

# SOIL SURVEY OF TIFT COUNTY, GEORGIA.

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## DESCRIPTION OF THE AREA.

Tift County area is situated in the Coastal Plain or "wire-grass" section of south Georgia, between parallels  $31^{\circ}$  and  $32^{\circ}$  north latitude and meridians  $83^{\circ}$  and  $84^{\circ}$  west longitude.

The county was organized October 14, 1905, from parts of Berrien and Irwin counties, which lie to the east, and Worth County, which lies to the west. Colquitt and Berrien counties form the southern boundary, and Irwin and Turner counties the northern. The southeastern boundary is irregular and not well defined. The northeastern boundary is also irregular, being formed by the Allapaha River. The western boundary is a straight line north and south, except where four land lots have been added so as to include the village of Ty Ty. The county comprises an area of 173,440 acres, or 271 square miles.

The first people to settle in the territory now included in Tift County were lumbermen, some of whom were from the North and East. Most of the inhabitants, however, are from other parts of Georgia.

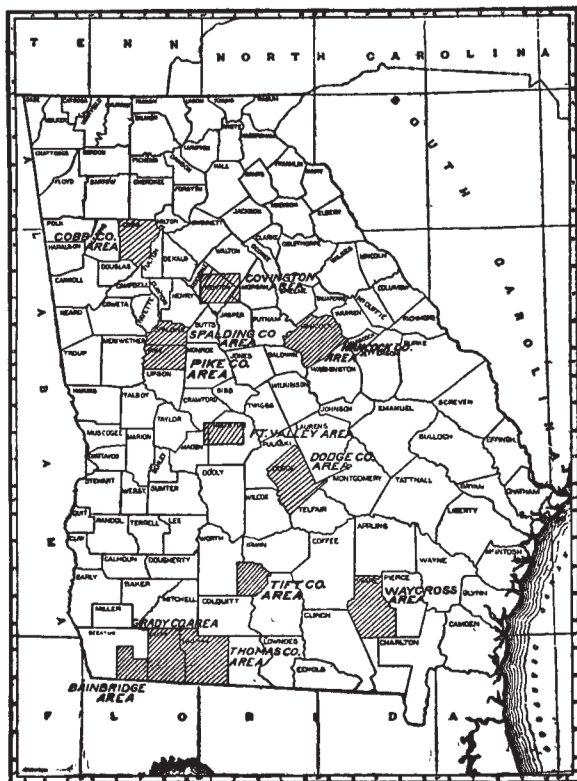


FIG. 21.—Sketch map showing location of the Tift County area, Georgia.

Thirty years ago this region was practically all covered with pine woods and Tifton was only a log station on the Atlantic Coast Line, the only railroad which then traversed the county. Now there are three railroads crossing at Tifton, besides numerous tramroads for carrying logs to the mills. The latter will soon be abandoned, as the timber supply is rapidly diminishing. These tramroads have encouraged the building of railroads in the county, as many of them were standard gauge and only slight changes were necessary to make them ready for use for freight and passenger service. The entire mileage of the Atlanta, Birmingham and Atlantic in this county was once a tramroad. These three roads, the Atlantic Coast Line, the Georgia Southern and Florida, and the Atlanta, Birmingham and Atlantic, afford excellent facilities for the shipment of farm products, and all reach good markets at a reasonable distance.

The population of Tift County in 1900 was 13,500, and the taxable property was estimated at \$3,500,000. These figures have been greatly increased in the last decade. During this period the price of farm lands has increased 30 per cent.

The elevation of Tifton is about 340 feet above sea level. In the northern part of the county the altitude is somewhat greater, and in the southern part somewhat less, but the exact elevations are not obtainable.

Facilities for communication with other parts of the county are excellent. The county is well supplied with telegraph lines and many telephone lines, both rural and urban, connect with all the long-distance lines. The three railroads mentioned give Tifton a mail service far above the average for towns of its size, and almost every country home in the county is reached by rural free delivery.

