

U. S. DEPARTMENT OF AGRICULTURE  
BUREAU OF SOILS  
IN COOPERATION WITH THE TENNESSEE GEOLOGICAL SURVEY

---

# SOIL SURVEY OF MAURY COUNTY TENNESSEE

BY  
J. H. AGEE, IN CHARGE, AND J. A. KERR

---

[ Advance Sheets—Field Operations of the Bureau of Soils, 1923 ]



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1926

[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.]

## CONTENTS

---

	Page
Description of the area-----	153
Climate-----	155
Agriculture-----	156
Soils-----	160
Maury silt loam-----	163
Hagerstown stony loam-----	165
Hagerstown gravelly loam-----	165
Hagerstown silt loam-----	165
Hagerstown clay loam-----	166
Lowell stony clay-----	167
Lowell gravelly loam-----	167
Lowell silt loam-----	167
Lowell clay loam-----	168
Culleoka very fine sandy loam-----	168
Culleoka loam-----	169
Dickson silt loam-----	169
Baxter gravelly loam-----	170
Baxter silt loam-----	170
Clarksville gravelly loam-----	171
Elk silt loam-----	171
Huntington gravelly loam-----	172
Huntington silt loam-----	172
Mine pit and mine dump-----	173
Rough stony land-----	173
Summary-----	173

## ILLUSTRATIONS

---

### FIGURE

	Page
Fig. 6. Sketch map showing location of the Maury County area, Tennessee-----	153

### MAP

Soil map, Maury County sheet, Tennessee



# SOIL SURVEY OF MAURY COUNTY, TENNESSEE

By J. H. AGEE, in Charge, and J. A. KERR

## DESCRIPTION OF THE AREA

Maury County is situated in the south-central part of the State of Tennessee, about 40 miles south of Nashville. It is somewhat rectangular in outline, having an average length east and west of approximately 26 miles and a mean width north and south of about 22 miles. It contains 618 square miles, or 395,520 acres. Maury County includes two main physiographic divisions: (1) The basin or low division (part of the Central Basin region), and (2) the Highland Rim or high division. Between these divisions the slopes are characteristically steep, in places having so many rock ledges as to be unfit for cultivation and elsewhere deeply mantled with soil and suited to cultivation.

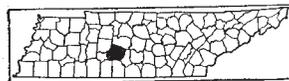


FIG. 6.—Sketch map showing location of the Maury County area, Tennessee

The Highland Rim division is flat or undulating, with many narrow, round, or flat-topped ridges. It has an elevation of 950 to 1,000 feet above sea level. The basin region has an elevation of 500 to 650 feet. Its surface is undulating to rolling, with some hilly belts in the east-central part of the county.

The Highland Rim surrounds the Central Basin. Large areas which have not been eroded show a flat, often poorly drained surface. Areas of this kind appear in Coffee, Warren, Robertson, Lewis, Lawrence, and Dickson Counties. The general elevation of this highland is about 1,000 feet. On the edges of the rim, approaching the Central Basin, erosion has developed steep, precipitous slopes and many ridges, some of which are still connected with the larger flats, while others remain as outlying isolated ridges or hills.

Maury County is situated in the extreme western extension of the Central Basin and contains a considerable area of Highland Rim country. The region is for the most part gently rolling to undulating; areas of slightly modified flat topography are, however, developed to the west of Columbia toward Mountpleasant and Mount Nebo Hill, and from Spring Hill toward Jameson and Darks Mill. These areas probably owe their plain profile to a period of repose in the uplift of the middle Tennessee dome<sup>1</sup>, at which time Duck River was cutting its broad valley. Much of the original plain or terrace formation has been destroyed, however, by subsequent erosion, and it now appears as gently rolling to rolling country. Where there is considerable variation in the character of the rock formations, such as exists in the vicinity of Scribner, the sandstone being exposed, weathering has proceeded very unevenly and the topography is ir-

<sup>1</sup> Columbia Folio, U. S. Geol. Survey.

regular and in places rough to broken. Several hilly areas occur within the Central Basin part of the county, remnants of which overlie cherty formations of the Highland Rim. There are many spurs and main ridges which are connected with the old plain of the rim country. Small flat areas of the Highland Rim are found in this county. The largest area is developed in the southwestern part, and is an extension of the "flatwoods" area of Lewis County. In the northwestern part of the county there are narrow flats on the divides between Leipers and Snow and Lick Creeks. The old Natchez Trace follows one of these flats for many miles.

Maury County is drained to the west through Duck River and its tributaries with the exception of a small area southwest of Rockdale and a similar flat northwest of Water Valley. The surface drainage is adequate and in places excessive. Nearly all the streams have cut deep channels, and consequently are bordered by bottom lands that are narrow and seldom overflowed. In the eastern part of the county, particularly in the glade areas, drainage is for the most part underground, the water sinking through crevasses in the rocks. Very few springs are found in this section of the county, the water supply for the farms being obtained from wells or surface ponds. In other parts of the county, however, springs, creeks, and branches are numerous.

Water power is developed in a small way on Fountain Creek, Duck River, Rutherford Creek, and Carters Creek. The power developed at Columbia, on the Duck River, produces electricity which is carried to Mountpleasant for lighting and commercial purposes.

The phosphate industry in Maury County employs a large number of men and is a source of much wealth to the county as a whole. All the rock formations underlying the Tullahoma, which is the cherty stratum of the Highland Rim, are phosphatic, but the material is generally leached, and only locally is there sufficient concentration for economical production. Such a concentration occurs over a considerable area surrounding Mountpleasant. The raw phosphate rock is calcined and shipped to eastern markets, usually to associated fertilizer companies.

The early settlers in this region were mainly Scotch and English, from North Carolina and Virginia, and the present white population is composed principally of their descendants. There is at present a large negro population. Both the white and colored population is quite uniformly distributed throughout the county, except that a large number of negroes are employed in the phosphate fields. The total population of the county in 1920 was 35,403, of which 29,877, or 84.4 per cent, was classed as rural. The rural population averages 51.3 persons to the square mile.

Columbia, the county seat, had a population of 5,526 in 1920. It is located near the center of the county, about 45 miles from Nashville. Columbia is the principal mule market of this and adjoining counties. The monthly sales, probably the largest in the country, are attended by buyers from the Cotton Belt, local dealers, and often Government buyers. There are several large elevators and rolling mills at Columbia, and a number of well-equipped produce houses afford a good market for poultry and eggs. The Middle Tennessee Experiment Station farm is situated about 2 miles west of Columbia.

Mountpleasant is located on the Sheffield division of the Louisville & Nashville Railroad, about 12 miles southwest of Columbia. It had a population of 2,093 in 1920. It is the center of the phosphate industry of the State.

Spring Hill, at the northern boundary of the county, is the center of a rich agricultural region. It had a population of 403 in 1920. Rockdale, about 6 miles southwest of Mountpleasant, on the Louisville & Nashville Railroad, is the seat of a large iron furnace, the product of which is mainly ferrophosphorus. Culleoka is the center of the trucking and cantaloupe-growing district of the county. Santa Fe, Scribner, Williamsport, Park, Cross Bridges, and Hampshire are local trading centers.

The county is well supplied with transportation facilities. Lines of the Louisville & Nashville, the Nashville, Chattanooga & St. Louis, and the Nashville Interurban Railroads reach all parts of the county. Several short branch lines serve the mining districts.

There are a number of excellent turnpikes extending through the county, including some of the State highways. The roads in the more outlying parts of the county, however, are in poor condition. Some of these occupy the beds of streams; others are located on strips of rock outcrop, partly on account of the heaviness of the clay roads during wet weather. There is an abundance of good road material throughout the county. In the Central Basin and in the lower hills limestone is frequently exposed, while in the Highland Rim region beds of hard fragmental chert, mixed with sand and clay, are exposed or lie near the surface. In addition, practically all the streams contain large quantities of gravel which could be used as road material.

