

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS.

IN COOPERATION WITH THE MARYLAND GEOLOGICAL SURVEY AND THE
MARYLAND AGRICULTURAL EXPERIMENT STATION.

SOIL SURVEY OF SOMERSET COUNTY,
MARYLAND.

BY

J. M. SNYDER, IN CHARGE, AND J. HALL BARTON.

[Advance Sheets—Field Operations of the Bureau of Soils, 1920.]



WASHINGTON :
GOVERNMENT PRINTING OFFICE.
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[PUBLIC RESOLUTION—No. 9.]

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

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

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

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]

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MAP.

Soil map, Somerset County sheet, Maryland.

SOIL SURVEY OF SOMERSET COUNTY, MARYLAND.

By J. M. SNYDER, in Charge, and J. HALL BARTON.

DESCRIPTION OF THE AREA.

Somerset County is the southernmost county of the Eastern Shore of Maryland, lying on Chesapeake Bay. It is very irregular in outline, the boundaries following natural features and including two islands lying some distance out in Chesapeake Bay. The mainland is about 20 miles wide and 29 miles long. The county has a land area of 339 square miles, or 216,960 acres.¹

Somerset County embraces two main physiographic divisions, the upland and the marshes. The upland division forms about 72 per cent of the land area and comprises all the productive soils of the region. The marshes, occupying about 100 square miles of the land surface, have little or no agricultural value in their present condition. They form extensive tracts on the western side of the county along the bay and along some of the larger streams. Tidal marsh forms much of the area of the islands in the bay. The greater part of the marsh area lies nearly at sea level and is subject to inundation by the tides.

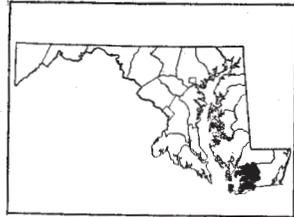


FIG. 38.—Sketch map showing location of the Somerset County area, Maryland.

The topography of the county is flat to slightly undulating. The marshes and the foreland bordering the bay and tidal estuaries are flat to almost level; the northeastern part of the county is more undulating. Between the upland and the foreland there is no break, the change in some places being imperceptible. The upland presents more inequalities of surface than the foreland. It is more ridgy and the streams have cut deeper channels, though there are very few if any slopes that are too steep for cultivation.

The islands in Chesapeake Bay lie about 10 miles west of Crisfield. These islands are composed almost entirely of marsh. There is a little higher ground on Smith Island, especially in the southwestern part near Ewell, Rhodes Point, and Tylerton, and settlement is confined to these areas.

There is usually some swamp or marsh along most of the streams, but no terraces of any consequence have been developed.

Only a very small part of the county has an elevation of 50 feet above sea level. The foreland as a rule does not reach an elevation greater than 20 feet above sea level; the upland in the western and northwestern part reaches a maximum elevation of 53 feet. According to the United States Geological Survey the elevation at Crisfield is

¹ Planimeter measurement.

5 feet; at Hopewell, 6 feet; Marion, 7 feet; Rehobeth, 8 feet; Costen, 21 feet; Dublin, 8 feet; Westover, 14 feet; Kings Creek, 14 feet; Princess Anne, 18 feet; Oriole, 2 feet; Loretto, 18 feet; Eden, 30 feet; and West, 39 feet.

The drainage of Somerset County is through tidal estuaries, rivers, and creeks, which flow into Chesapeake Bay. The estuaries are wide at their mouths but narrow abruptly at the head of tidewater. Small creeks or branches extend short distances into the upland from these estuaries. There are a sufficient number of drainage ways to give adequate drainage to the county, but because of the slight fall and the effect of the tides the water is not carried off as rapidly as it should be. None of the streams are swift flowing and many are sluggish. This with the débris that is allowed to accumulate in their channels greatly impede the run-off. The deficiency is most apparent in the western half of the county. The only extensive area where the secondary streams afford good drainage is in the northeastern part of the county. The important streams of the county are Wicomico River and its tributaries, Monie Creek, Manokin River, Kings Creek, Big Annemessex River, Little Annemessex River, Pocomoke River, and Dividing Creek. All the rivers are navigable by large boats, and motor boats and small sailing vessels have access to landings on the smaller streams that flow into the bay.

The channels of the main upland streams increase gradually from mere shallow drainage ways near their sources to pronounced depressions at their junction with the estuaries, which junction marks the point of base level, i. e., the point where cutting by the streams has ceased. While in some places the valleys of the streams are wide, they are agriculturally of little importance.

Somerset County was formed August 22, 1666, by a proclamation of Lord Baltimore. It was named after Lady Mary Somerset.² The first settlement was in the vicinity of Revels Neck, and it was here that the first court was held, but later the courthouse was moved to Princess Anne, which has been the county seat ever since. The county boundaries were changed in 1742, when the land east of Dividing Creek and southeast of the Pocomoke River was given to Worcester County. The creation of Wicomico County in 1867 further reduced the area of Somerset County. The present boundaries are those existing after this change.

The present population is evenly distributed over the county, with the exception of the islands and marshes. There are some thickly settled districts where agriculture is of secondary importance to the sea-food industry, as in the neighborhood of Crisfield, Dames Quarter, and Deal Island, and sections on the necks that extend into the bay. The population of Somerset County, according to the 1920 census, is 24,602, of which 20,486 is rural. The population of the most important towns are: Crisfield 4,116, and Princess Anne, 968. There are numerous smaller towns and villages scattered through the county. A number of these are off the railroad, having been settled when public roads and navigable streams formed the means of transportation. The most prosperous and growing towns, however, are along

²The original grant of Somerset County comprised what was first known as the Eastern Shore of Maryland, and included Wicomico and Worcester Counties. The part of Maryland farther north on the peninsula was known as Kents Island. At the present time it is all called the Eastern Shore of Maryland.

the railroad. Crisfield is one of the leading shipping points for sea food³ in the United States; and Princess Anne, the county seat, is in the center of a good farming district.

The railroad service in the county is good. The New York, Philadelphia & Norfolk Railroad, a part of the Pennsylvania system, enters the county north of Eden and passes through Loretto, Princess Anne, Kings Creek, and Costen. A branch of this road runs from Kings Creek through Westover, Kingston, and Marion to Crisfield. During the season when express shipments are heavy, through express trains are run to Philadelphia and New York. The Baltimore, Chesapeake & Atlantic Railway Co. operates steamboats out of Baltimore which touch at Mount Vernon, Deal Island, Crisfield, Shelltown, Rehobeth, and Powells. Numerous smaller craft take produce to the wharves for transfer to the larger boats. With both railroad and water transportation available long hauls of farm produce are necessary in only a few sections of the county.

The county roads are in excellent condition in the summer, but in winter, during wet seasons, they are often badly rutted because of the freezing and thawing that usually occur at this season. Effort is being made to keep all the earth roads in good condition. Near the coast there are some shell roads that have proved very satisfactory. Sand-clay roads have been built in some parts of the county. The State Highway, which is of concrete, macadam, and other hard materials, extends from Allen, just across the line in Wicomico County, through Princess Anne, Kings Creek, and Costen to Pocomoke, and branching just south of Kings Creek to Westover, Marion, and Crisfield. Another stretch of concrete road extends about 3 miles west of Princess Anne.

Schools and churches are located conveniently in different sections of the county. Telephones are in general use. Rural mail delivery routes reach all parts of the county.

New York, Philadelphia, and Baltimore are the most important markets for the produce of Somerset County, and when prices warrant produce is shipped to more distant markets. The local markets, which are small, consume only a small part of the farm output. The towns along the railroad and all the steamboat landings are important shipping points.

CLIMATE.

The climate of Somerset County is very favorable for agriculture. There is a mean annual rainfall of about 40 inches, well distributed through the year, and a growing season of practically six months, which favors a succession of crops and the spreading of productive labor over a comparatively long period.

There is little difference in elevation within the county, so that the climatic conditions vary little in different parts. The Weather Bureau records for Princess Anne, in the north-central part of the county, and Pocomoke City, just outside, indicate slightly greater rainfall and slightly lower temperature at the former than at the latter station. The growing season is apparently about a week longer at Pocomoke City. Undoubtedly there is greater freedom from

³The fisheries of Somerset County, the product of which include crabs, both hard and soft shell, oysters, and sundry species of fishes, have been and still are a very considerable source of wealth in the county.

untimely frosts, both spring and fall, in the section immediately along the bay, especially on the necks, which have water on three sides, than in the interior of the county. But with these exceptions the climatic conditions are uniform over the county.

The following table, compiled from records of the Weather Bureau station at Princess Anne, gives the more essential climatic data in detail by months. The records cover a period of 43 years.

Normal monthly, seasonal, and annual temperature and precipitation at Princess Anne.

