

U. S. DEPARTMENT OF AGRICULTURE

BUREAU OF CHEMISTRY AND SOILS

IN COOPERATION WITH THE NORTH CAROLINA DEPARTMENT  
OF AGRICULTURE AND THE NORTH CAROLINA  
AGRICULTURAL EXPERIMENT STATION

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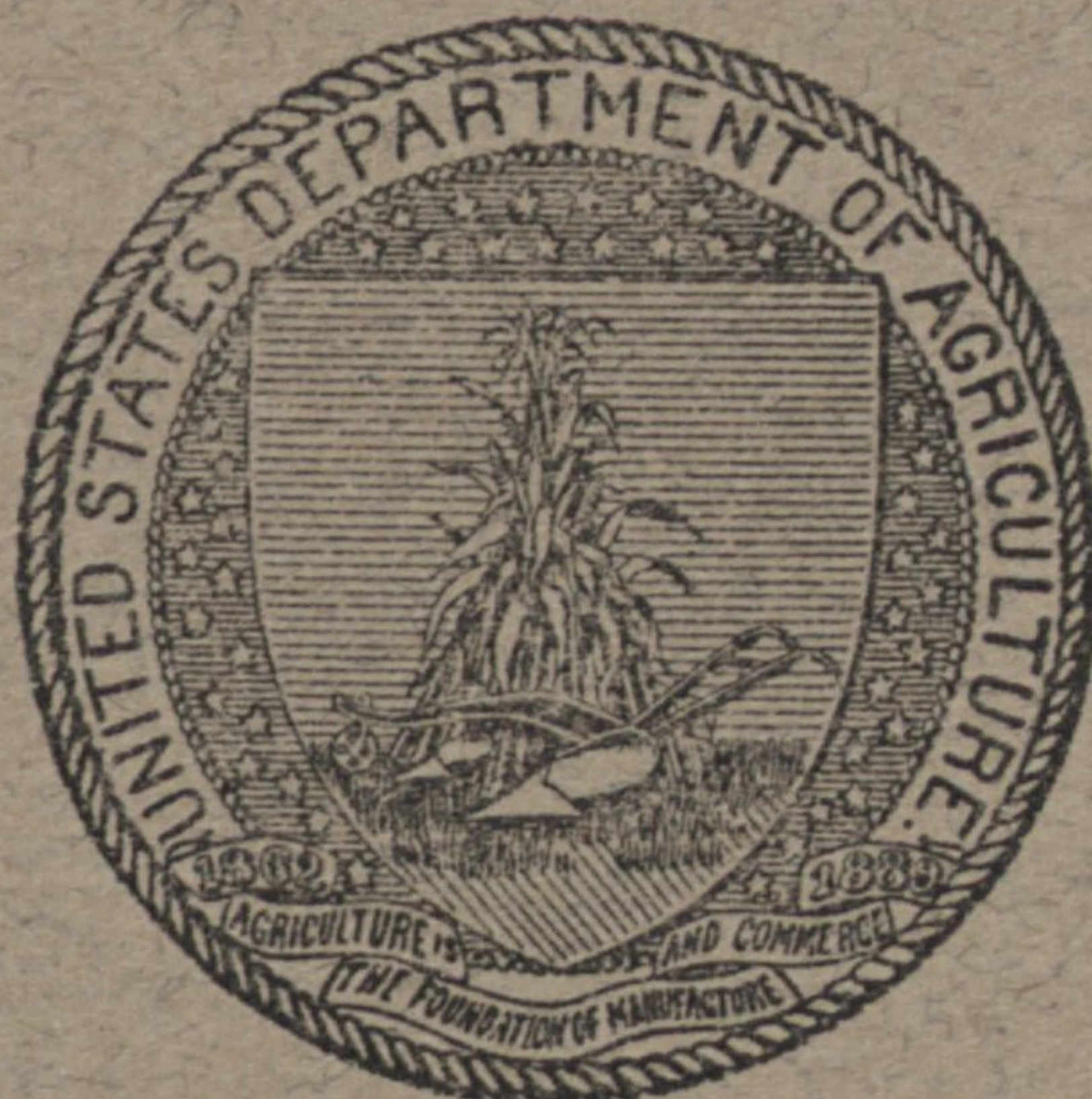
SOIL SURVEY OF GREENE COUNTY  
NORTH CAROLINA

BY

S. O. PERKINS, IN CHARGE, AND H. G. LEWIS

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NUMBER 6, SERIES 1924



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON

1928

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SOIL SURVEY OF GREENE COUNTY, NORTH CAROLINA

By S. O. PERKINS, in Charge, and H. G. LEWIS

COUNTY SURVEYED

Greene County is in the eastern part of North Carolina. Snow Hill, the county seat, is about 60 miles southeast of Raleigh and about 38 miles northwest of New Bern. The area comprises 265 square miles or 169,600 acres.

In general, the county is level, undulating, and gently rolling. The largest level and flat areas are in the northeastern and northern parts and in the southwestern corner of the county. The flat areas in the northern half are locally known as pocosins. The extended interstream areas are level or undulating and become gently rolling or steeply sloping where they border the stream valleys. Contentnea Creek flows through the county from northwest to southeast

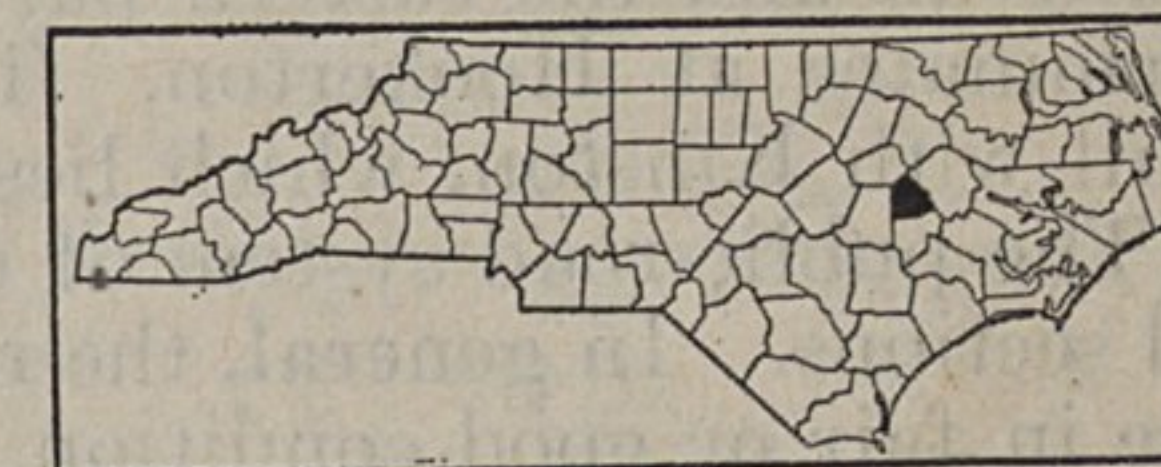


FIG. 1.—Sketch map showing location of Greene County, N. C.

and has cut a valley from 40 to 60 feet deep and from 2 to 3 miles wide. The first-bottom land lies from 5 to 10 feet below this terrace level. From terrace belts flanking the alluvial lands the slopes to the uplands are rather steep in places, especially near Hookerton, Snow Hill, and Speights Bridge. The smaller streams ramify most of the county, but the descent from the level uplands to these streams is usually slight and forms a smooth, gentle slope. The greater part of the land lies well for farming operations.

The general slope of the county is to the southeast. The elevation ranges from less than 20 feet above sea level along Contentnea Creek, in the southeastern part, to slightly more than 120 feet in the southwestern and northwestern parts of the county. The general elevation, however, is between 75 and 100 feet. At Snow Hill it is 80 feet.

About 60 per cent of the county has good natural surface drainage. Some of the small level areas have been drained by open ditches. The pocosins and other flat lands are poorly drained. Although these areas occur in a position higher than most of the surrounding soils, no well-defined drainage ways have been established. All the first-bottom and some of the second-bottom lands and terraces are poorly drained. The principal drainage ways in the county are Contentnea, Little Contentnea, Wheat Swamp, Rainbow, and Bear Creeks, Sandy Run, and Middle Swamp. Most of these streams are rather sluggish and are not deepening their channels to any appreciable extent. Good water can be obtained in all parts of the county by driving pipe down to a depth ranging from 18 to 30 feet. In places, artesian water is available.

Greene County was formed in 1791 as Glasgow County; the name was changed in 1799. The early settlers were of English descent and the present population is almost wholly of native birth.

The population of the county in 1920, according to the census report, was 16,212, all classed as rural. In 1900 the population was 12,038 and in 1880 was 10,037. These figures indicate a gradual increase. The negro population is approximately 45 per cent of the total. The population is evenly distributed over the better farming lands, but the poorly drained areas or pocosins are sparsely settled. Greene County could support many times the present population if all the arable soils were properly managed.

Snow Hill, the county seat and largest town in the county, has a population of 700. Hookerton, located in the southeastern part, has a population of 294, and Walstonburg, in the northern part, has a population of approximately 200. Other smaller settlements include Maury, Jason, Lizzie, and Castoria. The county, with the exception of the western part, is well supplied with railroad transportation. The northern part is traversed by the Norfolk Southern Railroad and the eastern part by the East Carolina Railway, which terminates at Hookerton. The Carolina Railroad connects Snow Hill with Kinston, which lies 16 miles to the south.

The public-road system of the county is extensive and reaches into all sections. In general, the roads are of sandy-clay construction, but are in fair or good condition. Snow Hill is connected with Kinston and Farmville by a hard-surfaced road.

Telephone service and rural free delivery of mail reach all parts of the county. The school system is good, consisting mainly of consolidated schools located at Snow Hill, Hookerton, Walstonburg, and Shine School. The rural churches are good.

Wilson, Greenville, Farmville, Kinston, Goldsboro, and Snow Hill serve as marketing centers for tobacco and cotton.

## CLIMATE

The climate of Greene County may be termed oceanic, that is, the seasonal changes in temperature are not so great as they are farther inland. The heat of summer and the cold of winter are tempered by the breezes from the ocean. The climate is characterized by short, rather mild winters, long but not excessively hot summers, and by mild temperatures during the spring and fall. Once in a while snowfall is recorded, but only in exceptional instances is it of long duration.

The following tables, compiled from the records of the Weather Bureau stations at Snow Hill and at Greenville, Pitt County, show in detail the climatic conditions which prevail in this section of the State. At the Snow Hill station the mean annual temperature for the year is 61.3° F., and the mean annual precipitation is 49.59 inches. The mean precipitation for the summer months is 20.22 inches, which is ample for the production of the crops grown. The fall is the driest season of the year, thus enabling the farmers to harvest their crops during good weather. The frost-free season for the tenderest vegetation is 193 days, as the average date of the last killing frost is April 11, and of the first is October 22.

