtimber and pulpwood cut during the period of 1945 through 1959 and the tax paid on these products:

Table 2. Sawtimber and pulpwood cut in Jackson County.[1]

Year	Sawtimber (Board Feet)	Pulpwood (Cords)	Tax Paid
1945	25,382,000	36,193	$ 4,453.42
1946	17,517,000	40,822	4,692.60
1947	27,870,000	38,782	7,016.34
1948	27,433,000	67,528	8,806.32
1949	17,231,000	50,948	6,861.13
1950	21,288,000	51,794	8,861.98
1951	21,406,000	35,110	8,478.70
1952	22,667,000	41,132	10,109.69
1953	9,371,000	36,031	6,745.29
1954	13,156,000	41,347	6,377.73
1955	13,800,000	41,950	6,916.96
1956	16,007,000	40,881	11,857.47
1957	9,538,000	41,653	11,357.21
1958	8,065,000	35,545	8,976.69
1959	19,752,000	44,853	10,366.13

[1] Source: Mississippi State Tax Commission

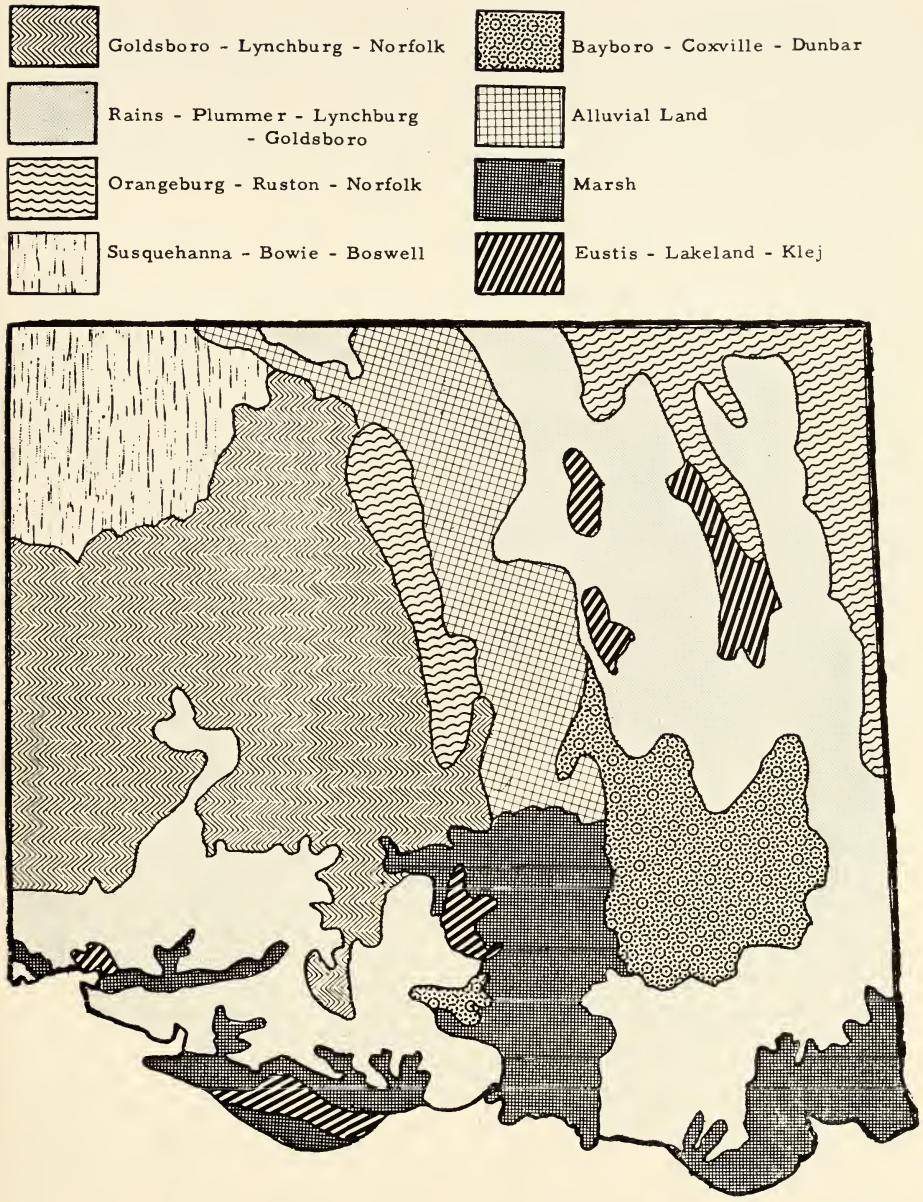

Goldsboro - Lynchburg - Norfolk
Bayboro - Coxville - Dunbar
Rains - Plummer - Lynchburg - Goldsboro
Alluvial Land
Orangeburg - Ruston - Norfolk
Marsh
Susquehanna - Bowie - Boswell
Eustis - Lakeland - Klej

Table 3. Guide for use in determining relative suitability of crops for soils.

