

SOIL SURVEY OF SUMTER COUNTY, SOUTH CAROLINA.

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DESCRIPTION OF THE AREA.

Sumter County lies in the central-eastern part of South Carolina and comprises an area of 375,424 acres or about 587 square miles. It is bounded on the north by Kershaw and Lee counties, on the east by Florence and Lee counties, on the south by Clarendon and Florence counties, and on the west by Richland County. The surface features

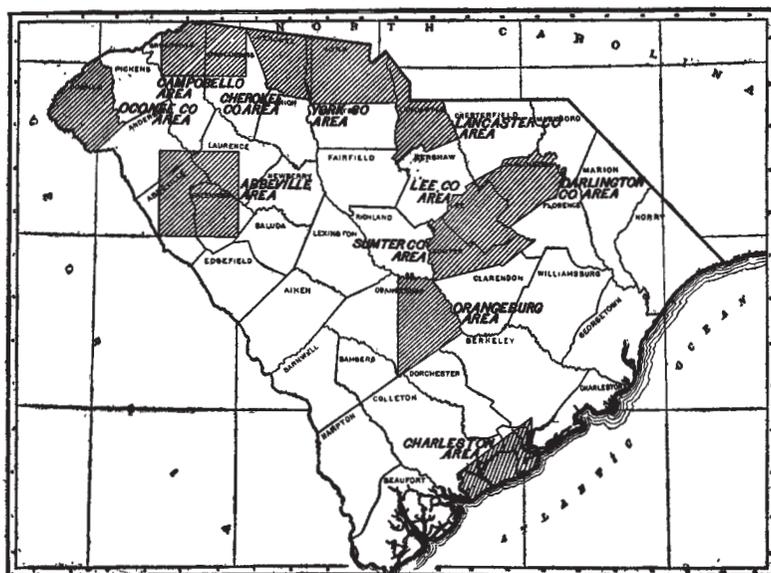


Fig. 9.—Sketch map showing location of the Sumter County area, South Carolina.

vary from those of a rough and hilly section that has been badly dissected and eroded by stream action to those characteristic of the level and swampy parts of the Coastal Plain. The western and northern parts of the county are the most rolling. Following the Wateree River at an average distance of 3 or 4 miles is a range of hills varying from 1 to 3 miles in width, locally known as the High Hills of the Santee. The line of separation between these hills and the more

level country is very distinct. This chain of hills follows the river up to Stateburg, where it leaves the river and turn to the northeast across the county. North of Stateburg a broad, level or gently rolling area borders the river swamp. Going south from these hills the topography gradually becomes less broken, until the surface finally becomes level and poorly drained. Here the county is cut by small streams bordered by ridges which are fitted for cultivation. The only definite elevations available are those along the railroads. The town of Sumter is 169 feet above sea level, and there is a gradual rise going toward the west until Wedgefield, which has an altitude of 253 feet, is reached. The lowest elevation is in Wateree Swamp, which is 108 feet above tide. Along the hills in the vicinity of Stateburg the elevation will probably reach 400 feet. The chain of hills passing through Wedgefield and Stateburg is drained on the west principally by the Wateree River or smaller streams emptying into this river. The drainage on the eastern side of these hills and in the central part of the county passes through Pocotaligo Swamp. The drainage of the eastern part of the county has its outlet principally through Black and Lynches rivers. These streams are crooked and sluggish and the drainage is rather slow after heavy rains.

The State was divided into districts at an early date, and the first permanent settlement in Sumter District took place about the year 1750 in that part of the district now known as Salem. The settlers came principally from Virginia and North Carolina. These people were mostly of Scotch descent and a few came directly from Scotland. The greater part of the negro population is found in the flat country. The present population is composed principally of direct descendants of the early settlers.

Transportation facilities are about as satisfactory as in any county in the State. Railroads cross the county in almost every direction. These belong to the Atlantic Coast Line, the Southern, and the Northwestern of South Carolina systems, and afford direct transportation to Columbia, Augusta, Charleston, and Wilmington.

The chief town in the county is Sumter, which is the county seat, with a population of 10,000 or 12,000. Forty-six trains pass in and out of this town daily, which makes it a fine distributing point for jobbing, wholesale, and manufacturing establishments. Sumter is situated almost in the center of the county and receives the bulk of the trade. Mayersville, Wedgefield, and Hagood are small towns, but all of them have large business interests.

CLIMATE.

The climate of Sumter County is that of the warm temperate zone, and many plants that are adapted to a semitropical climate are found growing here. Crops generally suffer more from an excess of moisture

than from droughts; especially is this the case in the flat part of the county, where the water table is near the surface. There is a slight climatic difference within the boundary of the county. The crops in the level part of the area are about a week or ten days earlier than in the western part or the High Hills of the Santee. A good many people go to these hills to spend the summer.

The winters are mild and the snowfall very light, and many flowers and vegetables grow almost the entire year.

The day temperatures in summer are frequently high, but the nights are generally cool.

The following table shows the normal monthly, seasonal, and annual temperature and precipitation at the Weather Bureau station located in Stateburg.

Normal monthly, seasonal, and annual temperature and precipitation at Stateburg, S. C.

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.....	47	75	6	3.0	2.5	2.0	0.2
January.....	45	78	12	3.4	2.5	2.9	1.0
February.....	49	80	3	4.2	1.5	7.3	3.9
Winter mean.....	47			10.6	6.5	12.2	5.1
March.....	55	87	30	3.7	4.4	4.2	Trace.
April.....	62	91	32	3.1	1.4	3.0	0.0
May.....	72	101	44	3.3	3.1	1.7	0.0
Spring mean.....	63			10.1	8.9	8.9	Trace.
June.....	77	100	53	4.9	5.4	18.4	0.0
July.....	79	104	59	5.0	4.8	3.6	0.0
August.....	78	105	58	5.4	2.1	7.5	0.0
Summer mean.....	78			15.3	12.3	29.5	0.0
September.....	74	99	42	3.2	2.0	4.8	0.0
October.....	64	89	33	3.1	2.0	3.0	0.0
November.....	54	84	21	2.1	0.9	1.6	0.0
Fall mean.....	64			8.4	4.9	9.4	0.0
Annual.....	63	105	3	44.4	32.6	60.0	5.1

AGRICULTURE.