## Normal monthly, seasonal, and annual temperature and precipitation at Snow Hill

[Elevation, 80 feet]

Month	Temperature			Precipitation			Snow, average depth
	Mean	Absolute maximum	Absolute minimum	Mean	Total amount for the driest year (1911)	Total amount for the wettest year (1908)	
	° F.	° F.	° F.	Inches	Inches	Inches	Inches
December.....	44.3	78	11	3.22	2.95	2.82	0.3
January.....	45.0	80	6	3.14	4.16	4.80	2.4
February.....	44.1	77	-4	4.40	1.72	6.12	2.5
Winter.....	44.5	80	-4	10.76	8.83	13.74	5.2
March.....	53.2	99	19	3.54	3.51	7.19	.9
April.....	60.2	92	28	3.19	2.70	2.30	0
May.....	69.2	96	35	4.90	.48	5.23	0
Spring.....	60.9	99	19	11.63	6.69	14.72	.9
June.....	75.8	102	42	5.61	2.35	6.51	0
July.....	78.7	100	54	6.99	1.85	12.44	0
August.....	77.7	98	50	7.62	7.37	10.97	0
Summer.....	77.4	102	42	20.22	11.57	29.92	0
September.....	74.3	95	37	3.18	5.80	1.69	0
October.....	61.7	92	25	2.09	3.17	3.50	0
November.....	51.6	81	19	1.71	3.90	1.37	.3
Fall.....	62.5	95	19	6.98	12.87	6.56	.2
Year.....	61.3	102	-4	49.59	39.96	64.94	6.4

## Normal monthly, seasonal, and annual temperature and precipitation at Greenville, Pitt County

[Elevation, 75 feet]

Month	Temperature			Precipitation		
	Mean	Absolute maximum	Absolute minimum	Mean	Total amount for the driest year (1921)	Total amount for the wettest year (1906)
	° F.	° F.	° F.	Inches	Inches	Inches
December.....	43.0	78	1	3.13	2.94	3.51
January.....	44.0	80	0	3.55	2.20	4.73
February.....	44.6	82	7	3.25	3.95	5.16
Winter.....	43.9	82	0	9.93	9.09	13.40
March.....	51.4	88	20	4.03	3.35	7.17
April.....	58.9	94	26	3.58	4.55	.65
May.....	70.5	97	40	4.10	3.10	3.30
Spring.....	60.3	97	20	11.71	11.00	11.12
June.....	76.3	102	49	4.97	1.31	6.45
July.....	79.2	103	49	6.87	4.20	16.32
August.....	77.7	100	53	5.81	1.50	9.88
Summer.....	77.7	103	49	17.65	7.01	32.65
September.....	71.3	99	40	5.16	3.27	3.29
October.....	63.1	96	27	3.15	1.50	4.40
November.....	51.3	87	20	2.33	2.88	.68
Fall.....	61.9	99	20	10.64	7.65	8.37
Year.....	60.8	103	0	49.93	34.75	65.54

The climate of Greene County is pleasant and healthful. It is such that farm work can be performed throughout the year. The cold weather of winter and the periods when the ground is affected to any depth by frost are of short duration. Cover crops and many hardy truck crops can be grown during the winter and very early spring. On account of the warm temperature and abundant rainfall, there is, of course, noticeable leaching in the soils. The organic matter decays rapidly and is readily removed from the soils. The result is that the soils are light in color. Both soil and climate favor highly diversified agriculture.

#### AGRICULTURE

The land now included in Greene County was first settled about 200 years ago. Small areas were cleared and devoted to the growing of corn, wheat, and oats, and to the raising of hogs and some cattle. The uplands were forested with long-leaf and short-leaf pine. Before the timber was cut the turpentine industry flourished and furnished a revenue. Considerable land was cleared by the lumbermen, and this was rapidly brought under cultivation. A few small sawmills are in operation to-day. Some cotton was grown prior to 1850, but after that time its production increased greatly. The growing of bright tobacco was begun about 1889, when 6,650 pounds were produced. This industry increased at an amazing rate, and in 1899, 5,557,050 pounds were produced. Cotton production remained stationary for this 10-year period but dropped to about one-seventeenth of the normal figure in 1909. Cotton raising was discouraged by the low prices and large yields of previous years.

The following table, compiled from census reports, gives the acreage and yields of the principal crops in stated years from 1879 to 1924, inclusive:

*Acreage and yield of principal crops in stated years, 1879 to 1924*

Year	Corn		Cotton		Tobacco		Hay and forage		Sweet potatoes	
	<i>Acres</i>	<i>Bushels</i>	<i>Acres</i>	<i>Bales</i>	<i>Acres</i>	<i>Pounds</i>	<i>Acres</i>	<i>Tons</i>	<i>Acres</i>	<i>Bushels</i>
1879.....	25,148	173,421	16,988	8,020	8	1,955	99	87	429	37,660
1889.....	25,258	215,783	22,133	7,383	24	6,650	930	899	780	70,532
1899.....	30,896	328,270	16,237	7,763	6,301	5,557,050	1,527	1,595	513	53,541
1909.....	25,094	298,912	1,078	401	9,011	6,645,524	2,784	1,518	574	68,936
1919.....	24,318	512,522	17,253	11,482	15,405	12,716,072	4,056	4,123	447	67,774
1924.....	19,075	297,053	19,306	9,780	15,009	10,149,821	1,879	1,042	270	22,770

The principal source of farm income in this county is indicated by the census report of 1920, which shows the following values of farm products in 1919:

Cereals.....	\$1,008,656
Other grains and seeds.....	7,946
Hay and forage.....	57,582
Vegetables.....	338,507
Fruits and nuts.....	16,565
All other crops.....	9,247,352
Animals sold and slaughtered (estimated).....	310,095
Dairy products, excluding home use.....	36,888
Poultry and eggs.....	200,055
Wool, mohair, and goat hair.....	25
<b>Total.....</b>	<b>11,223,671</b>

The total value of farm products in 1909 was \$1,973,362. The increase in value since 1909 was caused largely by the increase in the production of cotton and tobacco and by the great increase in the market value of these crops.

Greene County is in the well-known bright-tobacco region of the State. The tobacco is classed as the "lemon" crop, because it is bright yellow when cured. Considerable skill is required to cure it properly. At present the agriculture of the county consists of the production of two important money crops—tobacco and cotton. These bring millions of dollars into the county annually. A great deal of corn is produced for home use, and small acreages are planted to oats, peanuts, cowpeas, hay, and sweet potatoes.

In 1919, according to the census, 15,405 acres were planted to tobacco and produced 12,716,072 pounds. All this crop is shipped to outside markets. It is the largest source of revenue in the county.

Cotton ranks next in importance as a cash crop. In 1919, 17,253 acres were devoted to this crop, and the yield was 11,482 bales.

In 1919 corn was planted on 24,318 acres, the largest acreage in the county devoted to a single crop. The total yield was 512,522 bushels. All the grain was used for feeding work animals, for fattening hogs, and for meal for home use. About enough corn is grown to meet the demands of the county.

The production of hay and forage has increased considerably in recent years, but the supply is insufficient to supply local needs, and much hay is shipped into the county. Sweet potatoes are grown in all parts of the county and are used on the farms and sold locally. A few oats and some soy beans and cowpeas are grown for hay and as soil improvers. Truck farming has not developed to any extent. A few apples, peaches, cherries, pears, plums, and scuppernong grapes are grown. All kinds of garden vegetables, to which the climate is favorable, do well and are grown for home use, with a small surplus for sale.

The majority of the farmers do not practice a definite system of crop rotation. In some places cotton or corn has been planted successfully on the same land for 50 or more years. However, many farmers alternate corn with cotton and grow cowpeas in the corn. Recently the tendency has been to alternate cotton or corn with tobacco. Farmers recognize that the well-drained sandy soils with yellow friable sandy clay subsoils are best suited to the production of bright tobacco and cotton. The black soils are adapted to corn and hay crops, and the light well-drained sandy soils give good returns of sweet potatoes and peanuts.

The work animals on the farms are chiefly mules. The use of the one-horse plow is common throughout the county, and many such implements are used on the large plantations. Many farmers, however, have two-horse plows, disk harrows, stalk cutters, cultivators, fertilizer distributors, cotton weeders, tobacco-setting machines, lime distributors, grain drills, and binders. The equipment for cultivation is generally light, as the character of the soils over a large part of the county makes only shallow plowing and cultivation necessary. The sandy-textured, mellow, easily tilled soils, together with the level or gently rolling land surface, favor the use of all kinds of labor-saving machinery. A few tractors are now in use.

According to the census, in 1919 farmers of Greene County purchased commercial fertilizer valued at \$1,043,092. This is an average expenditure of \$392 a farm for the 2,658 farms, 97 per cent of the total number of farms in the county, which reported. Ready-mixed fertilizers, analyzing 8-3-3<sup>1</sup> and 8-4-4, are commonly used. Home-mixed fertilizers are used by a few farmers.

Most of the farms in the county are farmed by tenants, and most of the work is done by the members of the family. The labor supply is, in general, adequate. The laborers are mostly negroes. The systems of tenantry include renting and farming on shares. Where the land is rented outright, the landowner receives one-third or one-fourth of the crops. In operating on the share system, the landowner furnishes the land, work animals, livestock feed, implements, and one-half of the fertilizer and seed and receives one-half of the crops. Some of the land is leased for a cash rental, and some is rented for a stated amount of a staple crop. Such a rental might be 1,000 pounds of lint cotton for a "one-horse farm" of about 30 acres.

Land values throughout the county vary greatly, depending upon the character of the soil, the improvements thereon, and the location with respect to towns or lines of transportation. The fine sandy loams and sandy loams of the Norfolk, Ruston, Marlboro, Dunbar, and Kalmia series range in value from \$50 to \$100 or more an acre, and the more sandy soils and undeveloped and poorly drained soils vary in selling price from \$20 to \$50 an acre.

*Recommendations in soil management.*—The soils, with the exception of members of the Portsmouth, Okenee, and Johnston soil series, are deficient in organic matter, as is indicated by their extremely light color. Only a very small quantity of manure is available because only a few cattle are kept. The best means, therefore, of supplying the needed organic matter is by growing and turning under leguminous crops such as cowpeas, velvet beans, soy beans, crimson clover, and bur clover. All these crops do well and could be used advantageously in the rotation.

By the incorporation of organic matter, the soils would become more loamy and much more retentive of moisture, greater benefits would be derived from the use of commercial fertilizers, and increased yields would be the result. When a crop of cowpeas or soy beans is turned under, beneficial results are seen for several years.

Deeper plowing of the heavier soils, such as the very fine sandy loams and silt loams, would prove profitable. This would allow better aeration of the soil, would increase the feeding ground for the finer hairlike roots of the plants, and would increase the water-holding capacity of the soil, thus preventing, in a measure, the too rapid run-off of the rainfall which results in surface wash or erosion on the steeper slopes.

The climate and soils of this county are suitable for the growing of winter cover crops. Hairy vetch, soy beans, cowpeas, and crimson clover are excellent crops for the sandy soils. These crops serve as pasturage, are used with corn as silage, in the case of soy beans and cowpeas can be grown for seed, and when turned under greatly improve the soils.

<sup>1</sup> Percentage composition in terms of phosphoric acid, ammonia, and potash, respectively.