Key to Chart 1 — Suited 2 — Poorly suited 3 — Not suited	Coastal Flatwoods Resource Area																		
	Bayboro	Bowie	Coxville	Dunbar	Eustis	Fairhope	Goldsboro	Grady	Klej	Lakeland	Lynchburg	Norfolk	Orangeburg	Pheba	Plummer	Rains	Ruston	Scranton	Savannah
Row Crops																			
Cotton	3	1	2	2	1	1	1	3	1	1	2	1	1	2	3	3	1	2	1
Corn	3	1	3	2	1	2	1	3	1	1	2	1	1	2	3	3	1	2	1
Soybeans	2	1	1	1	1	1	1	3	1	1	1	1	1	2	2	2	1	2	1
Gr. sorghum	2	1	2	1	1	1	1	3	1	1	1	1	1	2	2	2	1	2	1
Small Grain																			
Oats	3	1	2	2	1	1	1	3	1	1	2	1	1	2	3	3	1	2	1
Wheat	2	1	2	2	1	1	1	3	1	1	2	1	1	2	3	2	1	2	1
Barley	2	1	2	2	1	1	1	3	1	1	3	1	1	3	3	2	1	2	1
Rye	2	1	2	2	1	1	1	3	1	1	2	1	1	2	2	2	1	2	1
Rice	1	3	1	1	3	3	3	3	3	3	2	3	3	2	3	1	3	2	3
Ryegrass	2	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	2	1
Grasses																			
C. bermuda	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	2	1
Bermuda	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	2	1
Fescue	2	1	1	1	3	1	2	2	2	3	1	2	2	1	2	2	2	1	1
Dallis	2	2	2	2	3	2	2	3	3	3	2	2	2	2	2	2	2	2	2
Johnson	3	1	3	2	1	1	1	3	1	1	2	1	1	2	3	3	1	3	1
Bahia	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
Sudan	3	1	3	2	1	1	1	3	1	1	2	1	1	2	3	3	1	2	1
Millet	3	1	2	2	1	1	1	3	1	1	2	1	1	2	3	3	1	2	1
Rescue	3	1	2	1	1	1	1	3	1	1	1	1	1	2	2	2	1	2	1
Legumes																			
Wild w. peas	1	1	2	1	2	1	1	2	2	2	1	1	1	1	1	1	1	2	1
Vetch	2	1	2	1	2	1	1	3	1	2	1	1	1	1	2	2	1	1	1
Alfalfa	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Peas, field	2	1	1	1	1	1	1	3	3	2	3	2	2	3	3	3	2	3	1
Les. sericea	3	2	3	3	2	3	2	3	2	2	3	2	2	3	3	3	2	3	2
An. lespedeza	1	1	1	1	1	1	1	3	1	1	1	1	1	1	2	1	1	1	1
Red clover	3	2	3	3	2	2	2	3	2	2	3	2	2	3	3	3	2	2	2
Wh. clover	1	1	1	1	2	1	1	1	1	2	1	2	2	1	1	1	2	1	1
Cr. clover	3	1	3	3	1	2	1	3	1	1	2	1	1	2	3	3	1	3	1
Lad. clover	2	2	2	1	2	2	2	2	1	2	1	1	1	1	2	2	1	2	2
Sweet clover	3	2	3	3	2	2	2	3	2	2	3	1	1	3	3	3	1	3	2
Orchard																			
Apples	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Peaches	–	–	–	–	1	–	1	–	1	–	–	1	1	–	–	–	1	–	–
Pecans	3	1	2	2	1	1	1	3	1	1	2	1	1	2	3	3	1	3	1
Pears	3	1	2	2	1	1	1	3	1	1	1	1	1	2	3	3	1	3	1

SCS MISSISSIPPI October 1960

Source: Prepared in cooperation with Mississippi Agricultural Experiment Station

Woodland Forage and Range Grazing

A stock law, enacted in 1958, has caused a decrease in the number of range cattle in Jackson county. This trend will continue until fences are established and the unrestricted movement of cattle has stopped. Then, woodland and salt marsh grazing will increase again. Improvement management, woodland forage and salt marsh range could increase the annual income of Jackson County by $390,000.

The salt marsh range could support some cattle. Due to high salinity and danger of flash flooding, these lands are not suitable for cultivation or tree growth. Grazing and wildlife are the only significant uses of this land known at present.

Grazing is a secondary use to the production of timber in woodland. Of the 375,000 acres of woodland in the county, 25,000 acres are hardwood. Grazing so seriously damages hardwood timber that it is not recommended for use in a range grazing program. Of the 350,000 acres of pine timber, one-half is so located that it can be grazed. This area could ultimately support about 5,800 cattle. With proper management, pine tree lands can be grazed without appreciable damage. Grazing can greatly

reduce fire hazards by removing slightly less than 50 percent of the forage. This will tend to encourage the spread and increase of desirable forage plants. With the increase of desirable plants more cattle could graze the ranges.