Maury County is a prosperous agricultural district. The farmhouses and other buildings are usually in a fair state of repair. Public schools and churches are well distributed throughout the county. Rural mail delivery reaches all parts of the county, and telephones are in extensive use throughout the rural districts.

Most of the farm products are marketed in Columbia. Livestock, mainly hogs and beef cattle, are sold on the Louisville market.

#### CLIMATE

The climate of Maury County, like that of the whole Central Basin in middle Tennessee, is mild. The winters are usually broken, extreme cold weather lasting only a few days. The summers are long, though not oppressively hot. The mean winter temperature is 40.4° F., with extremes of -13° and 79° F. The mean temperature for the summer months is 77.1° F., the absolute extremes being 42° and 104° F. The mean annual temperature is 59.3° F. Fairly uniform conditions prevail over the entire county, as there are no marked topographic features to cause local variations.

The average annual precipitation is 48.49 inches. The total precipitation for the driest year recorded is nearly 33 inches and that for the wettest year about 67 inches. The rainfall is well distributed throughout the year and favorable for agriculture, being lightest during August, September, and October.

The average date of the last killing frost in the spring is April 1, and that of the first in the fall, October 28. Killing frost has

occurred as late in the spring as April 24 and as early in the fall as October 8. The average length of the growing season is 209 days.

A broadly diversified system of agriculture is possible in this county. Farming operations can be carried on throughout the year except for short periods during the winter. While the distribution of rainfall is more or less uniform, crops occasionally suffer from short periods of drought. The ill effects can be lessened by fall plowing, by preparing a deep, mellow seed bed, and, in the case of clean-cultivated crops, by frequent shallow cultivations to conserve the moisture.

The following table, compiled from the records of the Weather Bureau station at Nashville, located in Davidson County, about 40 miles north of the county seat of Maury County, at an altitude of 654 feet above sea level, gives the normal monthly, seasonal, and annual temperature and precipitation covering a period of 53 years. The figures represent with sufficient accuracy the conditions existing in Maury County.

*Normal monthly, seasonal, and annual temperature and precipitation at Nashville, Davidson County*

[Elevation, 654 feet]

Month	Temperature			Precipitation			
	Mean	Absolute maximum	Absolute minimum	Mean	Total amount for the driest year (1871)	Total amount for the wettest year (1880)	Snow, average depth
December.....	°F. 41.0	°F. 75	°F. -2	Inches 3.82	Inches 1.65	Inches 3.32	Inches 1.5
January.....	38.6	78	-10	4.85	2.76	3.74	2.8
February.....	41.6	79	-13	4.32	4.58	12.37	3.0
Winter.....	40.4	79	-13	12.99	8.99	19.43	7.3
March.....	49.2	89	3	5.44	5.01	8.16	1.8
April.....	59.0	90	26	4.36	4.13	5.26	.1
May.....	68.2	96	36	3.50	3.30	4.13	T.
Spring.....	58.8	96	3	13.30	12.44	17.55	1.9
June.....	75.6	100	42	4.37	2.98	3.95	.0
July.....	77.9	102	56	4.35	1.58	5.69	.0
August.....	77.8	104	51	3.47	2.36	2.22	.0
Summer.....	77.1	104	42	12.19	6.92	11.86	.0
September.....	71.8	99	38	3.68	.95	5.39	.0
October.....	61.0	92	27	2.48	1.31	7.24	T.
November.....	49.0	81	10	3.85	2.13	5.77	.2
Fall.....	60.6	99	10	10.01	4.39	18.40	.2
Year.....	59.3	104	-13	48.49	32.74	67.24	9.4

#### AGRICULTURE

The early settlers in this region grew corn, cotton, hemp, and tobacco in a small way for home use. After the Revolutionary War large land grants were made in this territory to officers and men of the colonial forces, and agriculture developed into plantation farming. Transportation was carried on by means of flatboats on Duck River or by means of wagons to Nashville and thence by boats on the

Cumberland River. In 1860 the Louisville & Nashville Railroad was built south from Nashville, and since that year the growing of grain and the raising of livestock have practically displaced cotton production. General farming as it exists at the present time represents a gradual growth for the last 50 years. The draining of labor from the farms, which began in 1893, when the phosphate deposits were opened, has led to the use of labor-saving machinery and a reduction of the acreage of clean-cultivated crops, especially those requiring considerable hoeing. At the present time the agriculture of Maury County consists of the production of corn, wheat, oats, rye, and sorgo, which are largely used in feeding livestock on the farm, and the raising of horses, mules, cattle, hogs, and sheep. Although large quantities of grain are still shipped, most of the farmer's income is from the sale of the finished product—livestock.

Corn is by far the most important crop, the acreage in 1919 being 81,918 acres and the production 2,159,421 bushels. The acreage is less than in 1879, when there were 85,496 acres in this crop, but greater than in 1909, when the corn area was only 74,698 acres. The crop is grown by practically every farmer and on every soil. It is planted as early as the 15th of March and as late as the 1st of July. The crop ordinarily matures before killing frost; but when a late, wet spring retards planting and growth, or when the first frost comes exceptionally early in the fall, some loss may occur.

Corn is also grown to some extent for ensilage. Yields range around 10 tons per acre, varying with the soil, the system of farming, the fertilization, and the variety grown.

Wheat, the second crop in importance, is grown mainly in the Central Basin part of the county, on the smoother soils. The acreage in this crop has fluctuated widely during the last 40 years, varying from 43,510 acres in 1879, 26,711 in 1889, 54,843 acres in 1899, and 32,189 acres in 1909, to 23,758 acres in 1919. The production in the last-mentioned year was 245,395 bushels.

The third crop of importance, oats, was grown on a total of 10,453 acres in 1919. The acreage in 1909, which was the largest returned by the census in 40 years, was 18,092 acres, and the production was 178,395 bushels. A large part of the oat crop is cut green and fed in the straw.

The production of hay in 1879 amounted to 6,569 tons, from 5,911 acres. The 1919 census reports 33,349 acres in hay and forage crops, with a production of more than 43,000 tons. Of this acreage cultivated grasses occupied somewhat less than two-thirds. The most important hay grasses for this county are timothy and clover, which are grown mixed or alone. Clover alone occupied 9,522 acres, clover and timothy mixed 5,288 acres, and timothy alone 1,201 acres. The production of hay from these grasses amounted to 17,525 tons in 1919. The acreage in annual legumes for forage was 4,326 acres and in grains cut for hay 4,552 acres. A few acres were in alfalfa in 1919. Properly cared for fields give satisfactory yields.

Sorgo is grown quite generally throughout the county for roughage, sirup, and seed. A small acreage is planted for ensilage, but corn is generally preferred for this purpose. The census of 1920 returns the area grown for sirup in 1919 as 491 acres and the production 18,030 gallons. The Honey variety of sorgo is grown for

ensilage; the Orange, Sugar Loaf, and Ribbon Cane varieties for sirup. Sorgo is grown for sirup on practically every type of soil. Where the crop is grown for both seed and sirup, 7 or 8 bushels of seed are sometimes obtained, but the quality of the sirup from the matured crop is not so good as from that cut earlier.

Crops of secondary importance are rye, barley, cowpeas, soy beans, millet, cotton, cantaloupes, peanuts, sweet potatoes, potatoes and tobacco. Rye is grown both for winter pasture and for grain. When sown early it may be used for pasture from November 15 to March 1 and then allowed to produce a grain crop.

Barley is grown by some farmers in preference to rye for winter pasturage, but it is subject to the attack of the Hessian fly to such an extent that it is not a popular crop. Hungarian and German millets are grown for hay on a few farms.

Besides their use as forage crops cowpeas and soy beans are grown for the seed and as a means to maintain the productiveness of the soils. Crimson clover also is grown to some extent.

Sweet potatoes are grown in small patches generally throughout the county. The plants are set from May 15 to June 15 and occasionally as late as the 1st of July. The crop is usually dug about the 1st of October. Yields of 75 to 100 bushels per acre are obtained.