Sumter County was formed in 1798, but it was probably thirty or forty years before this date that a beginning in agriculture was made. The first settlers were herdsman, who moved their cattle from place

to place as the range suited them. Later the great pine forests offered more profitable opportunities than agriculture, and large quantities of tar, turpentine, rosin, staves, shingles, lumber, etc., were produced in addition to beef, pork, and hides. The first crops grown were principally corn and wheat, both of which were grown in large quantities. Some indigo was also grown in the early days and exported, the English Government offering a bounty for its production. East India competition and the war with the mother country stopped this industry. Until about 1850 wheat and oats were extensively produced, but soon after this date cotton became the leading crop of the county, which position it has held to the present time. Rice was grown prior to the civil war along the streams or in the depressions, though only enough was produced to supply home demands. Very little rice has been grown since the war. Sugar cane has never been grown on a commercial scale, though small patches are found here and there, the sirup being made for home use.

A great change in agriculture was brought about by the war. The large number of cattle and hogs were no longer raised and the acreage in wheat was reduced to almost nothing. Cotton became the chief crop and the subsistence crops were practically abandoned. With an increase in production of cotton came a decrease in price. This state of affairs went on, conditions growing worse, until about 1892, when cotton reached such a low price that many farmers became bankrupt.

The conditions of agriculture differ markedly in different parts of the county. In the western or hill section more important development took place before the war and many old mansions are found there to-day. Their owners had large plantations in the lowlands of the State, but lived here most of the time on account of the more healthful climate. They used the Wateree Swamp for raising large numbers of cattle and hogs. These hills were also considered fine for nearly all kinds of fruits, principally peaches, figs, grapes, and small fruits. After the war agriculture in this section was almost prostrated and many years elapsed before it recovered. During this period of recovery agriculture made steady gains in the more level country, as it was thought that the lands there were more productive on account of their virgin condition and black color. The soils of the hills were subject to erosion and in many places the fields during abandonment had been washed badly, and this tended to retard growth here as compared with the progress in the lowlands. The flat lands were covered with extensive pine forests, which in places were cut for lumber, but in many cases the trees were felled and burned in order to get the land in condition for crops. At the present time the greater part of the farming is done in the level country, although the hills are gradually being improved, and most of the more productive soils, where well drained, are at the present under cultivation. Here,

however, there are some areas that have been abandoned for virgin soils. There are also thousands of acres covered with heavy forests of pine, cypress, and hardwood that can not be cultivated in their present state.

As a whole, farming practices are gradually improving. More attention is being paid to fertilization, the rotation of crops, and the maintenance of productiveness of the soil in general. It is the opinion that with careful attention to these matters much larger crop yields and greater net profit may be realized by the farmers; that is, the soils are capable of marked improvement and have not been cropped to their full capacity.

In the last ten years land values have almost doubled. The best land at the beginning of this period could be bought for \$20 to \$40 an acre; now it brings \$40 to \$75. The poorly drained soils, such as the Portsmouth fine sandy loam and Portsmouth sandy loam, bring \$10 to \$15. The Sandhill, which used to sell for 50 cents to \$1, is now bringing \$4 to \$5.

In size the farms vary from about 25 to several thousand acres. Most of the smaller farms are all under cultivation, while the larger holdings consist of tracts of waste land or land where the drainage conditions prohibit cultivation in their present state. According to the last census the average size farm contains 61.5 acres. In the census enumeration, however, each tenancy was considered a distinct farm, and the figures given are therefore too low. There is a growing tendency to divide the larger holdings, and the number of small farms has increased since 1900.

In 1899, at the time of taking the last census, Sumter County contained about 899 square miles. Since that time 312 square miles have been cut off and added to Lee County. The census figures relating to agriculture are, therefore, speaking roughly, about 33 per cent too large. They nevertheless give a general idea of the conditions in this county. According to this authority the number of acres in farms was 405,675, and the value of farm lands and improvements, excluding farm buildings, was \$3,663,330. There were 71,020 acres planted in corn, and 93,598 acres in cotton, producing 48,485 bales. The greater part of the remainder of the cultivated land was in oats, potatoes, cowpeas for hay, and garden crops. The expenditures for fertilizers amounted to \$221,300 and for labor \$323,290. The one-third to be deducted from these figures to allow for loss of territory has probably been offset in great part by the increase in land values and in the acreage of crops in the eight years since the taking of the census.

About 26 per cent of the farms of the county are operated by the owners. Where this is done labor is hired by the season, from January 1 until the crop is laid by, and paid from \$10 to \$18 a month—the

higher rate near the towns. After laying by the crops, most farm labor is hired by the day, in which case wages range from 50 cents to 75 cents without board.

Cotton is usually chopped and hoed by the acre, the price ranging from 30 cents to 50 cents per acre. Tenant farming done under the share system is less common than in other sections. The usual method is to rent the land for cash, the rentals ranging from \$2 to \$10 per acre, depending on the productiveness of the soil. The tenants are generally furnished their supplies by the merchants, who take a lien on the prospective crop and on the stock used in its cultivation. The landowner always receives his rent first. The majority of the tenants are negroes. They generally cultivate about 25 acres for each horse owned. Most of this they put in cotton and the remainder in corn, with occasionally an acre or two in oats and a small patch of sugar cane and sweet potatoes. A good many negroes own their farms and are in a prosperous condition, although as a rule their soils are not the most productive.

The low prices of cotton in 1897 and for several years prior thereto compelled the farmers to look for some other money crop. As a result tobacco was introduced. It proved profitable and was grown for a few years, but soon afterwards the prices of cotton advanced and the acreage of tobacco rapidly decreased. In the vicinity of Mayesville and Shiloh the farmers are still including a few acres in their crop system, as it is the general opinion that low-priced cotton and low-priced tobacco do not generally oppress the farmer at the same time.