Month.	Temperature.			Precipitation.			
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year (1895).	Total amount for the wettest year (1903).	Snow, average depth.
	° F.	° F.	° F.	Inches.	Inches.	Inches.	Inches.
December	39.6	72	-3	3.15	2.00	3.01	2.4
January	35.8	73	-8	3.03	3.42	3.78	4.0
February	36.8	75	-10	3.32	2.14	5.39	6.1
Winter	37.4	75	-10	9.50	7.56	12.18	12.5
March	45.4	89	10	3.66	4.28	7.45	1.5
April	54.4	95	22	3.26	5.58	3.54	T. .0
May	63.4	93	30	3.10	3.94	1.25	.0
Spring	54.4	95	10	10.02	13.80	12.24	1.5
June	71.1	96	40	3.87	1.12	3.11	.0
July	76.3	99	49	4.30	4.25	5.22	.0
August	74.8	99	46	5.00	2.53	6.31	.0
Summer	74.1	99	40	13.17	7.90	14.64	.0
September	68.8	96	33	2.78	.92	3.18	.0
October	57.8	87	23	3.47	2.71	7.74	T. .5
November	47.3	82	12	2.32	2.07	2.21	.5
Fall	58.0	96	12	8.57	5.70	13.13	.5
Year	56.0	99	-10	41.26	34.96	52.19	14.5

AGRICULTURE.

From the beginning of settlement agriculture has been the principal industry of the Eastern Shore of Maryland. The land is productive, and with sea food and game the early settlers were enabled to live very comfortably. Corn and tobacco were the main crops before the Revolutionary War. After the close of that war corn and oats were grown extensively and wheat on a considerable acreage. Some cattle and hogs were raised, the cattle being allowed to run at large. The agriculture did not develop rapidly until after the building of the New York, Philadelphia & Norfolk Railroad in 1884. Prior to this time it was necessary to make all shipments by water, and the slowness and uncertainty of this mode of transportation retarded progress, particularly in the growing of perishable crops, which since the advent of the railroad has become the most important activity.

A comparison of the returns of the United States census for 1879 and 1919 shows the important change that has taken place in the agriculture of the county since the introduction of modern means of transportation. In the former year the acreage in the three leading

field crops, corn, wheat, and hay, was 33,276, while of the special truck crops that have since become important only two, potatoes and sweet potatoes, were represented, with a combined estimated acreage of about 1,000. The same crop groups in 1919 occupied 32,687 and 10,922 acres, respectively. This increase in truck farming has come about naturally, as the result of the demand from the northern cities and the supplying of transportation facilities making the marketing of perishable vegetables and berries possible.

This evolution is brought out clearly in the following table, compiled from reports of the census, giving the acreage and production of the important crops for the census years 1879 to 1919, inclusive:

Acreage and production of principal crops, Somerset County, Md., census years 1879 to 1919, inclusive.

Year.	Corn.		Wheat.		Hay and forage. ¹		Potatoes.		Strawberries.		Sweet potatoes.		Other vegetables. ²
	<i>Acres.</i>	<i>Bush.</i>	<i>Acres.</i>	<i>Bush.</i>	<i>Acres.</i>	<i>Tons.</i>	<i>Acres.</i>	<i>Bush.</i>	<i>Acres.</i>	<i>Qts.</i>	<i>Acres.</i>	<i>Bush.</i>	<i>Acres.</i>
1879 ...	22,594	389,896	8,082	83,812	2,600	2,706	.....	59,048	.....	.....	344	34,238	.....
1889 ...	19,108	255,340	6,050	89,411	6,513	9,111	.....	672	49,217	.....	443	36,866	.....
1899 ...	23,363	441,240	6,604	95,860	5,216	7,205	1,104	92,297	2,414	4,245,110	432	47,250	2,307
1909 ...	20,736	449,877	5,678	78,399	4,891	8,180	2,147	263,103	2,859	4,581,341	440	66,209	2,569
1919 ...	19,347	409,081	8,020	116,401	6,287	9,200	4,669	585,974	1,550	2,576,859	520	71,191	4,183

¹ Includes small acreage of wild or salt grass and grains cut green for hay.

² Includes tomatoes, muskmelons, watermelons, cabbage, cucumbers, beans, and other vegetables grown in the county.

At the present time (1920) the production of truck crops for the northern market dominates agriculture in Somerset County. General farming is still carried on, but has made little if any progress in the last 40 years; the development of truck growing has been striking. This is indicated in the acreage figures; it is more fully appreciated when a comparison of values is made. The total value of all crops in 1919 was \$3,646,164 and of vegetables \$1,737,125. When it is considered that the latter sum does not include the value of strawberries, which may very properly be classed with the truck crops instead of the fruits, and that the value of strawberries in 1919 is estimated to have been between \$400,000 and \$500,000, the true relative importance of the trucking industry becomes apparent. The income from the truck crops is greater than that from all other crops.

Concurrent with this change in the type of agriculture there has been an increase in the number and decrease in the size of farms, the proportion of the area of the county in farms remaining practically stationary. In the same period the proportion of improved land per farm has shown a very marked decrease. The following table, compiled from the census reports, shows the extent to which this adjustment has gone on:

Number and average size of farms, proportion of land in farms, and percentage of improved land in farms, Somerset County, Md., census years 1880 to 1920.

Year.	Number of farms.	Proportion of land in farms.	Average size of farms.	Improved land per farm.
		<i>Per cent.</i>	<i>Acres.</i>	<i>Acres.</i>
1880	1,437	67.9	100.0	53.4
1890	1,382	63.3	97.0	56.2
1900	1,521	68.4	95.3	54.3
1910	1,986	69.0	73.6	38.5
1920	1,820	62.0	72.1	38.9

There can be no doubt that the tendency to decrease the size of the farm and the area cultivated within the farm is a result of the more intensive cultivation given much of the land and the scarcity of labor trained to carry on such work satisfactorily. The average farmer limits the land under cultivation to such an area as can be taken care of by himself and one laborer, except at harvest time, when a little other labor is employed in picking, packing, and marketing the crops.

A gratifying feature of the agriculture of Somerset County is the marked increase during the last 40 years in the value of farm property. In 1880 the value of all farm property, including land, buildings, machinery, and domestic animals, was \$2,204 per farm of 100 acres; in 1920 it was \$5,661 per farm of 72.1 acres. This indicates a decided improvement in the economic condition of the average farmer.

At present, corn, wheat, and hay are the most important of the general farm crops. Corn, according to the census, was planted on 19,347 acres in 1919 and produced 409,081 bushels, or an average yield per acre of 21.1 bushels. Most of the grain is used to feed livestock on the farms; some, however, is sold locally.

Wheat, in contrast to corn, is a cash crop. It occupied in 1919, an area of 8,020 acres, which is almost as large an area as was devoted to the crop in 1879 and some 25 per cent greater than its acreage in the intervening census years. The average yield in 1919 was 14.5 bushels per acre. A part of the crop is sold to local millers, but by far the greater part is shipped out of the county.

In acreage, hay and forage crops is third amongst general farm crops. Most of the crop is fed within the county, but some of it is shipped to outside markets.

The following table shows the production of the various hay and forage crops in Somerset County in 1919, as given in the 1920 census:

Production of hay and forage crops, Somerset County, Md., 1919.

Crop.	Acres.	Yield.	Crop.	Acres.	Yield.
		<i>Tons.</i>			<i>Tons.</i>
Timothy alone	828	1,180	Wild or salt grass	54	61
Clover alone	1,449	2,093	Small grains cut for hay	883	1,285
Timothy and clover	1,709	2,761			
Alfalfa	288	730	Total	6,287	9,200
Other tame grasses	1,076	1,090			

Among the truck crops grown are potatoes, sweet potatoes, strawberries, tomatoes, and cabbage. The census places the acreage of potatoes in 1919 at 4,669 and the production at 585,974 bushels; of strawberries at 1,550 acres, producing 2,576,859 quarts; and of sweet potatoes at 520 acres, with a total yield of 71,191 bushels. The details of acreage and production are not given for tomatoes and cabbage, these crops being grouped with miscellaneous vegetables, the total acreage of which group is stated as 4,183. Tomatoes are believed to be the most important item in this group, and the acreage probably exceeds the acreage of sweet potatoes. Muskmelons and watermelons also are grown on considerable acreages, and cucumbers, lima beans, turnips, radishes, and beets are all of some importance as market crops.

A part of these various vegetable crops is consumed in the area, or, in case of potatoes, saved for seed. Excepting a part of the sweet potatoes and practically all the tomatoes, which go to the local canneries, and the strawberries which are taken by juice factories, the rest of the product goes to outside markets, mainly to Philadelphia and New York. During the height of the shipping season express trains are run daily to accommodate the traffic. The growing of strawberries is especially important in the southwestern part of the county, and Marion is one of the larger shipping points of the county.

Orcharding is not carried on extensively in the county. There are a few small commercial orchards, and as a rule each farm has a few fruit trees, principally apple, pear, and peach. Most of the apples are used for cider, although some of the fruit is shipped to outside markets. A part of the pear crop is used by the local canneries.