Cantaloupes are grown to some extent in the vicinity of Culleoka. About 50 carloads per year are shipped from that place. The crop is marketed in late July and early August, following the Georgia crop and preceding the Colorado crop. The Burrel Gem, a pink-meat variety, is grown almost exclusively. Commercial fertilizer is not commonly used, though it is stated that the use of potash ripens the melons more uniformly and improves the netting. It is desirable to grow the crop after clover, as otherwise it is necessary to use manure. The average yield is about 200 crates per acre.

Very little tobacco is grown in this county, although soils of similar texture and topography in Robertson and Montgomery Counties produce good crops. The dark export type is suited to these soils. The census of 1920 reports 33 acres in tobacco in 1919.

Tomatoes are grown by nearly every farmer for home use, and commercially in the vicinity of Columbia. The ordinary yield is 5 to 10 tons per acre. Planting usually takes place in June, and the crop is harvested in August. The Stone variety is favored for canning. All the tomatoes grown commercially are used by local canners.

There are several commercial apple orchards in the vicinity of Columbia, principally on the gravelly hill soils, but also on the Hagerstown silt loam in locations where the air drainage is favorable. Satisfactory yields and fruit of good quality are obtained. The most popular varieties are the Stayman Winesap, Early Harvest, Delicious, Chicago, and Yates.

There are a few orchards of cherries in Maury County. The sour cherries have proved more profitable than the sweet varieties. The English Morello, Montmorency, and Early Richmond varieties seem to be preferred.

Herds of both beef and dairy cattle are kept on most farms. An exceptionally large proportion of the cattle appear to be purebred.

The beef cattle are largely Shorthorns, but there are some Angus and Hereford herds. The dairy cattle are almost all purebred Jersey.

Hogs are kept on all the farms. Duroc-Jersey is the most popular breed. There are several prominent breeders of Duroc-Jerseys in the county.

The raising of sheep is a source of considerable income. The flocks vary in number according to the size of the farm. Large numbers of spring lambs are sold, and the value of the clip of wool on some farms is considerable.

Horses and mules are raised in large numbers. The farm work is done mainly with mules, the horses for the most part being saddle animals and thoroughbred driving stock. Mares of the heavier draft class have been introduced lately, to be used in connection with the local production of larger and heavier mules.

While large quantities of farm crops are marketed direct, most of the corn and other feed produced reaches the market in the form of finished animals and animal products. In 1919 the total value of domestic livestock on the farms of Maury County was \$4,037,030. About half this sum represented the value of horses and mules. Cattle had a value of \$1,238,545, of which beef cattle were valued at \$672,570 and dairy cattle at \$565,975. Some 16,000 sheep had a value of \$174,985, and 55,490 hogs a value of \$565,109. In 1909 the receipts from the sale of animals sold or slaughtered was \$1,866,415. The census does not give this item for 1919, but a comparison of the numbers of cattle and of prices prevailing in the two years make it safe to assert that the income from this source in the latter year could not have been less than in 1909 and probably was considerably greater. In 1909 the value of dairy products, excluding home use, was \$211,006, of poultry and eggs \$294,490, and of wool and mohair \$19,395. These items in 1919 were \$320,154, \$553,556, and \$23,670, respectively.

The adaptation of the various soils of the county to different crops is in some cases recognized. The gravelly soils and the lighter Culleoka soil are recognized as best adapted to orchards and to truck crops such as cantaloupes and tomatoes. The adaptation of undulating areas of the Hagerstown silt loam to wheat production is also recognized. The Maury silt loam, the Hagerstown silt loam and gravelly loam, and the Clarksville gravelly loam are considered good soils for potatoes. Sweet potatoes are recognized as particularly suited to the Culleoka and Baxter soils. Gravelly soils or the sandy member of the Culleoka series are considered best adapted to cantaloupes. Tomatoes seem to do best on the gravelly soils.

The farm buildings are generally small, since comparatively little storage room for roughage is needed. Silos are largely confined to farms where large herds of cattle are kept. Modern farm machinery is used throughout the county. On the larger farms in the basin region such implements as 3-horse disk plows and 6-horse harrows and drills are in common use, but 2-horse turning plows are generally found on the basin farms and 2-horse hillside plows on the hill farms. Disk harrows are in general use. The farms in this county are exceptionally well fenced. Formerly the farms throughout a large part of

the basin region were fenced with cedar rails. During the last few years there has been so great a demand for cedar by pencil manufacturers that most of these rails have been sold and woven wire substituted in fencing. Cedar, locust or chestnut rail fences are still common on farms in the hill section.

Crops are rotated quite regularly on most farms in this county. The rotation in general use on the Maury and Hagerstown soils consists of corn 1 or 2 years, followed by wheat 1 year, and clover 1 year. Rye or barley may displace wheat, and cowpeas or soy beans, clover. In the vicinity of Mountpleasant, especially on the gently undulating land, corn may be grown 1 year and wheat 2 years, the first wheat crop being followed by cowpeas. When ensilage corn is desired, as is the case on many farms in the vicinity of Spring Hill, corn is grown the first year; wheat, with which is seeded red clover, the second year; clover the third year; and wheat followed by ensilage corn, and the latter by rye or red clover seeded in late fall, the fourth year.

Very little fertilizer is used in Maury County. The use of ground limestone or air-slaked lime has been found necessary in order to successfully grow alfalfa and red clover.

The greater part of the farm labor is done by the operator and his family. In 1919, 1,301 farms, or about one-third the number in the county, used hired labor, mainly negroes, at a total expenditure of \$467,180, or \$359 per farm. Labor is not hard to obtain, and wages range from 75 cents to \$2 a day. Farm hands by the month are paid \$20 to \$40 and board. In harvest time from \$2.50 to \$4.00 a day is paid.

The total number of farms in the county in 1919 was 3,728. The average size is 94.1 acres, of which 63.8 acres is improved land. There are very few holdings of over 1,000 acres. Sixty-three per cent of the farms were operated by owners in 1920, and 36.3 per cent by tenants. Land is usually rented on shares. The tenant furnishes stock and implements and pays one-half the harvested crop. As a rule, crops are shipped direct to the markets.

There is a wide range in the selling price of land in this county, depending mainly on the soil, location, and improvements. In some sections of the county, particularly in the vicinity of Columbia, Mountpleasant, and Spring Hill, the farm buildings, including the dwellings, are large and substantial with modern improvements, and they greatly increase the value of the farms. Here land values may range from \$175 to \$250 an acre. Ordinarily equipped, productive farms are valued at \$50 to \$125 an acre. Land in the glade areas is very low in price, in some cases selling for \$4 an acre.

#### SOILS

The soils of Maury County are such as may be expected to form in a humid region with an annual rainfall of but little less than 49 inches and a mean monthly temperature above freezing throughout the year. These climatic conditions of moderately heavy rainfall and alternate freezing and thawing during the winter months have favored erosion and leaching. These forces working upon materials

accumulating through the disintegration of various sedimentary rocks, ranging widely in their chemical constituents, have given the present varied soils.

There are in Maury County 18 soil types, whose characteristics have been determined by the interrelation of rainfall and temperature, character of surface—flat or sloping, well-drained or poorly drained—character of vegetation, and nature of soil-making material. These 18 types have been grouped in 9 series, the grouping being based upon similarities in all features except texture, the various textures being common to all series.

In this region weathering has been thorough and lime carbonates have been leached from both soil and subsoil to considerable depths.

This is a region in which limestone constitutes by far the greater part of the underlying geological formations. The materials, therefore, from which the soils have been derived are more or less highly calcareous, yet none of the soils contain lime carbonate within the true soil section. The limestones range from nearly pure carbonates to highly siliceous and argillaceous in character. The details of rock character will be referred to in the soil descriptions.

