

SOIL SURVEY OF ANDERSON COUNTY, TEXAS.

By WILLIAM T. CARTER, Jr., and A. E. KOCHER.

LOCATION AND BOUNDARIES OF THE AREA.

Anderson County is situated in the central eastern part of Texas, and comprises a land area of 683,904 acres, or approximately 1,069

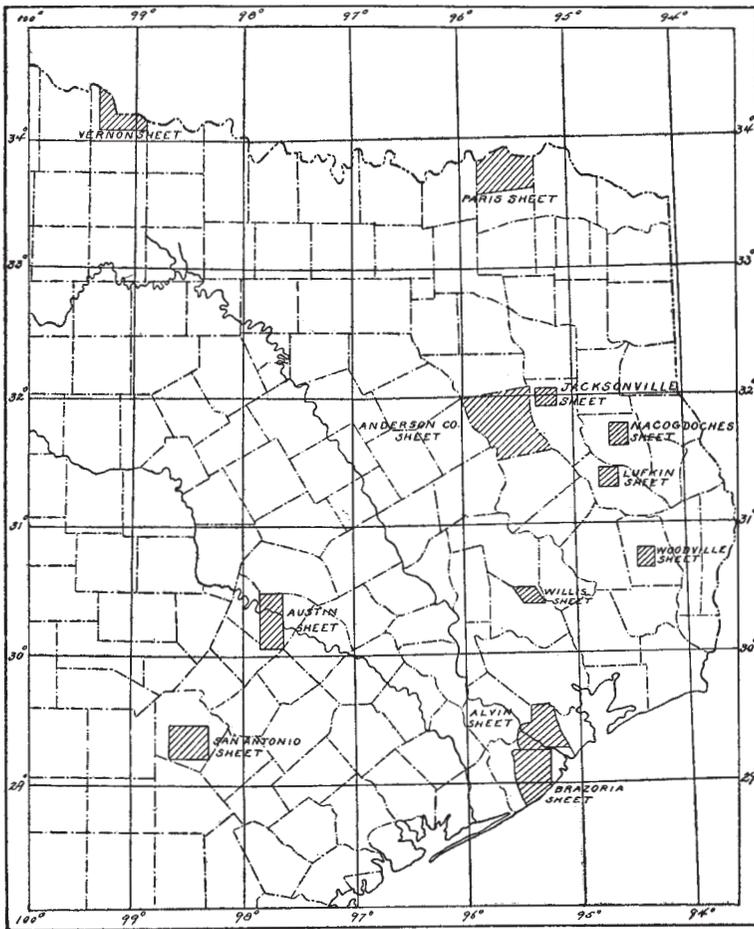


FIG. 16.—Sketch map showing location of the Anderson County area, Texas.

square miles. The county is of irregular outline, and is bounded on the north by Henderson County, on the east by Cherokee County, on the south by Houston County, and on the west by Leon and Freestone

counties. The Neches River forms the eastern, while the Trinity River marks the western boundary of the county.

HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

Anderson County was organized in 1846 from a part of Houston County, the latter having been formed in 1839 from a part of Nacogdoches County.

In 1837 a few immigrants from Georgia and other Southern and Eastern States made a settlement 2 miles southwest of where the town of Palestine now stands. This was the first white settlement in what is now Anderson County. At that time Indians were numerous and hostile, and the settlers had to build a fort and stockade as a protection against their attacks. This fort was called Fort Houston, a name closely associated with the early history of the State. During the first few years only a small area of land near the fort was cultivated, the products being corn and vegetables.

About 1840 the settlers commenced clearing land and building homes throughout the county. The Republic of Texas in 1836 had passed a law granting a married man a league and a labore,^a and an unmarried man one-third of a league of land. A few years later this law was changed so that a married man received 320 acres, and an unmarried man 160 acres. No charge was made for this land, except that each man was required to pay the cost of the survey and certain small fees for certification, title, etc. Prompted by these generous concessions, immigrants from the older States—chiefly those of the South—gradually came in and settled the country, Anderson County receiving a fair share of the newcomers.

The early settlers lived in a very primitive manner. Markets and large towns were far away, and transportation facilities were crude. The first crops were corn and vegetables. In a few years, however, cotton was being cultivated, as well as enough wheat to supply the wants of the settlers. Rye and oats were also grown. In later years small mills were erected for grinding the grain, and the production of cotton increased rapidly. Up to the time of the civil war the principal crops of Anderson County were corn, cotton, oats, and some wheat. No wheat has been grown since the civil war.

The first markets were Houston, Tex., and Shreveport, La. These were reached by ox teams with heavy wagons. The Gulf ports were reached by rafting down the Trinity River. These places, although at a considerable distance from Anderson County, brought the settlers into close communication with the larger markets of the country.

^a A league is 4,500 acres, and a labore is 177 acres.

Cotton was the only product shipped from the county prior to the civil war.

In 1872 the first railroad, known as the International, was built through Anderson County. Two years later the Great Northern was extended through the county from Houston. Later these two roads were consolidated under the name International and Great Northern. After the introduction of railway facilities had established ready communication with outside markets, the county grew rapidly in population, a new life was infused into its agricultural industries, and land increased in value, especially near the railroads.

During the last few years it has been found that the soils and climatic conditions are favorable to the production of fruit of a high quality, and good yields are being obtained. Encouraged by the success of fruit growers in near-by counties where conditions of soil and climate are much the same as in Anderson County, quite a number of farmers near the railroads have commenced to grow fruit and vegetables for the early market. This tendency toward diversification of crops will undoubtedly be of great benefit to the farmers of this section, as they should not be so largely dependent upon the cotton crop, and the introduction of fruit and truck growing would seem to open an avenue of new and profitable employment.

CLIMATE.

The climate of Anderson County gives a long growing season, which enables the cultivation of many crops during the greater part of the year. The winters are usually mild, excessive cold weather being exceptional and of short duration. A light snow sometimes falls but soon melts away. Occasionally sudden changes in temperature are brought about in the winter by the "northers," or cold winds, which suddenly sweep down from the north and last from two to five days. The summers, though long, are not excessively hot. The cool Gulf breezes temper the heat and give a pleasant temperature during the greater part of the summer.

Anderson County lies within that region of rainfall known as the Gulf type, whose rainfall is derived from the moisture-laden trade winds which sweep westerly across the Atlantic, precipitating their moisture upon the West Indies and the Gulf region of North America. In general, the rainfall of this type is sufficient for agricultural purposes in all months of the year.

The following table, showing the mean monthly and annual temperature and precipitation, is taken from the records of the Weather Bureau stations at Palestine and Corsicana, the latter town lying

about 30 miles northwest of Anderson County, and climatic conditions in the northwestern part of the county are probably represented by an average between those existing at Palestine and Corsicana :

Normal monthly and annual temperature and precipitation.