Engineering Uses

Soil surveys are being used increasingly in engineering work, especially in highway planning and construction, and in urban development areas. The basic facts about soils needed to predict their behavior in agricultural fields include most of those needed to predict their behavior as subgrades or foundation materials. The several soil properties have different relevancies for the two interpretations—agricultural and engineering—but the basic classification serves for both.

Soil maps are helpful in planning locations for structures and for predicting the problems of construction to be dealt with. They are useful in locating such materials as sand, clay and suitable "topsoil" for dressing road banks and graded yards. In home construction soil maps can be used to locate septic tank drainage fields so they will function properly. Table 4 gives the rating of each soil for its drainage possibility. Also, the map will show the areas that will not allow a drainage field to operate. A person would want to investigate these areas more thoroughly before he builds his home.

Table 4 gives some of the engineering ratings of the soils found in Jackson County.

Soil Series in Jackson County

Bayboro Series: This series includes poorly drained, shallow soils in the Flatwoods Area of the Coastal Plains. These soils have been formed from thick beds of acid clays. They have a black silt loam surface with a dark gray mottled firm sandy clay loam subsoil. During prolonged wet seasons, Bayboro soils are covered with water because the series occurs only on level or nearly level areas. The high water table prevents the downward movement of water through the solum. The Bayboro soils are inherently low in fertility, very strongly acid, and have a low available moisture capacity. With proper drainage this series can become very productive.

Bowie Series: This series is composed of medium-textured, moderately well to well-drained upland soils. They were developed from acid loams and sandy loams of the lower Coastal Plain. They have a brownish-yellow loam to very fine sandy loam surface with a friable subsoil that is a strong brown loam in the upper part, but is splotched with red in the lower part. Bowie soils in this area usually contain few to many iron concretions throughout the soil profile. They are associated with Savannah and Goldsboro soils. The Bowie soils are inherently low in fertility, but moderate in available moisture capacity and very strongly acid. They are very responsive to good management, and are, therefore, important to agriculture in this county.

Boswell Series: These soils are developed over acid clayey sediments with subsoils of firm clay that is red in the upper part and strongly mottled below. The Boswell series is associated with the Bowie and Susquehanna soils. The surface is a yellowish brown fine sandy loam; whereas, the subsoil is a mottled yellowish-red firm clay. Boswell soils are inherently low in fertility and very strongly acid. This series generally has a shallow topsoil causing the rate of runoff to

Table 4. Engineering Ratings of Jackson County Soils.

Soil Type	Permeability[1]	Shrink-Swell Potential[2]	Structure Foundation Material	Septic Tank Location	Remarks
Bayboro	Slow	Moderate	Fair to Poor	Poor	High Water Table
Bowie	Moderate to Slow	Moderate to low	Fair to Good	Fair to Poor	Clayey Subsoil
Beach	Rapid	None	Good	Good	Normally not used for house sites
Coxville	Slow	Moderate	Fair to Poor	Poor	Clayey Soil
Dunbar	Moderate to Slow	Moderate to low	Fair to Poor	Poor	Clayey Subsoil
Eustis	Rapid	None	Good	Good	
Fairhope	Slow	Moderate	Fair to Poor	Poor	Clayey Soil
Goldsboro	Moderate	Low	Fair to Good	Good	
Grady	Slow	Moderate	Poor	Poor	High water table—Clayey subsoil
Klej	Rapid	None	Good	Good	
Lakeland	Rapid	None	Good	Good	
Lynchburg	Moderate	Low	Fair to Good	Fair	High water table
Norfolk	Moderate	Low	Good	Good	
Orangeburg	Moderate	Low	Good	Good	
Pheba	Moderate to Slow	Low	Fair to Good	Poor	High water table—Fragipan
Plummer	Rapid	None	Good	Poor	High water table—Fragipan
Ruston	Moderate	Low	Good	Good	
Rains	Moderate	Low	Fair to Good	Poor	High water table—Fragipan
Savannah	Moderate to Slow	Low	Good	Fair to Poor	Fragipan
Susquehenna Bowie, Boswell	Slow	Moderate	Fair to Poor	Poor	Clayey Subsoil

[1] Permeability is that quality of the soil that enables it to transmit water. Rates are expressed in inches per hour.
Rapid — 5.00 to 10.00
Moderate — 0.20 to 5.00
Slow — less than 0.05 to 0.20

[2] Shrink-swell potential is the capacity of a soil to expand during a period of wet weather and then contract during a period of dry weather.
None — Will have no movement as it dries after it has been saturated with water.
Low — Will have very little movement during the wetting and drying process.
Moderate — Will have some movement during the wetting and drying process.

be very high. The available water holding capacity is low. They are used mostly for forest land.

Coxville Series: This series includes shallow soils over plastic clays of the Coastal Flatwoods. They have been developed from thick beds of fine sandy clays and clays. The depth to the clay is variable. The surface is a very dark-gray silt loam with a gray very firm clay subsoil that is mottled with red and yellow colors. Since Coxville soils have a shallow topsoil and a heavy plastic subsoil, the rate of runoff is high; the available water holding capacity is low. They are inherently low in fertility and very strongly acid. Soils of this series are best suited for pasture with limited grazing, or for trees. They have little value as agricultural soils.