New farmhouses, schoolhouses, churches, and buildings of every description show that the farmers of Sumter County are most prosperous and by using the up-to-date methods there seems to be no reason why this condition should not continue. Some of the farmers are practicing the most scientific methods, involving the rotation of crops, the use of modern machinery, and the economical use of fertilizers. These men no longer depend entirely on cotton for their income and grow in addition to the money crop those necessities which so many buy. The tendency has no doubt set generally in this direction, though progress is by no means so rapid as it should be. With such a variety of soils as is found in Sumter County, one should be able to carry on almost any line of farming desired. Very little attention has been given to the raising of live stock, though there are lands that could be utilized more profitably for this purpose than in any other way. Some farmers produce enough meat and corn for home use. A great many, however, do not produce enough of these commodities to carry them through the winter, while others purchase almost all their home supplies. The Portsmouth soils and the Wateree Swamp, composed of Congaree loam, afford good grazing

through the summer months, and peavine hay could be produced in great abundance. Bermuda grass does well on most all of the soils. The sandy soils are especially adapted to truck, although at present they are little used for this purpose, not enough being grown for home consumption. There is an excellent opportunity for this industry and dairying. The Norfolk soils would also grow fine grapes, and the Orangeburg soils fine peaches.

The lighter soils require much more fertilizer than the heavy ones to produce the same yields. The fertilizer in most common use is an 8-3-3 grade. If all the farmers would mix their own fertilizers according to methods recommended by the Department of Agriculture they could save money. The amount applied per acre ranges from 300 to 1,500 pounds, but it is not thought economical to use more than 1,000 pounds per acre for the crops grown at present. Many of the farmers apply from 50 to 200 pounds of nitrate of soda to the cotton as a top dressing.

Seed selection is an important matter, and those who have given it special attention find that it pays handsomely and that they can sell at good prices any surplus left after planting. Attempts to grow the long staple Upland cotton have generally met with success for the first one or two years, but unless great care is taken to keep the seed pure the staple soon deteriorates as a result of hybridization with the ordinary Upland varieties.

The methods of cultivation are practically the same as those throughout the cotton belt. The corn is almost all planted between the ridges instead of on the ridges. Then as cultivation proceeds the soil is turned to the corn. This keeps the roots deep in the ground, where the moisture conditions, especially in the sandy soils, are better. Cotton is generally cultivated on one side at a time instead of both. This is especially advantageous after the plants have attained some size, as the roots on one side have time to recover before the others are disturbed by cultivation.

The county roads are in very good condition and much interest is being taken in their improvement. The best road material available is composed of sand and clay. Good roads are being rapidly extended to all parts of the county. Artesian wells of excellent flow are secured in the eastern part of the county, at a depth of from 75 to 200 feet. These wells are great conveniences and could be used for irrigation on a small scale if desired.

SOILS.

Sumter County comprises three groups of soils which occupy distinct physiographic divisions. The soils found in these are markedly different in origin. In a general way the most of the western part of the county is upland, locally known as the High Hills of the Santee,

though they parallel the Wateree River. These hills are composed principally of the Lafayette formation. This formation is characterized by sand, gravel, and sandy clay, varying in color from brick red to pink, purple, orange, yellow, or white. Small deposits of quartz and quartzite gravel occur in many parts of this formation, and some ferruginous sandstone is also found. In road cuts or in erosions on hillsides layers of white kaolitic clays are often found. Four types of soil are derived from this formation, as follows: Orangeburg clay, Orangeburg sandy loam, Orangeburg sand, and Orangeburg coarse sandy loam.

A general line drawn almost north and south a little east of Wedgefield separates the hill country occupied by the Lafayette formation from the level country classed by geologists as the Columbia. The deeper stratum of this latter formation is a yellow sandy clay, frequently mottled with iron stains. The surface material is composed of light to dark colored sands and sandy loams, with textures varying from coarse to fine. The texture follows the topographic features very closely. The material is coarser on the higher elevations, gradually becoming finer as the elevation decreases. This is probably due to the removal of the finer particles by wash. It is this formation that gives rise to the Norfolk and Portsmouth soils. The following are the types established: Norfolk sandy loam, Norfolk fine sandy loam, Norfolk sand, Norfolk coarse sand, Portsmouth sandy loam, and Portsmouth fine sandy loam.

The third division comprises the overflow lands, the formation belonging to the Recent age. The greater part of these deposits occurs along the Wateree River, although comparatively large areas are found along Pocatoligo Swamp, Black River, and Lynches River. The soil material found along the Wateree River differs from that along the other streams in that it has been brought down from the Piedmont, while the other deposits are derived locally.

The Orangeburg coarse sandy loam is a type that is seldom found in other areas where the Lafayette formation occurs. This soil may be considered a gradation from the hill soils to the soils of the more level part of the area. It lies as a strip between the hills and the Norfolk coarse sand or Sandhill. The red clay found in the subsoil and which probably formed a part of the entire formation as laid down has doubtless been washed from the higher elevations and mixed with this white sand, giving it a reddish color and causing it to be slightly sticky. The Orangeburg sandy loam as it occurs in other areas is generally a hilly or rolling type and much subject to erosion, but the greater part of it in Sumter County is almost level or slightly rolling. The soil also seems to contain more fine material than is typical, thus giving it a more loamy texture. The greater proportion of the Norfolk sand also varies somewhat from the true

type. The clay substratum is only from 3 to 5 feet below the surface, while in other areas it is generally at a much greater depth, and the surface of the greater part of the type is almost level or slightly rolling, whereas in other areas it is generally rolling. These differences give the soil greater power to hold moisture, and it is therefore a little more productive than the Norfolk sand found in other areas.

The following table gives the names and extent of the several types of soil:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Norfolk sandy loam.....	82,240	21.8	Norfolk fine sandy loam.....	13,824	3.7
Portsmouth sandy loam.....	56,000	14.9	Orangeburg sandy loam.....	12,160	3.2
Congaree loam.....	42,816	11.4	Norfolk coarse sand.....	9,024	2.4
Portsmouth fine sandy loam.....	38,208	10.2	Orangeburg coarse sandy loam..	8,064	2.2
Swamp.....	35,136	9.4	Orangeburg clay.....	6,784	1.8
Norfolk sand.....	32,064	8.6			
Orangeburg sand.....	24,896	6.6	Total.....	375,424	.....
Sandhill.....	14,208	3.8			

NORFOLK SANDY LOAM.