The educational facilities of Tift County are excellent. Near Tifton is located the Second Congressional District Agricultural School. The attendance at this school is not yet large, but there is room for at least 150 students. The school consists of two large dormitories and an academic building. The school farm comprises 350 acres of splendid land. Tifton has a good public school and the country schools throughout the county are also good.

Tift County is drained by tributaries of the Suwanee River, the principal streams being the Allapaha and Little rivers. The Allapaha forms part of the eastern boundary, and drains a contiguous part of the county. Its principal tributaries within the county are Middle Creek and Hat Creek. Little River flows through the county from near the northwest corner to a point near the middle of the southern boundary. All the county except the northeast portion is drained by Little River and its tributaries, of which New River, rising near Tifton and entering Little River after flowing through part of Berrien County, Ty Ty Creek, Arnold Creek, and Gun Creek are

the more important. The western part of the county is drained directly by Little River. All these streams are sluggish and are bordered by belts of swamp. They have no definite channels, but spread out over the entire swamp area, forming in many places small inter-stream areas or islands, which are always very low. The streams have sandy bottoms and except during wet weather are fordable on nearly all the roads, which fact has been mainly responsible for the lack of bridges. New bridges are now being built in connection with other road improvements.

The principal town in the area is Tifton, the county seat. The population of Tifton is about 4,500. It has been one of the foremost lumber markets and timber-producing centers in the South. Several lumber companies still have offices here. There are four banks, all doing a good business; three large sawmills, a large cotton mill, an ice and electric plant, a wagon factory, and many small industries.

The water supply of Tifton is furnished by an artesian well 450 feet deep. Eldorado, Chula, Ty Ty, Brookfield, and Omega are thriving villages which have grown from sawmill or turpentine camps.

#### CLIMATE.

The climate of this section of Georgia is well suited to agriculture. It is never too cold in winter for the growing of hardy vegetables and under a light cloth cover the more tender vegetables may be produced. Snow seldom falls and the ground is rarely frozen, and then only to a very slight depth.

Killing frosts either early in the fall or late in the spring seldom damage peaches or other fruit.

The rainfall is ample and well distributed throughout the year, the larger proportion falling during the summer months, when crops are most in need of moisture. Fogs are frequent, but usually last for only a few hours in the morning. Violent winds sometimes do considerable damage, and high winds are quite common.

The figures given in the table below are taken from the records of the Weather Bureau station at Poulan, in the adjoining county of Worth, and represent approximately the climatic conditions in this area.

*Normal monthly, seasonal, and annual temperature and precipitation at Poulan.*

Month.	Temperature.			Precipitation.			
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	° F.	° F.	° F.	Inches.	Inches.	Inches.	Inches.
December.....	50	80	11	3.3	3.0	4.2	.....
January.....	48	83	10	3.5	2.1	3.9	0.1
February.....	51	83	-1	5.9	3.3	6.6	.8
Winter.....	50	.....	.....	12.7	8.4	14.7	.9
March.....	59	89	19	5.2	4.9	6.7	.....
April.....	64	91	27	2.9	2.2	4.2	.....
May.....	73	100	41	2.9	1.1	8.9	.....
Spring.....	65	.....	.....	11.0	8.2	19.8	.....
June.....	79	104	49	4.6	7.0	3.2	.....
July.....	81	102	56	6.2	5.4	4.9	.....
August.....	81	105	58	7.7	5.7	14.7	.....
Summer.....	80	.....	.....	18.5	18.1	22.8	.....
September.....	76	101	40	3.4	1.1	3.4	.....
October.....	66	93	32	2.6	.6	1.6	.....
November.....	57	88	21	2.7	2.8	.5	.....
Fall.....	66	.....	.....	8.7	4.5	5.5	.....
Year.....	65	105	-1	50.9	39.2	62.8	.9

Average date of last killing frost in spring, March 11, and of first in fall, November 13.

#### AGRICULTURE.

The foundation of the prosperity of Tift County up to this time has been the pine tree. The lumber and naval-stores industries have absorbed the attention of the inhabitants to the exclusion of almost everything else. Agriculture is therefore in its infancy, but it has vigor and there is sure to be great development along this line.