Relatively small areas of old and recent alluvium have supplied the materials from which certain soils have been developed, as will appear in the following series descriptions.

The soils of the Maury series are brown and mellow. In the sub-surface there is with increase of depth some tendency toward a lighter brown or yellowish-brown color. At depths ranging from about 8 to 16 inches the soil passes rather rapidly into reddish brown to yellowish brown and in extreme cases the subsoil becomes a brownish-red silty clay, moderately friable when moist, and slightly plastic when wet. The soil is deeper as a rule on the lower and gentler slopes and here usually has a deeper shade of brown. Occasional areas, particularly those of very flat and slightly depressed situations, show more yellowish in the subsoil, but yellowish brown to reddish brown is the typical subsoil color. Usually small well-defined dark-colored concretions are present in the subsoil, and in some places dark-colored concretionary material is present as splotches or as material not segregated as well-defined concretions. The soil and subsoil, especially the latter, have an unusually high content of phosphorus, running in the subsoil in some cases to more than 1 per cent. Lime carbonate is not present in soil or subsoil. The soil material is derived from limestones by residual decay.

The soils of the Hagerstown series are prevailingly brown, with light-brown to reddish-brown subsoils. In some areas the subsoil is dull red or red but not so pronounced in color as that of the Decatur series found in some other parts of the State. Fragments and outcrops of limestone are of common occurrence in these soils. The topography is undulating to gently rolling, and the soils are well suited to cultivation.

The surface soils of the Lowell series are brown to light brown in color, with light-brown to reddish-brown subsoils. In some areas the subsoil is red or dull red. These soils differ from the Hagerstown in their heavy, nonfriable clay or silty clay subsoils. They are typically developed in the central basins of Tennessee and Kentucky.

They are derived from limestone, and owing to the impervious nature of the subsoil are not well drained. The topography is flat to rolling.

The soils of the Culleoka series are light brown to yellowish brown in color to a depth of about 6 inches. The upper subsoil is lighter in color than the soil and slightly heavier. It grades into the yellowish to yellowish-brown slightly heavier subsoil at about 16 inches, while the latter becomes somewhat more sandy and friable at about 30 inches. Both soil and subsoil, especially the latter, contain high percentages of phosphorus, which occurs in the parent fine-grained siliceous limestone from which the soils of the series are derived through residual decay. Lime carbonate is not present in either soil or subsoil and the type locality is southeastern Maury County, Tenn.

The surface soils of the Dickson series are gray. The subsoils are yellow and usually of a silty clay texture. They are frequently underlain by a reddish substratum. The depth to the red material varies with the topography, being greater in the more nearly level areas. Cherty material is usually present in varying amounts, considerable areas being very gravelly from the surface downward. The Dickson soils occur over both the level and undulating uplands and the rough hilly country with steep slopes. In the smoother areas chert and stone are less abundant. These soils in places are derived from cherty limestone. Those areas carrying little chert appear to be derived from limestone which originally carried less chert than that giving rise to the gravelly and stony areas.

The soils of the Baxter series are gray, with dull-red to yellowish-red subsoils. The depth to the red material varies with the topography, being greater in the more nearly level areas. Cherty material is usually present in varying amounts, considerable areas being very gravelly from the surface downward. These soils occur over both flat and undulating uplands and rough hilly country with steep to precipitous slopes.

The soils of the Clarksville series are grayish to light brown, and the subsoil pale yellow and friable. Fragments of whitish chert (locally known as flint rock) are present on the surface and throughout the soil section, and shaly limestone and yellow, soft, partially decomposed limestones are present in abundance. The soils are typically developed on the smooth but rather narrow ridges of the Appalachian Valley regions from Pennsylvania southward into north Georgia and Alabama. They are also developed on the slopes from the Highland Rim to the Central Basin country of Tennessee and Kentucky. They usually occupy situations considerably higher than the Hagerstown soils.

The types of the Elk series are characterized by light-brown to brown soils and pale-yellow to yellow subsoils. These soils are developed on second bottoms lying largely above overflow. The material is entirely alluvial and is washed from areas of limestone, sandstone, and shale rocks. These soils contain a larger amount of limestone material than do the Holston soils. Gravelly material is frequently encountered in the substratum. In places the surface is so flat that water stands after wet seasons.

The Huntington series has light-brown to brown surface soils and yellow to light-brown subsoils. Frequently there is little change in the color or character of the material from the surface downward. The Huntington soils are developed in the limestone and Appalachian Mountain regions in the first bottoms of streams, where they are subject to overflow. They consist of material washed from limestone, sandstone, and shale areas.

In the following pages of this report the various soils of Maury County are discussed in their relation to agriculture. The table below gives the name and the actual and relative extent of each :

*Areas of different soils*

Soil	Acres	Per cent	Soil	Acres	Per cent
Maury silt loam.....	96,320	24.4	Lowell gravelly loam.....	9,024	2.3
Baxter gravelly loam.....	55,872	14.1	Hagerstown clay loam.....	6,336	1.6
Rough stony land.....	40,128	10.1	Culleoka very fine sandy loam..	6,272	1.6
Clarksville gravelly loam.....	29,888	7.6	Baxter silt loam.....	5,888	1.5
Hagerstown silt loam.....	29,888	7.6	Lowell clay loam.....	5,760	1.4
Huntington silt loam.....	28,160	7.1	Culleoka loam.....	4,928	1.2
Elk silt loam.....	19,520	5.5	Mine pit and mine dump.....	2,880	.7
Rolling phase.....	2,368		Hagerstown stony loam.....	2,624	.7
Lowell silt loam.....	17,664	4.5	Huntington gravelly loam.....	1,152	.3
Hagerstown gravelly loam.....	17,024	4.3	Dickson silt loam.....	640	.2
Lowell stony clay.....	13,184	3.3			
			Total.....	395,520	-----

MAURY SILT LOAM

The Maury silt loam is a dark grayish brown to brown, mellow silt loam, underlain abruptly at 8 to 16 inches by a dull-red, brownish-red, or yellowish-red silty clay or clay which is moderately friable when moist and slightly plastic when wet. The subsoil in many places contains granular brown material rich in phosphorus. The soil is deeper, as a rule, on the lower gentle slopes, as a result of the accumulation of colluvial material, and generally of deeper brown color. In places on the steeper slopes the surface soil is only a few inches thick, and there are included patches of clay loam and clay too small to show on the map. Occasionally the lower subsoil is reddish yellow or yellowish brown in color, this condition arising in low, imperfectly drained situations. Some included small patches of soil resemble closely the Lowell silt loam. Chert and limestone fragments are found in the soil in occasional patches, and here and there outcrops of limestone appear on slopes.

The two large areas of this type between Columbia and Mountpleasant and south of Spring Hill are gently rolling to undulating, while the smaller areas in the eastern and southeastern parts of the county are more rolling, with more eroded slopes, and include a greater number of patches of clay loam.

The limestones from which the Maury and the Hagerstown silt loams are derived are phosphatic, and the soils are both relatively high in phosphorus. The areas mapped as Maury, however, coming from the rocks of the Hermitage and Bigby limestones, contain

considerably more of this important element than those areas shown as Hagerstown, as the following chemical analyses show.