The North Carolina State College of Agriculture and Engineering recommends<sup>2</sup> crop rotations for farmers of Greene County, especially for those growing cotton and tobacco as major crops. One suggested rotation is corn, sown or planted with soy beans or velvet beans, one year, followed by oats sown with Lespedeza or soy beans, one year, followed by cotton. Another suggested rotation is tobacco, followed by rye or crimson clover in the fall after the tobacco is harvested, one year, followed by corn, sown or planted with velvet beans or cowpeas, one year, followed by cotton.

The advantages of crop rotation are too numerous to describe. Cowpeas should not precede tobacco except on very poor soil. Corn does best on land rich in organic matter. When a large quantity of green organic matter has been turned under, lime, in applications varying from 1,000 to 2,000 pounds to the acre, is recommended. The black soils of the county respond readily to applications of lime.

Different fertilizers have been recommended for use on various crops on the different soils of Greene County.<sup>3</sup>

For tobacco on Norfolk fine sandy loam, Norfolk sandy loam, and Marlboro fine sandy loam, the general practice is to use from 800 to 1,000 pounds of an 8-3-3 or 10-4-6 fertilizer. Norfolk very fine sandy loam and Marlboro fine sandy loam may give good returns with slightly smaller applications. On the more sandy Norfolk soils and on the Ruston and Kalmia soils, from 800 to 1,200 pounds of an 8-4-6 mixture are suggested. Tobacco is usually fertilized with cottonseed meal before the plants are set.

For cotton on Norfolk fine sandy loam, from 600 to 900 pounds of a 6-5-3 or 8-5-3 mixture is recommended; on Norfolk sandy loam, Kalmia sandy loam, and Kalmia fine sandy loam, the same quantity of an 8-6-4 fertilizer; on Marlboro fine sandy loam, the mixture should analyze 8-5-3; on Portsmouth fine sandy loam, 8-5-3 or 9-6-3; on Dunbar fine sandy loam, 9-5-3 or 8-5-3; and on Ruston sandy loam, 8-5-3.

An 8-5-3 fertilizer, applied at the rate of from 600 to 1,000 pounds to the acre, is good for the coastal plains soils. Frequently, on the poorer soils, from 50 to 150 pounds of nitrate of soda are applied as a side dressing during cultivation.

For potatoes on Portsmouth fine sandy loam and Dunbar fine sandy loam, the general practice is to use from 1,000 to 1,500 pounds of a 7-6-6 or 6-5-6 fertilizer. For sweet potatoes on light-textured, well-drained soils from 1,000 to 1,500 pounds of a 6-4-6 mixture are applied.

Peanuts on the well-drained sandy soils should receive 300 pounds of an 8-2-4 fertilizer. Some lime should be applied on land intended for peanuts.

The following formula makes a good 8-4-6 mixture, compounded in 1-ton lots.

<sup>2</sup> BLAIR, E. C. CROP ROTATION FOR THE COASTAL PLAIN SECTION OF NORTH CAROLINA. N. C. State Coll. Agr. and Engr., Ext. Cir. No. 165, 13 p. 1927.

<sup>3</sup> WILLIAMS, C. B., JACKSON, S. K., and MANN, H. B. FERTILIZER EXPERIMENTS WITH COTTON. Agr. Expt. Sta. N. C. State Coll. Agr. and Engr. Bul. No. 250, 18 pp., December, 1926. MCGEE, H. A. FERTILIZERS FOR TOBACCO. Ext. Cir. No. 149, N. C. State Coll. Agr. and Engr., 7 pp., March, 1925. WILLIAMS, C. B., and PATE, W. F. FERTILIZER NEEDS OF NORTH CAROLINA SOILS. Ext. Cir. No. 141, N. C. State Coll. Agr. and Engr., 15 pp., January, 1924.

	Pounds
Acid phosphate (16 per cent).....	1,000
Nitrate of soda (18 per cent).....	240
Cottonseed meal (7 per cent).....	100
Dried blood or fish scrap.....	300
Muriate of potash (50 per cent).....	120
Sulphate potash-magnesia.....	240

## SOILS

All the soils of Greene County have developed under a forest cover. Probably 60 per cent of the county has been cleared. Because of the heavy rainfall, warm temperature, and clean cultivation of the land, leaching has been and still is active. Not only is there no accumulation of carbonate of lime in the soils, although the materials which have contributed to their formation contained lime, but some of the soils are decidedly acid, so that practically all of them respond to liberal applications of lime. This is particularly true of the Plummer, Coxville, Portsmouth, Myatt, Okenee, and Johnston soils.

The soils of Greene County, as regards their profiles, may be classed in the two main groups of well-drained and poorly drained soils. The first group, or the well-drained soils, includes all members of the Norfolk, Ruston, Marlboro, Dunbar, and Kalmia series. These are the normally well-developed soils of the county and have distinct layers or horizons. In them, the surface layers are dominantly light gray, yellowish gray, or gray. In virgin areas, a noticeable quantity of coarse, partly decomposed vegetable matter is present to a depth varying from 1 to 3 inches. This material has not become incorporated in the soil as it has in the Central States which have long been grass covered.

The most striking feature of the texture profile of these well-developed soils is the presence in all of them of a comparatively light-textured surface layer underlain by a deeper layer of heavier-textured material (in many cases much heavier), and by a third still deeper layer which may vary considerably in texture but which is prevailingly lighter than the second layer and is in most places heavier than the first. The texture of these layers varies greatly in the soils of the region. The topsoil, or horizon A, ranges from very fine sandy loam to sand, and the subsoil, or horizon B, from friable clay to very light sandy loam or sand. The substratum, or horizon C, consists of unconsolidated geologic material and may vary widely in texture, structure, and color. The thickness of the several layers also varies widely. The surface layer ranges from a very few inches thick, in the very fine sandy loams, to a maximum thickness of 2 or more feet in the most sandy soils. The intermediate or comparatively heavy layer, or horizon B, consists of friable clay or sandy clay. A markedly wide difference exists in the texture of the surface soils and the intermediate, heavier layer. There is also much difference in the color, texture, and structure of the material constituting the substratum, or what is termed the C horizon, and which represents the parent material. The characteristics of the soils are described in more detail in subsequent paragraphs.

The second main group, or the poorly drained soils, includes members of the Plummer, Coxville, Portsmouth, Myatt, Okenee, and

Johnston series, and meadow and swamp. These soils have developed under wet or semiswampy conditions.

The poorly drained soils are characterized by the absence of any definite layer, or horizon, development. The color of the surface soil varies from dark gray to black. The large percentage of organic matter present in the surface layers of the Portsmouth, Okenee, and Johnston soils is sufficient to give them a black color. The alternate wetting and drying of the Plummer, Coxville, and Myatt soils, and the burning off of the surface vegetable matter probably accounts for their lighter color. The poor drainage and the water-logged condition of all these soils has prevented aeration and oxidation of the iron salts. This accounts largely for the mottled coloration of the subsoil, or B horizon, in which the dominant color is light gray with mottles of yellow, rust brown, and even splotches of red in some places. There is much variation in the texture and structure of the B horizons of the various soils.

In the poorly drained soils the uniformly oxidized layer is underlain largely by the subsoil, or horizon B, which, in turn, is in most places underlain, at a depth varying from 3 to 6 feet below the surface, by the parent soil-forming material which consists of unconsolidated beds of clay, sandy clay, and sand. There is no uniformity in the color, texture, or structure of this partly weathered material, but there is a noticeable difference in color between the substratum material of the well-drained and that of the poorly drained soils. Most of the substratum material of the well-drained soils is rather hard but very brittle sandy clay, which breaks easily and in some places shows slight stratification or bedding. It varies greatly in color but commonly consists of mottled, streaked, or in some places of blotched light-gray, yellowish-red, and whitish material or again of light gray, mottled or streaked with rust brown and light red or with a bluish color. Local deposits of marl were reported, but none of this light-gray or white soft material comes near enough to the surface to influence the soils.

The second-bottom or terrace soils, developed on Contentnea Creek, and the first-bottom soils along this and other streams have developed from reworked coastal-plain material which was brought down by the streams and deposited at times of flood water. Some of this material has weathered and oxidized, and now has characteristics somewhat similar to those of some of the soils of the uplands.

A glance at the soil map shows the location of the various soils in the county. It is seen that Norfolk fine sandy loam is by far the most extensive soil and has a general distribution. Patches of Norfolk sandy loam occur in the northwestern part of the county; large areas of Norfolk very fine sandy loam are in the southwestern corner and to less extent in the northern end; and typical Norfolk fine sand occurs in a large area immediately south of Snow Hill. Plummer fine sandy loam comprises the greater part of Half Moon and Rices Pocosins in the northern half of the county, and similar areas occur in the southern part. Large areas of Okenee loam are along Contentnea Creek in the eastern part of the county, and Portsmouth fine sandy loam occurs in the southern end.

A further study of the map shows extensive level and flat areas, known as pocosins, in the northern part of the county between Con-

tentnea Creek and Middle Swamp. These areas are from 80 to 110 feet above sea level and have no natural drainage, as the stream heads penetrate only the edges of them. These areas represent, more nearly than any other in the county, the original material as laid down on the sea floor when this part of North Carolina was covered by the ocean. An examination of this material indicates poor drainage, lack of aeration, and very little oxidation and eluviation. Layers of fine sand and of fine sandy clay, lenses of clay, and pockets of fine sand are present. The material is dominantly light gray, somewhat mottled or streaked with yellow and rust brown, but no definite structure exists. There is no uniformity in the texture, structure, or color of the material which corresponds to the subsoil, or B horizon, of the mature soils. Such areas have been mapped as Plummer fine sandy loam.

In places, bordering areas of Plummer fine sandy loam, natural surface drainage is becoming established and narrow strips of Dunbar fine sandy loam have developed where the land is level or undulating. In this soil the material of the surface layer is more uniform in color and texture and that of the subsurface layer and of the upper part of the subsoil, or horizon B, is heavier and is pale yellow in color.

The Norfolk soils occur in better-drained areas. Aeration, oxidation, eluviation, and other forces of weathering have acted upon the soil-forming material and produced a normally well developed soil. In Norfolk fine sandy loam the B horizon is uniformly yellow in color and is heavier in texture than the surface layers, also heavier than the partly weathered material that constitutes the C horizon. On the more rolling areas, in places where aeration, oxidation, and rather excessive drainage have been in effect, a higher color is present in the B horizon. Soils in which the B horizon is yellowish red or yellowish brown have been classed in the Ruston series.

A large area of Norfolk very fine sandy loam occurs in the southwest corner of the county, in a high, level, and undulating area which is naturally fairly well drained. The streams, however, have not cut down or back into this material sufficiently to cause the removal of a noticeable quantity of the finer soil particles, and a very fine textured soil is the result.

The various soils in Greene County are grouped in series on the bases of color, origin, and structural characteristics. Each series includes soils which are differentiated according to texture, or the proportionate composition of sand, silt, and clay in the surface soil. Soils are classified and mapped as types. Twenty-four types of soil, which represent 11 soil series, and 2 miscellaneous classes of land (meadow and swamp) have been mapped in Greene County.

The upland soils include the Norfolk, Marlboro, Ruston, Dunbar, Plummer, Coxville, and Portsmouth soils.