Dunbar Loam: This series includes those soils of the Coastal Flatwoods that are medium-textured, moderately deep and somewhat poorly drained. These soils have been derived from thick beds of acid sandy clay loams and finer sandy loams. They are underlain by fine-textured clays. They have a surface of black, very fine sandy loam with a subsoil that is a pale-yellow silty clay loam that contains many distinct mottles of yellow, pink and red color. These soils are locally associated with the Norfolk, Coxville and Lynchburg. Dunbar soils occur on nearly level and gentle slopes with little to no erosion. The available water capacity is low. They are inherently very low in fertility and very strongly acid. During periods of dry weather these soils will respond to management and produce very good truck crops.

Eustis Series: This series includes very deep, excessively drained coarse sandy loams and loamy sands. These soils have been developed from thick beds of acid marine sands and in many cases, overlie finer textured sediments. This series is associated with the Lakeland, Ruston and Klej series. It has a dark gray, loose, loamy sand surface and a yellowish-brown loamy sand subsoil. Eustis soils are inherently low in fertility, have a low to very low available moisture capacity, and they are strongly acid. Due to high rainfall during the growing season in Jackson County, Eustis coarse sand loams and loamy sands are important to agriculture here. They are used mainly for watermelons, followed by pasture for 5 to 7 years, then another watermelon crop is grown.

Fairhope Series: These soils are moderately deep, somewhat poorly to moderately well-drained soils developed from beds of acid clays, fine sandy clays and clay loams. They have a brown very fine sandy loam surface with a yellowish-red firm loam to clay loam subsoil. Fairhope soils are associated with Boswell, Bayboro and Rains soils. They are inherently low in fertility and are very strongly acid. Also, they have a relatively low to moderate available moisture capacity. They occur in relatively small scattered areas of the Coastal Flatwoods and are not important to the agriculture of Jackson County.

Goldsboro series: This series includes deep medium-textured, moderately well-drained soils in both the Lower Coastal Plain and Coastal Flatwoods. They are formed from thick beds of unconsolidated acid sandy loam and sandy clay loams. The Goldsboro series is associated with the Norfolk, Lynchburg, and Ruston soils. The soils have a gray to grayish-brown loam surface and a yellowish-brown to olive-brown loam subsoil. They are strongly acid, inherently low in fertility, but with a moderate

Table 5—Estimated Average Yields of Principal Crops Under Good Management For The Soils of Jackson County.

Soil Type & Phase	Corn Bu. A[1]	Corn Bu. B[2]	Oats Bu. A	Oats Bu. B	Pastures, Acres Per Animal Unit[3] A	Pastures, Acres Per Animal Unit[3] B	Forest Site Indices[4] Long Leaf	Loblolly	Slash
Bayboro silt loam	—	—	—	—	3	—	—	89	88
Bowie loam									
Nearly level phase	45	60	25	40	4	2½	85	90	89
Gently sloping phase	45	60	25	40	4	2½	85	90	89
Moderately sloping phase	35	50	20	35	5	3	85	90	89
Strongly sloping phase	—	—	—	—	—	—	75	85	82
Coxville silt loam	—	—	—	—	5	4	—	88	87
Dunbar loam									
Nearly level phase	—	—	—	—	4	3	93	95	90
Gently sloping phase	—	—	—	—	4	3	93	95	
Eustis loamy sands									
Gently sloping phase	45	55	30	40	4	2	75	—	89
Moderately sloping phase	45	55	30	40	4	2	75	—	89
Steeply sloping phase	—	—	—	—	—	—	75	—	88
Sandy and Clayey land									
Sloping phase	—	—	—	—	—	—	65-80	65-90	70-90
Steeply sloping phase	—	—	—	—	—	—	65-80	65-90	70-90
Eustis-Lakeland sands									
Gently sloping phase	—	—	—	—	—	—	68	—	—
Strongly sloping phase	—	—	—	—	—	—	65	—	—
Fairhope very fine sandy loam									
Nearly level phase	—	—	—	—	5	4	85	88	87
Gently sloping phase	—	—	—	—	5	4	85	88	87
Moderately sloping phase	—	—	—	—	5	4	80	82	81
Goldsboro loam									
Nearly level phase	50	60	30	40	4	2	80	94	93
Gently sloping phase	50	60	30	40	4	2	80	94	93
Moderately sloping phase	50	60	30	40	4	2	78	90	89
Klej loamy sands									
Gently sloping phase	50	60	30	40	4	2	70	89	85
Moderately sloping phase	50	60	30	40	4	2	70	89	85
Lakeland loamy sands									
Gently sloping phase	45	55	30	40	4	2	82	—	87
Moderately sloping phase	45	55	30	40	4	2	80	—	87
Steeply sloping phase	—	—	—	—	—	—	80	—	85
Lynchburg very fine sandy loam									
Nearly level phase	—	—	—	—	4	3	80	96	88
Gently sloping phase	—	—	—	—	4	3	80	96	88
Norfolk fine sandy loam									
Nearly level phase	50	80	30	60	4	1½	81	85	85
Gently sloping phase	50	80	30	60	4	1½	81	85	85
Moderately sloping phase	40	70	30	60	4	1½	76	80	80
Strongly sloping phase	—	—	—	—	4	2	76	80	80
Pheba loam									
Nearly level phase	—	—	—	—	4	2	74	90	89
Gently sloping phase	—	—	—	—	4	2	74	90	89
Plummer loamy sands	—	—	—	—	5	3	—	92	90
Rains dark surface loam phase	—	—	—	—	5	3	—	94	91
Orangeburg fine sandy loam									
Nearly level phase	50	80	30	60	4	1½	85	89	89
Ruston and Orangeburg fine sandy loams									
Nearly level phase	50	80	30	60	4	1½	83	89	89
Gently sloping phase	50	80	30	60	4	1½	83	89	89
Moderately sloping phase	—	—	—	—	—	—	74	80	80
Strongly sloping phase	—	—	—	—	—	—	70	75	75
Steeply sloping phase	—	—	—	—	—	—	70	75	75
Savannah loam									
Nearly level phase	45	60	25	40	4	2	85	90	90
Gently sloping phase	45	60	25	40	4	2	85	90	90
Scranton loamy sands									
Nearly level phase	—	—	—	—	4	2	—	95	90
Gently sloping phase	—	—	—	—	4	2	—	95	90
Susquehanna—Bowie & Boswell loam									
Gently sloping phase	—	—	—	—	5	4	77	83	81
Moderately sloping phase	—	—	—	—	5	4	72	81	80
Strongly sloping phase	—	—	—	—	—	—	72	81	80

