SOIL SURVEY OF THE NACOGDOCHES AREA, TEXAS.

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LOCATION AND BOUNDARIES OF THE AREA.

The Nacogdoches area lies within Nacogdoches County, situated in the central eastern part of the State of Texas between the Angelina River and Attoyac Bayou, and is about 175 miles from the Gulf of Mexico. The area surveyed, bounded by latitude 31° 30′ and 31° 45′ and longitude 94° 30′ and 94° 45′, covers about 100 square miles,

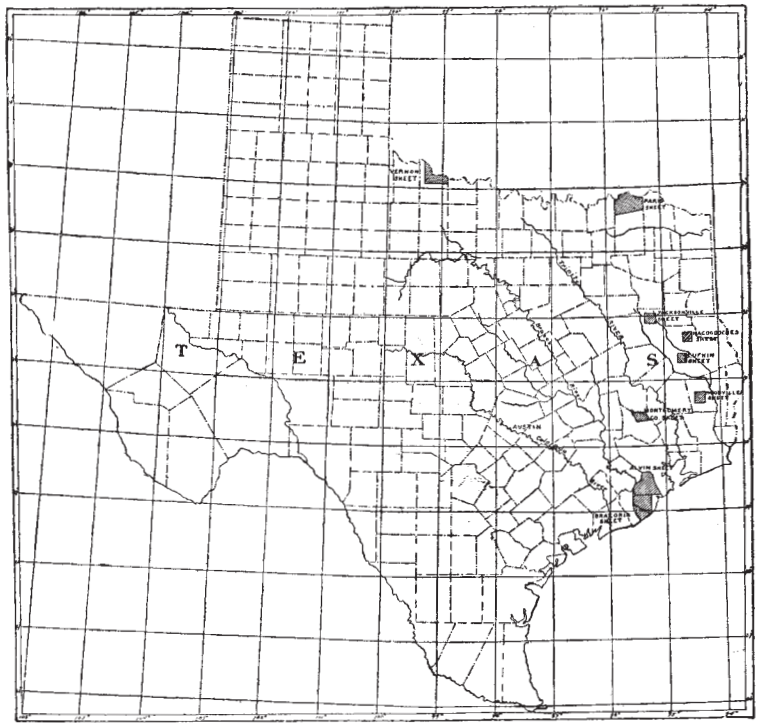

FIG. 21.—Sketch map showing location of the Nacogdoches area, Texas.

extending 8 miles north and east and 2 miles south and west from the courthouse in Nacogdoches.

The Houston, East and West Texas Railway and the Texas and New Orleans Railroad pass through the area in a north and south direction. This area includes the more thickly settled and better developed part of Nacogdoches County.

Nacogdoches, the principal town in the area, is the county seat. It has a population of about 2,000, and is situated on a ridge between Banita and La Nana creeks.

HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

About the year 1690 Don Alonzo De Leon, governor of Coahuila, established a number of Catholic missions in eastern Texas, then a part of Mexico. Among these was Nacogdoches, at the confluence of the Banita and La Nana creeks, in what is now Nacogdoches County. The growth of this settlement was exceedingly slow, owing not only to the fact that tribes of hostile Indians threatened it on every side, but more especially to the fact that, under Spanish rule, all foreigners were prohibited from entering the settlement under penalty of death. Moreover, there were so many barriers in the way, in the form of uncertain trails, impassable rivers, and hostile Indians, that few Spaniards from Mexico cared to pitch their tents in this wilderness. The few Catholic missionaries and Indian proselytes lived by stock raising, cultivating small patches of maize, and killing deer and other game.

In 1778 some wealthy families came in from New Orleans, but the increase in population was so slow that the population of the village did not exceed 36 persons in 1833. Land was easily obtained from Mexico in large tracts. An unmarried man could homestead one-third of a league, a married man a league and a "labore"[a], while a man who could bring in as many as 40 families was given possession of 40 leagues.