Month.	Palestine.		Corsicana.		Month.	Palestine.		Corsicana.	
	Tem- pera- ture.	Precipi- tation.	Tem- pera- ture.	Precipi- tation.		Tem- pera- ture.	Precipi- tation.	Tem- pera- ture.	Precipi- tation.
	° F.	Inches.	° F.	Inches.		° F.	Inches.	° F.	Inches.
January	49.8	4.31	46.9	2.64	August	80.4	2.68	82.9	2.12
February	51.0	3.51	49.1	2.12	September	75.7	3.25	77.1	3.24
March	57.6	3.98	57.5	3.35	October	66.5	3.22	67.1	2.61
April	66.7	4.62	66.7	3.88	November	56.2	4.45	55.3	3.51
May	71.3	5.84	73.6	4.50	December	51.4	3.81	49.0	2.40
June	78.2	4.25	80.6	3.78	Year	65.5	46.51	65.8	36.72
July	81.5	2.59	83.7	2.57					

In Anderson County, where the soils are essentially adapted to truck farming and fruit growing, it is important that these crops should be cultivated at such periods as to escape the early and late frosts, and with a view to placing the products on the market as early as possible. The average date of the last killing frost in spring is March 13, and of the first in fall, November 13.

PHYSIOGRAPHY AND GEOLOGY.

Anderson County lies within that part of the Coastal Plain of Texas known as the "east Texas timber belt." In general, this region is a comparatively hilly to rolling belt of sandy timber land, corresponding to the outcrop of the Eocene formations.

In surface features the eastern and western parts of the county are generally rolling and gently sloping. In the central part, extending from north to south, is a broad, ridgelike elevation, forming a divide between the drainage areas of the Trinity and Neches rivers. This central elevation is considerably broken and hilly. Large and small areas of plateaulike elevations occur through this section of the county, their summits being from 500 to 700 feet above sea level, with steep, precipitous, and rugged slopes.

The drainage systems of the Neches and Trinity rivers almost meet in the central part of the county, and many small streams start from springs in this section. These stream bottoms are narrow and deep, but in the eastern and western parts of the county the small streams combine to form large creeks with broad bottoms, which are usually only a few feet below the general surface of the country.

The general drainage of the uplands is good, except in occasional

spots in the western part of the county, where a few areas, varying in size from a few acres to several square miles, are low and basinlike, and during the rainy season the water stands in these for days at a time. These low spots are locally termed "swags," or "glades," and are of little agricultural value in their present condition.

The elevation of the county varies from 250 to 700 feet above sea level. It is thoroughly drained throughout by small branches and creeks, all of which are tributary to either the Trinity or the Neches River.

In the central part, where the physiography is so broken and rugged, the hills and plateau slopes are locally termed mountains. These rugged slopes are so steep and stony that only a few of them can be cultivated.

Little can be said of the geology of this county, since no detailed geological work has been done here. It would appear, by reference to geological work done in other parts of eastern Texas, that both the Tertiary and Quaternary systems are represented in Anderson County.

A common feature of the more broken parts of the county is the presence of numerous ferruginous sandstones and large iron concretions, which occur on the surface and throughout much of the red clay subsoil. These sandstones are formed by the cementing action of iron hydrate solution, which, on losing the carbon dioxide, deposits iron around and between the sand grains, giving rise to a true cementation whenever exposed to the air.

Several miles west of Palestine a considerable bed of limestone is found. Near this limestone a deposit of salt is worked with much success by a large factory, which manufactures a fine grade of table salt from the beds. Outcrops of lignite are found in the county, and salt licks are also quite numerous. A fair grade of brick is made from the yellow sandy clay, and it is used for that purpose to some extent. The yellow clay makes a splendid roadbed through the sandy areas.

The greensand marl of the Eocene represents the Tertiary, as do also certain beds of sands and clays. A conglomerate iron ore is quite often encountered, consisting of a mass of pebbles and sand cemented by a ferruginous matrix. This probably belongs to the Quaternary, which is also represented by an overlying deposit of coarse, medium, and fine sands, occurring over a considerable area of the county, and often being several feet in depth.

The soils are all derived from beds of materials which were placed here in comparatively recent times, and which have since been reworked and reassorted by local agencies, chiefly erosion. The original beds from which the soils are derived are mostly of marine origin, representing beach deposits. The soils of the bottoms border-

ing the rivers and other large streams are, of course, of very recent origin, being entirely alluvial, and subject to overflow and continual additions. In the Trinity River bottom are numerous lakes, varying in size from a few acres to several hundred acres. These lakes probably mark an old river bed.

SOILS.

The soils of Anderson County are of two divisions: First, the sands, sandy loams, and clays, which are sedimentary soils derived from material principally deposited during the Eocene age; and, second, the alluvial soils, which comprise the bottom lands lying along the rivers and larger streams, composed of material of more recent deposition. These alluvial soils owe their origin to the overflow waters, which have transported the mineral and organic matter from other regions and, during inundations, deposited this material from the backset and quiet water.

The alluvial soils in Anderson County are of two kinds: First, those deposited from waters which have transported the soil matter from the east Texas timber belt of the Coastal Plain, which gives rise to the sands and sandy loam soils found along the bottoms of the Neches River and all the creeks and smaller streams in the county, and, second, those soils formed from material deposited by waters having their source in the Black and Grand Prairie regions of Texas, this class consisting of a heavy clay found bordering the Trinity River.

In all, there were recognized and mapped in Anderson County ten types of soil. The names and respective areas, both actual and relative, of these types are shown in the following table:

Areas of different soils.

Soil.	Acres.	Percent.	Soil.	Acres.	Percent.
Norfolk fine sandy loam.....	224,640	32.9	Orangeburg clay.....	35,904	5.2
Norfolk fine sand.....	138,880	20.3	Lufkin clay.....	17,216	2.5
Orangeburg fine sandy loam.....	102,080	14.9	Houston clay.....	3,264	.5
Meadow.....	56,640	8.3	Yazoo sandy loam.....	1,600	.2
Norfolk sand.....	55,808	8.2	Total.....	683,904	-----
Yazoo clay.....	47,872	7.0			

NORFOLK SAND.

The Norfolk sand, to a depth of about 10 inches, consists of a gray or white sand, loose and incoherent, and containing but a small amount of organic matter. The subsoil consists of a sand of the same texture to a depth of several feet, but is usually yellow in color.

The texture of the Norfolk sand in Anderson County varies con-

siderably, it being composed sometimes chiefly of a coarse and medium sand, and again of a medium and fine sand, with a small amount of coarse sand. The soil grains are very irregular in shape and size, being subangular and broken, with no characteristic form. Both the soil and subsoil are free from stones or gravel. Some small areas have a yellow sandy clay subsoil at a depth of 2 or 3 feet, which is caused by erosion, but these areas were too small to be mapped as a separate type.