The Norfolk soils have gray surface soils, grayish-yellow subsurface soils, and yellow friable sandy clay or sand subsoils. The sand, loamy sand, sandy loam, fine sand, fine sandy loam, fine sandy loam, deep phase, and very fine sandy loam members of the Norfolk series have been mapped in this county.

In the Marlboro series of soils, only Marlboro fine sandy loam occurs in Greene County. The Marlboro soils differ from the Norfolk in that the surface material is shallower and heavier, in that the

subsoil is heavier, consisting of firm or slightly sticky clay loam or heavy fine sandy clay, and in that the upper part of the parent material is redder and in some places is dry, crumbly, and friable, and grades, at a depth of a few inches, to mottled gray, yellow, and red friable material.

The Ruston soils have gray surface soils, grayish-yellow or pale-yellow subsurface soils, and reddish-yellow or yellowish-red friable, crumbly sandy clay subsoils. Ruston sandy loam, Ruston fine sandy loam, and Ruston fine sandy loam, deep phase, are mapped.

The Dunbar soils have dark-gray surface soils, yellowish-gray subsurface soils, and mottled yellow and light-gray heavy, slightly plastic fine sandy clay subsoils which show mottles of red in the lower part. Only two members, Dunbar fine sandy loam and Dunbar very fine sandy loam, occur in this county.

Soils of the Plummer series are represented by two soil types, Plummer sandy loam and Plummer fine sandy loam. The surface soils are gray and grade to mottled light-gray and yellow material. The subsoils are friable and are mottled with light gray and yellow or with rust brown.

The Coxville soils differ from the Plummer in that the subsoils are much heavier and contain bright-red splotches scattered irregularly throughout, which, however, form only a small percentage of the soil. Only one soil of this series, Coxville fine sandy loam, is mapped.

The surface layer of the Portsmouth soils is black, the subsurface layer is light gray, and the subsoils are mottled yellow, or brownish yellow and gray, friable or fairly heavy sandy clay. Portsmouth fine sandy loam is mapped in this county.

The soils of the second bottoms or terraces have been classed in the Kalmia, Myatt, and Okenee soil series, and those of the first bottoms in the Johnston soil series and in the miscellaneous classifications of meadow and swamp.

The soils of the Kalmia series resemble very closely in color and structure those of the Norfolk series. The sand, sandy loam, sandy loam, deep phase, fine sand, and fine sandy loam members of the Kalmia series are mapped.

The Myatt soils are represented by two soil types, Myatt sandy loam, and Myatt fine sandy loam. In color and structure the soils of this series are not materially different from the Plummer soils except that in some localities the subsoils are slightly heavier.

Of the Okenee soils, Okenee fine sandy loam, and Okenee loam are mapped. These soils have black surface layers, light-gray subsurface layers, and gray subsoils mottled with rust brown. Okenee loam is similar to Johnston silt loam, except that the black humus layer is thicker.

Meadow and swamp comprise materials of variable texture and structure which occur along the smaller drainage courses. This land is subject to frequent overflow and remains saturated much of the time.

In the following pages of this report, the soils of Greene County are described in detail and their relation to agriculture is discussed. Their distribution is shown on the accompanying soil map, and their acreage and proportionate extent are given in the following table:

## Acreage and proportionate extent of the soils of Greene County, N. C.

Type of soil	Acres	Per cent	Type of soil	Acres	Per cent
Norfolk fine sandy loam.....	40,448	28.0	Kalmia fine sand.....	1,600	0.9
Deep phase.....	7,168		Kalmia sand.....	2,112	1.3
Norfolk very fine sandy loam.....	11,840	7.0	Okenee loam.....	4,864	2.9
Norfolk sandy loam.....	5,440	3.2	Okenee fine sandy loam.....	1,600	.9
Norfolk fine sand.....	6,656	3.9	Coxville fine sandy loam.....	1,280	.8
Norfolk sand.....	1,472	.9	Portsmouth fine sandy loam.....	2,176	1.3
Norfolk loamy sand.....	2,496	1.5	Plummer fine sandy loam.....	23,424	13.8
Ruston fine sandy loam.....	6,528	4.7	Plummer sandy loam.....	1,856	1.1
Deep phase.....	1,280		Myatt sandy loam.....	1,600	.9
Ruston sandy loam.....	768	.5	Myatt fine sandy loam.....	2,240	1.3
Marlboro fine sandy loam.....	512	.1	Johnston silt loam.....	960	.6
Dunbar fine sandy loam.....	8,832	5.2	Meadow.....	7,424	4.4
Dunbar very fine sandy loam.....	2,304	1.4	Swamp.....	11,072	6.5
Kalmia fine sandy loam.....	7,488	4.4			
Kalmia sandy loam.....	2,368	2.5	Total.....	169,600	-----
Deep phase.....	1,792				

## NORFOLK FINE SANDY LOAM

In forested areas the topsoil of Norfolk fine sandy loam consists of gray or grayish-brown loamy fine sand rich in organic matter. It is underlain, at a depth of 2 or 3 inches, by grayish-yellow loamy fine sand which grades, at a depth of about 6 inches, to very mellow light loamy fine sand or light fine sandy loam. The subsoil, which occurs at a depth varying from 12 to 20 inches, consists of mellow yellow fine sandy clay which continues downward to a depth ranging from 34 to 42 inches. In places, just below the subsoil, a thin layer of yellow fine sandy clay mottled or streaked with light red is present. This is underlain by the substratum which consists of mottled or streaked yellowish-red, yellow, and light-gray fine sandy clay material which is slightly hard but brittle. Locally it shows slight stratification or lamination.

In cultivated fields the surface soil varies in color from light gray or yellowish gray to dark gray, depending on the percentage of organic matter present. On some of the slopes the surface covering of loamy fine sand is only 6 or 8 inches deep, whereas at or near the base of slopes it may be 20 or more inches deep. In some of the higher and more rolling areas the color of the surface soil varies from grayish yellow to light brown, and along streams and adjacent to areas of Ruston soils the yellow subsoil may show mottles or streaks of light red. Where Norfolk fine sandy loam adjoins areas of the Coxville, Plummer, and Portsmouth soils the surface soil is dark gray and the subsoil, at a depth ranging from 24 to 30 inches, is in most places faintly mottled with light gray or rust brown.

Norfolk fine sandy loam is the most extensive and most important soil in the county. Its total extent, including the deep phase, is 47,616 acres, or 28 per cent of the total acreage of the county. Its distribution is general, but some of the largest areas are in the vicinity of Ormondsville, Maury, Castoria, Lindell, north of Jason, and around Glenfield Crossroads.

This soil occurs as nearly level, undulating, or gently rolling areas, some of which become rolling or rather steep where they are adjacent to stream valleys. The smoother areas occur on the broad

table-lands between the drainage courses in the southern part of the county. The general elevation ranges from 70 to 120 feet above sea level. Most of the soil has good natural surface drainage, as is indicated by its uniformly well oxidized subsoil. Internal drainage is also good. Only the flatter areas require artificial drainage, and this can be accomplished by open ditches or tile drains.

Probably 70 or 80 per cent of this soil is cleared and under cultivation. The remainder is forested with long-leaf pine or is old-field or cut-over land.

The principal crops grown on this soil are cotton, tobacco, and corn. Cotton yields from one-half to 1 or more bales to the acre; tobacco from 700 to 1,000 pounds; and corn, from 15 to 35 bushels. In addition to these staple crops, a small acreage is devoted to soy beans, velvet beans, rye, clovers, sweet potatoes, garden vegetables, and watermelons. All these crops do well when they are fertilized and properly managed.

Commercial fertilizers are used on all crops. Cotton receives from 300 to 800 pounds, tobacco from 600 to 1,000 pounds, and corn from 200 to 300 pounds of an 8-3-3 mixture to the acre.

Cotton and corn usually receive from 100 to 150 pounds to the acre of nitrate of soda as a top-dressing during the early stages of their growth, and tobacco is sometimes given an application of cottonseed meal before the plants are transplanted.

Norfolk fine sandy loam is well adapted to the production of cotton, bright tobacco, and peanuts as staple crops, and to garden vegetables, sweet potatoes, scuppernong grapes, and figs. It is one of the best early truck soils of the Atlantic seaboard, and is especially suited to the growing of potatoes, English peas, string beans, onions, cucumbers, cantaloupes, tomatoes, cabbage, and strawberries. Recommendations for the management of the soils of Greene County are given in the chapter on agriculture.

*Norfolk fine sandy loam, deep phase.*—The surface layer of this soil is very similar to that of typical Norfolk fine sandy loam. The pale-yellow subsurface layer is deeper in the deep Norfolk fine sandy loam and ranges in depth from 25 to 36 inches before it grades to the yellow fine sandy clay or clay loam material.

Although a few small areas occur in the northwestern and southwestern parts, this soil occurs principally in the south-central part of the county, in close association with Norfolk fine sand and Norfolk fine sandy loam.

This land is smooth, undulating, and gently rolling, and occurs on divides between drainage ways and the more gentle slopes. Drainage is good, and the soil is well oxidized throughout.

Between 60 and 75 per cent of this soil is under cultivation, and the same crops are grown as on typical Norfolk fine sandy loam. The yields are slightly less than on the typical soil but are better than those obtained on the sandy soils.

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



*Mechanical analysis of Norfolk fine sandy loam*

No.	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>
236616	Surface soil, 0 to 9 inches.....	1.6	4.9	4.6	38.0	26.6	19.5	4.8
236617	Subsoil, 9 to 18 inches.....	.7	4.8	4.4	36.6	24.2	20.5	8.7
236618	Subsoil, 18 to 36 inches.....	1.1	5.4	4.6	33.6	21.6	15.9	18.0

## NORFOLK VERY FINE SANDY LOAM

In cultivated fields, Norfolk very fine sandy loam consists of smooth, mellow, gray, light-gray, or yellowish-gray very fine sandy loam, 6 or 8 inches deep, underlain, to a depth varying from 15 to 18 inches, by pale-yellow very fine sandy loam which contains a high percentage of very fine sand and silt, and which grades downward to yellow, rather heavy but friable very fine sandy clay. This, in turn, is underlain by the mottled parent material, at a depth of 40 or more inches.

In wooded areas and where the land is flat, the surface soil is slightly darker gray. On the slopes where erosion has removed some of the surface material, the color is more yellow or grayish yellow and resembles that of the surface layer of the Marlboro soils. The pale-yellow subsurface layer is uniformly present, though on the steeper slopes it is shallow or almost lacking. On the flatter, less well drained areas, the lower part of the subsoil shows slight mottles of gray admixed with the typical yellow.

As a whole, this soil is well oxidized to a depth of 3 feet. A few small patches of Norfolk fine sandy loam, of Marlboro fine sandy loam, and of Plummer fine sandy loam, all too small to be separated, are included in mapped areas of this soil.

Norfolk very fine sandy loam is an important soil. It occurs principally in the western and northwestern parts of the county, the largest areas being in the vicinity of Shine School, Walstonburg, and Appie. Two smaller areas are about 1 mile west of Castoria and about 1½ miles north of Fools Bridge.