The Norfolk sandy loam consists of a surface soil of coarse to medium gray or dark sandy loam with an average depth of 7 inches. Immediately below this is a light sandy loam having a slight yellowish color and extending to an average depth of 12 to 15 inches, though sometimes it reaches to 24 inches. Often the material is almost a sand and becomes lighter in color as the depth increases. The darker color of the soil is due to the presence of organic matter, and its depth and color depend on the depth of plowing and the crops to which it has been planted. Frequently the darker material does not extend more than 3 inches below the surface. The true subsoil, which occurs at a depth of 12 to 24 inches, is a yellow sandy clay.

The Norfolk sandy loam is found scattered over the greater part of the county, although the largest areas occur northwest and west of Sumter. The greater proportion of it is found along the stream courses in strips varying in width from one-eighth mile to 1 mile. Its surface is almost level, but varies in places to slightly rolling. One area in the extreme northeastern corner of the county has a rolling topography and the soil is in many places subject to erosion. Owing to position along the streams it has good drainage, except here and there in depressions, but even in such cases there is fall enough to the stream to make drainage a simple matter. Along the streams the soil forms a kind of terrace from 6 to 20 feet above water level. Generally the elevation decreases as the stream is left, until the poorly drained Portsmouth soils are reached.

With the exception of the Norfolk fine sandy loam the Norfolk sandy loam, as a rule, is a better soil than any of the other types of the flat section of the county. Those areas west and northwest of Sumter are possibly a little better drained than in other sections of the county.

As is generally true of the sandy loam types of this area, the material from which this soil is derived is a Coastal Plain deposit of sand and clay, the difference between the texture of surface soil and subsoil having been brought about by the removal of the finer clay particles in the drainage waters.

In sections where this soil occurs it is generally about the only cultivable land, although it is sometimes associated with the Norfolk sand and Norfolk fine sandy loam, both of which are well-drained soils.

The Norfolk sandy loam is very easily cultivated, and only in exceptional cases is the subsoil reached in plowing. The soil varies somewhat in productiveness, the differences depending mainly in the method of cultivation and the depth of the sandy surface material. Where it is from 10 to 12 inches deep the land is more desirable and can be improved more rapidly than where it is deeper, as it is less leachy and maintains a better moisture supply during a dry season.

It ranks with the best soils of the county for general farming and is especially adapted to cotton, corn, and oats, though also well suited to all kinds of truck. Cotton yields from one-fourth to 1 bale per acre, corn from 15 to 35 bushels, and oats from 40 to 65 bushels. The yields vary widely with the methods of cultivation and the quantity of fertilizer used.

The following table gives the average results of mechanical analyses of the Norfolk sandy loam:

Mechanical analyses of Norfolk sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17630, 17632.....	Soil.....	2.2	16.0	10.3	34.8	16.1	15.7	5.4
17631, 17633.....	Subsoil.....	2.4	14.0	6.3	25.6	12.9	17.7	21.0

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam, to a depth of 8 or 10 inches, is a dark-gray fine sandy loam. This grades into a yellowish fine sandy loam containing less organic matter. At about 15 inches is found the yellow sandy clay subsoil, which continues to 3 feet or more. The sand content is mainly of the finer grades. Iron concretions of a brownish-yellow color are sometimes found in the subsoil. Along the streams the subsoil in places has a yellowish-red color,

approaching that of the Orangeburg sandy loam subsoil. A similar variation is noted in the Norfolk sandy loam. In both cases it is believed to be due to better drainage and consequent more perfect aeration. The Norfolk fine sandy loam is the heaviest soil of the Norfolk series, although there is no difficulty in cultivating it. It occasionally breaks up into clods when plowed a little too wet, but these are easily pulverized by means of a light harrow.

Practically all of this type of soil occurs between Pocotaligo Swamp and Black River, following these streams and their tributaries. In mode of occurrence it is very similar to the larger part of the Norfolk sandy loam—that is, it parallels the streams as ridges or terraces. These ridges generally form the most of the cultivable land in the section where they occur, as the surrounding soil is principally Swamp or poorly drained Portsmouth soils. In years of average rainfall the Norfolk fine sandy loam is well drained. Open ditches are used to aid in draining the lower lying areas and to carry off excess water after rains. Near the streams there is little difficulty in finding an outlet for the water, as the land lies generally from 6 to 12 feet above the stream level.

Though occupying a comparatively small area this soil is an important one, as it is both productive and easily improved. It is fine in texture, which makes it less leachy than the more open soils. It seems especially fine for oats. It yields from one-half to 1 bale of cotton and from 25 to 60 bushels of corn. These larger yields are secured from land in a very high state of cultivation. Practically all of the type is under the plow, although some of it has been only recently cleared and the fields are still filled with stumps.

The following table gives the results of mechanical analyses of the soil and subsoil of the Norfolk fine sandy loam:

Mechanical analyses of Norfolk fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17638.....	Soil.....	0.5	3.4	3.8	60.1	16.9	11.5	3.3
17639.....	Subsoil.....	.4	3.4	2.5	46.5	17.6	13.0	16.4

NORFOLK SAND.

The soil of the Norfolk sand consists of about 6 inches of light-gray sand, varying in texture from coarse to medium, below which is a white or yellowish-white sand of practically the same texture extending to the depth of 3 feet or more. In one respect the Norfolk sand is unlike that found in other areas; the clay subsoil is not so far from the surface, the depth of the sand remaining close to that point which separates the Norfolk sand from the Norfolk sandy

loam, the subsoil becoming slightly tenacious between 30 and 40 inches. In many places where this soil has been properly cultivated it is quite loamy, but on the other hand there are occasional elevations that contain very little organic matter, and here the soil is thin and unproductive.