The Norfolk sand occurs in several large and small areas, extending throughout the central and eastern parts of the county from north to south, the largest areas lying in the vicinity of Alderbranch, Brushycreek, Frankston, and Palestine. The type usually occupies the highest areas of the county, occurring as nearly level but gently rolling, plateaulike eminences, whose slopes are usually composed of the eroded and stony phase of the Orangeburg clay.

Owing to its loose texture and rolling topography, the Norfolk sand is very well drained. With thorough cultivation it withstands drought to a considerable extent. A fine quality of water for domestic use may be reached anywhere in this sand at a depth varying from 8 to 20 feet, and on many of the slopes good springs are found. The Norfolk sand usually occupies a position on the divide between the drainage systems of the Neches and Trinity rivers. The type is sedimentary in origin, representing old beach deposits of the Tertiary or Quaternary age.

The Norfolk sand is especially adapted to melons, pease, and other vine crops. Potatoes, peaches, and small fruits, including all varieties of berries, do well. The crops usually grown are cotton and corn, with some vegetables, peaches, plums, berries, etc. When uncleared this soil supports a natural growth of "sand-jack" oak, "black-jack" oak, pine, and some hickory.

When first cultivated the yields on this type are fair, but after a few years the soil deteriorates if no fertilizer or organic matter is added, and the yields become much smaller than at first. Under ordinary conditions the crop yields are as follows: Cotton, from one-fourth to one-half bale per acre; corn, from 12 to 25 bushels; potatoes, 40 bushels; sweet potatoes, from 100 to 150 bushels; tomatoes, 100 bushels; melons, about 1 carload, and cantaloupes, about one-fourth carload, per acre. Much of the type is too far from the railroads for truck farming.

The value of this land varies from \$5 to \$10 an acre, depending on location and state of cultivation. The Norfolk sand would be greatly benefited by the incorporation of organic matter by means of turning under cowpeas or other leguminous crops.

The following table gives mechanical analyses of typical samples of the soil and subsoil of the Norfolk sand:

Mechanical analyses of Norfolk sand.

No.	Locality.	Description.	Fine gravel, 2 to 1	Coarse sand, 1 to 0.5	Medium sand, 0.5 to	Fine sand, 0.25 to 0.1	Very fine sand, 0.1 to	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			mm.	mm.	0.25 mm.	mm.	0.05 mm.		
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
11415	5 miles S W. of Frankston.	Gray coarse sand, 0 to 10 inches.	0.7	15.1	21.2	49.8	7.1	4.0	1.6
11417	3 miles S W. of Frankston.	Gray sand, 0 to 12 inches.	.2	8.1	22.3	54.4	6.3	4.5	3.7
10774	2½ miles S E. of Brushycreek.	Gray sand, 0 to 12 inches.	.3	7.5	22.2	44.0	11.5	9.9	4.6
11416	Subsoil of 11415	Yellow coarse sand, 10 to 36 inches.	.6	14.3	20.0	52.7	7.1	2.9	2.2
11418	Subsoil of 11417	Yellow sand, 12 to 36 inches.	.0	5.5	17.9	62.6	6.7	3.7	3.4
10775	Subsoil of 10774	Yellow sand, 12 to 36 inches.	.1	7.3	23.9	40.6	10.0	13.3	4.7

NORFOLK FINE SAND.

The Norfolk fine sand, to a depth of 12 inches, consists of a light-brown or gray fine sand, underlain by a yellow fine sand to a depth of 3 feet or more. Often both the soil and subsoil have a considerable silt content, which gives a rather loamy texture to the fine sand.

The greater part of the Norfolk fine sand has a natural growth of oak and hickory. There is one phase of the type which supports a growth of pine, and in this phase the soil is lighter in color, having a much finer sand and higher silt content than the bordering type. The texture of the subsoil is nearly the same as that of the soil.

The Norfolk fine sand is well distributed throughout the county. The largest areas are located in the southern part, in the vicinity of Salmon and Denson Spring; in the northwestern part, in the vicinity of Bradford, and in the western part, in the vicinity of Tennessee Colony. The so-called "pine woods" phase occurs in the eastern part of the county, near Neches and the Neches River. Numerous small areas are found all over the county, and along the slopes of streams there are small areas not over 100 to 300 feet in width.

In topographic features the Norfolk fine sand is gently rolling, embracing some nearly level upland, with occasional moundlike eminences of small extent. The slopes are always gentle, while the altitude varies from 300 to 500 feet above sea level. This type of soil is well drained throughout, the top soil admitting of a rapid removal

of surface water by gravitation, while the loose-textured subsoil permits rapid percolation of soil water downward. This type admits of ready cultivation under almost any condition of moisture content.

The Norfolk fine sand represents one of the latest geological formations in the county. It is sedimentary in origin, being derived from beach deposits probably of Tertiary age. Erosion and other local agencies have probably exerted some influence in its formation.

The type is adapted to all crops suited to the Norfolk sand, but is a much more productive soil. All kinds of truck crops, small fruits, and peaches do well. The crops usually grown are cotton, corn, potatoes, melons, vegetables, peaches, small fruits, berries, etc. Although more productive than the Norfolk sand, this type is like it in that cultivation causes it to deteriorate in productivity unless organic matter or fertilizer is added. The growing of leguminous crops and turning them under is of great advantage. In ordinary seasons the average yields per acre are as follows: Cotton, from one-third to one-half bale; corn, from 20 to 30 bushels; Irish potatoes, 50 bushels; sweet potatoes, from 150 to 200 bushels; tomatoes, 100 bushels, and melons and cantaloupes about the same as on the Norfolk sand.

This type of soil may be purchased for from \$5 to \$12 an acre, according to location and condition. The soil is warm, easily handled, and responds readily to cultivation and fertilization. It is generally conceded to be more productive where the natural timber growth is hardwood than where it is pine.

The following table gives mechanical analyses of the soil and subsoil of this type:

Mechanical analyses of Norfolk fine sand.

No.	Locality.	Description.	Fine gravel, 2 to 1	Coarse sand, 1 to 0.5	Medium sand, 0.5 to	Fine sand, 0.25 to 0.1	Very fine sand, 0.1 to	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			mm.	mm.	0.25 mm.	mm.	0.05 mm.		
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
10780	2 miles W. of Palestine.	Gray fine sand, 0 to 12 inches.	0.0	0.3	1.7	73.3	17.6	4.6	2.6
11419	5½ miles SW. of Palestine.	Gray fine sand, 0 to 12 inches.	.0	.1	.6	68.0	18.7	10.0	2.6
10776	2½ miles SW. of Neches.	White fine sand, 0 to 12 inches.	.0	.2	.2	52.2	29.8	14.5	3.2
10781	Subsoil of 10780	Yellow fine sand, 12 to 36 inches.	.2	.3	1.7	73.1	15.6	6.0	2.8
10777	Subsoil of 10776	Gray fine sand, 12 to 36 inches.	.1	.4	.2	51.5	30.4	14.4	2.8
11420	Subsoil of 11419	Light-yellow fine sand, 12 to 36 inches.	.0	.0	.9	68.6	14.4	12.7	2.9

NORFOLK FINE SANDY LOAM.