The early settlers lived in a very primitive manner. There were no grist mills, no cotton gins, and no accessible markets through which the outer world could be reached. Therefore their corn was ground in hand mills, their clothing was made of cotton picked from the seed by hand and woven on hand looms, and other necessaries of life were obtained in the same primitive way. Some trade in skins was carried on with tribes of friendly Indians.

Little attention was given to the amounts of the different products that could be raised on an acre until about the year 1840, when the settlers began to market a part of their surplus produce. Then it was observed that an average virgin soil would produce as much as 50 bushels of corn and from 1 to 3 bales of cotton to the acre.

In 1837 a colored man named Galons put up a grist mill near the village. This was run by water power and was one of the first steps in the development which steadily progressed until, in 1848, Mr. Ambrose Crane introduced the first cotton gin. Then cotton became the staple crop and Nacogdoches came in touch with the outside world.

[a] A labore is 177 acres.

Since 1848 the one-crop system has been generally practiced in farming, much to the detriment of the land. Very few of the farmers in this section can be termed prosperous, and their lands are rapidly becoming impoverished by the continuous cultivation of cotton. Happily for the older residents, three or four years ago some immigrants came to Nacogdoches County and demonstrated that fruit and vegetables can be raised with success and profit on lands that were before considered worthless. The introduction of truck farming, fruit growing, and possibly tobacco culture will, no doubt, mark a new era in the history of agriculture in Nacogdoches and other counties of eastern Texas.

CLIMATE.

The climate of the Nacogdoches area is temperate and well suited to a variety of farm crops. The winters as a rule are mild and only a few light freezes occur, while the summer heat is not excessive, seldom reaching 100° F. Frequently the north wind sweeping across the State causes a very sudden change in temperature for a few days. These cold snaps are called "northers." A light snow occasionally falls in this section, but it remains upon the ground only a short time. The average date for the past three years of the last killing frost in the spring is March 29, and the first killing frost in the fall occurs about the middle of November. Below is a table showing the average monthly temperature and precipitation for the past two years, as shown by records of the Weather Bureau station at Nacogdoches.

An examination of this table shows that the rainfall is ample for crops. The greater part of the 14 inches of rainfall recorded for June, 1902, fell within six hours on the 27th. This was an unprecedented occurrence. The growing season is practically from the middle of March to the first of December. Vegetables can be grown during almost the entire year.

Monthly and annual temperature and precipitation, Nacogdoches, 1901 and 1902.

Month.	1901.		1902.		Month.	1901.		1902.	
	Temperature.	Precipitation.	Temperature.	Precipitation.		Temperature.	Precipitation.	Temperature.	Precipitation.
	° F.	*Inches.*	° F.	*Inches.*		° F.	*Inches.*	° F.	*Inches.*
January	51.6	1.83	44.8	2.51	August	83.0	2.18	83.2	0.48
February	48.3	5.14	47.0	3.60	September	74.2	5.17	74.1	10.03
March	57.4	3.51	59.0	5.21	October	65.4	4.50	66.3	5.57
April	61.8	5.79	68.7	2.91	November	55.8	2.59	61.8	6.19
May	71.2	2.25	76.0	4.54	December	46.0	2.49	48.5	2.04
June	80.2	5.41	79.9	14.22	Year	66.5	45.18	65.8	63.07
July	82.6	4.62	79.8	5.77					

PHYSIOGRAPHY AND GEOLOGY.

The area surveyed lies within the Coastal Plain region of the State. The average elevation of the area is about 350 feet above sea level. There is an excellent drainage system, with only now and then a marshy spot, and even these can be drained with a nominal expenditure of time and money. The surface of the land is rolling and is well dissected by streams. The drainage of the area is effected through the Tuscosso, Carisso, La Nana, and Banita creeks. These run approximately parallel to each other, from north to south.

Scattered over the area at various points are moderately steep hills and ridges of the more resistant calcareous and glauconitic material, while at many points along the stream channels are found well-developed terraces which have been left by the streams as they cut through the different uplifts that have occurred since Cretaceous time. In the central part of the area is a broad ridge of sand that runs parallel with the creeks and probably represents the highest points in the survey.