Nearly all of the Norfolk sand lies west of Pocotaligo Swamp. The greater part occurs in one broad area, which, beginning a little north of Sumter and taking in the greater part of that town, extends south to the county line.

The topography of the Norfolk sand is generally level, with here and there a gently rolling area. The drainage is good and in many cases is so thorough that the crops suffer from drought. The moisture conditions, however, are better than in many other areas of this soil, because of the almost level surface and the presence of the clay at a depth of 3 to 5 feet. For this reason it is more productive than in most other areas. Another reason for its productiveness is found in the generally good methods used in its cultivation. Five or six years ago the type was considered almost worthless, but since that time heavy applications of fertilizers have been made, often as much as 1,000 and 1,500 pounds per acre, and as a result from one-half to three-fourths bale of cotton per acre is secured. Where heavy fertilization has not been practiced the average yield is one-eighth to one-fourth bale. Corn yields on the average from 8 to 30 bushels, and the yield of oats ranges from 15 to 30 bushels per acre.

The native vegetation on the Norfolk sand is principally longleaf pine and scrub oak. Nearly all of the type is under cultivation at the present time.

NORFOLK COARSE SAND.

The surface soil of the Norfolk coarse sand consists of about 6 inches of a light-gray medium to coarse sand. Below this is a few inches of almost white sand which gradually passes into a light-yellowish sand, extending to a depth of 3 feet or more. The darker color of the surface soil is due to the presence of a small quantity of organic matter. The newly cleared lands contain considerably more organic matter than the average field, but under cultivation, except where organic manures are used, it is retained for only a few years.

The Norfolk coarse sand covers only a limited area, and is of little agricultural importance. It may be considered a gradation between the Norfolk sand and the Sandhill. It is confined to the western and southwestern sections of the county and is always associated with Sandhill. It is practically the only cultivable land along the edge of the Sandhill region varying from level to gently rolling, and is

more productive than the Sandhill, which has more pronounced relief. This type is badly in need of humus, and organic manures, together with heavy applications of fertilizers, are necessary to make it produce fair yields. Practically all of this soil has been under cultivation at one time or another. Where forested it usually supports a growth of longleaf pine and scrub oak. Practically all of the pine timber of any size has been cut.

Cotton and corn are the principal crops, although a small acreage is sown to oats. Cotton yields from one-eighth to one-fifth bale and corn from 4 to 7 bushels per acre. With heavy applications of barnyard manure and fertilizers one-half bale of cotton may be produced, and from 8 to 12 bushels of corn. The yields are almost directly proportional to the quantities of fertilizer applied.

The following table gives the results of mechanical analyses 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.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17640.....	Soil.....	1.7	38.7	21.6	22.3	5.1	6.7	4.7
17641.....	Subsoil.....	2.2	46.2	21.4	18.4	4.1	5.1	2.8

ORANGEBURG SANDY LOAM.

The Orangeburg sandy loam consists of 5 to 15 inches of medium to coarse, gray or reddish-brown sandy loam, resting on a subsoil of pale-red to red sandy clay in which are occasionally mingled small iron concretions and quartz gravel. The lighter colored areas have a tendency to be rather loose and incoherent; the areas of reddish-brown soil are heavier, more compact, and in depressions frequently resemble a loam in texture. The nearer the clay subsoil approaches the surface the more loamy and the darker the soil. Areas where the sandy loam covering is more than 15 inches deep have been mapped as Orangeburg sand. Where the depth to the subsoil is 12 or 15 inches the first 5 or 6 inches is loamy, but the material between this and the true subsoil is frequently very open in texture, and more a sand than a sandy loam. The subsoil varies somewhat with the topography; the lower lying areas are of a pale red and the color becomes more intense as the elevation increases until it is a brick red. The subsoil of the more elevated areas also seems to contain more sand. The texture of this soil makes cultivation very easy.

The most extensive occurrence of this type of soil is in the north-western section of the county. It is found in comparatively large, scattered areas. The topography varies from almost level to rolling, the greater part, especially the larger areas, being gently rolling. It

is found in the hills that extend across the western side of the county and is associated with the Orangeburg clay and Orangeburg sand.

There is a considerable difference in the agricultural value of this soil, the more level areas producing much better yields than the rolling areas. This is due mainly to the greater depth of the sandy material in the rolling areas and also to erosion. In the hills the depth to the subsoil ranges from 10 to 15 inches, while in the more level areas the depth is generally 6 to 10 inches.

All of the Orangeburg sandy loam is well drained, although occasionally a depression of a few acres is found where artificial drainage is necessary. Such places are very productive and the soil is darker and more loamy.

The Orangeburg sandy loam is derived from the Lafayette sands and clays. It is one of the best types in the area for general farming, especially where the topography is only gently rolling. The original timber growth was principally hardwood, such as oak and hickory, with a scattering of pine. Practically all of the soil is now under cultivation. Cotton yields from one-half bale to 1 bale per acre, oats from 30 to 60 bushels, and corn from 20 to 40 bushels.

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

Mechanical analyses of Orangeburg sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17644.....	Soil.....	1.9	13.5	11.0	27.8	19.0	14.2	12.9
17645.....	Subsoil.....	2.3	10.6	5.2	14.5	6.5	16.5	43.8

ORANGEBURG SAND.

The soil of the Orangeburg sand consists of a medium to coarse sandy material, varying in depth from 12 or 15 inches to about 25 inches. The first 3 or 4 inches, owing to the presence of a small quantity of organic matter, is more loamy than the soil below this depth and has a grayish color, but the color quickly changes to yellowish or reddish brown and the loamy texture becomes less and less pronounced with depth until an incoherent sand is found. The subsoil is a red sandy clay, with a comparatively open texture, but becomes heavier as the depth increases. When the subsoil reaches within 12 or 15 inches of the surface it becomes quite heavy at depths between 25 and 36 inches. Frequently rounded quartz pebbles are found in the soil, and iron concretions are scattered through the subsoil. The subsoil is almost the same as that found beneath the Orangeburg clay and Orangeburg sandy loam, with the exception that it seems to contain a little more sand and occurs at a greater average depth.