The soil of the Norfolk fine sandy loam, to a depth of from 15 to 24 inches, is a gray or light-brown fine loamy sand or light fine sandy loam. The subsoil is a yellow sandy clay, which sometimes has a mottling of gray. The depth of this soil varies greatly, but the average is probably about 20 inches. Both soil and subsoil often contain from 1 to 5 per cent of small sandstone gravel.

The greater part of this type supports a growth of hardwood, consisting of different varieties of oak, hickory, dogwood, etc., but in the eastern part of the county a phase exists which supports a natural growth of pine with a little oak and hickory. The soil of the "pine woods" phase, so-called, is somewhat finer in texture and probably has a larger silt content than that of the ordinary type, but the subsoil is the same.

The Norfolk fine sandy loam occurs in very large areas throughout the western part of the county, occupying the greater part of the Trinity River drainage area. The "pine woods" phase occurs in considerable areas in the eastern part of the county, occupying a considerable portion of the Neches River drainage area.

In physiographic features most of the type appears as a rolling upland, and has a surface drainage generally adequate for all agricultural purposes. The sandy clay subsoil is quite retentive of moisture, and when the type is cultivated sufficiently it withstands drought for a considerable period of time. In the western part of the county, however, some small areas which adjoin the Lufkin clay are so level as to be poorly drained.

The Norfolk fine sandy loam is derived from the weathering of beach deposits probably of Eocene age, the loamy appearance being due to its silt and some organic matter.

This soil type is suited to a wide range of crops. It is, however, probably best adapted to truck farming and fruit growing. It is one of the best soils, as well as the most extensive, in Anderson County, and is locally termed "gray land." Forage crops could be successfully grown, especially on the more level areas of the type. The principal crops are cotton, corn, and oats, while near the railroads some vegetables and fruit are grown for market. With good seasons the principal crop yields per acre are about as follows: Corn, from 20 to 40 bushels; cotton, from one-third to two-thirds bale; and oats, 30 or 40 bushels. Irish potatoes are produced at the rate of from 60 to 80 bushels per acre; while tomatoes yield from 100 to 150 bushels per acre. Melons and all vegetables, small fruits, peaches, plums, and pears do well. Sweet potatoes on this soil yield from 200 to 300 bushels per acre.

This is a comparatively early soil, responding readily to cultiva-

tion, and retaining fertilizers well. It is greatly improved by applications of barnyard manure, or by plowing under cowpeas or other leguminous crops, as it lacks organic matter. In the vicinity of the railroads it is valued at from \$10 to \$30 an acre, but farther away it may be bought unimproved for as little as \$5 an acre.

The following table gives mechanical analyses of the fine earth of soil and subsoil of this type:

Mechanical analyses of Norfolk fine sandy loam.

No.	Locality.	Description.	Fine gravel, 2 to 1	Coarse sand, 1 to 0.5	Medium sand, 0.5 to 0.25	Fine sand, 0.25 to 0.1	Very fine sand, 0.1 to 0.05	Silt, 0.05 to 0.006	Clay, 0.005 to 0
			mm.	mm.	mm.	mm.	mm.	mm.	mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
10778	4 miles W. of Palestine.	Light-brown loamy fine sand, 0 to 18 inches	0.4	0.9	1.2	38.1	35.6	21.1	2.7
10506	4 miles W. of Palestine.	Gray fine sand, 0 to 18 inches.	.9	1.1	1.6	41.6	33.4	17.2	3.8
10770	2 miles W. of Neches.	Gray fine sandy loam, 0 to 18 inches.	.1	.5	.3	42.1	32.3	19.0	5.8
11421	1 mile S. of Franks-ton.	Gray fine sandy loam, 0 to 20 inches.	.8	1.4	3.3	35.8	32.8	18.7	7.0
10507	Subsoil of 10506	Yellow sandy clay, 18 to 36 inches.	.8	1.3	1.1	25.6	25.9	19.5	25.6
10779	Subsoil of 10778	Yellow sandy clay, 18 to 36 inches.	.6	.6	.9	22.2	24.0	20.1	31.6
10771	Subsoil of 10770	Yellow sandy loam, 18 to 36 inches.	.1	.2	.2	26.9	23.4	16.4	32.8
11422	Subsoil of 11421	Yellow sandy clay, 20 to 36 inches.	.4	.5	1.7	23.7	19.3	20.5	33.8

ORANGEBURG CLAY.

The soil of the Orangeburg clay consists of about 4 inches of a compact red or brown sandy loam of fine texture. The subsoil is a heavy red clay, usually containing a small amount of sand. In some places, however, the sand content is large enough to give it the properties of a heavy fine sandy loam.

In Anderson County a great deal of the surface soil of this type has been removed by erosion, and the red clay is exposed on the surface. The soil usually contains from 15 to 70 per cent of small iron concretions and fragments of ferruginous sandstone, which are also found to a considerable extent in the subsoil, the sandstone often forming a layer several inches in thickness. Where the clay is exposed, the ferruginous sandstone is so abundant in the soil as to make cultivation an impossibility.

The largest area of the Orangeburg clay occurs in the central part of the county, in the immediate vicinity of Palestine. Numerous

small areas of peculiar shape and irregular outline occur throughout the central and eastern parts of the county. The type often occupies narrow strips, forming a boundary between two other soil types. It occupies some well-rounded ridges and knolls, but more frequently occurs in steep and rugged slopes adjacent to streams, occupying an intermediate position between the Norfolk sand, or Norfolk fine sand, and the Orangeburg fine sandy loam. Where the topographic features are not so abrupt, as is the case with the large area near Palestine, the soil is more typical of the soil as found in other parts of the Coastal Plain.

Owing to its rolling and sloping topography, the Orangeburg clay has fine surface drainage. In fact, the drainage is often too thorough and rapid, as is evidenced by the eroded condition on the steeper slopes. The close texture and heavy nature of the subsoil would necessitate artificial drainage if the surface was level or low lying. Although the clay retains considerable moisture, the surface of the soil bakes and becomes hard during dry weather, making cultivation very difficult; thus a loss of soil water through evaporation is not readily prevented, and drought affects the crops much more quickly than on the sandy soils of the area.

The Orangeburg clay is a residual soil, derived from the weathering of greensand marl, very probably of Eocene age. The material has weathered to a considerable depth. Much of the soil in the rugged and hilly sections contains sandstone and concretions, all of which seem to possess a considerable quantity of iron.