[1] - Common Management
[2] - Good Management
[3] - An animal unit is equivalent to one mature cow, steer or horse, five hogs, or seven sheep or goats.
[4] - Height in feet when trees are 50 years old.

available moisture capacity. Under proper management these soils have considerable agricultural significance. Most of the corn and small grain in the county is produced on this soil.

Grady Series: These soils include a shallow moderately coarse textured to medium textured poorly drained soils over a clay in depression-like areas that occur in both major soil areas. Areas mapped in this county are commonly called Grady ponds which are conspicuous because of the dense growth of gum, bay, or cypress trees. Many areas have a slight slope from the outer rim to the center, but a fairly large number of areas are predominately level. Many of the depressions serve as collecting basins, or natural drainageways for seepage or runoff waters from adjacent slopes. In some saucer-like depressions, water stands on the surface a great part of the time and may remain most of the year. The surface texture may vary from a sandy loam to a silt loam while the subsoil may vary from a solid dark clay to a distinctly mottled gray clay. These soils are inherently low in fertility, very strongly acid and are of little use agriculturally.

Klej Series: This series includes deep coarse-textured moderately well-drained soils of the Lower Coastal Plain. These soils have been formed from thick beds of acid loamy sands and sandy clay loams. Klej soils are associated with the Lakeland, Norfolk, Eustis and Scranton soils. These series have a very dark grayish-brown loose coarse sandy loam with a brownish-yellow very coarse sandy loam in the subsoil. The Klej soils are inherently low in fertility with a low available moisture capacity. They are very strongly acid. With proper management, early truck-crops can be grown profitably.

Lynchburg Series: These soils include moderately deep to shallow, medium-textured somewhat poorly drained upland soils common to the Coastal Flatwoods. These soils are developed from unconsolidated beds of acid loamy sands and sandy loams. They are associated with the Norfolk, Goldsboro, Dunbar and Rains soils. They have a very dark-gray, very fine sandy loam surface with a pale yellow fine sandy loam subsoil that is mottled with brown and yellowish-red mottles. They have a moderate available moisture capacity. Lynchburg soils are low in inherent fertility and are very strongly acid. Under proper drainage the Lynchburg soils will improve as an agricultural soil.

Lakeland Series: This series includes very deep excessively drained and somewhat excessively drained coarse sandy loams and loamy sands. These soils were formed from thick beds of acid marine sands and loamy sands which in some cases overlie finer textural sediments. In this area, they are associated with the Norfolk and Eustis series. They have a dark grayish-brown loose loamy sand surface with a brownish-yellow sandy loam subsoil. They are inherently low in fertility and very strongly acid. Except as a place for early truck crops, they are not important to agriculture.

Norfolk Series: This series is composed of rather coarse-textured, well drained soils that have been formed from thick unconsolidated beds consisting chiefly of acid sandy clay loams, in which there are layers of sand, loamy sands, sandy loams and loams. In this area, they are associated with Lakeland, Bowie and Goldsboro. Soils in the Norfolk series have gray fine sandy loam surface

Where it can not be drained, Class Vw land (Rains loam) can be made productive by planting slash pine trees on it. Slash pine is well adapted to the wet, sandy "meadows" in Jackson County. (Courtesy of Soil Conservation Service)

with yellowish-brown sandy loam subsoil. They have a moderate available moisture capacity, and inherently low in fertility, and very strongly acid. They are some of the more important agricultural soils in the county.