The lumber and turpentine industries are rapidly declining, on account of the destruction of the forests, and agriculture must come to the front, as there are no other primary sources of wealth.

Practically all the farmers in this county are white men. Not over 5 per cent of the farmed area of Tift County is cultivated by negroes on their own account, and the amount of land owned by negroes in the county is less than 1 per cent. Several farmers from Ohio, Indiana, Illinois, and other parts of the North have settled near Tifton. Men of considerable wealth who have heretofore been in the lumber or turpentine business are devoting their time and money to agricultural pursuits. Much of the land is owned in large tracts by such men, but some are dividing their land into small farms and

giving the buyers reasonable terms. Good farming land 5 miles from town sells for \$15 to \$30 an acre.

Corn and cotton are the principal crops, of which good yields have been obtained, but it is important that crops of a different nature, which will permit a systematic rotation, should be grown also. Some of the farmers are now rotating their crops to a limited extent and the acreage in cowpeas and other cover crops, especially oats, is rapidly increasing.

The growing of cassava, though a new industry in the State, promises to become a profitable industry, as it has done splendidly wherever it has been tried. The cassava roots yield a fine quality of starch and tapioca. One acre of cassava on Tift County land will yield with proper cultivation 4,000 pounds of starch. It is said to be first class as a stock feed.

Alfalfa should also be given a trial on Tift County soil. This plant is unsurpassed for hay and pasturage and for the improvement of the soil. It requires a deep, open soil, well cultivated, and free from weeds. Applications of lime and stable manure and inoculation with bacterial culture or soil from an old alfalfa field should be a part of the preparation for the seeding of this crop.

Pecan culture is now receiving much attention in Tift County. There are now in the county some fine bearing pecan orchards, and many young orchards are being started. Mainly the improved varieties, which will come into bearing in five or six years, are being set.

A general practice here in the growing of corn is to plant peanuts between the rows and after the corn is off to use the field as hog pasture. This plan is commendable and should result in betterment of the soil conditions. The growing of any of the legumes, to which family the peanut belongs, and the plowing under of as much of such crops as practicable, are just what the soils of Tift County need. Hogs do especially well on peanuts, laying on 1 pound of weight for every 3 pounds of nuts.

The growing of sugar cane and the manufacture of sirup is a very general practice. The quality of the sirup produced here is very fine and would doubtless find a ready market. At present practically all the sirup made in the county is consumed at home.

Vegetables do especially well on the lighter soils and the climatic and other conditions seem very favorable to the development of the trucking industry. As yet few vegetables are grown even for home use, and practically none for market. Melons thrive well and the quality is exceptionally fine. This part of the State is famous for its watermelons.

Tree fruits, especially pears, were extensively planted in the county at one time, but many of the trees were attacked by pear blight and



the San Jose scale, and as the owners knew nothing about the control of such pests and diseases, the industry was given up as a failure. A few of these orchards are now being given some attention and it is hoped that the growing of fruit will soon receive new impetus. The Tifton sandy loam—pebbly land—would, without doubt, be an ideal soil for the growing of peaches. Some of the older residents of the county say that before the insect pests and fungous diseases of the peach became so prevalent some very fine peaches were grown.

The favorable soil and climate, the splendid markets, the ease with which pests and diseases can be controlled, and the fact that not many peaches are grown south of this area, thus enabling the grower to get his fruit to market ahead of any others, are abundant reasons why the peach-growing industry should be given a thorough trial. Small fruits, especially strawberries, are well adapted to local conditions and are of very fine quality. The growing of strawberries on a commercial scale doubtless will be a profitable industry, and is now practiced by a few of the more progressive farmers.