Areas of Norfolk very fine sandy loam are, in general, undulating, smooth, or nearly flat, although a few areas are gently rolling. This soil occurs on the broad divides between the drainage ways. The general elevation ranges from about 100 to slightly more than 120 feet above sea level.

Natural drainage is fairly well established, although it is necessary to drain some of the flatter areas by open ditches.

Approximately 80 or 90 per cent of this soil is under cultivation. The forested areas support a growth of pines, oak, dogwood, and holly.

The principal crops grown are cotton, corn, and tobacco, and the same farming and fertilizing methods are used as prevail on Norfolk fine sandy loam. The yields are as good or slightly higher than those obtained on Norfolk fine sandy loam. Tobacco yields from 600 to 900 pounds to the acre, cotton from one-half to 1 bale, and corn from 20 to 35 bushels.

## NORFOLK SANDY LOAM

Norfolk sandy loam, to a depth varying from 7 to 9 inches, consists of gray, mellow, medium loamy sand or light sandy loam. This grades downward to pale-yellow or yellow light sandy loam which continues to a depth of 16 or 18 inches. The subsoil, to a depth varying from 30 to 40 or more inches, is yellow or dull-yellow sandy clay. It is friable and crumbly and has no definite structure.

The surface layer, as mapped, is fairly uniform in color and texture, but, in the lower-lying areas, is darker gray, and in the more rolling areas is lighter colored. On the wooded areas, there is a layer from 1 to 3 inches deep, of gray loamy sand carrying a small quantity of organic matter. The pale-yellow subsurface layer is fairly uniform. On the flatter areas the lower part of the subsoil is slightly mottled with gray. The boundary between this soil and Norfolk fine sandy loam is in many places very arbitrary, and small patches of the latter soil are included in mapped areas of this soil.

Norfolk sandy loam is fairly extensive in Greene County. The largest areas are in the vicinity of Lizzie, near Speights Bridge, 1½ miles east of Lindell, in the vicinity of Bullhead School, and near Hookerton, and small areas are scattered over the county.

In general, areas of this soil are undulating or gently rolling, and all can be farmed intensively. Some small smooth or nearly flat areas would be helped by drainage ditches, but drainage, for the most part, is well established, and the soil is well oxidized to a depth of 3 feet.

Approximately 75 or 85 per cent of this soil has been cleared and is under cultivation. The forest growth is similar to that on Norfolk fine sandy loam.

The farm crops, cropping methods, fertilization, and suggestions for improvement for this soil and for Norfolk fine sandy loam are very similar. The yields are also very nearly the same.

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

*Mechanical analysis of Norfolk sandy loam*

No.	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>
236625	Surface soil, 0 to 8 inches.....	5.3	14.2	8.4	20.3	20.1	23.2	8.6
236626	Subsoil, 8 to 18 inches.....	6.5	17.9	11.0	20.4	15.4	20.2	8.4
236627	Subsoil, 18 to 36 inches.....	8.8	15.5	8.8	16.8	13.0	15.7	21.4

## NORFOLK FINE SAND

The surface soil of the Norfolk fine sand consists of a gray or grayish-brown fine sand, ranging from 1½ to 2 inches in thickness, underlain by grayish-yellow or pale-yellow fine sand; this grades, at a depth of 6 or 8 inches, to yellow or pale-yellow fine sand underlain, at a depth of 40 or 50 inches, by a layer a few inches thick, of brownish-yellow loamy fine sand containing a few nodules or lumps of fine sandy clay. Below this is yellow material mottled with brown loamy fine sand containing fine lumps of sandy clay. In many places, at a depth ranging from about 56 to 76 inches, creamy

white or almost white sand is present. In cultivated fields, the surface soil is light gray or yellowish gray, except where large quantities of organic matter incorporated in the soil have made the color darker gray.

Norfolk fine sand is a fairly extensive soil, aggregating 6,656 acres. Its principal development is in the south-central part of the county. The largest areas are in the vicinity of Snow Hill and south and southwest of that town. A few smaller areas are in other parts of the county.

This land is typically undulating, gently rolling, or rolling. On the drainage divides, it is smooth or almost flat, but near the streams it is rolling. The loose porous soil makes drainage good or excessive. In excessively dry seasons the soil is somewhat droughty.

Approximately 30 or 40 per cent of this soil has been cleared and is under cultivation to cotton, tobacco, and corn. Norfolk fine sand usually receives heavier applications of commercial fertilizers than the Norfolk soils that have sandy clay subsoils, but the yields are lower than on Norfolk fine sandy loam. The tobacco grown is of high quality.

This soil can be used for early-maturing crops such as watermelons, rye, and vegetables. Some of the deepest areas of this sand should be devoted to forestry.

#### NORFOLK SAND

Norfolk sand, to a depth of 6 or 8 inches, is gray or light-gray sand or medium sand. This material grades to yellow or pale-yellow loose, porous, medium, or coarse sand, which continues to a depth ranging from 3 to 5 or more feet. A few small patches of Norfolk loamy sand are included with this soil. On wooded areas there is a very thin covering of dark-gray or brown sand, in which are slight accumulations of organic matter.

This soil occurs on both sides of Nahunta swamp near the junction with Appletree swamp in the western part of the county.

Areas of this soil are typically undulating, gently rolling, or rolling, the more rolling parts lying near the streams. Drainage is good or excessive.

Approximately 20 per cent of this soil is under cultivation. The forested areas support a growth of pines, blackjack oak, and sassafras. The crops grown and the yields obtained are similar to those on Norfolk fine sand, though perhaps the yields are slightly less. Except for some areas devoted to the growing of watermelons, sweet potatoes, rye, and some tobacco and corn, much of the Norfolk sand should remain in forest.

#### NORFOLK LOAMY SAND

In cultivated fields the surface soil of Norfolk loamy sand, to a depth of 6 or 8 inches, is gray or light-gray loamy sand. The subsoil, to a depth ranging from 25 to 36 inches, is yellow or pale-yellow friable loamy sand or sandy loam. The lower part of the subsoil is yellow or dull-yellow sandy clay loam. Over much of this land the lower subsoil layer is lacking and the soil material is loamy sand to a depth ranging from 40 to 50 inches.

Norfolk loamy sand covers 1.5 per cent of the county. It occurs principally in the vicinity of Bullhead School, Speights Bridge, and Lane School, in the western and northwestern parts of the county.

Areas of this land are prevailingly undulating, gently rolling, or rolling. Drainage is good or excessive, both on the surface and internally, owing to the slope and the looseness of the subsoil material.

Approximately 60 per cent of this soil is farmed to cotton, corn, and tobacco. The yields compare favorably with those on Norfolk fine sandy loam, deep phase, though they may be slightly less. The farming methods and treatment of the soil used on Norfolk fine sandy loam are applicable to this soil.

#### RUSTON FINE SANDY LOAM

In wooded areas, the topsoil of Ruston fine sandy loam consists of a layer, from 2 to 4 inches thick, of gray or brownish-gray mellow fine sandy loam, underlain by grayish-yellow fine sandy loam or loamy fine sand which continues to a depth varying from 12 to 15 inches. The subsoil is yellowish-red, reddish-yellow, or reddish-brown fine sandy clay material. It is friable and crumbly and readily breaks into a fine mass without definite cleavage or structure. At a depth ranging from 48 to 68 inches, the subsoil grades to fine sandy clay material, mottled yellowish red or pale yellow with slight mottles of gray. This material is slightly compact but is very brittle and crumbly. In cultivated fields the surface soil, to the depth of cultivation, varies from light gray to brownish gray. This soil is very mellow and easy to till.

The surface soil is uniform throughout. In some places on the more rolling areas, the subsurface layer of pale yellow or brownish yellow is not well developed or is lacking. As a rule this layer lies at a depth varying from 12 to 16 inches below the surface. In some places the lower part of the subsoil is slightly mottled with yellow, red, and gray. In a few small areas in the vicinity of Fort Run the lower part of the subsoil is red or deep red. These areas in reality consist of Orangeburg soils but were too small in extent to be separated in mapping. A few small patches of Norfolk fine sandy loam and of Ruston sandy loam, on account of their small extent, were also included in mapped areas of this soil.

Ruston fine sandy loam is the most extensive member of the Ruston series. It occurs on the breaks near the stream courses, near the mouth of Wheat Swamp Creek, Bear Creek, and Fort Run, along the smaller tributaries of Contentnea Creek in the northwestern part of the county, and in smaller areas elsewhere. The largest area is about 1 mile northeast of Shine School.

This land is in general gently rolling or rolling and occurs on the slopes bordering stream courses. All of it is well drained, and on some of the steeper slopes erosion has been active and has removed much of the surface mantle of soil and exposed the reddish-brown subsoil material. Erosion, for the most part, however, has not carved gullies in the soil.

This is an important agricultural soil and approximately 70 per cent of it is farmed. The forested areas support a growth of short-leaf and long-leaf pine, oaks, maple, and dogwood.

The principal crops grown are cotton, corn, and tobacco, and the yields are similar to those obtained on Norfolk fine sandy loam. Fertilizer treatment is also similar, and suggestions for the improvement of Norfolk fine sandy loam are applicable to this soil.

*Ruston fine sandy loam, deep phase.*—The surface layer of this deep soil is similar to that of typical Ruston fine sandy loam. The subsurface layer is similar in color and texture but is deeper, in most places continuing to a depth varying from 24 to 30 inches below the surface. It is underlain by yellowish-red, reddish-yellow, or reddish-brown friable fine sandy clay loam or fine sandy clay material.

As mapped, the surface soil is uniform and the subsurface layer is uniformly deep. In most places the sandy clay loam or sandy clay material of the lower part of the subsoil lies more than 24 inches below the surface.

This soil occurs in close association with Ruston fine sandy loam. It is mapped mainly in the vicinity of Snow Hill and near Rainbow Church, in the southern part of the county. It is not very extensive.

This land is typically gently rolling, rolling, or strongly rolling and occurs typically on the breaks near streams. Drainage is good.

Approximately 60 per cent of this soil is under cultivation. The areas on steeper slopes or breaks are forested. The crops grown are similar to those produced on typical Ruston fine sandy loam.

#### RUSTON SANDY LOAM

In cultivated fields the surface layer of Ruston sandy loam is gray or brownish-gray medium sandy loam, 6 or 8 inches deep. The subsurface layer, to a depth varying from 15 to 18 inches, is pale-yellow light sandy loam, slightly heavier than the material of the surface layer. The subsoil is reddish-yellow, yellowish-red, or reddish-brown friable sandy clay material. The lower part of the subsoil is slightly heavier than the subsoil of Norfolk sandy loam.

This soil is fairly uniform in texture and color. In some patches the surface soil is slightly deeper, and in forested areas the surface, to a depth varying from 1 to 3 inches, has a brownish cast caused by the presence of organic matter.

This is one of the least extensive soils in the county. The largest areas are near Hookerton and around Whiteoaks School. A few patches are found elsewhere.

This land is typically rolling or strongly rolling and occurs along the breaks near streams. Drainage is good, and the soil is well oxidized to a depth of 3 feet.