*Chemical analyses of Maury and Hagerstown silt loams*

Constituents	Maury silt loam <sup>1</sup>			Hagerstown silt loam <sup>1</sup>			Hagerstown silt loam			
	Sample No. 28,495, soil 0 to 15 inches <sup>3</sup>	Sample No. 28,496, sub-surface 15 to 24 inches	Sample No. 28,497, subsoil 24 to 30 inches	Sample No. 28,503, soil 0 to 15 inches <sup>4</sup>	Sample No. 28,504, subsoil 15 to 30 inches	Sample No. 28,505, lower subsoil 30 to 42 inches	Soil 0 to 4½ inches	Sub-surface 4½ to 11 inches	Subsoil 11 to 24 inches	Lower subsoil 24 to 36 inches
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
SiO <sub>2</sub> .....	74.19	76.77	76.27	78.58	76.68	73.94	73.11	75.98	71.67	67.10
TiO <sub>2</sub> .....	1.18	1.19	1.25	1.35	1.09	2.37	1.05	1.08	1.10	1.17
Fe <sub>2</sub> O <sub>3</sub> .....	3.79	3.74	4.14	3.73	3.93	6.27	6.12	5.82	7.90	8.64
Al <sub>2</sub> O <sub>3</sub> .....	8.88	8.84	9.51	8.70	11.06	8.98	8.30	9.18	12.16	14.10
MnO.....	.28	.34	.23	.26	.16	.20	.44	.37	.27	.34
CaO.....	1.09	.54	2.04	.78	.65	.79	.37	.25	.23	.13
MgO.....	.41	.48	.51	.36	.59	.59	.45	.48	.49	.58
K <sub>2</sub> O.....	1.56	1.40	1.63	1.43	1.55	1.54	.91	.93	.83	.80
Na <sub>2</sub> O.....	.43	.37	.37	.53	.43	.35	.20	.12	.04	.04
P <sub>2</sub> O <sub>5</sub> .....	.94	.85	.77	.48	.55	.85	.16	.11	.11	.15
SO <sub>3</sub> .....	.16	.10	.07	.14	.12	.07	.07	Trace.	.06	.07
N.....	.19	.14	.08	.14	.08	.07	.27	.12	.08	.03
Ignition loss.....	6.45	4.98	3.93	4.51	3.66	3.76				
Moisture.....	2.95	2.83	3.01	2.98	3.69	2.86				

<sup>1</sup> Samples from Maury County, Tenn.

<sup>2</sup> Samples from Murfreesboro, Rutherford County, Tenn.

<sup>3</sup> Sample taken 7 miles south of Columbia.

<sup>4</sup> Sample taken 3½ miles northeast of Mountpleasant.

This difference is the basis for creating the Maury series. It is a significant difference reflected in the productiveness of the soils.

The Maury silt loam is everywhere a productive soil, although some areas are being washed and badly gullied. The problem of preventing erosion when the surface is rolling is very serious; it is not a matter of conservation of soil fertility but that of conserving the soil itself. The loss can be prevented and much of the badly washed land reclaimed by carefully laying out terraces and by using washed areas, at least for some years, as bluegrass or clover pasture.

The Maury silt loam is one of the richest upland soils of the South. It is the predominant soil over the more phosphatic limestones of the Central Basin region, and the most important and best developed soil in Maury County. Practically all of it is improved land and much of it is in cultivation. The native tree growth is found only in small groves and woodlots. It consists mainly of poplar, with some beech, oak, and other hardwoods. The type is locally called "poplar land."

The principal crops grown on this soil are corn, wheat, and clover. The largest sources of farm income are beef cattle and hogs. Minor crops grown are oats, rye, barley, potatoes, and sorgho. Corn yields from 25 to 60 bushels, wheat from 15 to 30 bushels, and clover from 1 to 2 tons per acre. Land values vary from \$50 to \$200 an acre, depending on the improvements and the nearness to markets and lines of communication.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Maury silt loam:

*Mechanical analyses of Maury silt loam*

Number	Description	Fine gravel	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt	Clay
		<i>Per cent</i>						
401718	Soil.....	1.2	2.6	0.8	3.3	12.0	62.4	17.4
401719	Subsoil.....	1.9	2.2	.8	2.4	7.6	51.1	34.0

## HAGERSTOWN STONY LOAM

The type mapped as the Hagerstown stony loam really represents areas of Hagerstown silt loam containing a large amount of rock outcrop. The soil is derived mainly from the massive Carters limestone, which tends to weather very irregularly. It has weathered more rapidly along the joint planes and has left large boulders and ledges of rock outcrop with interspersed patches of deep soil of the typical Hagerstown silt loam.

This type covers but a small area. It is used for pasture and woodlots, and is not well suited for any other use.

## HAGERSTOWN GRAVELLY LOAM

The Hagerstown gravelly loam consists of 8 to 12 inches of brown gravelly loam or silt loam, underlain by a dull-red to reddish-yellow clay or gravelly clay. Fragments of chert, and in places shaly limestone, from the adjacent higher slopes or from the formations formerly overlying the region are numerous on the surface and to some extent throughout the subsoil. The type occurs on the lower slopes of hills, especially in the south-central part of the county, in association with the higher gravelly formations. The topography is moderately to steeply sloping. Some washing of the soil occasionally occurs, but the gravel in the surface material retards the run-off and minimizes the damage from erosion.

Most of this type is in cultivation, corn being the principal crop. Wheat, oats, rye, and clover are grown as minor crops. Most of the orchards in the county are located on this type, and where the trees are cared for they produce good fruit and give a profitable return. Apples, especially those of the fall and early winter varieties, do well. Spraying and pruning, however, are necessary to insure the best results.

## HAGERSTOWN SILT LOAM

In visible characteristics the Hagerstown silt loam can not be distinguished from the Maury, and the reader may turn to the description of the latter soil for information on the color and arrangement of the several layers making up the profile. The two types, as already stated, have been separated on the basis of a chemical difference,<sup>2</sup> this being one of the comparatively few

<sup>2</sup> Mapping on the basis of a chemical character is a very different matter from mapping on visible characters, and the separation made in the present survey must be considered only approximate. A vast amount of analytical work will be required to fix definitely the boundaries between the Maury and Hagerstown types.

instances where this has been found necessary. The name "Hagerstown silt loam" has been given to those areas in Maury County in which the phosphorus content is relatively low. The proportion of this constituent is nevertheless larger than typical of the Hagerstown, for the limestones of this region are phosphatic. As compared with the Hagerstown of other sections, all this soil in Maury County might have been thrown with the Maury silt loam. The reader is referred to the table on page 164 giving the results of chemical analyses of the Maury silt loam, the Hagerstown silt loam from phosphatic limestone, and the Hagerstown silt loam from nonphosphatic limestone.

Important areas of the Hagerstown silt loam lie south and east of Spring Hill in the northeastern part and southeast, west, and southwest of Columbia in the central, western, and southwestern parts of the county.

Erosion is a problem on this soil. The slopes should be carefully terraced and the steeper areas kept in pasture as much of the time as practicable. It is possible to reclaim many of the fields where erosion has not reached an advanced stage. This soil is too valuable to be allowed to suffer irreparable damage.

While the Hagerstown silt loam is not as productive as the Maury silt loam, well-farmed areas give good yields of corn, wheat, and clover. In adaptation and present use it is similar to the latter soil. Hogs and cattle are among the more important products of the farms on this type.

#### HAGERSTOWN CLAY LOAM

The Hagerstown clay loam is a reddish-brown clay loam, underlain at 3 to 6 inches by a dull-red or yellowish-red silty clay or clay.

The type in the vicinity of Columbia represents a very shallow variation of Hagerstown silt loam, the silty covering of which has been partly washed away. In the eastern part of the county the clay loam is more typically developed; here it occurs closely associated with the glade areas of Rough stony land.

The Hagerstown clay loam is everywhere deficient in organic matter. In most places it contains many outcrops of limestone, and it is nowhere as productive as the Hagerstown silt loam. Corn, wheat, and oats, however, give fair yields under favorable conditions. A rotation of crops in which a clover or bluegrass pasture occupies half the time would aid in restoring the necessary organic matter and prevent the erosion which comes with continuous one-crop cultivation.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Hagerstown clay loam:

*Mechanical analyses of Hagerstown clay loam*

Number	Description	Fine gravel	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt	Clay
		<i>Per cent</i>						
401720	Soil.....	1.6	2.9	0.9	8.8	14.1	51.5	20.2
401721	Subsoil.....	1.2	2.7	.8	5.6	13.6	41.6	34.4

## LOWELL STONY CLAY

The surface soil of the Lowell stony clay is a yellowish-brown to dark-brown clay, underlain at shallow depths either by yellow to greenish-yellow, sticky plastic clay or by brownish clay which passes beneath into sticky, plastic clay. Bedrock is usually reached at shallow depths and always within the 3-foot profile. Outcrops and fragments of shaly limestone occur in many places.