The raising of livestock is not an important feature of the agriculture. Hogs and poultry are raised in a small way on almost every farm, and the surplus above the needs of the household is sold. The local merchants trade in chickens and eggs, marketing them in New York and Philadelphia. According to the 1920 census the value of chickens and eggs produced in the county is \$283,036.

Only a few farms are devoted entirely to the production of livestock, although it would seem the industry could be made profitable in certain sections of the county. Some beef cattle are raised on Smith Island, where they are turned out on the marshes to graze. The difficulty there is the lack of good drinking water. The 1920 census reports 5,354 hogs and 556 beef cattle in the county.

Dairying is followed by a few. Most farmers, however, keep cows to furnish milk and butter for home use and for sale in the smaller towns and villages of the county. The Holstein is probably the most popular dairy breed. Guernsey and Jersey are also favorites.

No information was available relative to the present value of forest products.³ The manufacture of lumber and articles of wood, however, is important in the county. Timbers for mine props and piling are shipped out, and there is an active demand within the county for barrels, crates, and hampers in which to ship vegetables and fish and oysters. In the manufacture of these containers trees as small as 3 inches in diameter can be used, so that practically all sizes are cut by the lumber companies. The predominating tree is the loblolly pine, which makes a rapid growth. As a rule the forest is in small tracts, but there are a few areas that are rather extensive.

The farm houses range from the large, substantial, and attractive dwellings of the well-to-do farmers to the smaller but comfortable houses on the smaller farms and the cabins of negro tenants. The buildings as a rule are painted and kept in a good state of repair. The barns on a majority of the farms are of sufficient size to house the stock and store the hay and forage and machinery. The farms usually are equipped with a number of smaller outbuildings such as potato houses, cornercribs, garages, machine sheds, and other small buildings. These are grouped around the main barn. On the better farms gasoline engines and windmills are used for pumping water, and on many of the farms modern lighting systems have been

³ According to a report of the Maryland State Board of Forestry (The Forests of Maryland, 1916) the cut in 1914 amounted to 2,742,423 cubic feet, with a value of \$363,174 at shipping points. In this year about 25 per cent of the area of the county was in forest.

installed. The farm machinery is modern. Potato diggers are not generally used, the planting of corn between the rows making their use impracticable. The use of farm tractors is increasing. The work stock consists mostly of mules. Mules and horses are of heavy weight and as a rule are of good breed. Good grades of cattle are kept and purebred animals are increasing in number.

While all the farmers recognize the benefit derived from a good rotation, no definite system of crop rotation is practiced throughout the county, because of the varieties of crops grown and the varied soil conditions. Where strawberries are grown a three-year rotation consists of strawberries the first and early part of the second year, followed by late potatoes or a legume, and the third year by sorghum or corn. A five-year rotation, used where general farming is carried on, consists of wheat, grass two years, potatoes, and soy beans. When corn is used in a general farm crop rotation it is followed by rye or some similar crop, wheat, and grass. The grass is sometimes allowed to stand for two years. Some of the farmers use a more intensive crop rotation, consisting of early potatoes, in which corn is planted about two weeks before the potatoes are dug, the corn being succeeded the same fall by a cover crop sown between the rows and plowed under in the spring, and the land planted to sweet potatoes or again to potatoes.

A large quantity of commercial fertilizer is used in the county. The 1920 census reports an expenditure of \$345,213 for fertilizer on 82 per cent of the farms, or an average of \$231.22 per farm. In 1879 the total expenditure was only \$34,740. The formula most commonly used for potatoes contains about 7 per cent ammonia, 6 per cent phosphoric acid, and 5 per cent potash. During 1916, 1917, and 1918, when it was impossible to get potash, a 7-8-0 formula was used. Applications for potatoes are usually heavy, ranging from 1,300 to 2,000 pounds per acre. An average would probably be 1,600 pounds per acre. Sweet potatoes are not fertilized as heavily as white potatoes, the usual application being 1,000 pounds of a 3-6-6 or 3-8-4 mixture. For strawberries about 400 pounds per acre of a 7-6-5 or a 5-8-5 grade is used.

The applications in general farming are relatively light. Corn grown with potatoes is seldom fertilized, dependence being placed upon the residual effect of applications given the earlier crop.

In addition to fertilizers, a considerable quantity of barnyard manure is applied to the soil, when it can be obtained. The local supply, which is not large, is supplemented by shipments from the large cities. Pine straw or "shatter" also is used quite extensively, as in the counties in the Eastern Shore of Virginia.

The application of lime is becoming quite general and is proving beneficial. Hydrated lime, because it is easier to handle, is probably used to a greater extent than freshly burned lime or ground limestone. Considerable lime is obtained from the burning of oyster shells.

Efficient farm labor has been hard to obtain and wages have been high during the last few years. Wages vary considerably in different parts of the county, depending on the locality. Many of the farm laborers are negroes. The farmer usually employs one man the year round; the remainder of the help is usually hired by the day or the week. In harvesting crops laborers are paid on a piecework basis.

Land values in this county range from \$10 to \$250 an acre, the average assessed value, according to the 1920 census, being \$44.82 an acre. The important factors that influence the sale price in this county are the location of the land, how the land has been cropped, drainage conditions, whether there is any merchantable timber on the farm, and the condition of the buildings.

The Peninsula Produce Exchange at Pocomoke City handles a large part of the potatoes produced in the county. They have buyers at all shipping points and agents in all the large cities. The truck crops usually are sold at auction, except where the farmer ships directly to a commission house in the city. The auction system has proved satisfactory to the growers as well as to the buyers. There are in the county a number of farmers' cooperative associations, some of which have greatly benefited their respective communities.

The farm practice of Somerset County is in general good, many if not most of the methods being the result of a long period of experience during which the various operations have been nicely adjusted to the local soil and climatic conditions. The adaptation of the different soils of the county to various crops is generally understood by the farmers and observed in the selection of the fields. Potatoes, sweet potatoes, muskmelons, and watermelons are commonly planted on the sandy types of the Sassafras series. Strawberries are planted most extensively on the Keyport, Elkton, and Portsmouth soils. The heavier textured soils of the area are considered best for the general farm crops, and the better drained soils are known to grow legumes more successfully than those imperfectly drained.

In preparing land for potatoes, pine "shatter" is commonly applied in the winter, usually with barnyard manure. Plowing is done as early as possible, usually the latter part of February. Fields with a cover crop to turn under are sometimes disked before plowing. They are commonly disked after plowing, the disk harrow being followed by a spike-tooth harrow.

Planting begins in Somerset County between March 1 and March 15. The rows, which are $2\frac{1}{2}$ to 3 feet apart, are usually marked by a shallow furrow. The fertilizer is then distributed. In many cases a cultivator is run over the field to mix the fertilizer with the soil, to prevent "burning" the seed. The seed potatoes are usually quartered. Planting is done mainly by machine. After planting the middles are loosened with a cultivator and the field is leveled with a harrow. Cultivation is begun soon after the plants break through. The crop receives four or five cultivations in normal seasons.

Potato fields usually are sprayed two or three times to kill the Colorado potato beetle. Spraying begins the latter part of May or the first of June, the first application being followed by two others at intervals of 10 days or 2 weeks. When the crops are dug early the third spraying is sometimes dispensed with, but it is recognized that a third spraying, even after the present crop is out of danger, helps in controlling the beetle the following season. Arsenate of lead and Paris green are used in spraying. The vines are not generally sprayed for early blight.

The crop is usually laid by about two weeks before digging, and it is the custom to plant corn in every other middle at this time. Digging is done from July 1 to August 1. In fields in which corn is

planted the crop is plowed out, the plowing serving as a first cultivation for the corn. The prime potatoes are picked up, graded, and barreled in the field and hauled directly to the shipping point. Irish Cobbler is the variety most generally grown.

Both northern and home-grown seed, the latter the product from northern seed, are used. The seed crop is planted early in August, preferably on land not used for the early crop, and the potatoes are usually dug as late as the season will permit. Low yields, of comparatively small potatoes, usually are obtained. The small size of the tubers, however, apparently does not affect the quality of the succeeding crop.

Potatoes for seed, and very often the home supply, are stored in piles with a covering of straw and soil. This method has proved fairly satisfactory, but not nearly as satisfactory as storing in potato cellars. Sweet potatoes are kept in the same way.

As in preparing for potatoes, the first step in fitting the soil for sweet potatoes is the application of manure or compost. Exception to this rule is made when the crop follows a cover crop. A rather heavy application of coarse manure is usually given. The seed bed should be very thoroughly worked up before the rows are marked. After marking the fertilizer is distributed and a bed is turned over it with one round of a plow. The strongest plants in the hotbeds are selected for setting. They are transplanted with a machine, tongs, or by hand. The rows usually are $2\frac{1}{2}$ feet apart and the plants 18 to 20 inches apart in the row. Ten to eleven thousand plants are required to plant an acre.