Approximately 50 or 60 per cent of this soil is cleared and under cultivation to cotton, corn, and tobacco. Yields are similar to those obtained on Ruston fine sandy loam. The smoother, more favorable areas of this soil compare favorably with Ruston fine sandy loam, but the more rolling areas are not so desirable.

#### MARLBORO FINE SANDY LOAM

In wooded areas the topsoil of Marlboro fine sandy loam consists of a 1-inch or 2-inch layer of gray fine sandy loam, underlain by

brownish-yellow fine sandy loam which continues to a depth of 6 or 8 inches. The subsoil is yellowish fine sandy clay which is slightly sticky and contains much more fine material than the corresponding layer of Norfolk fine sandy loam. In a few places, at a depth varying from 24 to 30 inches, this yellow fine sandy clay is slightly mottled with light red and at a depth of about 32 inches the mottled yellow, light-red, and light-gray very fine sandy unweathered material is present. In cultivated fields the surface soil is light gray or yellowish gray. Marlboro fine sandy loam is readily distinguished from the Norfolk soil in that there is more fine material in the soil, and the topsoil is much shallower than that of the Norfolk. In many places the yellow fine sandy clay subsoil is turned up by the plow.

Marlboro fine sandy loam has a total extent of only about 500 acres and is the least extensive soil in the county. It occurs in only a few comparatively small areas. It is found in close association with Norfolk fine sandy loam and Norfolk very fine sandy loam. The larger areas occur northwest of Shine School, 1 mile northeast of Beamans School, 1½ miles southwest of Maury, and about 2 miles northeast of Ormondsville.

Areas of this soil are gently rolling or undulating. Drainage is good on the surface and internal drainage is fair or good. The soil is well oxidized to a depth of 3 feet.

This is a strong soil and practically all of it is under cultivation. The crops grown are similar to those grown on the adjacent Norfolk soils, and the yields are, as a rule, slightly higher.

Cotton yields from two-thirds to 1 bale to the acre; tobacco, from 800 to 1,000 pounds; and corn, from 25 to 30 bushels. The fertilization and farming methods used are practically the same as those practiced on Norfolk fine sandy loam and Norfolk very fine sandy loam.

#### DUNBAR FINE SANDY LOAM

In wooded areas the topsoil of Dunbar fine sandy loam consists of a layer of dark-gray fine sandy loam 3 or 4 inches deep, underlain by a layer of grayish-yellow fine sandy loam which continues to a depth varying from 12 to 15 inches. The subsoil is mottled yellow and gray heavy, slightly plastic fine sandy clay material which in most places at a depth of 20 or 25 inches, becomes heavier in texture and slightly mottled with red. In some places, light-gray or bluish plastic fine sandy clay with faint mottles of brownish yellow or rust brown is present at a depth of 45 or 50 inches. In cultivated fields, the surface soil is predominantly gray.

In some patches of this soil, the pale-yellow subsurface layer is not well developed and grades abruptly to the heavier mottled layer. South and west of Lizzie, this soil is more sandy than typical. It is sandy loam in texture but, on account of its small extent, is included with this soil in mapping. This soil occurs in close association with Norfolk sandy loam.

Comparatively small areas of Dunbar fine sandy loam are scattered over the county, and occur in close association with areas of the Plummer and Coxville poorly drained soils on the one side and with the well-drained soils of the Norfolk series on the other. This soil

represents an intermediate condition between a poorly drained and a well-drained soil. The largest areas occur in association with Plummer fine sandy loam in the northern part, and on the flatter areas in association with the Norfolk soils throughout the county. The largest areas occur about 3 miles east of Walstonburg along the Pitt County line, in the vicinity of Lizzie, 1 mile west of Spring Branch Church along the Wilson County line, one-half mile south of Jason, and about 1 mile southwest of Hams Store.

This land is, in general, flat or slightly undulating. The drainage represents an intermediate condition between the well-drained soils of the Norfolk series and the poorly drained Plummer soils. It is necessary to ditch this soil before successful farming can be carried on.

Approximately 70 or 75 per cent of the Dunbar fine sandy loam is cleared and cultivated. The forested areas support a growth of pines, sweet gum, small oaks, dogwood, and shrubs.

The principal crops are corn, cotton, some tobacco, and oats. Cotton yields from one-half to three-fourths bale to the acre; tobacco, from 600 to 800 pounds; and corn, from 20 to 30 bushels. These yields are slightly lower than those obtained on the Norfolk and Ruston soils. This soil is best suited to corn and oats. On account of its poor natural drainage, it remains wet or moist until late in the spring and can not be plowed under so wide a range of moisture conditions as the Norfolk soils. All the crops are fertilized about as they are on the better-drained soils. Applications of manure, the growing of soy beans and cover crops, and liming would prove beneficial.

#### DUNBAR VERY FINE SANDY LOAM

In cultivated fields the surface layer of Dunbar very fine sandy loam is gray, light-gray, or ash-gray, mellow, smooth very fine sandy loam, 6 or 8 inches deep. The subsurface layer is pale-yellow or grayish-yellow very fine sandy loam. The subsoil is gray very fine sandy clay material, highly mottled with yellow and red spots or streaks, and is slightly plastic and tough. The subsoil below a depth of 30 inches is uniformly heavier than the soil material above.

In forested areas, the surface soil is dark gray and in places the upper part of the subsoil is more gray than yellow. Much of this soil as mapped here has a mottled gray and yellow subsoil with slight, if any, mottling of red.

This soil occurs principally in the northern part of the county, in the vicinity of Walstonburg, and in a few areas in the southwestern part in close association with Norfolk very fine sandy loam.

Areas of this soil are flat or slightly undulating and slightly higher than areas of Plummer fine sandy loam. Like Dunbar fine sandy loam, Dunbar very fine sandy loam is intermediate in drainage between the well-drained and poorly drained soils. Drainage in its natural state is poor or deficient and it is necessary to ditch the land.

Approximately 35 or 40 per cent of this soil has been cleared and ditched and is used for farming. The forested areas support a growth of trees similar to those on Dunbar fine sandy loam.

The crops grown and the yields obtained are similar to those on Dunbar fine sandy loam.

#### KALMIA FINE SANDY LOAM

The topsoil of Kalmia fine sandy loam consists of a 2-inch or 3-inch layer of brownish-gray or gray loamy fine sand, underlain by grayish-yellow or pale-yellow loamy fine sand or light sandy loam which continues downward to a depth varying from 15 to 18 inches. The typical subsoil is brownish-yellow or yellow fine sandy clay, fairly friable and crumbly. This, at a depth ranging from 30 to 40 inches, grades to friable sandy clay material, brownish yellow mottled with brown and light gray and only a few inches thick. This layer grades to loamy sand or friable material, light gray mottled with rust brown. In cultivated fields, the surface soil ranges in color from gray to dark gray depending on the quantity of organic matter present.

In some small areas the color of the surface soil is grayish brown, and in the flatter areas it is gray or dark gray. The yellow or pale-yellow subsurface layer is fairly well developed. In the flatter areas the lower part of the subsoil is mottled gray and yellow. Near the Wilson County line, on the north side of Contentnea Creek, a very small area mapped with this soil is Cahaba fine sandy loam. The surface soil here is grayish brown in color and the lower part of the subsoil is friable fine sandy clay, varying in color from brownish yellow to reddish brown. On the flatter and less well-drained areas, small patches of Myatt fine sandy loam are included with mapped areas of this soil.

Kalmia fine sandy loam has a total extent of 7,488 acres, and is the most extensive terrace soil mapped in the county. It occurs on the bench or terrace lands along Contentnea and Little Contentnea Creeks, in the central and eastern parts of the county. The largest areas are near Fools Bridge, Speights Bridge, northeast of Snow Hill, and about 1½ miles north of Hookerton.

This land is typically smooth, undulating, or gently sloping. Drainage, as a whole, is good, and the soil is well oxidized to a depth of 3 feet.

Approximately 75 or 80 per cent of this soil is under cultivation. The forested areas support a growth of pines, oaks, poplar, and gall berry.

Kalmia fine sandy loam, as mapped, is rather extensive and is considered a good general-farming soil. Cotton, corn, tobacco, and minor crops are grown, and the yields compare favorably with those obtained on the upland Norfolk fine sandy loam. The farming methods and fertilization of crops for this soil and for Norfolk fine sandy loam are very similar.

#### KALMIA SANDY LOAM

In cultivated fields the surface layer of Kalmia sandy loam, to an average depth of 7 inches, is medium loamy sand, yellowish gray or gray with some spots of brownish gray. The subsurface layer, to a depth of 15 or 20 inches, is pale-yellow or yellow friable sandy loam or sandy clay loam. The subsoil, to a depth ranging from 30 to 40 inches, is yellow or dull-yellow heavy, friable sandy clay material.

The surface soil, in close association with the Myatt soil, is darker gray in color, and small patches of Myatt sandy loam were mapped with this soil. On the less well-drained areas, the subsurface layer is more generally yellowish gray and the subsoil is slightly mottled.

Kalmia sandy loam occurs on the bench or terrace lands along Contentnea and Little Contentnea Creeks, in close association with Kalmia fine sandy loam. The largest areas are north of Hookerton on the north side of Contentnea Creek, and there are smaller areas throughout the terrace lands.

This land is smooth, undulating, or gently sloping, and all of it can be farmed intensively. Drainage, in general, is good. The poorly drained patches would be helped by ditches.

Approximately 75 or 80 per cent of this soil is under cultivation. The forested areas support a growth of trees similar to those on Kalmia fine sandy loam. The crops grown, as well as yields obtained, are similar to those on Kalmia fine sandy loam, and the same general suggestions for soil improvement are applicable.

*Kalmia sandy loam, deep phase.*—The name Kalmia sandy loam, deep phase, has been given to areas of this type having a subsurface layer thicker than the average. The surface layer is similar to that of typical Kalmia sandy loam, and the subsurface layer is thicker, continuing to a depth varying from 24 to 30 inches before the subsoil is reached. The surface soil is lighter colored. Very little of the poorly drained Myatt soils are mapped with this soil, which, on the whole, is being drained.

This deep soil occurs in close association with typical Kalmia sandy loam. Areas are smooth or gently sloping, and all areas can be cultivated. Drainage is good, and the soil is inclined to be droughty in the drier seasons of the year.

Approximately 70 or 75 per cent of this soil is under cultivation. The crops grown are the same as on the typical soil, but the yields are slightly lower on this deep soil.

#### KALMIA FINE SAND

Kalmia fine sand, to a depth varying from 7 to 9 inches, consists of light-gray or gray loamy fine sand or fine sand. This grades quickly to pale-yellow or yellow loose fine sand which continues to a depth ranging from 30 to 50 inches. The color of the surface soil is light gray or almost white in patches, but the subsoil material is invariably pale-yellow or yellow loose fine sand.

This soil is not extensive as mapped in the county. It occurs in comparatively small areas principally along Little Contentnea Creek and on the terrace lands of Contentnea Creek, north and northwest of Hookerton.

Areas of Kalmia fine sand are undulating or gently rolling with some slight ridges. Drainage is good or excessive and the soil is droughty during the drier seasons of the year.

A very small part of this soil is under cultivation. It has a low agricultural value. The principal crops are tobacco, cotton, and corn, but the yields are much lower than those obtained on Kalmia fine sandy loam. This soil should be used for forestry.