Of the geology of this section we can speak in only a more or less general way. It would seem that the geological formations of this part of eastern Texas are of early Tertiary or Eocene age, probably of the Lower Clayborne horizon.[a]

The beds from which the soils in the area surveyed are derived are nearly or quite all of marine origin, representing offshore, subcoastal, and beach deposits. They embrace a ridge of land approximately 40 miles wide, having an elevation of from 350 to 700 feet above tide, extending across the counties of Harrison, Gregg, Rusk, Smith, Cherokee, and Houston. They occupy the greater proportion of Cherokee and Anderson counties, the whole of the northern half of Houston County, a great part of Sabine, Nacogdoches, and San Augustine counties, and a part of Smith and Henderson counties. Across Trinity River these beds extend westward, and in Harrison County they narrow to a point and become more or less broken into isolated hills. Small outliers of the same age are found at Hughes Springs and Atlanta, in the northern part of Cass County.

A great extent of that part of the marine beds included in the area surveyed is composed of greensand, greensand marl, glauconitic sandstones and clays, and stratified black and gray sandy clays, and belongs, in all probability, to the Cooks Mountain series of Kennedy. An examination of the strata which compose these beds shows them to be only slightly inclined to the east and southeast. In section they are composed of alternate layers of dark, sandy clays, impure limonitic and calcareous material, with moderately thick strata of greensand at

[a] William Kennedy, 3d An. Report Texas G. S., 1891; Penrose, Bul. No. 83, p. 78, U. S. G. S.

varying intervals. Nearly all the strata are highly fossiliferous, the fossils belonging to the Eocene age.

SOILS.

Five separate soil types were distinguished and mapped in the area. These lie for the most part in long, fairly continuous bodies with their greatest extent north and south, in conformity with the drainage system. The following table gives the absolute and relative extent of these different types:

Areas of different soils.

Soil.	Acres.	Per cent.
Norfolk fine sandy loam	19,008	30.6
Orangeburg clay	16,704	26.9
Orangeburg fine sandy loam	16,320	26.2
Lufkin clay	5,120	8.2
Meadow	5,056	8.1
Total	62,208	.....

ORANGEBURG CLAY.

The surface soil of the Orangeburg clay, locally known as "red land," consists of a deep-red loamy soil 5 to 9 inches deep. The texture varies somewhat, ranging from a heavy sandy loam to a clay loam. On the surface and mixed through this soil are generally found a few iron concretions and fragments of weathered greensand marl.

The subsoil of this type consists usually of a stiff red clay, though there are places where this clay is rather friable, and other places where it is a little sticky. It contains a few iron concretions and frequently has many fragments of either limonite or weathered greensand marl. In a few places this greensand marl outcrops, and it is frequently found only 3 feet from the surface.

In addition to the typical sections of Orangeburg clay just described, there are areas which are quite claylike and are commonly called "black spots." They owe their origin to position and are likely formed by the wash from surrounding soils and accumulated organic matter which is present in considerable quantities. The Orangeburg clay in this area is the characteristic heavy red land of eastern Texas.

The Orangeburg clay occurs in large bodies in the central, southeastern, and northwestern parts of the area surveyed. Smaller isolated areas occur in the eastern and northeastern parts, and there are long, narrow strips along Banita and La Nana creeks.

The surface characteristics of this soil vary considerably. The largest areas comprise high, evenly rolling land with a few slight depressions, while the smaller areas and narrow strips are usually more

rolling and are in some instances even precipitous. Some few areas in the northern and eastern parts of the area consist of knolls rising several feet above the surrounding soils.

This soil has for the most part excellent natural surface drainage. There are, however, some few level or depressed areas that would be greatly benefited by open drains or underground tile. These places can be drained at little cost.