In cultivating sweet potatoes one or two hand hoeings are necessary, and the first of these usually takes place 10 to 12 days after setting. In the early horse cultivation a vine-turning attachment is used on the cultivator. When the vines get large and interwoven it is necessary for a man to precede the cultivator and turn the vines with a stick.

The first step in harvesting the sweet potatoes is to cut the vines, which at this time cover the ground and are tangled and matted. The potatoes then are turned out with a plow, picked up by hand, and hauled to the shipping point or to the potato house. Some of the crop is stored until winter or spring. This part of the crop is sold in hampers; the main shipment goes to market in barrels.

The principal varieties are Big-Stem Jersey and Yellow Jersey (Up River or Little-Stem Jersey). These two varieties are used mostly for market. The Southern Queen also is grown, mainly for home use.

The strawberry is a two-year crop. The plants are propagated by means of runners and are cut from year-old beds and set out as soon as the growth of the old bed starts in the spring. The first year the vines are cultivated very carefully and kept very clean and free from grass. The second year they do not receive any cultivation, unless they are going to be used the third year, as is often done, in which case an effort is made to keep the fields free from grass. The plants usually are set out in new ground or in soil that has been idle for a few years. The land usually is fertilized to produce a vigorous growth. Sometimes a top-dressing of fertilizer and barnyard manure is given the second year. After the berries are picked the second year a crop of late potatoes is sometimes planted. The matted row system is used. The berries are picked during the day and taken to the shipping

point in the morning or late in the afternoon, when the sun is not hot, care being taken to get the berries to the shipping point, where they are sold, in good condition.

Several varieties are grown extensively. Those best adapted to shipping are the Gandy, Missionary, and Chesapeake. The Climax and Superior have only fair shipping quality. The Success is grown for the juice manufactories and the canneries.

Tomatoes are grown on a large number of farms. They are sold mostly to local canneries. The canner sometimes contracts for the crop, but more frequently the farmer takes a chance on the market. The Greater Baltimore and Bonny Best are the most important varieties while Norton and Marvel are important, having the advantage of being more or less resistant to wilt.

SOILS.

Somerset County lies wholly within the Coastal Plain Province, a physiographic division extending along the Atlantic Ocean from Long Island to southern Florida and thence along the Gulf of Mexico to the mouth of the Rio Grande.

The soils of the county are prevailingly light in color, ranging from gray or yellowish gray to brown, except for small areas which contain a large amount of organic matter and have a black color. Under natural conditions there were no extensive grass areas, and consequently there has been little opportunity for the accumulation of organic matter in the soil. In the forested areas there is a noticeable amount of vegetable matter at the surface, but this has not become sufficiently incorporated in the soil to any considerable depth. In some of the depressions and flatter sections there are small areas that have a black surface soil, but the topographic position of these areas has given moisture conditions favorable for the growth and decay of a rank vegetation, a condition not existing for the region as a whole.

With the exception of the dark-colored soils, most of the soils of the county are neutral or are only slightly acid. Most of the soils, particularly the Portsmouth and Elkton types, respond readily to the application of lime. There are no calcareous soils in the county. The black or coffee-colored hardpan layer occurring in the subsoil in spots in adjoining counties has not developed in this county.

The soil types of the county gradually merge one into the other, and frequently a difference of 1 foot in elevation will influence the color of both the soil and subsoil. The higher lying areas are apparently more thoroughly oxidized and the deeper colors, such as brown or reddish brown, shade into the lighter colors, and finally, in the more poorly drained areas, into mottled gray and yellow or brown. One of the common characteristics of these soils is the presence of a sandy stratum within the 3-foot section. This ordinarily appears 24 to 36 inches below the surface, the subsoil at this depth passing into a light sandy loam or sand that occasionally carries fine gravel. On account of the low, flat surface of much of the county, a substratum of this sandy material is apparently advantageous in that it tends to improve the internal drainage of the soils, probably rendering them all the more productive.

According to the Maryland Geological Survey, the geology of this county is quite simple and uniform. The deposits belong to the

Columbia group of the Pleistocene and their elevation to the present altitude above sea level is comparatively recent in a geological sense. This county is covered by the Talbot and Wicomico plains, which terms apply to the younger series of beds of unindurated materials from which all of the soils of the area have been derived.

The Talbot formation covers the greater part of the county, being particularly well developed in the central part and forming most of the country included in the "necks" bordering Chesapeake Bay and the smaller bays extending into the uplands of the county. In this formation the principal grades of material are fine sand, silt, and clay, the silt predominating. In the extreme northern end of the county and along the Pocomoke River the Wicomico formation seems to be best developed. The material in this formation contains more sand, and some low sand ridges occur along its northern boundary.

The materials from which the soils of the county are derived were originally marine sediments, and textural variation is believed to be due primarily to sorting by waves and tidal currents before the elevation of the land above sea level. Apparently erosion has played little or no part in the modification of the texture of the material; weathering and drainage having been the most potent factors in the evolution of the soils from the soil material. Some of the darker colored and black soils contain large quantities of organic matter, which has accumulated through the growth and decay of vegetation while these areas were in a swampy or semiswampy condition. The mottled and variegated coloration of the subsoil is believed to be due to imperfect drainage and to oxidation of the iron compounds contained in the soil material.

There are extensive tidal marshes, or "foreland plains," lying between the upland and the numerous bays and estuaries. Some of these marshes lie above normal high tides, but the material has not reached that stage in soil formation where it can be classed texturally as a type. Bordering the streams are narrow strips of alluvial material so variable in texture, color, and structure that no type distinction could be assigned to it. Such areas are subject to overflow and in many places are either covered or saturated with water during the greater part of the year.

The soils of Somerset County are grouped into four series on the basis of the differences in color, origin, drainage, and weathering. The series are further divided into types on the basis of texture. Thirteen distinct soil types are shown on the soil map, in addition to which there are three miscellaneous groups of material, one including a phase.

The Sassafras series includes the higher lying and better drained soils of the county. The types of this series are distinguished by the brown color of the soils, the reddish-yellow to yellowish-brown color of the subsoil, and the presence of beds of sand or light sandy material, occasionally containing gravel, at depths varying from 28 to 36 inches. Four types are mapped—Sassafras fine sand, sandy loam, fine sandy loam, and loam.

The soils of the Keyport series are intermediate in position and drainage conditions between the well-drained Sassafras soils and the lower areas represented by the Elkton soils. The surface soils of the types of this series are light brown in color, passing at from 6 to 8 inches into pale-yellow subsurface material, which, at about 12 to 15

inches, grades into a mottled yellow, gray, or drab, stiff, slightly plastic sandy clay or clay subsoil. Usually below 28 or 30 inches a sandy substratum is encountered, which consists of a mottled yellow and gray sand or yellowish sandy loam mottled with gray or russet brown. The Keyport soils in many places appear to have a soil similar to that of the Sassafras or Norfolk types and a subsoil like that of the Elkton soils. Three types of the series are developed in the county—the Keyport fine sandy loam, loam, and silt loam.

The types in the Elkton series are characterized by light-gray to dark-gray surface soils and a mottled yellow or yellowish-brown and gray to drab, heavy, slightly plastic, sandy clay to clay subsoil. Like the other soils of the county, a substratum of sandy material is reached at 24 to 30 inches below the surface. The soils of this series occupy flat to level areas and the natural surface drainage is generally poor. Occupying wet and depressed areas in many places, the original soil material has undergone intermittent wet and dry stages, and through the lack of aeration and an insufficient amount of organic matter the surface soil is frequently compact and stiff. Three types, the Elkton fine sandy loam, loam, and silt loam, are mapped.

The types included in the Portsmouth series have dark-gray to black surface soils, usually high in organic matter, and a mottled yellow or yellowish-brown and gray to drab sandy clay to clay subsoil. These soils are developed in slightly depressed areas where the natural surface drainage is imperfect and where a rank water-loving vegetation has flourished. In this county the Portsmouth fine sandy loam, loam, and silt loam are mapped.

The miscellaneous types mapped in this survey are Meadow, Swamp, and Tidal marsh, the latter with a high phase. Each of these classifications is described in subsequent chapters of this report.

The following table gives the name and the actual and relative extent of the several soils mapped in Somerset County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Tidal marsh.....	56,320	29.4	Keyport loam.....	5,440	2.5
High phase.....	7,488		Portsmouth loam.....	3,584	1.6
Elkton silt loam.....	39,104	18.0	Sassafras fine sand.....	3,584	1.6
Elkton loam.....	29,504	13.6	Keyport silt loam.....	3,264	1.5
Elkton fine sandy loam.....	26,624	12.3	Swamp.....	2,880	1.3
Sassafras sandy loam.....	10,112	4.7	Sassafras fine sandy loam.....	1,216	.6
Sassafras loam.....	9,664	4.5	Portsmouth fine sandy loam.....	1,088	.5
Keyport fine sandy loam.....	8,512	3.9	Meadow.....	832	.4
Portsmouth silt loam.....	7,744	3.6			
			Total.....	216,960	100.0

SASSAFRAS FINE SAND.