The typical Orangeburg clay is one of the strongest of the upland soils, but in Anderson County the greater part of it occupies steep, precipitous slopes of stony clay, from which the surface soil has been removed by erosion.

Probably not more than 5 per cent of the type in the county is cultivated, the greater part being covered by forest growth. The typical soil is well adapted to cotton, corn, and oats, and fair yields of wheat can be produced. The natural timber growth is post oak, red oak, and hickory. The average yields per acre of the crops grown are as follows: Cotton, from one-half to three-fourths bale; corn, from 25 to 40 bushels; oats, 50 bushels. Wheat has not been grown for some years. It would seem that hay should do well on this type of soil. Vegetables and fruit can be grown, but the soil is not so well adapted to these crops as are the sandy soils of the county.

The value of the Orangeburg clay varies according to its location, topography, and distance from railroads. The poorer phase can be bought for \$3 an acre, while some of the better areas are, when near railroads, valued as high as \$10 or more an acre.

The table on the following page gives mechanical analyses of the fine earth of typical samples of the soil and subsoil of the Orangeburg clay.

Mechanical analyses of Orangeburg clay.

No.	Locality.	Description.	Fine gravel, 2 to 1	Coarse sand, 1 to 0.5	Medium sand, 0.5 to	Fine sand, 0.25 to 0.1	Very fine sand, 0.1 to	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0 mm.
			mm.	mm.	0.25 mm.	mm.	0.05 mm.		
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
11427	1 mile SW. of Palestine.	Brown fine sandy loam, 0 to 4 inches.	4.7	2.8	1.2	18.4	42.0	24.3	6.3
11429	3 miles S. of Frankston.	Brown fine sandy loam, 0 to 3 inches.	.9	1.9	1.5	32.5	34.0	21.8	7.4
11430	Subsoil of 11429	Red sandy loam, 3 to 36 inches.	.7	1.2	1.2	29.2	26.8	25.9	15.0
11428	Subsoil of 11427	Red silty clay, 4 to 36 inches.	1.0	1.2	.6	10.9	24.6	40.7	21.0

ORANGEBURG FINE SANDY LOAM.

The soil of the Orangeburg fine sandy loam consists of a red, brown, or gray fine sandy loam or loamy fine sand, whose depth varies from 6 to 18 inches. The subsoil is a red sandy clay. The soil is friable and light, but the subsoil is usually quite heavy.

The soil usually contains from 5 to 30 per cent of small ferruginous sandstone gravel, which occurs mostly in the darker-colored soil and is not abundant in the gray soil. Sometimes the gravel occupies as much as 60 per cent of the soil, and here the land is locally called "red gravelly land," but the usual local name for the Orangeburg fine sandy loam is "chocolate" or "mulatto" land. This type, when newly cleared, contains considerable organic matter, which is soon removed by exhaustive cultivation.

The Orangeburg fine sandy loam is found throughout the county in both large and small areas. Much of the type occurs near Palestine, Elmtown, Brushycreek, Frankston, and Elkhart. In surface features it is gently rolling and sloping. It has excellent surface drainage. The clay subsoil is very retentive of water, which enables the type to withstand drought quite readily. Some areas occupy slopes adjacent to streams, but these are never so steep as to prevent cultivation. In areas devoted to peach culture, where the topography is very gently rolling, tile drainage would probably prove advantageous.

This soil is derived chiefly through the weathering of beach deposits of Eocene or later age.

The Orangeburg fine sandy loam is suited to a great variety of crops. It seems to be the best peach soil of the area. It is also well adapted to the production of corn, cotton, vegetables, and the small fruits, being probably the most productive upland soil in Anderson County. It is easily cultivated and its productivity is readily main-

tained. Near the railroads truck farming is carried on to a considerable extent on this type. Many fruit trees are being planted, although as yet only a few of them are old enough to bear. Farther from the railroads cotton, corn, oats, sorghum, and cowpeas are grown; also vegetables and fruit on a small scale. The crop yields per acre in good seasons are about as follows: Cotton, from one-half to three-fourths bale, or more under especially good conditions; corn, from 30 to 40 bushels, and sorghum, 100 gallons of sirup. The type is a splendid fruit and truck soil. Tomatoes of good shipping quality are produced at the rate of from 100 to 150 bushels, and Irish potatoes, from 60 to 100 bushels per acre. Melons and cantaloupes grow well and make large yields, as do also cabbage, onions, sweet potatoes, and other vegetables and small fruits.

The soil requires additions of organic matter to prevent its becoming impoverished, and this may best be added by applying barnyard manure or turning under leguminous crops. Alfalfa, if cultivated with care, may be grown successfully. Several cuttings a year could be obtained, which would probably aggregate not less than 3 tons of hay per acre when the rainfall is sufficient. It is probable also that a good grade of cigar tobacco could be grown, judging from experiments made on this type of soil in other counties. Nearly all of the Orangeburg fine sandy loam is under cultivation. Where uncultivated, it supports a natural growth of red oak, blackjack oak, hickory, and some walnut.

Good land of this type from 6 to 10 miles from a railroad may be purchased for \$8 or \$10 an acre. Near the railroads and in the vicinity of Palestine it is considerably higher.

The following table gives mechanical analyses of the fine earth of typical samples of this soil:

Mechanical analyses of Orangeburg fine sandy loam.

No.	Locality.	Description.	Fine gravel, 2 to 1 mm.		Coarse sand, 1 to 0.5 mm.		Medium sand, 0.5 to 0.25 mm.		Fine sand, 0.25 to 0.1 mm.		Very fine sand, 0.1 to 0.05 mm.		Silt, 0.05 to 0.005 mm.		Clay, 0.005 to 0 mm.	
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.				
11423	2 miles W. of Palestine.	Brown fine sand, 0 to 12 inches.	0.6	0.9	1.0	30.1	46.6	14.7	6.0							
10772	2 miles SE. of Elmtown.	Brown fine sandy loam, 0 to 18 inches.	.3	2.8	5.6	30.1	31.0	22.9	7.0							
11425	2 miles S. of Frankston.	Brown fine sandy loam, 0 to 18 inches.	.7	1.0	2.5	31.3	20.5	36.1	7.6							
10773	Subsoil of 10772	Red sandy clay, 18 to 36 inches.	.1	1.9	4.7	23.9	24.4	17.2	27.8							
11426	Subsoil of 11425	Red sandy clay, 18 to 36 inches.	1.0	1.0	1.4	20.3	14.2	29.9	32.1							
11424	Subsoil of 11423	Red sandy clay, 12 to 36 inches.	.7	.8	.8	16.4	28.7	18.1	39.4							

YAZOO CLAY.