The Orangeburg clay is a residual soil derived directly from the weathering of greensand marl of Eocene age. This marl is locally called "shell rock." It outcrops in numerous places in all typical areas of this soil, and a gradual gradation from the greensand marl up to the soil can be seen in places. In some instances this material has weathered to a depth of several feet. The greensand is rich in lime, phosphoric acid, and potash, and has some value for local use as a fertilizer.

The principal crops grown upon the Orangeburg clay are cotton, corn, and oats. Under the present cultural methods this soil produces from one-half to one bale of cotton to the acre. The yield of grain varies greatly with the cultivation. From 25 to 60 bushels of corn per acre are secured, and oats in the same proportion. As all the oats are fed in the sheaf no yield in bushels could be obtained. With more careful cultivation these yields could doubtless be increased.

Deep plowing and even subsoiling are recommended for this clay land. This would tend to conserve the moisture in the soil, to be taken up gradually by the plants, which is very important in view of the fact that the soil is naturally inclined to be droughty. The Orangeburg clay would also be benefited by plowing under leguminous crops, which would furnish nitrogen to the soil. Cowpeas and clover are probably best adapted to the local conditions.

The greater part of the Orangeburg clay is under cultivation; the remainder is covered with oak, hickory, dogwood, and prickly ash. All of this red-clay land is held in higher esteem than any of the other soils in the area. It is worth from $10 to $25 an acre in open market.

The Orangeburg clay is believed to be adapted to the growing of fine Cuban filler-leaf tobacco.

Below are given the mechanical analyses of typical samples of the Orangeburg clay:

Mechanical analyses of Orangeburg clay.

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
8341	3¾ miles E., 2½ miles N. of Nacogdoches.	Heavy red sandy loam, 0 to 7 inches.	2.33	6.10	4.54	3.90	18.32	29.72	18.90	18.28
8337	3¾ miles E. of Nacogdoches.	Red mellow loam, 0 to 9 inches.	2.22	2.74	4.12	3.54	16.00	18.18	28.00	27.34
8339	6 miles E., 1 mile N. of Nacogdoches.	Red mellow loam, 0 to 6 inches.	3.38	5.20	4.96	2.46	9.42	23.82	24.80	29.30
8343	¼ mile W. of Redfield.	Red loam, 0 to 6 inches.	2.61	3.50	4.64	2.98	11.86	15.14	23.44	38.40
8338	Subsoil of 8337.....	Stiff red clay, 9 to 36 inches.	1.03	2.12	4.70	5.18	18.44	19.48	22.96	27.04
8342	Subsoil of 8341.....	Friable red clay, 7 to 36 inches.	1.29	.92	1.66	1.88	11.24	25.70	25.30	33.28
8340	Subsoil of 8339.....	Friable red clay, 6 to 36 inches.	1.04	1.76	2.42	1.54	8.42	11.50	29.30	44.96
8344	Subsoil of 8343.....	Red clay, 6 to 36 inches.	.81	1.00	1.42	.92	4.40	7.64	26.98	57.64

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam consists of a medium light-gray or whitish sand from 15 to 30 inches deep, with an average depth of 24 inches, underlain by a subsoil of yellowish or, in places, reddish sandy clay, sometimes friable, but more generally sticky. Areas are frequently found where the sand has a depth of 3 feet or more, as in the case of a narrow strip just east and west of Nacogdoches, on the ridges running parallel with Banita and La Nana creeks. Some little organic matter is mixed with this sand in some places, giving it the feel of a loamy soil. The subsoil holds water fairly well, and when wet acts much like a clay.

This soil is found in broad, extended areas in the southwestern and central parts of the area surveyed, and in smaller areas in the northeastern part. A few scattered areas occur in other localities. It occupies the highest ridges and knolls in the area, forming a high, rolling plateau that has been deeply dissected in many places by small streams. In general the surface is rolling, with a few steep slopes or hills.

The greater part of the Norfolk fine sandy loam has excellent natural drainage. The rolling character of the surface gives it good superficial drainage, while the loose character of the soil is such that the underdrainage is free and rapid. The drainage of this soil is so thorough in many places that it can be cultivated immediately after a rain.