The surface soil of the Sassafras fine sand is a brown or in some places grayish-brown loose fine sand from 6 to 9 inches deep. The subsoil is a yellowish-brown to reddish-brown loose fine sand which in most places continues without change to a depth of 36 or more inches. In places the texture becomes somewhat coarse with depth. The type is fairly uniform throughout the county, except in one or two places where it resembles the Norfolk, the lower subsoil grading into a light or almost pale yellow fine sand. This variation occurs mainly in the northeastern part of the county.

The Sassafras fine sand is developed most extensively as a long narrow strip in the northeastern part of the county. The areas in the northwestern part of the county are usually near the banks of streams.

The type occupies the more rolling and undulating areas of the county. It usually lies on the slightly higher elevations, for the most part on knolls and ridges. Drainage is excessive and the type as a whole is adapted solely to the growing of special crops or to the growing of general crops in seasons of normal rainfall.

Only a small proportion of the Sassafras fine sand supports a forest growth, the rest being under cultivation. The forest consists of a fairly good growth of pine, oak, gum, some cedar, dogwood, and holly. The tree growth and undergrowth is not as dense as on other types in the area.

The Sassafras fine sand, because of its small extent, is not very important agriculturally. It is an excellent soil for sweet potatoes, muskmelons, watermelons, cucumbers, and tomatoes, but as a rule general crops do not do well. Fair results are obtained with potatoes and strawberries. This soil is well aerated and easily penetrated by roots. It is warm and early, and easily tilled, but because of its loose and open texture it requires a more liberal application of fertilizer than the other Sassafras soils.

The productiveness of this type is increased by the incorporation of organic matter and the application of lime.

Along the county line in the northeastern part of the county there are some small, narrow strips of Norfolk fine sand that are included in the Sassafras fine sand. Here the soil consists of yellowish-gray fine sand to 6 inches deep, underlain by a pale-yellow to yellow fine sand which extends to a depth of 3 feet. Occasionally the subsoil is slightly tinged with brown. The topography is similar to that of the typical soil. Drainage is good to excessive. This soil is adapted to the same crops as the Sassafras fine sand, and it is of similar agricultural value.

SASSAFRAS SANDY LOAM.

The surface soil of the Sassafras sandy loam is a yellowish-brown to light-brown mellow sandy loam, 12 inches deep. The subsoil is a reddish-yellow or reddish-brown heavy loam to a depth of 28 to 30 inches, where it passes rather abruptly into a dull-red or reddish-yellow sandy loam, coarse sandy loam, or coarse loamy sand. The texture of the surface soil is the result of a fairly even distribution of coarse, medium, and fine sand, with a relatively large proportion of silt, which gives a decided coherency to the soil mass. Small flakes of mica are noticeable in the soil and subsoil of many areas. The reddish-brown color is more pronounced where drainage is well established.

The Sassafras sandy loam is quite uniform in texture and structure throughout the county, but there are some variations worthy of note. On a number of ridges the depth of the surface soil varies considerably, owing probably to the washing of the surface soil down the sides of the ridges. A few gravelly areas are encountered on slopes near the streams. The gravel consists of rounded quartz and flint. As a rule the upper subsoil is usually compact, while the lower subsoil because of its coarse texture is quite loose.

Included with the Sassafras sandy loam are a few small areas of Sassafras loamy sand. These are most numerous in the northwestern part of the county, particularly in the vicinity of Mount Vernon. The surface soil of these areas consists of 12 to 15 inches of grayish-brown or brown loamy sand. The subsoil is a yellowish-brown or reddish-brown heavy loamy sand or sandy loam to a depth of 26 to 36 inches, where a substratum of reddish-brown sand is encountered. The topography, kinds of crops produced, and methods of handling this included type are practically the same as in the Sassafras sandy loam. The yields, however, are usually somewhat lower, and because of the openness of the subsoil heavier applications of fertilizer are necessary to maintain the yields.

The Sassafras sandy loam is locally known as "red clay land," and while it is not the most extensive soil it is probably the strongest soil in the county.

The Sassafras sandy loam is not confined to any particular section of the county. Its principal occurrence is along the streams, and the most extensive areas lie on Dividing Creek north of Pocomoke and north of Rehobeth.

The areas of this type are flat to slightly undulating and occupy a topographic position ranging from the level of Tidal marsh to the highest elevations in the county. Along streams forming the upper reaches of tidal estuaries the slopes are short and abrupt, but nearer the bay the descent is not so abrupt.

The drainage of the Sassafras sandy loam is excellent. The run-off is ordinarily free and the substratum of coarse material gives good underdrainage. This with the comparatively open good texture of the soil gives thorough aeration. The retentive power of the subsoil prevents excessive drainage and enables the soil to maintain a supply of moisture sufficient in most seasons for vigorous plant growth. This is considered by farmers to be one of the most dependable and productive soils in the county, as well as the most easily handled. Practically all this type is under cultivation. The areas not under cultivation support an excellent growth of pine, oak, sycamore, cedar, and holly. Myrtle is a characteristic plant in the undergrowth.

The most important crops are potatoes and sweet potatoes, tomatoes, corn, and hay. Muskmelons, watermelons, strawberries, and other crops are successfully grown. The type is adapted to a wider range of crops than any other soil in the area. It is a very good sweet-potato soil, the product from this type having better keeping qualities, color, and texture than that from types not so well drained. Potatoes on this soil have a lighter color than those produced on other types.

Potatoes yield 100 to 350 bushels per acre, the average being about 150 bushels. They are dug at different degrees of maturity, depending on the market price and demand. The average yield of sweet potatoes is about 225 bushels per acre. Corn yields 30 to 65 bushels per acre and hay 1½ tons. Good yields of other farm crops, both truck and general, are obtained.

The Sassafras sandy loam is an easy soil to till. It does not clod when plowed a little wet or bake so hard when dry as to hinder cultivation. It is as responsive to manuring and fertilizing as any soil in the area, and because of this fact it receives better treatment and more soil-improving crops are grown than on most of the other types.

The selling price of Sassafras sandy loam varies considerably. An average price for this land to be used for agricultural purposes would probably be \$150 an acre.

A few farmers practice crop rotation, the growing and plowing under of cover crops, and liming, but no definite system is in use on all farms. This is advisable if best results are to be obtained from the soil.

In other areas surveyed in this and adjoining States alfalfa and tree fruits have proved very profitable crops on this soil. All fields that are to be planted to alfalfa should be limed and inoculated. Sowing of alfalfa in early fall is advised, the field having been cultivated carefully during the summer months to kill out weeds.

SASSAFRAS FINE SANDY LOAM.

The Sassafras fine sandy loam consists of 10 to 15 inches of grayish-brown fine sandy loam, underlain by a reddish-brown heavy fine sandy loam or friable sandy clay to a depth of 30 to 36 inches, where it grades into a stratum of rather coarse plastic sandy loam or loamy sand.

The Sassafras fine sandy loam is not very extensive in Somerset County; the largest area lies north of Rehobeth. A few other areas are scattered over other parts of the county.

The topography of this type is gently undulating. Where it borders streams the break to the bottoms is rather abrupt, but where it adjoins other upland soils the gradation from one to another is scarcely perceptible.

Drainage is adequate, though it is not as good as on the lighter types of the Sassafras series. The coarse material in the lower subsoil with the good texture of the overlying material insures good aeration and free circulation of moisture.

Nearly all of this type is in cultivation. The small area that is still forested supports a growth similar to the Sassafras sandy loam. The principal crops are potatoes, corn, wheat, clover, alfalfa, and strawberries. Other crops are grown in a small way. Yields are about the same as on the Sassafras sandy loam. Strawberries are not grown as extensively on the Sassafras soils as on the Elkton soils.

This soil is handled in the same manner as the Sassafras sandy loam. It is necessary to exercise more care in the tilling of it because it has a tendency to bake when dry and to run together when wet.

The land values are the same as on the Sassafras sandy loam.

In order to improve this type a systematic and intelligent rotation is necessary. The application of stable manure and the plowing under of cover crops will supply needed organic matter. Liberal applications of lime are needed to correct acidity.

SASSAFRAS LOAM.

The surface soil of the Sassafras loam is a grayish-brown or light-brown to brown mellow loam with a depth of 10 inches. This is underlain by a reddish-yellow or reddish-brown clay loam or sandy clay loam which grades into reddish-brown or reddish-yellow friable clay or sandy clay. At 22 to 36 inches the subsoil passes into a stratum of sandy loam, loamy sand, or coarse loamy sand of pronounced reddish-brown color. This lower layer is characteristic of the type,

there being few places where it is not reached within the 3-foot section. The surface soil is generally free from gravel and has a good supply of organic matter. The coarse material appears to be quite compact when boring with an auger, but is loose and friable when brought to the surface.