Live-stock raising in this area is profitable and should be given more attention. At present practically all the live stock, with the exception of work animals, run loose in the swamps and pine woods and get their living as best they can. In the winter season a great many succumb to the scarcity of food. Better breeds of cattle, sheep, and hogs should be secured and winter cover crops suitable for pasture grown. On account of there being no stock law in this county it is necessary for the farmers to fence all their crops, and much improved woven-wire fencing is now being put up. Fields are being squared and roads straightened. When the authorities of the county adopt a regulation requiring all stock to be kept on the premises of the owner they will do much to improve the agricultural conditions. The improvement of live stock generally and the prevention of the spread of hog cholera alone would warrant the most rigid stock law. It would also tend to conserve the manure on the fields which are badly in need of such fertilization.

The adaptation of soils to crops has been given little attention here, although in a general way it seems to be practiced by a few farmers. The black land along the streams, if drained, will make excellent corn land; cotton, oats, rye, cowpeas, and velvet beans will do best on the "pebbly land," called Tifton sandy loam in this report; for early vegetables the deeper sandy soils, like the Norfolk sandy loam, are best. Pears and plums are best suited to the lower darker soils, while peaches and most other fruits would do best on the higher lands.

Farm labor in this county is scarce, and except where the growing of cotton and corn are concerned, more or less unskilled. Practically all the negroes are employed in the lumber and turpentine camps, on the railroads, and in the towns, so that the extent of most of the

farmer's operations is determined by the size of his family. The introduction of improved farm machinery will do much toward solving the labor problem. It will enable the farmer to produce more and better yields and therefore bring to him more prosperity and independence. The topography is such that practically all the land in the county could be worked with improved implements. Too much time is wasted in cultivating crops with small one-horse tools or by hand. Before machinery could be used to advantage the fields would need to be cleared of stumps. This is best accomplished by means of some form of stump puller. While it is true that the stumps burn readily, being largely pine, yet it is a slow process to burn them in place and quite often troublesome snags are left to hinder cultivation for many years. The clearing of land here is not so serious a problem as in many parts of the country. There is a good market for cordwood at \$1.75 a cord, and if the timber not suitable for lumber be worked into cordwood it will pay for clearing the land.

The most serious mistake the farmers of this county are making is depending almost entirely on commercial fertilizers for the growing of their crops. It is a prevalent idea that the only thing a farmer needs to know is the proper commercial fertilizer to be applied to his land, and that if he could know this either by chemical analyses or otherwise his success would be assured.

Commercial fertilizers are good in their place, but the constant use of such material in large quantities with little or no organic matter returned to the soil ultimately results in the loss of productiveness. In the place of a part of the commercial fertilizer the farmer may well substitute the growing of legumes, to supply nitrogen and organic matter, the deepening of the soil by deep plowing and subsoiling, the protection of the land in winter and at all times by cover or other crops. Improvement in the seed sown is another matter receiving attention in many farming communities, and careful selection of varieties suited to local conditions will more than repay the trouble. Better seed give more perfect stands of the crops; high yields can not be secured where large vacant spaces are left in the fields.

#### SOILS.

The soils of Tift County are derived from two different geological formations, the Columbia and the Lafayette. The material of these two formations was washed down from the Piedmont Plateau lying farther north and deposited in the bottom of a shallow sea then covering this general region.

The surface or Columbian formation consists of loose white or yellow sand, with occasional beds of gravel, and belongs to the Pleistocene period of geologic time. This upper formation, from

which the Norfolk soils are derived, is thin and in many places is entirely washed away, exposing the next lower beds of material composing the Lafayette formation, belonging to the Pliocene period. This formation consists of yellow or orange-colored sands and clays and gives rise to the Tifton and Orangeburg soils. In many places the material of this formation is indurated or hardened to such a degree as to approximate a sandstone. The thickness of the Lafayette deposits is in some places as much as 80 feet, but in a few places on the west bank of Little River it is worn through, and outcrops of hard sandstone known as Altamaha grit, belonging to the Miocene period, are seen. This rock is usually so deeply buried that it has little or no effect on the surface. The next lower formation, known as the Vicksburg-Jackson limestone and belonging to the Eocene period, while also lying quite deep, does have an important effect on the surface, which in some places is marked by depressions or sinks, the result of solution of the rock and the falling in of the overlying deposits. These sinks are sometimes without an outlet and filled with water, often to a depth of 18 or 20 feet. Several such sinks are found in the sand belt on the east bank of Little River.