The Norfolk fine sandy loam is probably derived from the weathering of a beach sand of Eocene age, derived doubtless from the same greensand deposits giving rise to other soils in this area. It has likely been modified by both wind and stream action, and possibly removed from the surface over the heavier types. Occasionally a few dune-like knolls or ridges occur, which strongly indicates that wind action has played a part in its formation. Some areas are underlain by greensand marl at depths varying from 15 to 30 feet, as is shown in sections of wells.

At present the chief crops raised upon this soil are cotton, corn, tomatoes, potatoes, and other vegetables. Several young peach orchards are seen. Only a few trees are large enough to bear fruit, but from them peaches of an excellent quality are obtained, and the peach industry on this soil promises a fair return to the grower. Cotton yields from one-third to two-thirds of a bale per acre on new land. Tomatoes net from $75 to $100 per acre in favorable seasons and with a good market, while potatoes yield on the average from 60 to 125 bushels per acre.

Only about 35 per cent of the Norfolk fine sandy loam is under cultivation, the remainder being covered with pine, scrub oak, and other trees. This soil is comparatively warm and early, is easily tilled, and responds freely to fertilizers. It brings from $6 to $10 an acre in open market.

This soil is too light for general farming. It is especially adapted to truck, small fruits, and peaches.

The Norfolk fine sandy loam would be greatly benefited by turning under some leguminous crop and by applying crushed greensand marl, which in many places is near at hand.

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

Mechanical analyses of Norfolk fine sandy loam.

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
8349	1¼ miles E. of Nacogdoches.	Light-gray medium sand, 0 to 24 inches.	0.23	0.00	0.24	2.20	43.86	26.06	23.60	3.94
8351	3¼ miles NE. of Nacogdoches.	Light-gray sand, 0 to 24 inches.	.37	.22	.68	2.48	39.52	34.66	18.14	4.26
8350	Subsoil of 8349	Yellow sandy clay or loam, 24 to 36 inches.	.25	.00	.10	1.70	36.60	24.26	26.64	10.70
8352	Subsoil of 8351	Yellow sandy clay or loam, 24 to 36 inches.	.31	.12	.70	2.14	34.40	25.24	16.80	20.60

ORANGEBURG FINE SANDY LOAM.

The surface soil of the Orangeburg fine sandy loam is a red, brown, or grayish medium sandy loam to a depth of from 10 to 20 inches, with an average depth of 12 inches. A few iron concretions are generally present in the soil, and in some localities they amount to as much as 10 per cent. The subsoil consists of a red or yellowish clay, rather friable and sandy, with occasionally a few iron nodules scattered through it. This subsoil seems to be an intermediate clay between the subsoil of the Orangeburg clay and that of the Norfolk fine sandy loam.

This soil type is found chiefly in large areas in the eastern and northern parts of the area surveyed and just north of Nacogdoches, while several smaller areas are scattered over the area. Occasionally it occurs as a knoll or ridge in areas of the Orangeburg clay. It generally occupies the level uplands and rolling ridges, but is frequently found on steep slopes. It has no uniform surface features.

This soil has for the most part good surface drainage, while the friable and rather loose character of the subsoil causes it to drain out well. Only a few small areas need to be artificially drained.

In a few localities, usually where it is adjacent to the Orangeburg clay, this soil is underlain at depths varying from 8 to 20 feet by a poor grade of glauconitic material, and it is believed the greater part of this type is derived from the weathering of the Eocene greensand.

Cotton is the principal crop raised upon this soil. Yields of from one-half to three-fourths of a bale per acre are secured. Corn does fairly well. Some tomatoes and potatoes are grown and give good returns. Several peach orchards are being planted, and from a few old trees a good quality of fruit is obtained. The Orangeburg fine sandy loam is an easily tilled soil, and truck would in all probability pay better than any other crop that could be grown upon it. Peaches, however, will do well on that portion which is rolling and has good drainage. This soil can also be relied upon for general farming and is considered the safest soil in the area for cotton. There are some parts of it where the sandy loam does not exceed 10 or 12 inches in depth and is underlain by a rather stiff red clay.