The Sassafras loam is developed most extensively along Monie Creek, Manokin River, Goose Creek, and Kings Creek. Other rather extensive areas lie in the vicinity of Palmetto and northwest and south of Princess Anne. A few small, irregular-shaped areas are scattered through the northern half of the county.

The topography is slightly undulating to gently rolling. Drainage is good but not excessive. The type stands drought better than the lighter soils. The soil is easily tilled, and except in a few of the flatter areas it does not have a tendency to bake or clod.

Most of the Sassafras loam is under cultivation; the small proportion of its area not under the plow is forested, the growth consisting of pine and some oak. Agriculturally, this is one of the best soils in the county, though it is not as warm and crops do not mature as early upon it as upon the lighter types of the series. Wheat, corn, and hay are the principal general farm crops. Wheat yields 18 to 22 bushels per acre, corn 30 to 60 bushels, and hay 1½ to 2 tons per acre. Alfalfa, cowpeas, soy beans, sweet potatoes, and strawberries also give good results. Because of the comparatively heavy texture of the soil, the general farm crops give better results than truck crops. Considerable livestock is kept on this type.

Land of the Sassafras loam for general farming sells for \$100 to \$150 an acre, depending on location, improvements, and condition of soil.

This type can be improved by the application of lime and the addition of organic matter.

The Sassafras loam includes a few areas of Sassafras sandy loam too small to be mapped separately. These areas occur on the tops of some of the knolls and ridges where the topography is rather undulating and ridgy.

KEYPORT FINE SANDY LOAM.

The Keyport fine sandy loam consists of a light-brown to grayish-brown fine sandy loam with an average depth of 8 inches, underlain by a light brownish yellow or pale-yellow fine sandy loam or compact heavy fine sandy loam which at about 15 inches passes into a slightly plastic fine sandy clay, mottled with gray, reddish brown and yellow, with the yellow predominating. At 30 to 36 inches a stratum of grayish-yellow loamy fine sand is commonly encountered. The surface soil of this type is usually quite friable, easily cultivated, and when dry has a gray color. In the subsoil the gray color increases with depth until in the lower part it is the predominating color.

The Keyport fine sandy loam occurs in all sections of the county. The most extensive areas lie northeast of Rehobeth, north of Kingston, and southeast of Princess Anne. The type occurs between the estuaries and streams and the flat lowlands farther back, or as a border soil between the Sassafras and the Elkton soils. It is also developed in depressions in the Sassafras soils and as slight elevations in the Elkton

soils. A few small and unimportant areas of Keyport sandy loam are present in the county, but because of their small extent they were mapped as the Keyport fine sandy loam.

The Keyport fine sandy loam has a flat to slightly undulating topography. Drainage is only fairly well established and open ditches are used in fitting the land for cultivation. This type is much better drained than the Elkton soils, but because of its closer texture is not so well drained as the lighter textured Keyport soils and the Sassafras soils, and during seasons of excessive rainfall crops may suffer from too much water.

Most of the Keyport fine sandy loam is in cultivation, only a small proportion of it being in forest. Such areas support good growths of pine, oak, some gum and holly, and an undergrowth of myrtle, huckleberry, and other shrubs.

Potatoes, sweet potatoes, corn, forage crops, wheat, and strawberries are the main crops on the Keyport fine sandy loam. Tomatoes are grown only to supply the canneries in the county. Cucumbers and a few other truck crops are grown to a small extent. In favorable seasons the yields of all crops closely approach those on the Sassafras sandy loam. Livestock raising is carried on in only a small way.

The land values of the Keyport fine sandy loam range from \$50 to \$150 an acre, depending on the location with respect to shipping points and the improvements.

The best results can be obtained only when adequate drainage has been established. Because of the high value of this soil it would seem that tile drains are to be preferred to open ditches. In other sections of the Eastern Shore good results have been obtained where tile drains have been installed. The incorporation of organic matter with the soil by the addition of barnyard manure and the turning under of green-manure crops will prove beneficial. The growing of leguminous crops, excepting alfalfa, is recommended. Alfalfa gives good results on well-drained areas, but it is not recommended for the type as a whole. Lime should be added to correct the acid condition found over most of this type.

The results of mechanical analyses of samples of the soil, subsurface, and subsoil of the Keyport fine sandy loam are given below:

Mechanical analyses of Keyport fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
201911.....	Soil.....	0.7	7.7	9.8	47.9	7.6	18.0	8.5
201912.....	Subsurface.....	.6	7.9	10.2	46.7	5.5	20.0	9.0
201913.....	Subsoil.....	.4	6.5	8.6	44.5	8.6	21.6	9.9

KEYPORT LOAM.

The Keyport loam to a depth of 6 to 8 inches is typically a brown to light-brown friable loam. The upper subsoil consists of a pale-yellow or yellowish-brown silt loam or silty clay loam which extends to a depth of 12 to 14 inches, where it gradually changes to a mottled gray and pale-yellow silt loam. Below this, at 20 to 24 inches, there

is a transition to a mottled brown and gray heavy sandy loam or loamy sand. The surface soil in cultivated fields when dry has a grayish appearance and when wet a deep-brown color. It is quite common to encounter in the subsoil pockets of different materials having either a lighter or heavier texture than the surrounding material. Usually at 32 to 36 inches a stratum of grayish-yellow or yellowish-gray sticky sand, loamy sand, or loamy fine sand is encountered.

The Keyport loam is developed in all parts of the county. The largest areas lie about 3 miles west of Pocomoke and south and west of Kings Creek. Areas of this type are more numerous in the western part than in other sections of the county.

The topography of the Keyport loam is flat to slightly undulating. Its elevation is slightly higher than that of the Elkton and a little lower than that of the Sassafras soils. The Keyport loam in Somerset County is developed normally along estuaries and streams. The surface drainage is good, but the subdrainage is more or less restricted. The type is much better drained than the Elkton soils. In cultivated areas the natural drainage is usually assisted by ditching.

The Keyport loam is considered a good soil and considerably more than half of it is in cultivation. The forested areas contain a growth of loblolly pine, white oak, black oak, some gum, and maple, with an undergrowth of myrtle and huckleberry.

The crops grown on the Keyport loam are similar to those produced on the Sassafras loam. The yields frequently equal those on the Sassafras loam, but do not average as high because the crops on the Keyport suffer in wet seasons. The soil is given the same cultivation and fertilization as the Sassafras loam.

The value of land of the Keyport loam is rather hard to determine. When it is sold with the Sassafras it brings a price almost as high as that soil, but when sold with the Elkton the price is less, depending on the location, drainage, and improvements.

The first step in improving this type is to provide it with adequate drainage. Its relatively high value would suggest the installation of tile drains in such improvement work, and in other localities this has been done successfully. The soil also will be greatly benefited by the application of lime and the addition of organic matter in the form of stable manure or green-manuring crops. The growing of leguminous crops for this purpose is recommended. Alfalfa does very well, but will give the best results on only the better drained areas.

The following table gives the results of mechanical analyses of samples of the soil, subsurface, subsoil, and lower subsoil of the Keyport loam:

Mechanical analyses of Keyport loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
201928.....	Soil.....	1.4	7.5	9.0	24.0	8.0	40.7	9.4
201929.....	Subsurface.....	.6	3.0	4.7	12.4	7.9	55.1	16.3
201930.....	Subsoil.....	.4	2.6	4.2	12.2	4.0	58.2	18.2
201931.....	Lower subsoil.....	2.6	8.8	14.8	38.9	3.1	19.0	12.8

KEYPORT SILT LOAM.

The Keyport silt loam to a depth of 8 to 10 inches is predominantly a brown to light-brown friable silt loam. This soil layer is underlain by a light-brown silt loam to a depth of 17 to 20 inches, where a mottled grayish and yellowish clay loam containing considerable sand is encountered. The proportion of sand particles increases with depth until at about 34 or 36 inches a stratum of yellowish-gray or grayish-yellow sticky sand or sandy loam appears. The surface soil in cultivated fields has a grayish appearance when dry and a brown color when wet.

The Keyport silt loam is not very extensive. The largest areas are mapped in the vicinity of Princess Anne and on Monie Neck.

The type has a comparatively flat topography, although it occasionally occurs on low ridges rising slightly above the Elkton soils. It lies between streams and estuaries and merges into the flat poorly drained lands. It also occurs as a border soil between types of the Sassafras and Elkton series.

More than half of the Keyport silt loam is in cultivation; because of its small extent the type is not very important agriculturally. The soil is given the same fertilization and produces the same crops as the associated soils. The soil is somewhat cold, and crops make a rather slow growth during the early spring and usually mature later than on the Sassafras soils. Corn, wheat, hay, tomatoes, and strawberries are the principal crops. Good yields of these crops are obtained.