Pheba Series: These soils were derived from unconsolidated beds of acid sands and sandy clays of the Coastal Plain. They include those soils having a medium-textured to moderately coarse-textured surface with a moderately coarse-textured surface with a moderately-fine textured subsoil over a fragipan. Pheba soils found in Jackson County have a very dark-gray loam surface with a mottled yellowish-brown clay loam over a weak pan in the subsoil. They are associated with the Lynchburg and Savannah soils. They are inherently low in fertility, with a moderate available moisture capacity. The Pheba series is very strongly acid. Since these soils occur in small areas throughout the county, they are not significant to the agriculture of Jackson County.

Plummer Series: This series includes coarse-textured, poorly to very poorly drained Low Humic Gley soils occurring in the Flatwoods area of the Gulf Coastal Plains. These soils were formed from thick beds of acid sands and loamy sands. They have a very dark-gray fine sandy loam surface and a grayish-brown sandy loam subsoil, mottled with pale-brown and yellowish-brown. These soils are of very little agricultural value because

Where it can be drained and when it has been fertilized, Class Vw land (Rains loam) will produce good pasture for livestock. (Courtesy of Soil Conservation Service)

of their sandy texture and poor drainage. Water stands on them for long periods during wet seasons. Surface drainage is usually difficult since the soils occur primarily on level or nearly level relief. The water table usually prevents downward movement of the water. Plummer soils are inherently very low in fertility and have very poor moisture and plant relations. They are very strongly acid.

Rains Series: This series includes poorly to very poorly drained soils formed from thick beds of acid sandy loams and sandy clay loams of the Lower Coastal Plains. They have a black surface texture of very fine sandy loam and mottled gray and yellowish-brown sticky sandy clay subsoil. They are associated with the Plummer, Scranton, and Lynchburg soils. They have a moderate available moisture capacity and are inherently low in fertility. Rains soils are very strongly acid. Without good drainage, these soils have little or no agricultural value except for pasture and trees.

Orangeburg Series: This series includes the well drained soils developed from beds of unconsolidated acid sands and sandy clays of the Lower Coastal Plain. They have a brown surface; however, there is a tendency for some of the surfaces in this area to be grayer than modal. The surface is fine sandy loam and the subsoil is red firm sandy clay loam. Orangeburg soils are inherently moderate in fertility, have a moderate to good available moisture capacity, and are very strongly acid.

These soils occur mostly in the northeast section of Jackson County near the George County and Alabama line. When they occur, these soils are important to the agriculture of this County. Orangeburg soils seldom occur on slopes greater than 2 percent.

Ruston and Orangeburg Series: Soils in this unit are very deep, moderately coarse-textured well drained soils developed from friable coastal plain acid sandy loams and sandy clay loams. They have a grayish-brown sandy surface. Ruston soils have a reddish-brown or yellowish-red sandy clay loam to sandy clay subsoil. Orangeburg soils have a red sandy clay loam to sandy clay subsoil. They have a high available moisture capacity and in general a good water-plant relationship exists. They are moderate in inherent fertility and are very strongly acid. These soils are considered to be among the best soils in the county. From an agricultural standpoint, they are very important.

Savannah Series: This series includes medium-textured, moderately deep over a fragipan, moderately well drained soils. They were developed from unconsolidated beds of acid sands and sandy clays of Coastal Plains origin. The surface is a dark grayish-brown loam to silt loam while the subsoil is a yellowish-brown loam. The Savannah soils are associated with Norfolk, Ruston and Goldsboro. They are moderate in inherent fertility and have a moderate available moisture capacity. Savannah soils are very strongly acid. In the northeast part of the county they have a considerable agricultural significance.

Scranton Series: This series includes those deep, moderately coarse-textured, somewhat poorly drained to poorly drained soils occurring in the red-yellow podzolic region. These soils have been developed from thick beds of acid loamy sands and sandy loams in the Flatwoods area of the Coastal Plains. In this area, they occur with a very dark gray very friable, very fine sandy loam with a subsoil of a pale-yellow, very mottled friable loamy sand. Scranton soils occur on level to gently sloping land. They are inherently low in fertility, very strongly acid, and they have a very low available moisture capacity.

Susquehanna Series: These soils are derived from thick beds of acid clays. They are associated with Boswell soils. These series have a gray fine sandy loam surface with a reddish-brown mottled silty clay to clay subsoil at 5 inches deep. The Susquehanna soils are inherently low in fertility and very strongly acid. Due to these characteristics, they are not used for row crops, but are best suited to grass and trees.