Beginning 1½ miles north of Wedgefield the Orangeburg sand extends in an almost continuous strip across the northwestern part of the county. The area varies in width from about 1½ miles to 4 miles and is about 14 miles in length. It is broken only occasionally by very small areas of other soils, principally Orangeburg sandy loam and Norfolk sand. There are numerous included spots, a few acres or less in extent, where erosion has taken place, that would have been mapped as Orangeburg clay had they been large enough to represent on a map of the scale used in the survey.

The Orangeburg sand has the most rolling topography of any soil in the county. It occupies the greater part of the high hills of the Santee, and the most elevated parts of the county are composed of this soil. Many narrow and deep valleys traverse the areas. The drainage is always adequate and on the slopes washing and gullyng often take place, leaving exposed the underlying red clay and rendering necessary the abandonment of occasional fields. Terracing and contour cultivation are necessary over the greater part of the soil, although on hilltops some comparatively large level areas are found. The Orangeburg sand is derived from deposits of the Lafayette age.

The timber growth varies somewhat with the depth of the sandy surface material. The principal growth on the very sandy areas is longleaf pine and scrub oak. Where the clay is nearer the surface some shortleaf pine and a good growth of hardwood are found.

Much of the area of this soil is cultivated with difficulty. The productiveness and general agricultural value vary with the depth of sandy material. Cotton yields on an average about one-fourth to one-half bale, corn from 10 to 20 bushels, and oats from 20 to 30 bushels per acre. Larger yields than those stated can be produced when the land is carefully handled and heavily fertilized.

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

Mechanical analyses of Orangeburg sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17642.....	Soil.....	2.5	13.5	8.9	38.6	22.5	10.4	4.2
17643.....	Subsoil.....	2.6	12.9	5.9	22.4	16.4	8.5	30.8

ORANGEBURG COARSE SANDY LOAM.

The Orangeburg coarse sandy loam has a texture between a true sand and a sandy loam, and may be best described as a light sandy loam. It is a dark-brown or reddish-brown coarse sand to a depth of 10 inches with just enough clay mixed with it to give it a slightly tenacious character. The structure is very open and each grain seems to

be composed of an individual particle of sand with the slightest quantity of clay surrounding it. The subsoil is almost identical with the soil, although it is a little lighter in color and occasionally seems to be a little more tenacious. The type is remarkably uniform and varies only along the margin of areas, where it grades into other soil types.

The Orangeburg coarse sandy loam is in a practically continuous strip about $1\frac{1}{2}$ miles wide, beginning a little west of Manchester and extending north for about 12 miles past Wedgefield. The surface is nearly level and the drainage is good, as the open structure of the soil permits the rapid percolation of water. Occasionally it is necessary to drain small depressions.

The Orangeburg coarse sandy loam is derived from the Lafayette formation, but has never been encountered until mapped in the present survey. It is a very distinct type and apparently represents a gradation between the Norfolk and Orangeburg soils. The eastern margin of this type is formed by Sandhill or Norfolk coarse sand areas, while the western side is bordered by the "red hills" or Orangeburg soils. It would appear that the Orangeburg coarse sandy loam results from the mixture of the red clay brought down from the hills and with the white sand of the level areas. In wells an almost pure white sand is found at depths between 10 and 15 feet.

From the general surface appearance of this type one would take it to be a good soil, as it lies well and has the dark color usually indicative of productiveness. The texture, however, is too open to hold fertilizers, and the soil is badly in need of vegetable matter. Practically all of the Orangeburg coarse sandy loam is under cultivation. The yields are comparatively small, although larger than those of the Norfolk coarse sand and Sandhill. Better results seem to be secured with oats than with any other crop, the yield ranging from 20 to 30 bushels. Corn does fairly well—10 to 20 bushels per acre—and cotton yields from one-fourth to one-half bale per acre. During dry seasons the yields fall below those stated. Heavy applications of fertilizers are necessary to profitable cultivation.

The Orangeburg coarse sandy loam originally supported a rather scrubby growth of oak.

The results of mechanical analyses of the soil and subsoil are given in the following table:

Mechanical analyses of Orangeburg coarse sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17646.....	Soil.....	3.9	41.5	13.5	16.2	3.8	7.5	12.7
17647.....	Subsoil.....	4.4	33.4	13.0	13.8	3.5	8.2	23.4

ORANGEBURG CLAY.

The Orangeburg clay consists of less than 4 inches of brown or reddish-brown sandy loam, varying in texture from medium to fine, overlying a stiff red sandy clay carrying small gravel and iron concretions. As the type has resulted from erosion there is found considerable variation in the different areas, in places the clay subsoil coming to the surface, and in others the mixing of the clay and sandy veneer giving a true loam. Areas having a layer of sandy loam exceeding 4 inches in depth were mapped as Orangeburg sandy loam or Orangeburg sand. Frequently at a depth of 2 or 3 feet the subsoil becomes more sandy. The sand varies from medium to coarse in texture and consists of rounded grains. It is likely that at one time all of this clay had a covering of sand or sandy loam.

Areas having the first few inches a sandy loam are easily cultivated, as the plowing as a rule is not deep enough to reach the underlying clay. Where the clay lies at or near the surface the land is more difficult to handle. When broken it forms clods and must be harrowed thoroughly to put it in good tilth. If plowed too wet it bakes very hard. This changes the structure of the soil and some time is required to get it back to its proper condition. In texture this soil is the heaviest of the upland types.

The Orangeburg clay occurs in one large and a few scattered areas. The large area lies near the town of Wedgefield and parallels the Wateree Swamp. It is between 6 and 7 miles in length and from one-half to 2 miles broad. The smaller areas are erosions on the slopes and appear in the Orangeburg sand areas. This type is locally known as the "red lands" and forms a part of the High Hills of the Santee.

The topography varies from almost level to hilly. Going west across the large area the increase in elevations is gradual, but there is an almost abrupt drop when the Wateree Swamp is reached. The level areas occur along the eastern edge. The soil has excellent drainage.