The soils of Tift County belong principally to three series—the Norfolk, the Portsmouth (these two being extensively developed and already mapped in many parts of the Coastal Plain), and a new series to which has been given the name "Tifton." The Orangeburg soils are developed only in a few small spots and are therefore not important. The surface soil of the entire county is quite sandy, except in places where the heavier material of the Orangeburg series is found.

Ten different types of soil were mapped. The name and extent of each type is shown in the table following:

*Areas of different soils.*

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Tifton sandy loam.....	98,368	56.7	Tifton sand.....	1,664	1.0
Myatt sandy loam.....	31,616	18.2	Orangeburg sandy loam.....	960	.6
Norfolk sandy loam.....	20,416	11.8	Portsmouth sand.....	640	.4
Swamp.....	6,976	4.0	Norfolk coarse sand.....	256	.1
Norfolk sand.....	6,400	3.7			
Sandhill.....	6,144	3.5	Total.....	173,440	.....

**TIFTON SANDY LOAM.**

The Tifton sandy loam is the most extensive as well as the most important and most popular soil in the county. It consists, to a depth of 6 to 12 inches, of a gray medium to coarse sandy loam carrying, especially on the surface, considerable quantities of ironstone gravel.



At about this depth the color changes to a light yellow and finally to a reddish-orange yellow when the true sandy clay subsoil is reached. As the depth increases mottlings of light red are found. The sticky sandy clay of the subsoil is usually encountered at a depth of about 12 to 15 inches. The subsoil also contains iron concretions, usually in less quantities than the surface soil. These concretions are due to the cementation of the soil particles by iron salts.

This type is found in all parts of the area and surrounds all the other soils. It is derived from the Lafayette formation. It has a retentive subsoil, giving it good water-holding capacity, and at the same time is sandy enough to be very easily worked. It contains sufficient ironstone gravel to make it permeable by water and plant roots, and where attention is given to the incorporation of organic material, in which the soil is deficient, it becomes a productive soil.

The natural forest growth of this soil is almost exclusively long-leaf pine, and most of the turpentine plants still in operation in the county are found on this soil. A scanty growth of wire grass furnishes some pasture in the spring and early summer.

Cotton, corn, oats, sweet potatoes, Irish potatoes, peanuts, sugar cane, tree and small fruits, pecans, vegetables, and in fact all crops grown in the county do well on this soil, but the yields are not what they should be on a soil of this character. The average yield per acre of cotton is one-third to one-half bale. With heavy fertilization 1 bale per acre has been produced. Corn yields 15 to 25 bushels per acre on the average, and 50 bushels per acre have been produced. The average yield of oats is 15 to 20 bushels per acre. In one instance an average yield of 30 bushels per acre on 200 acres has been secured. Oats should follow cowpeas, velvet beans, peanuts, or some other leguminous crop. If this is not done, a light application of nitrate of soda should be made to the field in the spring before the oats begin to head. Two crops of sweet potatoes, totaling 500 bushels, have been grown on 1 acre, and the same is true of Irish potatoes, but the average is much below this. No figures are obtainable on the yield of peanuts. One firm is now making preparations for growing peanuts on a commercial scale. The type gives good yields of peanuts, but the color of the nuts is not as light as of those grown on the more sandy soils.

All crops grown on this type are highly fertilized with commercial fertilizers, the farmers seeming to depend entirely upon them. A few are beginning the practice of plowing under green crops of cowpeas, velvet beans, peanuts, and the like, with very good results.

Deep plowing, the plowing under of green crops, and more thorough cultivation would certainly work toward the improvement of this soil.

For general agricultural purposes this type is the most valuable in the county, ranging in price from \$10 to \$40 an acre, according to location.