The Yazoo clay, to a depth of 12 inches, consists of a dark-drab or black sticky clay, underlain by the same material to a depth of several feet. The subsoil occasionally has a slight brownish-yellow mottling. Sometimes a small quantity of sand is found in the clay in the vicinity of the Trinity River, but not sufficient to alter to any great extent the clayey texture of the soil and subsoil.

The Yazoo clay occurs along the Trinity River in the western part of the county. It forms a low, heavily timbered bottom, from half a mile to 3 or 4 miles in width, appearing as a long, continuous area, except where the river occasionally touches the upland. It comprises level or nearly level bottom land. At the banks of the river the bottom is slightly higher, with a shallow, sandy covering. The sandy areas, however, are very small in extent.

This soil type is subject to overflow from the Trinity River. These overflows occur usually in the winter and spring months, though occasionally in the summer. Owing to the level surface of the soil it requires some time for the water to drain off and the soil to become dry enough for cultivation. However, with ditching the greater part of this type can be cultivated, while some portions do not need to be drained for cultivation. During an overflow the water extends over the whole area of this clay soil to a depth varying from 4 to 8 feet, and may remain for several days. It is believed that when the Trinity River has been dredged out for navigation, a much larger amount of water can be held within its banks, and that overflows will not be so frequent nor so extensive as they have been heretofore. These overflows seldom come so late in the spring as to prevent cultivation.

The Yazoo clay is alluvial in origin, being built up by the deposition of the fine-grained soil particles from the backset waters of successive overflows of the Trinity River. These soil particles are brought from the Black and Grand Prairie regions of Texas, where the erosion caused by rainfall has denuded the productive prairie lands to a considerable extent. The fallen leaves from the trees and other organic matter have become incorporated with this soil, making it very rich and productive. Thus by successive accumulations of clay, silt, and organic matter, this remarkably productive but little utilized soil type has been formed.

The greater part of the Yazoo clay in Anderson County is uncultivated, being covered with a valuable timber growth consisting of pin oak, bur oak, pecan, ash, elm, gum, and haw. Where cultivated it is especially adapted to cotton and corn, and will produce one bale of cotton, or even more, per acre, and from 60 to 70 bushels of corn. At present the Yazoo clay is utilized principally for cattle grazing

and the raising of hogs. A good growth of mesquite grass affords adequate grazing the greater part of the year. The abundant mast, consisting of acorns, pecans, and haws, makes excellent feed for hogs.

Most of this type lies at a considerable distance from the railroads. It can be bought in large tracts, varying in price from \$3 to \$8 an acre. A number of small lakes appear here and there throughout the Yazoo clay, and it is thought that a chain of these lakes west of Palestine marks the course where the river at one time flowed.

The following table gives mechanical analyses of the soil and subsoil of the Yazoo clay:

Mechanical analyses of Yazoo clay.

No.	Locality.	Description.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
11433	3 miles NE. of Wild-cat Ferry.	Dark-gray silty clay, 0 to 12 inches.	0.2	0.3	0.4	4.0	6.3	63.1	25.7
13045	12 miles SW.....	Dark-drab clay, 0 to 12 inches.	.0	.6	.8	8.7	4.5	27.2	57.8
11434	Subsoil of 11433.....	Dark-gray silty clay, 12 to 36 inches.	.5	.9	.5	3.2	6.3	64.5	24.1
13046	Subsoil of 13045.....	Dark-drab clay, 12 to 36 inches.	Tr.	.6	.8	10.4	5.2	32.6	50.3

LUFKIN CLAY.

The Lufkin clay is known in Anderson County as "swag land." The typical soil consists of 8 or 10 inches of a compact gray loam, or very fine sandy loam, underlain by a heavy impervious clay, whose color is a mottled gray and red or gray and yellow, containing a considerable quantity of silt. Throughout the type are scattered numerous small areas of fine sand, which are too small to map separately.

The Lufkin clay occurs in areas which vary greatly in size, some being but a few acres, while others are 2 or 3 square miles in extent. It is always surrounded by the Norfolk fine sandy loam, and is found chiefly in the western part of the county. The most typical areas are in the immediate vicinity of Tucker. The type occupies basin-like areas, lower than the surrounding country, these areas being locally termed "swags."

The low-lying position of the type prevents thorough or adequate surface drainage, while the dense clay subsoil allows only a very slow passage of soil water downward. With heavy rainfall these low-lying areas become shallow ponds, the water standing on the sur-

face for a long time. The "swags" are easily drained by ditching, and tile drainage could be established without difficulty.

The origin of the Lufkin clay is not well understood, but it is probably sedimentary, and represents material deposited in comparatively still water. It would seem, from the appearance of the low-lying areas which form this type, that they were at one time beds of small lakes.

Where the Lufkin clay is drained it produces good grain crops, such as oats and corn, while cotton does fairly well. On account of its poorly drained condition, only a small portion of it is cultivated. It is covered for the most part with a thin growth of post oak trees of considerable size.

The Lufkin clay is considered of little value by many farmers, on account of its poor drainage, but when drained and cultivated it produces good crops, and as the sandy material of adjacent soils is gradually mixed with the heavier and poorly drained soil, in a few years the type becomes very productive and profitable for general farming purposes.

When cultivated for a period of two or three years it produces from 25 to 35 bushels of corn and from one-half to three-fourths bale of cotton per acre. It is claimed that with continued cultivation the soil increases in productiveness, which is no doubt due to thorough aeration and the removal of deleterious salts which have accumulated in the soil. It would seem that a great deal of forage, such as grasses or sorghum, could be grown with profit on this land if it were drained. The Lufkin clay is valued at from \$4 to \$10 an acre.

The following table gives mechanical analyses of typical samples of the Lufkin clay:

Mechanical analyses of Lufkin clay.

No.	Locality.	Description.	Mechanical analyses of Lufkin clay.						
			Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
11413	½ mile W. of Tucker.	Gray loam, 0 to 8 inches..	0.2	0.4	0.8	18.0	25.2	40.8	14.4
11411	½ mile W. of Tucker.	Gray loam, 0 to 8 inches..	.0	Tr.	1.3	17.4	23.5	41.0	16.8
11414	Subsoil of 11413	Gray clay, 8 to 36 inches..	.2	.4	.8	15.2	19.7	26.5	36.6
11412	Subsoil of 11411	Gray clay, 8 to 36 inches..	Tr.	.6	.7	12.9	18.3	26.9	40.2

HOUSTON CLAY.

The Houston clay is unimportant in Anderson County on account of its very limited extent. The soil, to a depth of about 8 inches, is a

brown or drab clay, while the subsoil is a yellow or yellowish-brown clay. Both soil and subsoil contain lime concretions.

Most of this type is located in the western part of the county, and occupies narrow strips or slopes where the upland joins the Trinity River bottom. One small area occurs near the salt works, several miles west of Palestine, and at this place a limestone formation is found just beneath the surface.