The price of lands of this type a few miles from town is $8 to $12 an acre, although near Nacogdoches it is much higher.

The following table gives the results of mechanical analyses of the Orangeburg fine sandy loam:

Mechanical analyses of Orangeburg fine sandy loam.

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
8347	2¼ miles N. of Nacogdoches.	Brown medium sandy loam, 0 to 15 inches.	0.58	0.56	1.34	4.52	30.84	30.16	26.46	6.04
8345	2½ miles NE. of Redfield.	Red medium sandy loam, 0 to 10 inches.	1.06	7.68	6.30	4.40	27.30	25.44	17.80	11.00
8348	Subsoil of 8347.....	Red sandy clay, 15 to 36 inches.	.29	1.26	1.40	2.74	18.86	18.10	23.10	34.54
8346	Subsoil of 8345.....	Red friable clay loam, or clay, 10 to 36 inches.	.52	2.20	2.48	2.44	17.10	14.34	21.46	39.98

LUFKIN CLAY.

The Lufkin clay consists of a grayish or light-brown silty or fine sandy loam with a depth of 3 to 6 inches, underlain by a stiff, impervious reddish clay grading into a mottled, tenacious sticky clay at a depth of 24 to 30 inches. It is locally known as "piny woods clay land" or "gum slash." A few iron concretions are frequently seen on the ridges of the more sandy phase of this type.

The Lufkin clay occurs in one large, extended body of very irregular outline in the northeastern part of the area surveyed, just east of Carisso Creek. Its surface features are for the most part quite uniform. It occupies the practically level or gently rolling uplands and usually is more rolling near the streams.

Only a part of this soil has good natural drainage, while the remaining portion is inclined to be damp and cold. The rolling areas drain off fairly well, but the level areas would be greatly benefited by open ditches. Roads through this clay, where it is not well drained, become impassable during the rainy season, and when they dry out are very hard and rough.

The Lufkin clay is probably derived from deposits of marine origin which have been laid down in quiet water. Beds of stratified clay are found in this formation, showing that it was laid down in comparatively still water.

The greater part of the Lufkin clay is still in forest, consisting of pine—which is fast being cut—some scrub oak, sweet gum, and an occasional hickory. The part that is cultivated produces only mod-

erate yields of cotton and corn. The soil is tilled with difficulty at first, but in a few years it becomes quite loamy and can be managed easily. This land is worth from $4 to $8 an acre.

Under proper management this soil might be made to produce fairly good crops of grass for pasturage. Apples and pears would probably do well on the portion which has good surface and air drainage.

Mechanical analyses of typical samples of this soil are given in the following table:

Mechanical analyses of Lufkin clay.

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
8333	5 miles E., 1½ miles N. of Redfield.	Gray silty loam, 0 to 5 inches.	1.88	2.06	3.30	1.54	3.50	7.96	64.06	17.58
8335	5½ miles E., 4 miles N. of Nacogdoches.	Gray silty loam, 0 to 4 inches.	2.12	3.66	2.80	.94	2.20	13.06	42.36	34.20
8336	Subsoil of 8335.....	Stiff, mottled impervious clay, 4 to 36 inches.	.39	.58	1.38	.20	.48	3.64	29.36	64.28
8334	Subsoil of 8333.....	Dull red impervious clay, 5 to 36 inches.	.80	.36	.70	.28	.86	2.88	26.86	68.00

MEADOW.

The soil mapped as Meadow in this area consists of a silty or clay loam, depending on the character of the soil adjacent to it, generally underlain by a loam or clay. It contains considerable organic matter. This soil occupies the level low-lying land along the streams, occurring in strips about a quarter of a mile in width along Tuscossa, Carisso, and La Nana creeks, and in a narrower strip along Banita Creek. At and below the junction of La Nana and Banita creeks, south of Nacogdoches, it is nearly a half mile wide. It has an elevation of only a few feet above the stream level. The drainage is poor on account of its low position, but part of it can be drained by open ditches, and nearly all could be improved by tile drains.