To increase the productiveness of the Keyport silt loam it is necessary to improve the underdrainage, which is more or less restricted. The application of lime, the addition of organic matter in the form of manure, and the growing of legumes and cover crops will prove very beneficial.

Below are given the results of mechanical analyses of samples of the soil, subsurface, and subsoil of the Keyport silt loam:

Mechanical analyses of Keyport silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
201932.....	Soil.....	1.5	4.2	2.6	10.4	8.0	54.2	19.0
201933.....	Subsurface.....	.9	2.3	1.5	4.3	10.4	47.7	33.1
201934.....	Subsoil.....	2.9	11.4	6.3	26.1	4.8	29.6	18.6

ELKTON FINE SANDY LOAM.

The surface soil of the Elkton fine sandy loam consists of 6 to 8 inches of dark-gray fine sandy loam. Below this surface layer and extending to 15 or 20 inches there is commonly a layer of light-gray heavy sandy loam, sometimes mottled with yellowish-brown and reddish-brown stains. This is underlain by a stratum of grayish-yellow sandy loam or loamy sand mottled in many places with rusty brown. In places this stratum is a clay loam and quite sticky and plastic. Below 30 inches appears a stratum of gray or yellowish-

gray sticky sand, generally saturated with water. Here and there a bluish sandy clay is encountered within the 3-foot section. The surface soil when dry may have an ashy-gray or whitish appearance.

This type is found mainly in the eastern part of the county in close association with other types of the Elkton series. The most extensive areas are found in the vicinity of Eden, Wellington, Palmetto, Kingston, Marumscoc, and Crisfield. Other areas of less extent are scattered throughout the county.

The Elkton fine sandy loam occupies flat or saucerlike depressions. The natural drainage is poor, though better than that of the other Elkton types. The water table is generally near the surface and the construction of rather deep ditches is necessary to take care of the surplus water.

About half of this type is under cultivation; the rest is forested with loblolly pine, white oak, black oak, willow oak, beech, black and sweet gum, and maple, with a dense undergrowth of myrtle, huckleberry, and numerous other shrubs and vines.

Corn, hay, strawberries, potatoes, and sweet potatoes are the principal crops. Potatoes and other truck crops occupy a somewhat less important place on this type than on some of the better drained soils of the area, otherwise the type of farming and the methods of cultivation are similar to those practiced on the better drained soils in the county. Corn is grown independently to a greater extent on this type than on the Sassafras or Keyport soils.

Crops on this soil are affected by excessive rainfall or drought, and the yields average somewhat lower than on better drained soils. In favorable seasons, however, there is little difference, especially where artificial drainage has been provided. Corn yields 25 to 60 bushels, strawberries 2,000 to 3,000 quarts, and potatoes 25 to 100 barrels or more per acre. The best results are obtained when the potatoes are left to mature, the yield being considerably smaller than on the Sassafras types when they are dug early. Sweet potatoes yield 30 to 100 barrels per acre. The yield of hay is fairly large. Winter crops are likely to be heaved out by frost.

The Elkton fine sandy loam is plowed later in the spring than other soils, but otherwise the farm practice is the same as on the better drained types.

Land of this type, under cultivation, is held at \$40 to \$125 an acre, depending on the location, drainage, and improvements. When sold with the better drained soils a higher price is obtained.

In improving and maintaining the productiveness of the Elkton fine sandy loam the first step should be the establishing of adequate drainage. By deepening and widening the natural drainage ways and by digging ditches, much of the type can be brought into good condition without great expense. Until drainage is provided, other measures for building up the soil will be almost useless. With fair to good drainage the Elkton fine sandy loam can be improved by plowing under straw and coarse stable manure to loosen up the soil and increase aeration. The adoption of a rotation that includes some legume and the turning under of a green crop every two or three years will result advantageously. The use of lime should be extended. With proper handling this type can be made a reliable and productive soil.

ELKTON LOAM.

The surface soil of the Elkton loam consists of 10 or 12 inches of gray to dark-gray fairly heavy loam, containing sufficient coarse and medium sand to give it a decidedly gritty feel. The subsoil is a gray heavy loam to plastic silty clay loam, mottled with yellowish-brown and reddish-brown stains. At 30 to 36 inches there appears a gray sticky sand to sandy clay containing yellowish-brown mottlings. The surface soil becomes almost white when dry. It is low in organic matter, bakes at the surface, and is inclined to clod when tilled. The lower subsoil is always moist, and in many places it is saturated with water.

The Elkton loam, as mapped, includes a number of variations too small to be shown separately. Some areas have a scattering of quartz gravel over the surface. In other places the texture varies from the typical, being either a sandy loam or a silt loam. In the southwestern part of the county there are some small areas of Portsmouth soil included with this type.

The Elkton loam, "pipe-clay land" or "white-oak land" as it is called locally, is found in all sections of the county. It is probably best developed in the southern half of the county. Rather large areas lie between Marion and Crisfield and in the vicinity of Halls Corner, Westover, Kingston, Manokin, Wellington, Rehobeth, and about 3 miles west of Pocomoke. It is closely associated with the other Elkton soils, and in many places boundaries between them are indistinct.

The type is usually confined to low, poorly drained flats in the forelands or to saucerlike depressions in the upland. Forested areas quite frequently have a hummocky surface, probably the result of fallen trees, about the roots of which much soil may cling, though in some of the more poorly drained areas patches occur, an acre or two in extent, that are a few inches higher than the rest of the type. The soil in these is usually a little lighter in texture and a little better drained than the main body of the type.

The Elkton loam is poorly drained. In areas where the upper subsoil is not impervious and the lower subsoil contains a stratum of sand the drainage is better, but in the low flat areas the improvement of drainage is of very great importance in the farming of this land. In the southwestern part of the county the type adjoins Tidal marsh, the two merging gradually. These areas are very poorly drained, and it is necessary to build dikes to keep out the tides before they can be used for cultivated crops.

In extent this is one of the important soils of Somerset County. Probably half of it is farmed; the rest is forested with white oak, black oak, pine, beech, sweet and black gum, and maple, the undergrowth, in some places very dense, consisting of myrtle, huckleberry, smilax, and numerous other shrubs and vines. The forest is being removed from these areas very rapidly, the large trees being used in the manufacture of building material and for piling and the smaller trees for material used in making barrels and boxes.

The Elkton loam, because of its poor drainage, is not entirely a dependable soil. Crops have a tendency to drown out in periods of excessive rainfall and they are affected by long droughts. Crop yields

on the average are lower than on the Sassafras and Keyport soils. In favorable seasons, however, they almost equal the yields on the better drained soils, especially where good artificial drainage has been provided. Potatoes yield 30 to 125 barrels per acre, the yield being relatively better when the crop is left to mature than on the Sassafras soils. Strawberries are grown quite extensively on this type, and yields of 2,000 to 3,000 quarts are obtained. Sweet potatoes and corn occupy large acreages, sweet potatoes yielding 30 to 100 barrels per acre and corn 20 to 60 bushels. Corn does well on this type year after year and the average yield is good. Some hay and wheat are grown with fair results. Winter crops are likely to suffer injury by heaving.

The value of farm land of the Elkton loam ranges from \$25 to \$100 an acre, the price depending on the location, drainage, and improvements. Higher prices obtain where the land is sold in conjunction with better drained soils and lower prices where the land lies near tide level.

The first step in the improvement of this type is the establishing of good drainage, and until this is done all other means of improvement have comparatively little value. The drainage as a whole probably can be best accomplished by open ditches. The clearing of the streams would help considerably in removing excess water. Plowing under pine straw and coarse stable manure should be a regular practice, for the physical condition of the soil in most fields where this has not been done is poor. Rather heavy applications of lime are required to correct the acidity of this type.

ELKTON SILT LOAM.

The surface soil of the Elkton silt loam consists of a heavy-textured gray or dark-gray silt loam, 6 to 10 inches deep. The subsoil is a light-gray, drab, or bluish-gray silt loam or silty clay loam mottled with yellow or yellowish brown, the mottling increasing with depth. At 22 to 36 inches the material becomes more sandy, the texture ranging from a light sandy loam to sandy clay. The extreme lower part of the 3-foot section is usually saturated with water. This type is low in organic matter, and the unplowed fields are hard when dry and have a nearly white, chalklike appearance.

Over most of the area the type is uniform in all its characteristics. A few variations require mention, however. On the Deal Island road near Monie the subsoil from 20 to 36 inches is an almost white heavy silt loam showing very little mottling. In this vicinity there also are some small areas of Portsmouth silt loam that were so intermingled with the Elkton silt loam that it was not practicable to show them separately. Near Fairmount there is an area in which a stratum of light-gray sand appears 12 to 14 inches below the surface. This is overlain by a light-gray silt loam and underlain by a gray heavy silt loam, mottled with yellow and brown.