The Houston clay is gently rolling in topography and has excellent surface drainage. It retains considerable soil water, but this can not be readily held during droughts on account of the hard and compact nature of the soil. The type is residual in origin, being derived from the weathering of calcareous deposits.

Little of the Houston clay is cultivated, most of it being covered with a growth of mesquite grass, which affords excellent grazing for stock. In good seasons it produces from one-half to 1 bale of cotton and from 40 to 60 bushels of corn per acre, but the average is much below these figures. This land is valued at from \$8 to \$15 an acre.

The following table gives mechanical analyses of typical samples of the Houston clay:

Mechanical analyses of Houston clay.

No.	Locality.	Description.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
11409	3½ miles NE. of Wildcat Ferry.	Brown clay, 0 to 10 inches.	0.2	0.3	0.4	5.0	11.5	44.8	37.8
11410	Subsoil of 11409.....	Yellow clay, 10 to 36 inches.	.4	.9	.5	3.7	6.9	48.1	39.0

The following samples contain more than one-half of 1 per cent of calcium carbonate (CaCO₃): No. 11409, 1.84 per cent; No. 11410, 6.52 per cent.

YAZOO SANDY LOAM.

The Yazoo sandy loam is another soil type of very limited extent in Anderson County. Both the soil and subsoil have a very variable texture. The soil has a depth of about 10 inches, consists of a brown, fine sandy loam, and is underlain by a heavy black clay. Sometimes the subsoil is a gray sandy loam to a considerable depth before reaching the black clay.

This soil type is nearly level in topography and is located along the Trinity River bottom in the western part of the county, along the

line of contact between the bottom land and the upland. It forms a very narrow strip, usually too small to be indicated on the map.

The type is fairly well drained and is inundated only by unusually high overflows. A little ditching is sometimes necessary to secure the best crop results.

The Yazoo sandy loam is formed by deposits from the river and by wash from backset overflow waters, while the sandy soil is a wash from the sandy soils of the upland. The Yazoo sandy loam is simply Yazoo clay with varying amounts of sand washed on it by local agencies.

Owing to the ease of cultivation and to its productivity this is a favorite soil in the area. It will produce a bale of cotton to the acre, from 40 to 50 bushels of corn, and a fine yield of sugar cane.

The following table gives a mechanical analysis of a typical sample of this soil:

Mechanical analysis of Yazoo sandy loam.

No.	Locality.	Description.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
11431	2 miles SW. of Tucker.	Brown fine sandy loam, 0 to 8 inches.	0.2	0.2	0.6	29.6	35.6	29.4	3.8
11432	Subsoil of 11431	Black fine sandy loam, 8 to 36 inches.	.1	.3	.6	27.4	29.4	35.8	6.4

MEADOW.

Meadow is a very important type of soil in Anderson County. It is quite variable in texture, but in general it consists of a sandy loam or sand, usually brown in color, and extending to a depth of several feet.

This type is always found as a bottom along streams, and as Anderson County has a large number of creeks and branches few farmers are without a small area of this type of soil. The largest areas of Meadow occur along the Neches River, and Box, Town, Lake, Ioni, Mansons, Keachie, Brushy, Stills, Wells, and Catfish creeks.

The surface of the Meadow is usually level, or nearly level, the point of contact with other soils being quite sharply defined. The stream bed is usually several feet below the lowest part of the bottom, but being very narrow overflows are not infrequent. Owing to the

low-lying position of the areas, the surface drainage is often very poor, but by ditching they may be easily drained, except in seasons of heavy rainfall, when the whole of the type is submerged to a depth of several feet. These overflows may occur at any time during the year, but are more frequent during the winter and spring months.

The Meadow soil is entirely alluvial in origin, being built up by successive deposits from overflow waters, these deposits being transported from all the surrounding soils through which the stream and its tributaries have passed.

As a general thing, considerable corn, cotton, and sugar cane are produced on the Meadow land, this being especially true along the smaller streams and around the headwaters of larger ones, where the overflows are much less frequent than farther down. By a little ditching the poorly drained areas of Meadow can be put in good condition for cultivation. On this type of soil corn yields from 30 to 50 bushels and cotton from one-third to 1 bale per acre. Sugar cane does especially well, usually producing from 300 to 500 gallons of good sirup per acre, for which there is a ready sale at 50 cents a gallon.

The Meadow also makes excellent pasturage, and it would seem that hay might be grown successfully. The natural timber growth is pin oak, gum, and other water-loving trees.

AGRICULTURAL METHODS.

The majority of the farmers in Anderson County are engaged in general farming, the principal money crop being cotton, while corn and oats are next in importance. Large quantities of cowpeas are also grown, both to improve the land and as feed for stock, being used largely for fattening hogs. Within the last few years considerable interest in fruit growing and truck raising has been shown, but as yet this phase of agriculture has been confined to areas near the towns and railroads, where transportation facilities are adequate.

There seems to be no systematic method of crop rotation. Cotton and corn are planted, either successively or alternately, year after year on the same land. A crop of cowpeas is occasionally grown, however, and is of great benefit to the cotton and corn land.

Owing to the sandy nature of most of the soils in the county, it is seldom that more than one horse is used in plowing or cultivating. The turning plows are of small size, varying from 6 to 10 inches. In the spring the lands which are low lying and need drainage are plowed in beds to allow surface drainage. This, however, is too often done merely to prepare the land for cultivation, the corn or cotton being planted on these beds without further preparation of the soil. The land should be broken in the winter, not later than Jan-

uary. This enables the soil to hold a considerable part of the winter rainfall. Then in the spring, when ready for planting, the soil should be well harrowed in order to kill the young weeds and grass, and to prepare the seed bed. After the seed comes up the soil should receive frequent but shallow cultivation. A great mistake is made by many farmers in cultivating too deeply, causing the soil to dry out to a considerable depth.

Good cotton gins are located throughout the county at convenient places, and gristmills are usually operated in connection therewith, where much corn is converted into meal.

AGRICULTURAL CONDITIONS.

The farming class of Anderson County, as a rule, are not in a highly prosperous condition, although they seem to live easily and to be supplied with all the necessaries of life. Along the railroads general farming is still practiced to a considerable extent; but it is giving way to a system of diversification and specialization, and those who are introducing fruit and truck growing into their agricultural system, instead of confining their efforts to the production of cotton and corn, are becoming more prosperous. This is evidenced by the better houses and farm buildings which are being erected throughout the county in close proximity to the railroads and by the flourishing condition of the small towns along the railroads, which are shipping points for the producers.

Lands are steadily increasing in value over the greater part of the county. The total valuation of farm lands and improvements, except buildings, in Anderson County is more than \$1,500,000, while the additional value of farm buildings, implements, and machinery amounts to over \$800,000. The value of live stock and domestic animals is nearly \$1,000,000. The total valuation of taxable property in the county is about \$7,618,000. In 1900 there were nearly 160,000 acres of improved land, and there is considerably more at the present time. In 1900 the value of orchard products was \$46,000, but now it is very much greater, and many new orchards have not yet begun to bear. The annual value of forest products is about \$70,000. About two-thirds of the land in the county is not improved or cultivated.