The following table gives the average results of mechanical analyses of fine-earth samples of the soil and subsoil:

*Mechanical analyses of Tifton sandy loam.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20361, 20363, 20365.	Soil.....	2.5	15.0	11.2	37.7	16.5	8.7	6.9
20362, 20364, 20366.	Subsoil.....	1.3	9.7	9.5	27.6	16.5	9.6	25.6

#### TIFTON SAND.

The Tifton sand in general appearance resembles the Tifton sandy loam. The main points of difference are the greater depth to the subsoil and the greater quantity of iron concretions scattered over the surface and mixed through the soil. It usually occupies areas slightly higher than the Tifton sandy loam. The natural growth is invariably scrub oak, with a few scattering pine trees.

The soil of this type consists of a medium to coarse incoherent sand, light gray on the surface and becoming light yellow below. This material varies in depth from 25 to more than 36 inches. The subsoil is somewhat sticky and is of a reddish-yellow color; otherwise it is much the same as the top soil.

This type is not cultivated in this area, being droughty. It exists in small areas and is not important.

The following table gives the average results of mechanical analyses of fine-earth samples of the soil and subsoil:

*Mechanical analyses of Tifton sand.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20357, 20359.....	Soil.....	7.3	20.9	15.7	31.0	11.8	8.6	4.6
20358, 20360.....	Subsoil.....	5.0	19.6	15.0	31.4	10.0	8.3	10.7

#### NORFOLK SANDY LOAM.

The Norfolk sandy loam consists of 8 to 12 inches of gray or yellowish-gray sand, underlain by a stratum, 8 to 10 inches thick, of yellow medium to coarse sticky sand or sandy loam, which grades into a light reddish-yellow sandy clay at 30 to 36 inches. At greater depths mottlings of light red are usually found.

The type occurs principally in the northeastern part of the county, where it is found in rather large areas occupying about the same position as the Tifton sandy loam in other parts of the area. Another extensive block of this type is found in the vicinity of Ty Ty.

Being very sandy and loose on the surface it is easily cultivated, but the same incoherent structure causes the rapid loss of water and makes the type susceptible to drought, especially where the subsoil lies at considerable depth.

Artificial drainage is usually unnecessary on account of the rolling topography and porous nature of the soil, which allows water to sink rapidly away. The material of this type is a deposit of a shallow sea and belongs to the Columbia formation, which lies just above the Lafayette. The forest growth is pine and scrub oak. Wire grass is also a typical plant on this soil.

The Norfolk sandy loam of this area is well adapted to the growing of early truck and strawberries, though it is not used for these purposes, except to supply home demands, there being no commercial truck farms in the county. The type is used for general farming, cotton and corn being the principal crops. Liberal applications of commercial fertilizer are always used. One-third bale of cotton and 20 to 25 bushels of corn per acre may be considered the average for this type, where liberal amounts of fertilizers are used. Deep plowing and the incorporation of organic matter are suggested for this soil.

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

*Mechanical analyses of Norfolk sandy loam.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20345.....	Soil.....	3.0	13.9	13.5	42.2	12.7	6.6	7.9
20346.....	Subsoil.....	2.4	12.4	12.0	35.1	9.8	5.3	22.9

#### SANDHILL.

On the east bank of Little River and to some extent on the corresponding bank of the smaller streams is found a ridge or belt of almost pure sand, the origin of which is not well understood.

It consists of a loose, incoherent sand, light gray or yellowish gray at the surface and changing to a light yellow at depths ranging from 3 to 8 inches, from which point it continues the same in texture and color, usually for many feet.

The natural growth is principally scrub oak, with an occasional live oak and a few small hickory saplings. Usually the boundaries

between this type and other soils are very well defined, but in places it merges into Norfolk sand, making the boundary difficult to locate.

Oats and cotton are grown on the Sandhill areas, but to a very limited extent, and then only with liberal applications of commercial fertilizer. The type, however, is considered of small agricultural value, though it is probable that fair yields of the early truck crops could be grown.