Land Types

Alluvial Lands: This land type is primarily found in the bottoms along the Pascagoula and Escatawpa Rivers. Bottoms included in this unit are overflowed several times nearly every year. The surface layers range from a sand to a silty clay with a subsoil of stratified material that may range from a loamy sand to a silty clay. Soils in this unit are heavily forested with a considerable area of burned, cutover timberland that has become a dense entanglement of vines, briers and brush. Trees found in this area include the cypress, tupelo gum, black gum, sweetgum, willow oak, water oak, ash, ironwood, with some holly, over cup oak, live oak, and an occasional spruce pine. There are a few hammocks of loblolly pine.

Coastal Beach: Coastal Beach is composed entirely of sand. It occurs in a relatively narrow band along the beach of the Mississippi Sound. The slope has a range of 0 to 5 percent. The surface contains single grains of white, yellow, pale-brown and black sand. Below 36 inches the pale brown, loose, coarse sand has no reaction to the acidity test. The Coastal Beach has little value to agriculture, but is used for recreation and wildlife.

Dune Sand: Dune sand is composed entirely of sand. It occurs on the islands that border the coast line of Jackson County. It is different from Coastal Beach in that it occurs in mounds up to 20 to 25 feet high. It is shifted from time to time by water and high winds during storms.

Swamp: This includes moderately deep, coarse to medium textured poorly drained conditions occurring along stream bottoms, depressional areas, and intermittent drainageways. Soils in this unit usually contain a relatively high amount of organic matter and may be stratified with mineral soil. With normal rainfall, water may stand on or above the surface most of the year. Characteristic vegetation is a dense growth of bay, tupelo gum, titi, bamboo and gallberries. Soils included in this swampy condition are usually inherently low in fertility, have a variable available moisture capacity. They are strongly acid, and they occur on level to gentle slopes.

Tidal Marsh: Tidal marsh comprises several large areas in Jackson County, the most important two being the broad strip extending several miles up the lower Pascagoula River and its tributaries and that in the southeastern corner of the county. The marsh has a very variable surface and subsoil. It varies from a black mucky-type soil to a dark gray silty clay. The area comprising the Pascagoula River marsh is cut up with meandering streams and bayous causing large areas of marsh to be isolated from other lands. A dense growth of big cord grass, smooth cord grass and common reed comprises most of the area in the Pascagoula River marsh.

Methods Used in the Soil Survey of Jackson County

You can't just look at the topsoil and tell the type land that you own. You must look inside, examine the layers that are under the surface and interpret what you find.

Soil scientists walked over each field in the county and examined the soils frequently by boring holes with an auger or digging with a spade. They also studied exposures of soils in banks, road cuts and pits in the county.

Each boring or hole revealed a series of distinct layers. These layers are called horizons and collectively form the soil profile. The A horizon consists of the surface soil and subsurface soil; the B horizon, the subsoil; and the C horizon, the parent material from which the soil is formed. Arrangements and thickness of the different layers or horizons help to characterize the soil.

Properties such as texture and color usually vary in the different layers, or horizons, of the soil. The surface layer is usually gray or brownish gray and the subsoil darker in color. Mottling is usually greater in the lower layers than the surface. The following characteristics were considered:

Texture: The content of clay, silt and sand in a soil determines its texture. Texture is first judged by the feel and to some extent by the appear-

ance of the soil. This may be later checked mechanically by laboratory analysis. The finest particles in the soil are called clay. Individual clay particles are so fine that they can scarcely be seen with a microscope. Soils that consist principally of clay are usually sticky when wet and rather hard when dry. Water moves slowly through clay soil; they retain moisture and plant nutrients well, but may not release them for plants.

Silt is the medium-sized particles which are large enough to be seen with a microscope. These soils are smooth and velvety; they are not so hard when they dry and are not so sticky when wet as clay soils.

Sand is the largest of the particles that make up a soil. You can see the individual particles with the naked eye. Water moves rapidly through sandy soils and they hold very little water for the use of the plants. For