This type occupies slopes, ridges, and knolls, and is developed in small areas throughout the Central Basin section of the county. Cedar is a characteristic tree, and hackberry, black locust, and honey locust are more or less plentiful. Prickly pear is a common plant.

Bluegrass does fairly well on this soil. Most of the land is used for pasture, in connection with the growing of locust for fence posts and other timber as a source of wood.

## LOWELL GRAVELLY LOAM

The surface soil of the Lowell gravelly loam is a grayish-brown to brown silt loam to silty clay loam 4 or 5 inches deep. The subsoil is a yellowish-brown, or mottled brown and yellow, tough, plastic clay. The surface soil of most of the type is a silty clay loam in texture, and the soil would be mapped as such if it were not for the amount of gravel present. The surface is usually strewn with chert fragments and gravel, and similar coarse material also appears throughout the soil profile. Included in the areas mapped as Lowell gravelly loam are small patches of Lowell clay loam and stony clay.

Rock outcrops are present on the slopes, but not in sufficient quantities to affect cultivation. The topography is rolling to hilly, some of the slopes being quite precipitous.

Fair yields of clover are produced on this soil. The other crops of the region are grown to some extent. The type is more apt to wash than the Hagerstown gravelly loam or the Clarksville gravelly loam. Many fields now in cultivation should be changed to permanent pasture or set with locust or some other valuable tree to prevent further erosion.

## LOWELL SILT LOAM

The Lowell silt loam is a grayish-brown to brown, mellow silt loam, underlain at 6 to 10 inches by a yellow to yellowish-brown silty clay, which passes quickly into a pale-yellow, tough, plastic clay. Brown and dark-colored concretionary material and yellowish or dark-brown concretions are generally present to some extent, especially in the lower subsoil and substratum. In places, particularly on the lower, imperfectly drained slopes, such concretionary material forms a hardpan subsoil. In these areas gray mottling is quite noticeable. In places the upper subsoil of the type is reddish yellow or reddish, resembling the upper subsoil of the Hagerstown silt loam, but this passes beneath, within the 3-foot section into either yellow or mottled yellow and reddish, heavy, plastic clay.

The surface of this soil is undulating to gently rolling, and occasionally hilly. Surface drainage over the type as a whole is very well established, although there are local areas that are poorly drained.

This type is developed throughout the Central Basin part of the county. The area in Carters Creek valley is gently undulating and well suited to the use of improved labor-saving machinery.

This is a good agricultural soil, and practically all of it is in cultivation. Corn, wheat, and clover are the principal crops. Corn ordinarily yields 25 to 60 bushels per acre, wheat 10 to 30 bushels, and clover 1 to 2 tons.

Land values on this soil usually range from \$50 to \$100 an acre, according to the location and improvements.

#### LOWELL CLAY LOAM

The surface soil of the Lowell clay loam to a depth of 6 or 8 inches is a yellowish-brown to light grayish brown silty clay loam to clay loam. This is underlain to a depth of 3 feet or more by a yellowish-brown, stiff, plastic clay. The surface soil contains small quantities of cherty rock fragments, and the areas are broken here and there by limestone outcrops. The topography generally is rolling to hilly, but in some places the type occupies valley positions and the surface flattens out to gently rolling or undulating. Parts of the areas consist of eroded Lowell silt loam, but in most places the type has apparently been derived from the lower, shaly limestone of the area.

While not an extensive soil, it is quite productive and with proper management gives yields comparing favorably with those obtained on the silt loam of the series. It is used for the same crops as the silt loam.

#### CULLEOKA VERY FINE SANDY LOAM

The soil of the Culleoka very fine sandy loam is a brown very fine sandy loam, ranging to a fine sandy loam. This is underlain at 6 to 8 inches by a yellowish very fine sandy loam or loam which passes usually at 10 to 14 inches into a reddish-yellow or dull-red, moderately friable clay or sandy clay. In places the lower subsoil is a stiff, plastic clay, some areas representing an inclusion of Tilsit soil, a type found elsewhere in the State but not in large enough areas in Maury County to warrant mapping. On the other hand, in some places the lower subsoil consists either of decomposed residual "sandstone" or the unweathered sandy limestone appears within 3 feet of the surface.

Occasionally rusty-brown concretionary material and some yellowish mottlings are noticed in the lower subsoil. Granular, siliceous limestone underlies most of the soil, with limestone occurring on the lower slopes, and residual "sandstone" fragments are plentiful on the surface throughout the areas of this type. The topography ranges from rolling to hilly or ridgy. As mapped the type includes small patches of soil having a texture of silt loam or loam. Drainage is usually good, but erosion is not so destructive as on some of the other limestone valley soils.

The Culleoka very fine sandy loam occurs somewhat extensively in the eastern and southeastern parts of the county. The type is of considerable agricultural value, the greater part of it being under cultivation. It is not as strong a soil as the Maury or Hagerstown silt loams, but good yields of corn, cotton, clover, and cowpeas are obtained. A short rotation maintains the productiveness. Corn in

ordinary seasons yields 18 to 30 bushels per acre, wheat 12 to 18 bushels, clover 1 to 2 tons, and cotton one-fourth to one-half bale.

This type is especially adapted to the production of truck and fruit crops.

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

*Mechanical analyses of Culleoka very fine sandy loam*

Number	Description	Fine gravel	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt	Clay
		<i>Per cent</i>						
401731	Soil.....	0.2	0.7	0.4	29.0	24.5	31.8	13.4
401732	Subsoil.....	.5	1.4	.7	21.5	26.4	25.2	24.3

#### CULLEOKA LOAM

The Culleoka loam is a grayish-brown to brown mellow loam, underlain at 6 to 10 inches by a grayish-brown, yellowish-brown, or dull-red, friable clay loam or heavy loam. In some places the subsoil is a dull-red, friable sandy clay containing splotches of gray and brown mottlings. Fragments of residual "sandstone" are present on the surface, and outcrops of sandy limestone occur on the crests and lower slopes of the areas. Limestone also outcrops on the lower slopes and in some places supplies a part of the material from which the soil is derived.

This type in general occupies gently rolling to moderately rolling country. Some of the areas, however, are nearly flat. The type is developed in the eastern part of the county.

This is considered a good soil. Corn, cotton, oats, wheat, sorgo, and the legumes are grown, the yields comparing favorably with those obtained on the Hagerstown silt loam.

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

*Mechanical analyses of Culleoka loam*

Number	Description	Fine gravel	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt	Clay
		<i>Per cent</i>						
401729	Soil.....	0.5	1.4	0.6	12.2	25.0	47.0	13.2
401730	Subsoil.....	.4	1.0	.4	10.9	22.0	45.1	19.9

#### DICKSON SILT LOAM

The Dickson silt loam, to a depth of 6 to 10 inches, is a grayish-yellow to pale-yellow silt loam, which dries out to a gray color. This layer is underlain to a depth of 16 to 24 inches by a yellowish silty clay which passes below into a compact, yellow or pale-yellow silty clay, mottled with gray. In many places there is very little mottling; in others the proportion of mottling is greater and the material is less compact. Reddish-brown concretions and partially

decomposed chert fragments are found in the lower subsoil of many areas. In a number of places a tough clay, mottled yellow and gray, is reached at a depth of about 36 inches. Clay of this description is exposed in a road cut in the southwestern corner of the county, about 2 miles northeast of Crestview, situated on the Mountpleasant Pike just over the line in Lawrence County. In the forested areas the surface inch or two is gray or brownish gray.

Oak and hickory of rather small size are the principal trees on this soil. The type occupies flat and undulating areas in the Highland Rim section of the county. The drainage is not sufficient in the level or flat areas.