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

*Mechanical analyses of Sandhill.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20367.....	Soil.....	1.0	20.4	28.4	38.9	6.0	3.3	2.0
20368.....	Subsoil.....	1.5	21.6	27.0	39.5	5.5	2.4	2.8

#### MYATT SANDY LOAM.

The Myatt sandy loam comprises the poorly drained dark-colored soil found at the heads and bordering the courses of streams. Occasionally this type extends up the slopes well away from the streams. The top soil, to a depth of 5 to 12 inches, consists of a dark-gray to black medium to coarse sand or sandy loam containing large amounts of organic matter. The subsoil frequently grades into a pearl-white or very pale yellow medium to coarse sand or sandy loam, sometimes mottled with light-yellow or brown and often very compact. In a few places where standing water occurs the subsoil consists of a stiff, tenacious silty clay, mottled with yellow, drab, and brown.

The Myatt sandy loam, when properly drained, is a good corn soil. It has also been used to a limited extent for upland rice. However, up to the present time very little of this type has been put under cultivation for any purpose.

Pine, sweet and black gum, gallberry bushes, pitcher plant, and wire-grass are characteristic vegetation, the last mentioned affording good pasturage almost continuously through the year.

#### NORFOLK COARSE SAND.

The material of the Norfolk coarse sand consists of 4 to 8 inches of light-gray to white coarse, incoherent sand containing considerable fine quartz gravel. Below this to 36 inches and more the material consists of a loose white to light-yellow coarse sand, which sometimes becomes sticky at 36 inches.



This type occurs in relatively high ridges or caps of knolls and the areas are of small extent. The material was probably deposited as a sand bar or beach in an ancient sea.

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

*Mechanical analyses of Norfolk coarse sand.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20347.....	Soil.....	4.1	32.0	18.5	23.6	9.0	8.7	3.9
20348.....	Subsoil.....	4.9	29.3	17.6	22.6	9.0	8.9	8.0

#### PORTSMOUTH SAND.

The surface soil of the Portsmouth sand, to a depth of 6 to 10 inches, consists of a black, medium to fine sand containing large quantities of organic matter. Below this top layer is uniformly found a stratum, varying in thickness from 3 to 10 inches, of chocolate-brown, medium to fine sand, which is sometimes quite compact. From this stratum to depths of 36 inches or more the character of the material varies from an almost pure white incoherent sand to a yellowish or drab sticky sand strongly mottled with yellow and brown.

Soil of this type is found in only one small area which lies in the southern part of the county south of Eldorado. The topography is flat or at most very slightly rolling, which accounts for the constantly wet condition of the soil. The native tree growth is longleaf pine, with cypress in a few small swamps. The minor vegetation consists of palmetto, gallberry, pitcher plant, and wire grass.

A small part of the area of this soil has been drained by open ditches and put under cultivation. The fertilizer requirements seem to call for moderate application of potash and phosphoric acid—not much nitrogen being necessary. Lime should also be used to correct the acidity. The Portsmouth sand is primarily a corn soil, yields as high as 40 bushels per acre being reported.

#### NORFOLK SAND.

The Norfolk sand occurs as small isolated caps or ridges in all parts of the area, but principally in the northern and eastern parts. The soil, to a depth of 5 to 12 inches, consists of a gray or yellowish-gray medium sand containing some organic matter. The subsoil is a yellowish-gray to yellow sand grading into a yellow or yellowish-red sticky sand, often mottled with light red at 30 to 36 inches.

In its natural state the Norfolk sand usually supports a good growth of wire grass, longleaf pine, and scrub oak.

The agricultural possibilities of this soil in Tift County have not been worked out, as when cultivated at all it is usually in a field where this soil occurs in connection with some of the stronger soils and the same treatment is given both. Liberal fertilization and ample rainfall are necessary for profitable yields on the sand. With good management, including the use of large quantities of stable and green manures, and where feasible, with irrigation, the type would give excellent results with early truck.

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

*Mechanical analyses of Norfolk sand.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20343.....	Soil.....	3.4	20.2	17.6	33.5	13.2	8.1	4.1
20344.....	Subsoil.....	3.1	18.2	16.0	36.3	14.7	7.2	4.4

ORANGEBURG SANDY LOAM.