#### KALMIA SAND

Kalmia sand consists of light-gray or nearly white medium sand from 6 to 9 inches deep, which grades to yellow or pale-yellow, loose incoherent sand several feet deep. In some places the material of the subsoil is brownish yellow and the texture is coarser below a depth of 30 or 36 inches below the surface.

This soil occurs on second-bottom lands along Contentnea and Little Contentnea Creeks. The largest areas are 2 miles east of Hookerton and about 2 miles southeast of Cowards School, and 3 miles east of Ormondsville. Smaller patches occur elsewhere on the bench lands.

This land lies on smooth knolls or slight ridges on the terrace lands. Drainage is excessive because of the looseness and porosity of the subsoil material.

A few small areas of this soil are under cultivation to cotton, corn, and tobacco. The yields are low. Kalmia sand has a low agricultural value and should be used for forestry.

#### OKENEEL LOAM

The topsoil of Okeneel loam consists of brownish-black or black smooth loam or silt loam, from 9 to 15 inches deep. In some places in the lower or more depressed areas the surface layer, a few inches deep, is black mucky loam. The upper part of the subsoil is brownish-gray or gray heavy loam or clay loam. The lower part of the subsoil is dark-gray or steel-gray sticky sandy clay or clay. The dark color of the surface soil is caused largely by the presence of organic matter. In places the lower part of the subsoil is steel-gray or bluish-gray plastic clay.

Okeneel loam has a total extent of 4,864 acres and occurs on the terraces or bench lands along Contentnea and Little Contentnea Creeks. It occurs, as a rule, on the flats or depressions adjacent to the uplands.

Areas of Okeneel loam are flat. Surface drainage is poor because of the lack of relief and in its natural state the soil remains wet or saturated much of the time. During much of the wetter seasons water stands on the surface. The soil is badly in need of drainage. Practically all of this land is forested with sweet gum, tupelo gum, oaks, maple, and gall berry, and there is a heavy growth of underbrush. To properly drain most of this soil would be very expensive. Little or none of the land is under cultivation, but when drained and limed it should produce good corn, pasture grasses, and hay. Probably celery, onions, and cabbage can be successfully grown.

#### OKENEEL FINE SANDY LOAM

Okeneel fine sandy loam, to a depth of 8 or 10 inches, is dark-gray or nearly black fine sandy loam. It is underlain by gray fine sandy clay loam and, in turn, by gray or light-gray fine sandy clay loam heavier than the soil above.

The dark color of the surface layer is caused largely by the organic matter in the soil. In some places the subsoil below 30

inches is steel-gray or bluish-gray slightly plastic clay. As a whole, there is little or no mottling in the subsoil material.

This soil occurs in many small areas on the bench lands along Contentnea and Little Contentnea Creeks. As mapped, it includes patches of Okenee loam and Myatt fine sandy loam. The largest area is north and northeast of Water Branch School, and smaller patches are scattered throughout the bench lands.

Okenee fine sandy loam occurs on flats or depressions in the terrace lands, and drainage is poor or deficient.

Only a very small percentage of this soil is under cultivation. Corn and some cotton are raised. Yields are fair or low.

In its natural condition the soil is badly in need of drainage, and its agricultural value is low. If properly drained, good yields of corn and oats could be obtained.

#### COXVILLE FINE SANDY LOAM

The surface layer of Coxville fine sandy loam consists of smooth fine or very fine sandy loam, 6 or 8 inches deep. This material is typically gray or dark gray when moist, but is prevailingly gray or slate-colored when dry. The subsurface layer, to a depth varying from 15 to 18 inches, consists of gray or light-gray sticky fine sandy loam material slightly mottled with yellow. The subsoil is mottled gray, yellow, and red, heavy plastic fine sandy clay or clay.

In cultivated fields the gray color is typical, but in the forested areas the color is slightly darker to a depth of 3 or 4 inches. The subsurface layer is in most places gray but the degree of mottling varies widely. In some patches the lower part of the subsoil is more friable and shows little mottling. Patches of typical Plummer fine sandy loam are mapped with this soil. In a few small areas the surface soil is gray or brownish-gray silt loam or very fine sandy loam. The subsoil, in such places, is gray or grayish brown with slight mottling of yellow and rust brown, and in texture is silty clay loam or silty clay.

Coxville fine sandy loam in Greene County occurs principally south of Maury, one-half mile southwest of Jerusalem Church, in the vicinity of Jason, and in a few small areas south, southeast, and west of Castoria.

This land is typically flat and occurs in slight depressions. Surface drainage is poor because of the flat surface of the soil, and internal drainage is slow because of the heaviness of the subsoil material.

Approximately 40 or 50 per cent of this soil is under cultivation to corn, cotton, and some soy beans. Drainage must be provided before cultivated crops thrive. Corn yields from 20 to 30 bushels, and cotton from one-half to three-fourths bale to the acre. The soil is inclined to be cold and remains wet rather late in the spring. Better drainage, applications of manure and lime, and the growing of cover crops would prove beneficial.

Coxville fine sandy loam is one of the best soils in the county for the growing of strawberries.

#### PORTSMOUTH FINE SANDY LOAM

The topsoil of Portsmouth fine sandy loam, to a depth ranging from 8 to 15 inches, consists of dark-gray or black fine sandy loam which contains a large quantity of organic matter. The subsoil is typically mottled gray and yellow friable fine sandy clay material. In places the color of the subsoil is light gray with some slight mottling of yellow or rust brown.

A few patches of this soil occur in the lower-lying areas where the surface soil is deeper and the texture is a loam and the content of organic matter is almost as high as that of a muck. Some patches of this soil, which occur in swales or depressions, are included in mapped areas of Plummer fine sandy loam.

Portsmouth fine sandy loam, as mapped, occurs principally in the southern part of the county, near Glenfield, in the vicinity of Mew-born Church, south of Shine School, and in a few other small areas scattered over the county.

Areas of this soil are typically flat or depressed. In its natural state drainage is poor and must be improved before farming can be successfully practiced.

Only a few small areas of Portsmouth fine sandy loam, not more than 20 or 25 per cent of the total, are farmed. The forested areas support a growth of pines, sweet gum, maple, myrtle, bay, and gall-berry bushes.

The crops grown are corn, cotton, oats, and some tobacco. Corn yields from 15 to 30 bushels and cotton from one-fourth to one-half bale to the acre. Oats and soy beans do well.

Proper drainage and the application of lime and fertilizer make this a productive soil. It is well suited to the production of corn, soy beans, cowpeas, strawberries, cabbage, onions, and potatoes. The poorly drained forested areas are valued principally for the timber.

#### PLUMMER FINE SANDY LOAM

In wooded areas the topsoil of Plummer fine sandy loam consists of a layer of dark-gray fine sandy loam, 4 or 5 inches deep, underlain by light-gray fine sandy loam slightly mottled with yellow or brown, which continues downward to a depth of 14 or 16 inches. The subsoil is mottled light-gray and yellow fine sandy clay, slightly sticky but not plastic, and is, in general, very friable and crumbly when dry. In most places, at a depth ranging from 30 to 50 inches, the subsoil grades to mottled light-gray and yellow slightly plastic fine sandy clay, which here and there shows some mottling of red and reddish brown. This grades to mottled yellow and gray fine sand without definite color and structure, which contains layers of light-gray and bluish material.

In cultivated fields the surface soil, when fairly dry, has a slate-gray or ash-gray color. In forested areas the surface layer, to a depth of a few inches, consists of an accumulation of dark-gray or nearly black organic material, and in a few areas the soil closely resembles the Portsmouth soils. The subsoil is prevailingly gray in color, with some mottling of yellow and rust brown, though in some

places the color is gray to a depth of 3 feet. The lower part of the subsoil is heavier than the surface but is not so heavy or compact as the typical Dunbar soils, and the subsurface layer is gray instead of the yellow or pale yellow of the latter soils. In some small areas the lower part of the subsoil consists of gray heavy fine sandy loam in which there is only a small admixture of clay material. The soil and subsoil are fairly uniform throughout, although some patches, most of them very small, of Dunbar and Portsmouth soils are included with mapped areas of this soil.

Plummer fine sandy loam ranks second in extent among the soils of Greene County and aggregates 23,424 acres, or 13.8 per cent of the total area. The largest areas are in the northern half of the county, in the vicinity of Walstonburg, Friendship Church, Bynums School, and Rices and Half Moon Pocosins north of Maury. In the southern part of the county some fairly large areas are in the vicinity of Jason, Arba, Browntown Crossroads, and south of Hookerton, and smaller areas are scattered over the county.

In general, this land is flat, although some small areas are gently sloping. Over much of it there are some slight hummocks and depressions. As a whole, the soil is poorly drained and there are no well-defined stream courses. The soil occurs on broad, flat areas and at the heads of small drainage courses where drainage is deficient. Most of it is wet or saturated throughout the year. The water table is not 3 feet below the surface and during the winter and spring is at or near the surface. The soil must be ditched before it can be used for farming.

Although this soil is extensive, only a very small percentage of the total area is under cultivation, because of the deficient drainage and the low agricultural value of the soil. Most of this land is forested to long-leaf and short-leaf pines, water and willow oaks, gall berry, and myrtle, and some cane grows in places. A heavy growth of wild grasses covers the land in its natural state.

Not more than 5 or 10 per cent of this soil has been cleared. The cultivated part is used for growing corn, oats, and a little cotton. Plummer fine sandy loam remains wet and cold in the spring and is rather late as compared to the Norfolk soils. The yields of corn vary greatly, ranging from 15 to 25 bushels to the acre. The yields of cotton are low.

Plummer fine sandy loam must be more thoroughly drained by open ditches before it can be farmed successfully. However, ditches are difficult to keep open because of the tendency of the material to cave in from the walls.

The current value of this soil is much lower than that of the better-drained soils, such as Norfolk fine sandy loam. Plummer fine sandy loam is best suited to forestry and pasture.

#### PLUMMER SANDY LOAM

Plummer sandy loam, to a depth varying from 6 to 9 inches, typically consists of gray medium sandy loam. In the forested areas the surface layer, to a depth of a few inches, is darker gray in color, and in some slightly depressed areas the material is nearly black and is slightly mucky on the surface. The dark color results from the accumulation of organic matter. The subsoil material

varies widely in texture and color. Typically it is sandy loam or sandy clay loam and in color is light gray mottled with yellow and rust brown. The lower part of the subsoil is more generally gray or light gray, and the degree of mottling with yellow and rust brown is variable. The lower part of the subsoil is typically gray mottled sticky sandy clay.

This soil is not nearly so extensive as Plummer fine sandy loam. It occurs principally near Lizzie, Friendship Church, east of Lindell, about 2 miles southeast of Castoria, and in a few smaller areas elsewhere.

Areas of Plummer sandy loam are typically smooth or nearly flat. Drainage is so poor that the land must be ditched before it can be farmed successfully.

Not more than 15 per cent of this soil is farmed. The remainder is forested with a growth similar to that on Plummer fine sandy loam. Crops and yields for this soil are similar to those on Plummer fine sandy loam. This soil is best fitted to forestry and pasture.