The Meadow soil is alluvial in origin, being formed by deposition of materials carried by the streams during floods and by continued wash from the surrounding soils. These creeks are subject to annual overflow during the winter months, and generally during the crop season as well. At these times comparatively large quantities of sediment are deposited on the land.

At present nearly all the Meadow soil is covered with a heavy growth of sweet gum, water oak, hickory, and other hardwoods. The small

proportion under cultivation produces large yields of corn and cotton, provided there is no overflow to destroy the crop. This soil is capable of producing from 40 to 60 bushels of corn and from 1 to 2 bales of cotton to the acre. It is also naturally well suited to sugar cane, producing under favorable conditions from 400 to 500 gallons of sirup to the acre, but under the present conditions the greater part of it is not adapted to anything but grazing.

This soil is generally very productive, and is being constantly enriched both by the overflow of the streams and by the wash from the greensand marl, of which many of the adjacent hills are principally composed. It can be reclaimed and brought under cultivation at a moderate cost and used to grow sugar cane or corn with handsome returns to the owner.

AGRICULTURAL CONDITIONS.

The farming class throughout the Nacogdoches area is not, as a rule, enjoying great prosperity. There are a few who have well-tilled farms, fairly comfortable houses, barns suitable for holding the grain, and sheds for the protection of their stock. These men are making money and are keeping their farms in good condition. The majority of the farmers have small houses, no barns worthy the name, and their surroundings show a rather careless and indifferent disposition toward any material agricultural advancement.

The farms for the most part are owned and tilled by the farmers themselves, though there are some tenants. These generally pay a stated part of the crop for the use of the land—usually one-fourth of the cotton and one-third of the corn. Another class of tenants work the land on halves, the landowner furnishing the land, farm implements, stock, and feed for the stock, and receiving one-half of all that is produced on the land.

In this area are found farms ranging in size from a few to several hundred acres, the average probably being between 80 and 150 acres. The larger tracts are gradually being divided into smaller farms as population increases and immigrants settle in the area.

Good labor is scarce and demands a high price. The ordinary day laborers are usually paid $1 per day, but some can be had for $15 to $20 per month without board, and for less with board. Both white and colored labor can be obtained.

The principal crops grown are cotton, corn, oats, tomatoes, and potatoes. Peach growing is fast coming to the front and promises to be one of the important industries of this section. Some cattle are raised and shipped out of the area, but no especial attention is given to this industry. The no-stock law prevails in this area, and all fields and gardens have to be fenced. The stock run at large and find their own living the greater part of the year.

Until recently cotton, corn, and oats were the only crops raised, and these were planted on all the soils. The people are now beginning to realize that a variety of farm crops is essential to success in this section. Peach trees are being planted on the Norfolk fine sandy loam and Orangeburg fine sandy loam, and tomatoes and potatoes are grown extensively on these two soils. The Orangeburg clay is considered the best soil for cotton, corn, and oats, while the meadow land produces the sugar cane of the area—as yet a minor crop.

The Nacogdoches area is conveniently located as a shipping point. The Houston, East and West Texas Railroad and the Texas and New Orleans Railroad pass through the area in a north and south direction. These railroads have been important factors in the development of this section. Dirt roads lead out from Nacogdoches in every direction. During the winter months they become almost impassable in the clay areas, but in the summer they are smooth and easily traveled. Better roads would not only add greatly to the value of the land, but would enable the farmers to get to market with their produce when it would bring the highest price. Two rural mail delivery routes are operating out of Nacogdoches, one to the northwest and the other in an easterly direction.

There are no large markets in or near the area surveyed. Nacogdoches consumes a part of the produce. Tomatoes are packed in refrigerator cars and shipped to the northern markets. Potatoes are also shipped out of the area. Houston, Beaumont, and Dallas are the nearest large towns.

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