The Orangeburg sandy loam consists of a brown or light-brown medium sandy loam from 6 to 15 inches in depth, resting on a subsoil of stiff red clay or sandy clay. Both soil and subsoil contain rather large quantities of small iron gravel.

This soil has only a small extent in Tift County, and this fact, coupled with the usual uneven topography, makes it of little local value for agriculture.

The type occurs as narrow strips or small irregular areas, usually near the west banks of the principal streams. The vegetation is principally longleaf pine.

Very little of the Orangeburg sandy loam is under cultivation and where cultivated it is generally included in fields of another soil, usually the Tifton sandy loam. In other parts of the Coastal Plain the Orangeburg sandy loam is considered a good soil for general farming, though it requires careful handling on account of the high percentage of clay which it contains. The larger areas of this soil in Tift County, at least those having the best surface conditions, should be cleared and put under cultivation. The soil is especially well adapted to oats, beans, peas, cabbage, and other crops requiring a clayey soil.

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

*Mechanical analyses of Orangeburg sandy loam.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
20349.....	Soil.....	1.8	8.4	8.5	34.6	30.3	11.1	5.1
20350.....	Subsoil.....	.6	4.6	5.5	23.9	19.8	8.2	37.3

#### SWAMP.

Certain areas along Little River and Ty Ty Creek and the numerous small cypress swamps in various parts of the county have been mapped as Swamp. Such areas are nonagricultural in their present condition, as they are covered with water, except in long periods of very dry weather. Usually the land would be very difficult to drain, and as it is also covered with a dense growth of cypress, black and sweet gum, bay, yellow poplar, gallberry bushes, and many small shrubs and vines, clearing would be expensive. Under these conditions the Swamp has little prospect of immediate reclamation.

If drained and cleared, these areas would be the most fertile in the county, as the soil contains large quantities of organic matter as well as much fine material washed down from the higher lands.

#### SUMMARY.

Tift County lies in the Coastal Plain or "wire-grass" section of south Georgia.

The county was organized in October, 1905, from parts of Berrien, Irwin, and Worth counties.

The principal industries have been the production of lumber and turpentine, but since the pine forests have been practically all destroyed, the people are turning their attention to farming.

Three railroads—the Atlanta, Birmingham and Atlantic, the Georgia Southern and Florida, and the Atlantic Coast Line—traverse the county, affording excellent transportation facilities. These roads intersect at Tifton, the county seat, situated near the center of the county.

The population of Tift County in 1900 was 13,500; the taxable property was valued at \$3,000,000. All the farms are owned by the whites, who on the smaller places with their families do nearly all the farm work. The larger farms are worked by hired help, mostly negroes, under supervision of a foreman.

The area is drained by tributaries of the Suwanee River, the principal streams being Allapaha River, Little River, and Ty Ty Creek.

Cotton and corn have been the leading farm products. Peanuts and sugar cane are grown on a small acreage. Recently some attention has been given to other crops, such as cowpeas, velvet beans, oats, pecans, melons, sweet potatoes, and Irish potatoes. Fruits, especially peaches, alfalfa, and cassava, are suggested for trial.

The live stock of the area is inferior and should be improved. A rigid stock law is needed and will do much to give the farmers better farm animals.

The use of improved farm machinery is strongly advised. The character of the soils and the smooth topography are both suited to it.

Too much dependence is placed upon commercial fertilizers. Better methods generally, including the deeper and more thorough tillage of the soil, the incorporation of vegetable matter, and the rotation of crops, will to some extent take the place of these expensive materials. The climate permits the keeping of green crops on the land throughout the year and this should be done whenever practicable.

The soils are derived from ancient deposits in a shallow sea and belong to five different series—the Norfolk, the Tifton, the Portsmouth, the Myatt, and the Orangeburg.

The Tifton sandy loam is the best soil in the county for general farm crops, and is held at higher prices.

The Norfolk sandy loam is a good soil for general crops, but better for truck.

The Myatt sandy loam, which lies along the streams, is, if drained, an excellent type for corn.

The remaining types are not of much importance in Tift county.



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