There has been very little agricultural development on this type in Maury County. In other counties of the Highland Rim of middle Tennessee this type has been farmed successfully to general crops, such as corn, wheat, and oats, and in Robertson, Sumner, and Montgomery Counties it has been found to produce excellent Burley tobacco.

#### BAXTER GRAVELLY LOAM

The Baxter gravelly loam consists of 2 to 6 inches of gray to brownish-gray silt loam, underlain by 10 to 14 inches of yellow to pale-yellow silt loam or silty clay loam, which grades into a light-red, friable clay extending to a depth of 3 feet or more. The surface is covered in places with chert gravel, which varies from the size of a pea to fragments 6 inches in diameter. Gravel is also found throughout the soil profile.

This type occupies the upper part of the slopes and covers many of the lower lying ridges in the Highland Rim section of the county. The topography varies from gently rolling to hilly. Some of the slopes are quite precipitous.

Corn does well on this type. Yields of 12 to 35 bushels per acre have been obtained by farmers using careful methods. The gravel in the surface soil and subsoil hinders cultivation, but on the surface it acts as a mulch, retarding erosion during excessive rains and preventing rapid loss of moisture from the cultivated soil. There are many slopes, however, in cultivation that should be reforested or changed to permanent pasture.

#### BAXTER SILT LOAM

The surface soil of the Baxter silt loam is a light-brown to brownish-gray silt loam, 6 to 10 inches deep. This is underlain by a grayish-yellow to pale-yellow silt loam to silty clay loam which extends to a depth of 15 to 20 inches, changing gradually at this depth to a dull-red or brick-red color and to a friable silty clay or clay texture. In most places the subsoil contains varying quantities of chert fragments. Included in the type as mapped are small patches of Baxter gravelly loam. These really represent eroded spots of the typical silt loam.

The topography of the Baxter silt loam varies from flat to gently undulating. It occupies the high, tablelike crests of ridges and stream divides in the Highland Rim region. It is more extensively developed in the northwestern part, but there are large areas along

the Giles and Lawrence County lines in the southwestern part. The type originally supported a heavy growth of chestnut, black oak, pin oak, hickory, and poplar.

When brought under cultivation this type continues quite productive for two or three years. After this, or when the small original content of organic matter has become depleted, the yields decline markedly unless steps are taken to maintain the soil in good condition. Large applications of barnyard manure and lime or ground limestone are two important means of doing this.

#### CLARKSVILLE GRAVELLY LOAM

The Clarksville gravelly loam is a grayish-brown to brown, mellow silt loam, underlain at 4 to 10 inches by a yellowish silty clay loam to silty clay, which in many areas grades into a moderately stiff, yellowish-brown clay. The surface is usually covered with chert or flint gravel, shaly limestone, and platy chips of the dark bituminous shale of the Chattanooga formation. There is also an abundance of yellowish, somewhat porous, and softer chert coming from later formations; this material occurs on the surface and in the subsoil to a depth of 3 feet or more. The soil represents a mixture of material from the shales, and also colluvial accumulation from adjacent higher soils.

There is a wide variation in the texture of the subsoil of this type. In places it is a grayish to white, plastic clay; in others the subsoil approaches that of the Hagerstown gravelly loam, being a brown, friable silty clay. On the lower, gentler slopes it is usually deeper, in places rarely appearing within 2 feet of the surface, while on the steeper, higher slopes it lies very near the surface.

The chert material of much of this type is probably the residuum from the formations formerly overlying the region, the St. Louis limestone in particular, which weather into fine silty material and hard cherty fragments. This chert material retards run-off and aids the soil in absorbing moisture.

The Clarksville gravelly loam occupies the lower slopes in the Highland Rim country. It is associated with the Baxter gravelly loam and with small areas of Rough stony land, which represent the outcropping formations dividing the Baxter from the Clarksville series.

The topography is rolling to steeply sloping. The type frequently contains outcrops of limestone and shale. About 20 per cent of it is under cultivation at the present time, the rest being forested, mainly with the hardwoods, birch, oak, and hickory. The soil compares favorably in productiveness with the Hagerstown gravelly loam. Corn, oats, rye, and clover are the principal crops, corn being by far the most important. Corn ordinarily yields 25 to 50 bushels per acre, oats 20 to 45 bushels, rye 10 to 15 bushels, and clover 1 to 2 tons.

Land values on this type range between \$35 and \$80 an acre.

#### ELK SILT LOAM

The Elk silt loam consists of 6 or 8 inches of brown silt loam or heavy silt loam, underlain by light-brown to brownish-yellow, heavy

silt loam to silty clay loam. The surface soil and subsoil contain small quantities of subangular gravel.

This type occupies flat to slightly hummocky second bottoms or terraces along Fountain Creek and other streams. It is not subject to overflow. Its entire area is under cultivation. The soil is well suited to the general farm crops, and is also used in this county for growing cantaloupes. In yields it compares favorably with the better upland soils.

A number of gravelly areas are included with the Elk silt loam, and are shown on the map with gravel symbols. These consist of brown silt loam, with accumulations of rounded quartz gravel and subangular chert scattered on the surface and embedded in the soil to a depth of 3 feet or more. This soil is not so desirable as the typical Elk silt loam. It is likely to be droughty. It occurs in narrow strips along the eroding streamlets and is of small extent.

The Elk silt loam is a productive soil, used principally in growing wheat, oats, corn, rye, and clover. Yields compare favorably with those obtained on the silt loams of the Maury and Hagerstown series. Most of the more rolling land is used for pasture.

*Elk silt loam, rolling phase.*—The Elk silt loam, rolling phase, is a brown, mellow silt loam, 6 to 12 inches deep, underlain by a reddish-brown or reddish-yellow silty clay loam, passing at 20 to 24 inches into a friable, reddish-yellow to dull-red silty clay. On the upper slopes part of the surface soil has been removed by erosion, and the reddish-brown silty clay of the upper subsoil exposed. There is usually present in the lower subsoil an abundance of rounded and subangular chert gravel.

The topography varies from gently undulating on the tops of the old terraces to somewhat rolling on the areas approaching the present stream channels, and decidedly rolling and sloping on the terrace fronts. The soil represents well-oxidized old alluvial deposits. On the slopes, where there has been considerable erosion, outcrops of limestone and patches of residual soil appear. In such positions the subsoil may contain more or less material residual from limestone.

#### HUNTINGTON GRAVELLY LOAM

The surface soil of the Huntington gravelly loam is a grayish-brown loam to silt loam, 6 to 10 inches deep. It is underlain by a light grayish-brown or brown silt loam or silty clay loam. The surface is usually covered with gravel and chert fragments, washed from the adjoining Clarksville and Baxter soils, and gravel is present in large quantities throughout the 3-foot profile.

The type represents a mixture of colluvial and alluvial material. It occurs along the smaller streams and the headwater tributaries of the larger streams. Practically all of it is in cultivation. It is well suited to corn, oats, and grass; in the southeastern part of the county satisfactory yields of cotton are obtained.

#### HUNTINGTON SILT LOAM

The surface soil of the Huntington silt loam is a brown to light grayish-brown mellow silt loam, 6 to 12 inches deep. Below this

layer there appears a light-grayish to yellowish-brown silt loam, which extends to a depth of 3 feet or more.

This soil occupies first bottoms along the larger streams of the county. It is flat to gently sloping and is subject to occasional overflow. Drainage over the greater part of the type is adequate. This soil is highly productive. Corn, oats, sorgo, and other forage crops are grown, and yields average higher than on the other soils of the county.

#### MINE PIT AND MINE DUMP

The type mapped as Mine pit and Mine dump includes areas of Maury or Hagerstown soils (originally mainly the Maury silt loam) that have had the overburden of soil removed in the process of mining phosphate rock. This material is red or yellowish-red clay, mixed with small quantities of shaly phosphate rock. Owing to the uneven surface of the mined areas and the expense of leveling them so that they can be cultivated, much of this soil may remain in its present state for a long time. An area  $1\frac{1}{2}$  miles east of Mountpleasant on the site of an old phosphate mine has been leveled and the soil put back in cultivation, producing good crops.