#### MYATT SANDY LOAM

The surface layer of Myatt sandy loam is gray, dark-gray, or brownish-gray sandy loam or heavy sandy loam, from 6 to 9 inches deep. The subsurface layer, to a depth of 16 or 18 inches, is sticky sandy clay, light gray or gray slightly mottled with yellow and rust brown. The lower part of the subsoil, to a depth of 3 or more feet, is gray or steel gray slightly mottled with yellow sticky sandy clay. On the flatter and more depressed areas the color of the surface layer is darker.

This soil is of small total extent in this county. It occurs on second bottoms or terraces along Contentnea Creek in the central part of the county, near Union Chapel, north of Snow Hill, and elsewhere in close association with Kalmia sandy loam.

Areas of this soil are flat or slightly depressed. Drainage is poor or deficient and open ditches are necessary to lower the water level before the soil can be farmed successfully.

Only a small percentage of this soil is under cultivation. When properly drained, limed, and fertilized fair crops of corn, oats, and cotton are grown. The land is best suited for pasture and forestry.

#### MYATT FINE SANDY LOAM

The topsoil of Myatt fine sandy loam is gray or dark-gray fine sandy loam 6 or 8 inches deep. In cultivated fields the surface has a slate-gray cast. The upper part of the subsoil, to a depth varying from 15 to 18 inches, is fine sandy clay loam typically gray or gray slightly mottled with yellow, underlain by light-gray or steel-gray sticky fine sandy clay which continues to a depth of more than 40 inches. On the flatter and more depressed areas the surface soil is darker colored than typical.

Myatt fine sandy loam occurs on the terrace or bench lands in close association with the Kalmia soils. Areas are flat or depressed and drainage is deficient. The soil must be properly drained before it can be farmed successfully. In its natural state it remains wet or saturated much of the time.

When properly drained, limed, and fertilized Myatt fine sandy loam produces fair yields of corn, cotton, soy beans, and oats. Only a small percentage of this soil is cultivated. It is best suited to pasture and forestry.

## JOHNSTON SILT LOAM

The topsoil of Johnston silt loam varies in depth from 12 to 15 inches and consists of smooth, mellow, black silt loam rich in organic matter. In some patches the immediate surface is nearly black muck. The upper part of the subsoil, to a depth of 25 inches, is brownish-black or dark-brown silty clay loam, much heavier than the topsoil. The lower part of the subsoil is brownish-gray fine sandy clay. In some places this layer, at or near a depth of 3 feet, is gray fine sand. As mapped, this soil includes areas of meadow in which the texture of the surface soil varies widely.

Johnston silt loam occurs on first bottoms along some of the smaller streams in the western and southwestern parts of the county. One small area is in the Contentnea Creek bottom near Snow Hill. The largest areas are along Tyson Marsh and Fort Run.

This land is smooth or nearly level and has a slight grade with the stream. Drainage is poor or deficient, and the land is subject to overflow at times of high water.

Not more than 15 or 20 per cent of this soil is under cultivation. The forested areas support a growth of gum, poplar, maple, water oak, elm, and birch. The cultivated areas are used for growing corn, hay, and small acreages of oats. Yields of corn range from 30 to 75 bushels to the acre. When properly drained and limed this soil is productive for corn and forage crops.

## MEADOW

Meadow, as mapped in this county, includes land that is closely related to swamp but that is better drained.

The material of the surface layer varies in texture, but is, in general, sandy loam and represents recently deposited sediments washed from the adjacent sandy uplands. It has been deposited, by the action of flowing waters, at the base of the upland slopes and along the drainage courses. The color varies from gray, brownish gray, or dark gray, to nearly black. The subsoil material varies in both color and texture, the color ranging from gray to mottled gray, yellow, and rust brown, and the texture from silt or fine sand to sandy clay.

Meadow occurs along the smaller stream courses throughout the county, but the larger areas occur along Wheat Swamp, Rainbow, and Bear Creeks. The surface is flat or gently sloping with the stream courses. Drainage is poor or deficient. Water does not stand on this land for so long a period as it does on swamp and most of it could be drained at a comparatively small cost.

Only a very small part of the meadow land has been cleared and properly drained so that it can be farmed. The larger part of this land is forested to gum, maple, water oak, some pines, and poplar. Where properly drained, corn and oats are grown, and the yields are fair or good during the drier seasons. The forested soil is used to

some extent for pasture. Most of the meadow is best suited to summer pasture and forestry.

## SWAMP

Swamp, as mapped in this county, includes very poorly drained land rather than a distinct type of soil. The soil material varies greatly in texture and in color, and the color ranges from gray or dark gray to nearly black. In most places the surface soil is dark-gray fine sandy loam, though it is of pronounced silt loam texture in some places. Here and there the surface soil is dark or nearly black silt loam, but there may be considerable vegetable matter in the surface soil so that it somewhat resembles muck. Much of the swamp might be mapped as Johnston silt loam. There are areas where the surface soil is gray fine sand, representing recent stream wash from the adjacent uplands. The subsoil material is variable in texture and structure, and ranges from gray sand to mottled gray, yellow, and rust-brown slightly heavier sandy clay loam or sandy clay. The dark color of the immediate surface and of the surface layers results largely from the accumulation of organic matter.

Swamp is rather extensive. It occurs along Contentnea and Little Contentnea Creeks, as well as other main drainage ways of the county, and comprises 17.3 square miles in the county. It is permanently wet and is covered with water the greater part of the year.

If properly drained, much of the swamp would become good farming land. However, the cost of drainage would be high and a special drainage project would be needed to reclaim much of the swamp.

None of the swamp is cleared or used for farming except for a small percentage used for grazing. The swamp is forested and supports a growth of cypress, gum, some water oak, and scattered pine, poplar, willow, and birch.

## SUMMARY

Greene County is in the east-central part of North Carolina and comprises 265 square miles or 169,600 acres.

In general, the county is undulating or gently rolling, with some smooth or flat areas on the broader divides. The more rolling areas are on the breaks near the streams and the smoother or nearly flat areas are on the drainage divides.

Drainage is effected through Contentnea and Little Contentnea Creeks and their tributaries. Although the soils, in general, are well drained, many are poorly or deficiently drained.

The population of the county in 1920 was 16,212. Snow Hill, near the center of the county, is the county seat.

Railroad facilities are adequate and the roads are fair or good. Most of the cotton and tobacco are marketed at Wilson, Farmville, and Kinston. Small towns serve as local markets and trading centers.

The climate is mild, the summers being long and hot and the winters short. The mean annual precipitation is 49.59 inches, and the mean annual temperature is 61.3° F.



Greene County is typically agricultural, and all the population is classed as rural. The principal crops are corn, cotton, and tobacco. Commercial fertilizers are used with all growing crops. The greater percentage of the land is farmed by tenants. The current value of land ranges from \$15 to \$100 an acre.

The soils of this county are derived from unconsolidated sand and clay of sedimentary origin. They are, as a whole, poorly supplied with organic matter, as is evidenced by their gray color, and are low or deficient in lime.

Twenty-four types of soil (classed in 11 series), and two miscellaneous classes of land (meadow and swamp) were mapped in the county.

The well-drained Norfolk, Marlboro, Ruston, and Dunbar soils are the most extensive of the upland soils and constitute some of the best farming land of the county. They are well suited to a variety of crops.

The less well-drained upland soils are mapped in the Plummer, Portsmouth, and Coxville soil series. In their natural state these soils are poorly drained and ditches must be installed before the soil can be farmed successfully.

The better-drained terrace or bench-land soils are mapped in the Kalmia soil series. These soils are well drained and for the most part are good general farming soils.

The less well or poorly drained terrace soils are mapped in the Okenee and Myatt soil series. These soils must be properly drained before they can be farmed successfully.

The first-bottom lands are mapped as Johnston silt loam, meadow, and swamp. As a whole, these lands are poorly drained and are forested.



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[PUBLIC RESOLUTION—No. 9.]

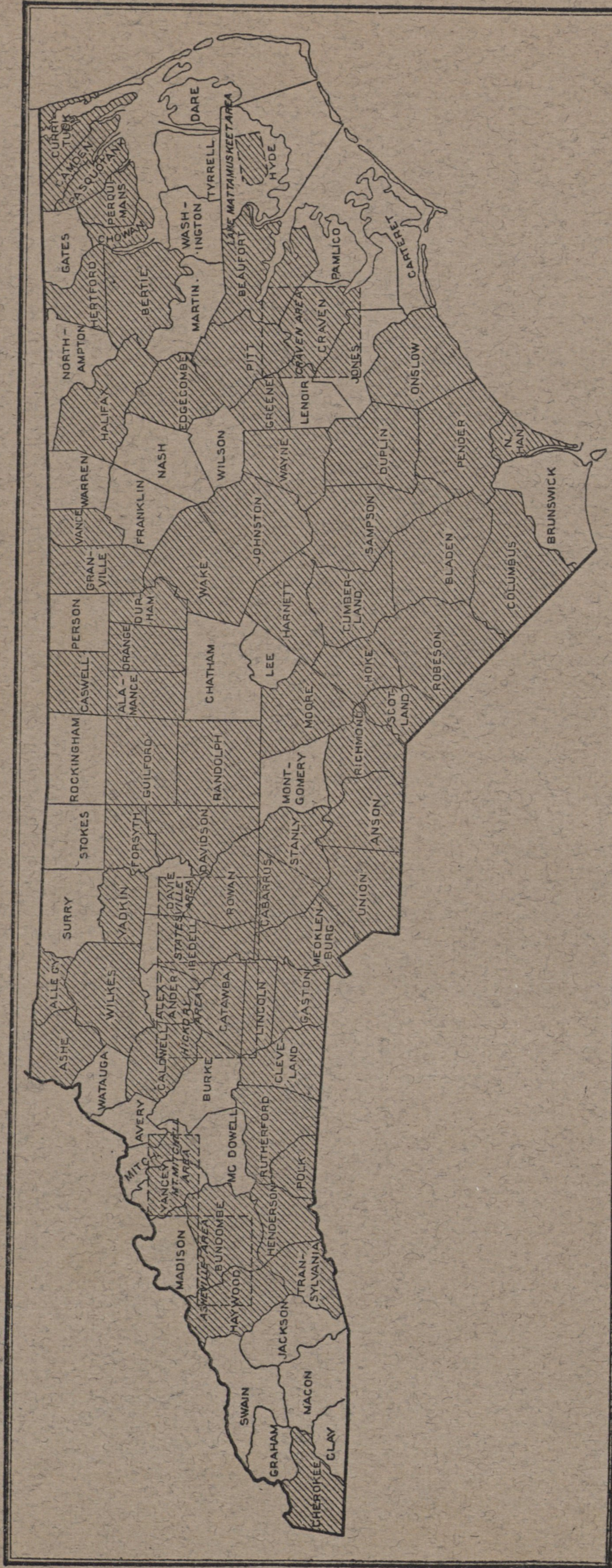
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: Provided, That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils, and on July 1, 1927, the Bureau of Soils became a unit of the Bureau of Chemistry and Soils.]



Areas surveyed in North Carolina, shown by shading