Probably 50 per cent of the farms are cultivated by tenants, who grow cotton and corn and pay as a rental a certain share of the crops. The farms are usually rented on the "third and fourth" system, or the "half" system, few tenants renting on a cash basis. Under the "third and fourth" system the tenant furnishes everything but the land and buildings and pays as a yearly rental one-third of all the corn and one-fourth of all the cotton produced. Under the "half" system the tenant is furnished land, buildings, teams, seeds, and

implements and pays a yearly rental of one-half of all the cotton and corn produced. Negroes form a large proportion of the share tenants.

The farms of Anderson County are usually of small size, varying from 25 to 125 acres, and are what might be termed "one-family" farms. According to the census of 1900 the average size of farms in the county is 112 acres; but in the census classification every tenancy was tabulated as a farm, and the actual size of individual holdings must be much greater than this.

In cotton farming the work is done almost entirely by the farmer and his sons, except at particular times. Hired labor is rather cheap, but often uncertain. In the very busy seasons the labor employed is usually colored. During the spring the farmer needs extra help to "chop" or thin out his cotton, the price paid by the day being from 50 cents to \$1, with partial board, while hands employed by the month are paid from \$10 to \$15, with board. Much extra labor is also required in the fall for cotton picking, which is paid for according to the amount picked. The price varies from 50 to 70 cents per 100 pounds, without board, depending greatly on the market price of cotton and the available supply of labor.

The principal products of Anderson County have been, for many years, cotton, corn, oats, vegetables, fruit, and live stock. Cotton was the only product exported until a few years ago, the corn, oats, vegetables, fruit, and live stock being all consumed or utilized in the county. In recent years, however, as has already been stated, with the advantages of good transportation facilities, the farmers, where favorably located, have been giving much of their attention to fruit growing and truck raising. The great cotton pest, the boll weevil, has seriously damaged the cotton industry, and this has had a tendency to increase the diversification of crops. Many peach orchards have been planted, although there are only a few as yet in full bearing. The annual value of dairy products, consisting chiefly of milk and butter consumed on the farm, is over \$150,000. A more extensive system of dairying in the vicinity of the towns would likely prove profitable. Large quantities of tomatoes, Irish and sweet potatoes, watermelons, cantaloupes, onions, cabbage, peanuts, peas, beans, cucumbers, etc., are being produced. Some of these products are shipped to distant markets. During the present season (1904) about 60 carloads of garden truck and fruit were shipped from Palestine, 51 cars from Elkhart, 26 from Neches, 10 from Frankston, and about 12 from Salmon. These were largely freight shipments, but some were made by express, and consisted chiefly of tomatoes, Irish potatoes, watermelons, cantaloupes, peaches, and miscellaneous vegetables, the most profitable being tomatoes and Irish potatoes. The peaches grown are the Elberta, Mamie Ross, and a few other varieties. The

fruit and trucking interests are likely to increase every year, and it is safe to say that a cannery would prove profitable in this section. The fruit and vegetables not available for shipment could thus be saved with profit. Even a small canning outfit, such as is used by the Maryland truckers, could be operated successfully by the individual farmer.

Sorghum does well on the upland soils, producing as much as 100 gallons of sirup per acre. The meadow along the creeks is especially adapted to sugar cane, producing large yields of sirup. It is a profitable crop, the sirup being manufactured by the farmer.

Hogs and cattle are allowed to run at large. The hogs fatten readily on acorns, with additional feeding of cowpeas, corn, and peanuts. The cattle do considerable grazing during the winter, but are fed to some extent. Little attention is paid to improved stock, although some farmers are introducing improved breeds of hogs and cattle. Only a small quantity of oats is raised, and the crop is not thrashed, but is fed in the bundle. No wheat is grown, and only a few small patches of tobacco are seen in the county. The farmers depend on corn fodder, sorghum, and grass for their forage, and it is not uncommon for farmers to buy hay which has been imported from the hay-producing sections of Texas. This is a mistaken policy, as a great saving could be made by growing sufficient forage in the county. Alfalfa is beginning to be grown on a small scale, while Japanese clover grows wild over a considerable portion of the county and affords fair grazing. In the Trinity River bottoms there is a fine growth of mesquite grass.

Every farmer owns a good supply of live stock, such as horses, mules, cows, and hogs, but there are only a few sheep.

Two railroads traverse Anderson County, the principal one being the International and Great Northern, which enters the eastern part, passes through Palestine, and from there through the south central part of the county. The Texas and New Orleans Railroad passes through the northeastern corner of the county. These railroads are in close communication with all the large markets of the country, St. Louis, Kansas City, New Orleans, Dallas, Galveston, and other large cities being quickly reached. The railroads are doing their part toward improving agricultural conditions in the county and are encouraging truck farming and fruit growing in every possible way.

The wagon roads in the county are yet in poor condition. In dry weather the sand becomes deep, while with heavy rains deep gullies are washed out in the roadbeds. The county roads, however, are now being improved by convict labor. The yellow sandy clay found throughout the county makes an excellent roadbed when packed properly.

The principal markets for agricultural products are Kansas City, St. Louis, Dallas, and other large western cities. Cotton is marketed in Palestine, and is usually shipped to Galveston, where it is sent to different parts of the world.

Palestine, the county seat, situated in the center of the county, is a thriving railroad town of 8,000 or 10,000 inhabitants. Elkhart, in the southern part, Neches, in the eastern part, and Frankston, in the northeastern part of the county are railroad towns and important shipping points. The general offices and machine shops of the International and Great Northern Railroad are located at Palestine, and give employment to a large number of men.

Truck growers' associations have been formed at Palestine and other towns. These associations usually consign shipments to commission men. A portion of the potato crop is sold on the track to buyers, and it is believed that an extension of this method to other vegetable products will prove profitable to the farmers, as they are often misinformed as to market conditions at distant points, and as a consequence sometimes realize only a small margin of profit, or meet with actual loss, instead of making a reasonable profit on their shipments.

Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at (800) 457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at <http://offices.sc.egov.usda.gov/locator/app>.

The USDA Target Center can convert USDA information and documents into alternative formats, including Braille, large print, video description, diskette, and audiotape. For more information, visit the TARGET Center's Web site (<http://www.targetcenter.dm.usda.gov/>) or call (202) 720-2600 (Voice/TTY).

Nondiscrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the basis of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, whether all or part of an individual's income is derived from any public assistance program, or protected genetic information. The Department prohibits discrimination in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

To File an Employment Complaint

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

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to

U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to program.intake@usda.gov.

Persons with Disabilities

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

If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).