The Orangeburg clay constitutes one of the best cotton and general farming soils of the Gulf and Atlantic Coastal Plains. It stands a drought or excess of moisture better than most of the soils. It is retentive and the effects of fertilizers are lasting. The greater proportion of the area of the type in Sumter County is under cultivation. The original timber growth was principally hardwood. The chief crop is cotton, yielding from one-half to 1 bale or more per acre, corn from 20 to 50 bushels, and oats from 25 to 40 bushels per acre.

The following table shows the results of mechanical analyses of the Orangeburg clay:

Mechanical analyses of Orangeburg clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17648.....	Soil.....	1.4	18.9	7.6	23.6	13.0	17.1	17.6
17649.....	Subsoil.....	1.0	12.2	6.5	17.6	9.8	13.2	38.7

PORTSMOUTH FINE SANDY LOAM.

The soil of the Portsmouth fine sandy loam, which is from 6 to 12 inches deep and of a rich dark color, is composed of fine and very fine sand and a large quantity of organic matter. The line between the soil and subsoil is usually well marked, the dark color stopping abruptly as a rule where the gray or yellow color begins. For a few inches the subsoil is composed of a very fine sand of gray color containing little organic matter. As the depth increases the sand content becomes less and is displaced by fine silt and clay, resulting finally in fine sandy clay. In the lower depths the subsoil varies in color from yellow to mottled yellow and gray and is stained with iron. The Portsmouth fine sandy loam and the Portsmouth sandy loam are very similar and have about the same topography, being generally flat and poorly drained. Small ponds and swampy places are scattered throughout the areas, and drainage must be provided before much of this type can be profitably cultivated. Owing to this poor drainage condition and the presence of large quantities of decomposing organic matter the soil is quite acid and requires liming.

Areas of this soil usually support a forest of pine, cypress, bay, magnolia, various water-loving oaks, and grasses. Practically all of the Portsmouth fine sandy loam occurs in the eastern part of the county, east of Pocotaligo Swamp, where it forms broad basinlike areas. The largest area is found between this stream and Black River.

When brought under cultivation this soil generally produces good yields during dry years, but frequently fails during years of more than average rainfall. The cultivated portions are generally found around the edges of the large areas, the elevation being slightly higher than in the interior and the drainage therefore better. It is difficult to estimate the probable yields on this soil, as the typical areas are not generally cultivated. The type is better adapted in its present condition to grazing than to growing cultivated crops.

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

Mechanical analyses of Portsmouth fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17652.....	Soil.....	0.8	4.2	10.6	45.7	2.2	25.7	10.0
17653.....	Subsoil.....	.0	5.7	4.0	36.2	13.4	20.4	19.7

PORTSMOUTH SANDY LOAM.

The Portsmouth sandy loam, locally known as the "Pine Flats," consists of about 8 inches of black sandy loam, containing a large quantity of organic matter, resting on a mottled clay frequently showing red iron stains. The soil is variable, however, and often extends to a depth of 4 inches only, where a gray sandy clay is reached, this grading into the mottled sandy clay. On the other hand, the soil may consist of about 15 inches of peaty sandy loam largely vegetable matter. Along Turkey Creek, which lies principally within the town limits of Sumter, a small area of this soil was mapped. Here the material to a depth of 3 feet was almost a muck. The first 20 or 25 inches was black; below this it was a little lighter in color. This is practically the only difference in the soil and subsoil. This area has been drained, and had it been large enough it would have been mapped as another type. The sand in this type of soil is rather uniform, being mainly medium in texture with some of a coarser grade. The phases of the type are generally found in small areas. Excepting the Orangeburg clay, the Portsmouth sandy loam is the most difficult of the upland soils to cultivate, as it is generally rather wet and sticky.

The Portsmouth sandy loam is found in scattered areas throughout the county. It generally occurs as depressions or basins, the larger areas being found between stream courses. Along the edges of the streams there is usually an elevated soil well drained and suitable for cultivation, such as the Norfolk sand, Norfolk sandy loam, and Norfolk fine sandy loam. The Portsmouth sandy loam and the Portsmouth fine sandy loam comprise practically all the undrained areas of the county. The former frequently occurs in areas too small to represent on the map. Areas known locally as savannas have been classified as this type. They occur as depressions in well-drained soils and contain water the greater part of the year. Such places are comparatively small and are rarely ever cultivated, as they require drainage.

The greater part of the cultivated area lies along the edges of the broad areas, or where small depressions have been drained. Only

small areas have been drained. It is the general opinion that with drainage the soil would be the most productive in the county. This opinion is based largely on the yields secured from small drained depressions. It is improbable that the soil of the broader areas is as productive, although it is very good land. In its undrained condition it gives fair grazing during the summer, though little used for that purpose. The timber growth is practically all pine.

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

Mechanical analyses of Portsmouth sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
17650.....	Soil.....	2.6	14.2	9.6	30.3	16.7	19.4	7.3
17651.....	Subsoil.....	2.4	17.0	8.8	24.8	8.4	18.3	19.4

CONGAREE LOAM.

Under the type name of Congaree loam has been included the swamp land along the Wateree River. Naturally the soil, which has been laid down by the river, has a wide variation in texture, depth, and drainage possibilities. However, as most of this land is unsuitable for agriculture on account of poor drainage it was not deemed advisable to attempt to make any separations in the soils. At the State farm a part of this land has been reclaimed from overflow by diking. All of this type is represented on the map with a swamp symbol with the exception of this State farm tract.