Table 6—Mapping Units, Total Acres, and Percent of Jackson County Soils

Mapping No.	Soil Name	Total Acres	% County
13	Swamp	3.360	11.0
19	Alluvial land	7,346	9.7
31A1	Ruston and Orangeburg fine sandy loam	3,834	.8
31B1		12,627	2.6
31C1		3,786	.8
31D1		1,809	.4
31E1		476	.1
32A1	Orangeburg fine sandy loam	488	.1
33A1	Norfolk fine sandy loam	3,382	.7
33B1		19,160	4.0
33C1		5,261	1.1
33D1		1,380	.3
41A1	Savannah loam	551	.1
41B1		627	.2
43A1	Bowie loam	3,262	.7
43B1		7,973	1.7
43C1		4,795	1.0
43D1		862	.2
44A1	Pheba loam	3,494	.7
44B1		897	.2
57(0-5)1	Lakeland loamy sands	3,008	.7
57(5-8)1		1,057	.2
57(8-17)1		324	.1
58(0-5)1	Eustis loamy sands	12,399	2.5
58(5-8)1		1,713	.4
58(8-17)1		815	.2
59(0-8)1	Eustis and Lakeland sands	2,486	.5
59(8-12)1		357	.1
60A1	Goldsboro loam	17,368	3.6
60B1		34,858	7.1
60C1		6,187	1.3
62A1	Fairhope very fine sandy loam	367	.1
62B1		1,332	.3
62C1		568	.1
63A1	Lynchburg very fine sandy loam	15,378	3.2
63B1		14,472	3.0
64A1	Dunbar loam	7,287	1.6
64B1		1,047	.2
65A1 (77)	Rains loam, dark surface phase	50,177	10.3
65B1		4,574	1.0
67-76	Bayboro silt loam	9,896	2.0
68A1	Coxville silt loam	5,376	1.1
68B1		468	.1
75(0-5)1	Klej loamy sands	18,409	3.8
75(5-12)1		5,772	1.2
78A1	Scranton loamy sands	6,438	1.4
78B1		809	.2
79	Plummer loamy sands	14,432	3.1
74	Plummer loamy sands, dark surface phase	1,904	.4
82B1	Susquehanna, Bowie and Boswell loam	5.976	1.3
82C1		7.030	1.5
82D1		4,114	.9
90C1	Sloping sandy and clayey land	3,332	.7
90D1		4,764	1.0
90E1	Steep sandy and clayey land	5,138	1.1
91	Grady soils	974	.2
99	Tidal marsh	24.117	4.9
100	Coastal Beach sand	2.861	.6
101	Dune sands	1.819	.4
	Made land	1,500	.3
	Misc.		.8
		476,160	100.0%

In Jackson County, a corn-Bahia rotation is the most used farming practice. (Courtesy of Soil Conservation Service)

this reason, extremely sandy soils are very droughty and would be of very little use agriculturally except for the high rainfall that occurs during the growing season here in Jackson County.

Structure: This is the arrangement of the individual soil particles into aggregates. When dry some soils are loose and crumbly; others can be broken into block-like clods and still others have small platelike pieces. The structure of a soil determines how air, water and roots penetrate the soil.

Drainage: Color of the subsoil indicates the type of internal drainage a soil has. In Jackson County, there is a wide range in drainage, which causes differences in crop suitability. The terms used to indicate drainage are excessively drained, well-drained, moderately well-drained, somewhat poorly, and poorly drained.

Color: Besides drainage, color indicates the amount of organic matter that is in a soil. In Jackson County most of the black surfaces soils are caused by organic matter and stains from the charcoal and many forest fires in the woods. Well-drained soils have either red, yellow or brown colors; whereas, the somewhat poorly drained soils have gray or red mottlings appearing at 18 inches.

Chemical Properties: They tend to indicate the way in which soils were

formed. Since most of Jackson County is recent marine deposits, you will find the soils to be low in fertility, strongly acid and sandy.

Topography or lay of the land: Definite combinations of soil profile characteristics are usually associated with topography. Some soils always occur in the wide flats, locally called meadows, while other soils occur on the sharp breaks along the bayous in the county. Different combinations of these soil characteristics are the basis for separating one soil from another. The kinds of soil were classified into soil series, type phases, complexes and undifferentiated units.

Soil Series: These are groups of soils similar in almost every respect except the texture of the surface layer. Therefore, a series is composed of soils with essentially the same color, structure and other important internal characteristics, the same natural drainage conditions and the same range in relief.

Within a soil series are one or more soil types, defined according to the texture of the surface layer. Thus the class name of the soil texture, such as sandy loam, silt loam or loam is added to the series to give the complete name of the soil type.

One soil type may occur on several different slopes and have different degrees of erosion. These differences in slope and erosion are shown by the use of soil phases. For example,

This road serves as an access road, a drainageway, and a fire break. (Courtesy of Soil Conservation Sevice)

Goldsboro loam, gently sloping phase (slope, 2 to 5 percent) and Goldsboro loam, moderately sloping phase (slope 5 to 8 percent) are two phases of the same soil type. These two phases have different management problems. The greatly sloping phase can be cultivated; whereas, the moderately sloping phase is too steep for practical cultivation.

Some of the soils are placed in soil areas called **complexes.** These are areas where two or more soils that are associated together are found in such an intricate pattern that separation is impractical. They are mixtures of soils and a model profile cannot be defined. (Example—Susquehanna, Bowie and Boswell soils.)

At times you will find profiles which do not occur in regular geographic associations. You may find one or both of the soils together, but you could not separate them. These are placed in a unit known as an **undifferentiated soil unit.** (Example—Eustis and Lakeland Sands.)

Miscellaneous land types are used in soil classification and mapping for areas where the soils are so intricately associated that it is impossible to classify them or where there is not a definite soil profile. Alluvial Soils, Coastal Beach, and Tidal Marsh are examples of Miscellaneous land types.

In making the map of this County, soil surveyors have shown the location of each of the soil types, phases, complexes and undifferentiated units in relation to roads, houses, streams, lakes and other local cultural and natural features of the landscape.