#### ROUGH STONY LAND

The type mapped as Rough stony land comprises steep slopes with many ledges of outcropping limestone, shaly limestone, and sandstone. It occurs on the steep slopes of the Highland Rim and along the stream courses. There is a thin mantle of soil, in places sufficient to support a forest growth and, in a small way, some pasture grasses. The land is too steep, however, for cultivation and should be left in woods and used for pasture.

This type includes, in the basin country, a number of not very steep areas where outcrops of limestone cover a considerable part of the surface and the soil is for the most part very thin, being underlain at a depth of a few inches by the bedrock. Cedar is the characteristic growth in these places. The trees in many places are scattered, giving rise to the name "glade" or "glady" land.

Rough stony land is used for pasture, but a water supply must be provided, as there are no surface streams in these areas.

#### SUMMARY

Maury County is situated in the south-central part of Tennessee. It has an area of 618 square miles, or 395,520 acres.

The county includes two physiographic divisions, the basin or low division (a part of the Central Basin) and the Highland Rim. The topography ranges from flat to hilly or broken. The general slope is to the west.

The county is drained mainly by the Duck River and its tributaries.

Elevations range from 500 feet in the lower valley of Duck River to 1,000 feet on the crests of the ridges of the Highland Rim in the northwestern part of the county.

Maury County was established in 1807. Most of the settlement took place following the Revolutionary War.

The population of the county in 1920 was 35,403, of which 29,877, or 84.4 per cent, was classed as rural. Columbia, the county seat, with a population of 5,526, and Mountpleasant, with 2,093 inhabitants, are the principal towns.

Three railroads, with several branch lines, operate in this county, and the transportation facilities are fairly adequate. The public-road system is well developed and many of the highways are improved.

The climate of Maury County is marked by long, though not oppressively hot, summers and by winters that are usually broken. The mean annual temperature is 59.3° F. The average annual precipitation is 48.49 inches. The normal growing season is 209 days.

There were 3,728 farms in the county in 1919, comprising 94.2 per cent of its total area. In that year 67.8 per cent of the farm land was improved. The average size of the farms was 94.1 acres. Sixty-three per cent of the farms were operated by owners and 36.3 per cent by tenants.

Corn is the most important crop grown. Wheat, oats, rye, sorgo, cowpeas, soy beans, alfalfa, clover, potatoes, and many vegetables are grown as supplementary food and forage crops.

The farm equipment is modern and generally adequate for thorough preparation and cultivation of the land. Very little fertilizer is used.

Hired labor on the farm is largely colored. The usual wage is \$20 to \$40 a month.

Land values range from \$5 to \$250 an acre.

The soils of Maury County are developed mainly on materials derived from limestone, sandstone, and shale. They are predominantly silty. Seven series of upland or residual soils and two alluvial series are mapped.

The Maury silt loam, a brown soil with a reddish silty clay or clay subsoil, is the most important type in the county. It occupies gently undulating areas of the Central Basin. It is very productive and is considered the best upland soil in the county.

The Hagerstown stony loam represents areas of silt loam and clay loam containing so much rock outcrop that agriculture is limited to pasturage or to a very patchy form of cultivation.

The Hagerstown gravelly loam represents areas of loam or silt loam containing appreciable amounts of chert gravel. It is a desirable soil for truck crops and orcharding.

The Hagerstown silt loam is separated from the Maury silt loam on a basis of lower phosphorus content. It is a good farming soil, but not quite so productive as the Maury under average conditions of management.

The Hagerstown clay loam represents areas of somewhat eroded silt loam. In the eastern part of the county it is derived directly from the underlying limestone formation. This soil is low in organic matter.

The Lowell silt loam is a good wheat soil. It is used in the production of the general farm crops.

The Lowell stony clay is a shallow soil, used for pasture and woodlots.

The Lowell gravelly loam represents areas of silt loam and clay loam having a considerable amount of cherty gravel on the surface and throughout the soil profile.

The Lowell clay loam is a heavy soil, with a rolling to hilly topography. It is not very desirable, but with proper management yields compare favorably with those obtained on the silt loam.

The Culleoka very fine sandy loam occurs mainly in the southeastern part of the county. Its surface is rolling to hilly.

The Culleoka loam is a gently undulating to rolling soil. It is considered a good type for the general farm crops and for truck.

The Dickson silt loam has a flat or gently undulating surface, and in many places is poorly drained.

The Baxter gravelly loam represents areas of silt loam or loam containing large amounts of chert gravel in the soil and subsoil. This soil is largely in cultivation, principally to corn, and yields equal those obtained on any other soil in the county.

The Baxter silt loam is low in organic matter and in most places not very productive.

The Clarksville gravelly loam occupies the lower slopes from the Highland Rim. It is considered a first-rate soil.

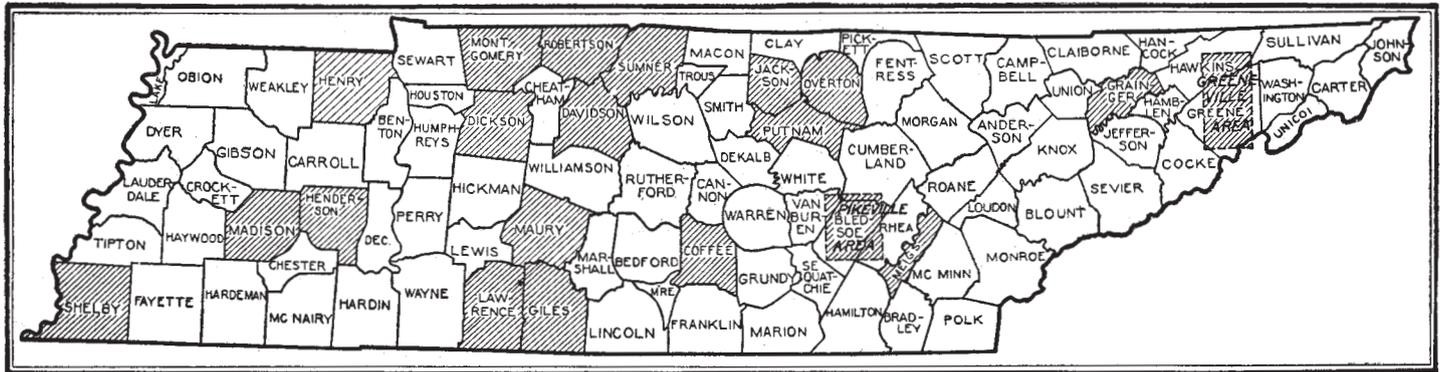
The Huntington gravelly loam is a grayish-brown soil containing an abundance of chert gravel throughout the soil and subsoil. It is subject to overflow, but is very productive.

The Huntington silt loam is a brown alluvial soil, subject to overflow. It is naturally very productive.

The Elk silt loam occupies flat to slightly hummocky second bottoms or terraces along Duck River and its larger tributaries. It is not overflowed and is well suited to the general farm crops.

Rough stony land represents areas of rock outcrop and steep slopes from the Highland Rim, as well as bluffs along the larger stream courses. It is nonagricultural.





Areas surveyed in Tennessee, shown by shading

# Accessibility Statement

---

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at (800) 457-3642 or by e-mail at [ServiceDesk-FTC@ftc.usda.gov](mailto:ServiceDesk-FTC@ftc.usda.gov). For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at <http://offices.sc.egov.usda.gov/locator/app>.

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.)

To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at [www.ascr.usda.gov](http://www.ascr.usda.gov), or write to:

USDA  
Office of the Assistant Secretary for Civil Rights  
1400 Independence Avenue, S.W.  
Washington, DC 20250-9410

Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender.

Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).