The color of the soil of the different phases of the Congaree loam consists of different shades of brown and the texture varies from a sandy loam to a clay. The greater the elevation, the lighter the color and the higher the content of sand. There is frequently a narrow terrace along the stream that is well drained. Here the soil to a depth of 10 inches is a brown heavy sandy loam containing particles of mica. From 10 to 36 inches the material is a little lighter in color, but slightly more tenacious, and occasionally a very fine seam of sand is found. The soil becomes darker in color and heavier in texture as the elevation decreases. The soil of the lower lying areas consists of about 10 inches of brown clay, underlain by a brownish-yellow clay of practically the same texture. The mica in this phase is seldom very noticeable. Occasionally places are found where the terraces above referred to have been cleared and were at one time under cultivation. Practically all of the soil has been abandoned for farming purposes. This is principally due to the overflows, which seem to have been more frequent in recent years than they were formerly. A large part of the cleared land is covered with a growth of Bermuda grass, to which the soil seems well adapted. At

present the land can be used most profitably as pasture. Along the small streams that enter this swamp there is generally a slight terrace. Between the river terrace and the bluffs or uplands is a broad, flat basin intersected by streams, lakes, and sloughs. There are occasionally small elevations scattered here and there through this basin. If the Congaree loam could be drained and protected from overflow it would be one of the most valuable soils in the State, but in the majority of cases the expense would be too great to make present reclamation economical. The State farm produces from 50 to 75 bushels of corn and from 65 to 90 bushels of oats per acre. Land composed of the Congaree loam is valued according to the timber growth and the ease with which lumbering can be carried on. It supports such valuable trees as cypress, oak, and hickory. The less desirable gum, beech, and cottonwood also flourish. The greater proportion of the area is owned by lumber companies, which are rapidly cutting the merchantable timber.

SWAMP.

The areas mapped as swamp are found along the streams and the soil is formed largely of local material, thus differing from the Wateree Swamp, in which the deposits have come from the Piedmont. The Swamp soil is rich in organic matter and is generally covered by water the entire year. It can not be used for agriculture unless it is drained. The areas are narrow and follow the streams, the largest occurring along Pocotaligo Creek and Black River, along which streams the areas reach a mile in width. The Swamp is an unimportant soil and occupies only a small proportion of the county. If drained it would become productive.

SANDHILL.

In the Sandhill the first 1 or 2 inches contains enough organic matter to give the soil a light grayish color. Below this to a depth of 3 feet or more the sand is almost pure white or a very light cream color. The texture of both soil and subsoil varies from medium to coarse. Occasional rounded gravel deposits are found in roadcuts at a depth of 6 to 8 feet below the surface.

In surface features the areas of Sandhill vary from almost level to rolling. Frequently they have the form of wind-heaped, irregular ridges, hillocks, or small dunes. These are in many cases bare of vegetation, and the sand is so white that at a distance they appear to be snow banks. On a close examination it will be found that the first half inch or inch of sand has been thoroughly washed by the rains and that below this for 1 or 2 inches the sand is slightly darker. Bare spots are very numerous throughout the Sandhill areas, and wherever they are found the surface is almost pure white.

The Sandhill is confined entirely to the southwestern corner of the county. It appears about $5\frac{1}{2}$ miles northeast of Manchester and extends in a broad body in a southwesterly direction across the county. It is most typically developed in the vicinity of Manchester. The main body varies in width from one-half mile to 4 miles and has a length of about 9 miles.

The Sandhill is excessively drained, and its lack of moisture-holding properties is one of the principal causes of its low agricultural value. The only areas cultivated are occasional fields in depressions or narrow strips bordering the streams. Such places contain a little more organic matter and are capable of holding a little more moisture when first cleared. Such spots will occasionally produce from one-fourth to one-half bale of cotton per acre, but in two or three years the yields drop to half this. Practically all the efforts to cultivate the Sandhills have met with failure.

The timber growth is rather scattering and consists of scrubby oak and longleaf pine. Nearly all the pine timber of any market value has been cut. A little grass, principally broom-sedge, grows in scattering patches, and this is about the only vegetation, aside from the scrubby forest growth.

SUMMARY.

Sumter County lies in the eastern-central part of South Carolina and comprises an area of 375,424 acres or about 587 square miles. The surface features vary from hilly in the northwestern part to gently rolling or level in other parts of the county.

Sumter County was organized in 1798, but settlement took place long before this date.

While the greater portion of the well-drained land is now under cultivation, the county affords good opportunities for the homeseeker.

Cotton is the dominant crop, and while corn, oats, and hay are grown, the production is not nearly sufficient to meet the local demands.

Very little attention is given to stock raising and thousands of dollars worth of meat are shipped in annually.

Potatoes and truck crops, sugar cane, peanuts, sorghum, peaches, and grapes are minor crops.

The chief town and county-seat is Sumter, with an estimated population of 10,000 or 12,000. Forty-six trains pass in and out of this town daily, which makes it one of the finest distributing points in the State for jobbing, wholesale, and many other establishments.

The price of agricultural lands, as well as all other real estate, has increased greatly within the last few years, owing to the stimulation of high prices for cotton. The towns have rapidly increased in population in the last ten years.

The Orangeburg soils are found principally in the hilly section and are derived from the Lafayette formation. The Norfolk and Portsmouth types occur in the level sections and are derived from the Columbia formation. The Congaree loam, an alluvial soil bordering the Santee River, is recent in origin.

The Norfolk sandy loam, the best soil of the series, is one of the most important types of the county. It is well drained and is readily improved. It is not only well adapted to cotton, corn, oats, and cowpeas, but it is an excellent soil for truck, although but little used for this purpose.

The Norfolk fine sandy loam has as many good qualities as the Norfolk sandy loam, with the exception that it is not quite so good for truck. It is especially adapted to oats and is a good cotton and corn soil. It covers only a comparatively small area.

The Norfolk sand extends over a large area, but being deep and porous it is droughty and only fair yields can be produced even where heavy applications of fertilizers are used. It could best be utilized for truck growing.

The Orangeburg clay and Orangeburg sandy loam are the two best soils in the county for cotton, corn, and oats. They are also well adapted to the growing of peaches.

The Portsmouth soils, Swamp, and Congaree loam are generally poorly drained and their greatest value is for grazing.

Excellent flows of artesian water are found in certain sections of the county.

With the mild climate, excellent transportation facilities, and a great variety of soils, almost any line of agriculture may profitably be carried on in Sumter County. The growing of peaches, grapes, pecans, peanuts, and asparagus are important agricultural industries that might be developed extensively, as the soils are especially adapted to them.

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