The Elkton silt loam is developed mainly in the northern half of the county. Extensive areas occur in the vicinity of Oriole, Princess Anne, Costen, and Kings Creek.

This type occupies low, flat areas. The lack of adequate drainage is responsible for the poor physical condition and producing power

of this type. In some places water will stand on the surface for several days after a good rain. The aeration is imperfect. In many places the soil has a tendency to run together and bake when dry, and to clod a good bit when cultivated.

A large part of this type is still in forest of white, black, red, and willow oak, sweet and black gum, loblolly pine, maple, beech, and some hickory, with a dense undergrowth of myrtle, huckleberry bushes, and other shrubs. This land is locally known as "white-oak land" on the Eastern Shore of Maryland.

Agriculturally this type of soil is not very important, but in favorable years it produces fairly good yields of the crops grown in this county. It is not a dependable soil, capacity to produce being adversely affected both by wet weather and droughts. Low yields and even failures are not uncommon. Corn, strawberries, potatoes, tomatoes, and hay are the principal crops. Corn and strawberries probably occupy the largest acreages and as a rule yield fair returns. The land makes excellent pasture, and a rather large acreage is used for this purpose. Where it has been well drained, it is much more dependable than under natural conditions. At best the soil is cold, and planting is late in the spring. It receives the same cultivation and fertilization as other Elkton soils. It is, however, more difficult to till than the lighter types of the series. Freezing and thawing cause it to heave, and this occasionally ruins winter crops.

Land values range from \$15 to \$50 an acre, depending upon the location, the general improvements, and the condition of the soil.

The most important requirement for improving the Elkton silt loam is improvement of drainage. In most cases this can be done without a great expense. With good drainage established this type will be benefited by the plowing under of pine straw or coarse stable manure, to loosen up the soil and improve the aeration. Turning under green cover crops may also be employed to increase the supply of organic matter. Some lime should be applied to correct the acidity. Crop rotations preferably should include legume crops.

PORTSMOUTH FINE SANDY LOAM.

The Portsmouth fine sandy loam consists of 7 to 10 inches of black or very dark gray sandy loam, underlain by a dark-brown to grayish-brown sandy loam which shows some pale-yellow mottling and which grades at 22 to 30 inches into an almost white sticky sand saturated with water. The surface soil contains considerable organic matter. In many places the upper subsoil carries thin layers or pockets of heavier textured material.

The Portsmouth fine sandy loam is found almost entirely in the northeastern part of the county, most areas occurring within a radius of 2 miles of the village of West. It is usually found in close association with the Elkton soils and with other types of the Portsmouth series. It occupies flats, swales, and saucerlike depressions. It is very poorly drained, the water table being near the surface.

The Portsmouth fine sandy loam is not an important type agriculturally. Probably half of it is under cultivation, and the rest is in forest. Pine, oak, gum, and some beech and holly are the principal trees in this growth, and there is a rather dense undergrowth of myrtle, huckleberry, smilax, and many other shrubs and bushes.

Where the Portsmouth fine sandy loam is thoroughly drained good yields of corn can be obtained. A small acreage is in strawberries, the yields being moderate. Some of the type is in pasture, but unless the land is drained it is too wet to make good pasture. The Portsmouth fine sandy loam is not a reliable soil and in its natural state it is of very little value, prices being lower than for the Elkton soils.

In order to make the Portsmouth fine sandy loam productive, drainage is essential. With the use of open ditches for the main ditches and the use of tile for lateral ditches much of the type can be brought into a good state of cultivation. Liberal applications of lime are necessary to correct the acidity.

PORTSMOUTH LOAM.

The surface soil of the Portsmouth loam consists of a very dark gray to black loam. This is underlain by a gray material which varies in texture from a heavy loam to a plastic silty clay loam, and in many places is mottled with yellow and brown. A substratum of heavy loamy sand or sandy loam is encountered at about 28 inches.

The subsoil is permanently saturated with water below 24 to 36 inches.

The surface soil of the Portsmouth loam contains a large percentage of organic matter, in some places the quantity being sufficient to give the soil a spongy structure. The surface soil when wet is almost jet black, but when dry it has a slightly grayish tinge.

This type is developed in all parts of the county. The most extensive areas occur about 2 miles west of the village of West, 1 mile west of Eden, 2½ miles east of Kingston, south of Moores Chapel, and east of Hopewell. Smaller areas are scattered over the county.

The topography is usually flat. The type which occupies depressions lies somewhat lower than the Elkton soil and the Portsmouth fine sandy loam with which it is associated. The drainage is poor, and during wet periods water frequently stands on the surface.

The greater part of the Portsmouth loam is in forest of loblolly pine, white oak, black oak, willow oak, sweet and black gum, beech, and alder, and there is a dense undergrowth of myrtle, huckleberry, bay, smilax, and other vines and shrubs. When drained and cleared fairly good yields of corn, potatoes, and strawberries are obtained.

This type must be drained before it can be used for cultivated crops. This can be accomplished by ditching or tiling or a combination of the two. In other counties the reclamation of this type has proved profitable; when reclaimed it is a strong soil, rather late in the spring and requiring careful handling, but producing good crops of corn, strawberries, and fairly good yields of potatoes. In order to correct the acidity, liberal applications of lime are needed. Crops sown in the fall are likely to suffer injury through the freezing and thawing of the soil in winter.

PORTSMOUTH SILT LOAM.

The surface soil of the Portsmouth silt loam is composed of 8 to 12 inches of a black, mellow silt loam containing a large percentage of organic matter, in places sufficient to form practically a muck. The subsoil lacks uniformity. It may consist of gray sandy clay or silty clay loam which passes either into a white compact, sticky sandy

loam or sandy clay or a stiff bluish-gray silty clay. It is normally saturated with water, and shows some yellowish-brown mottlings. In some places as the depth increases the material becomes lighter in texture, the lower subsoil being composed of a gray sticky sand.

The Portsmouth silt loam is not very extensively developed. Two large bodies occur, one east of Dublin and the other west of Loretto. There are also one or two areas of smaller extent in the northeastern part of the county.

The type occurs in low, flat, semiswampy areas. The drainage is very poor.

Practically none of this type is under cultivation, all of it being in forest or in the condition known as cut-over land. The tree growth, which is vigorous, consists of loblolly pine, white, black, red, and willow oak, black and sweet gum, maple, and beech, with a dense undergrowth of myrtle, huckleberry, holly, and numerous other shrubs and vines. The timber is being removed from these areas, but no attempt has been made to cultivate them. During the fall, winter, and early spring this type is practically a swamp, being covered by 2 to 3 inches of water. Rather heavy applications of lime are necessary to correct acidity.

Reclamation of the Portsmouth silt loam areas would be expensive, but development work outside the county has shown the type to be productive for corn, strawberries, and onions.

TIDAL MARSH.

The areas of marshy land lying near sea level and subject to tidal inundations are classed as Tidal marsh. The composition of the soil in these areas varies considerably. In general the surface soils consist of a dark-brown to bluish-gray plastic silty clay loam or clay, the upper layer containing considerable organic matter in a partly decomposed or decomposed state. The subsoil is normally dark gray or bluish gray and slightly heavier than the surface soil. It contains less organic matter than the overlying material and is saturated with water.

Tidal marsh occupies extensive flat areas along Chesapeake Bay and narrow strips bordering the tidal estuaries that penetrate the mainland. The islands off the coast are composed almost entirely of this type. The topography is uniformly flat and but 2 to 4 feet above low tide. The areas where flooded with fresh water support a growth in which sword grass, calamus, and cat-tails are prominent; in those subject to inundation by salt water, salt-water grasses and sedges compose the vegetation. The areas are dissected by numerous meandering sloughs.

In its natural condition Tidal marsh has no agricultural value. Reclamation can be accomplished only by diking and pumping. In some places cattle can be pastured on the marsh part of the time, but the land is not highly valued for this purpose.

Tidal marsh, high phase.—Tidal marsh, high phase, represents an intermediate stage between the low-lying Elkton soils and the typical salt marshes and has some characteristics of both. The soil material resembles Elkton fine sandy loam, loam, or silt loam, except that it contains considerably more organic matter in the first few inches.

The areas occur where the mainland slopes imperceptibly to the Tidal-marsh level and also in small areas of slight elevation within the salt marshes themselves.

The largest areas of this phase occur in the marshes west of Oriole and Fairmount. There are other areas adjacent to and in the typical marsh in different parts of the county. These areas support a scanty stand of stunted pine, with grasses and shrubs similar to those of the typical Tidal marsh. There are no areas in the county that have been brought under cultivation, although it would be easier to reclaim this phase than the typical soil. Diking is necessary, however, as the phase is sometimes flooded at high tide. Its only use in this county at present is for pasture and the cutting of some marshgrass hay.

MEADOW.

Along practically all the streams of Somerset County occur strips of poorly drained alluvial material. Except along the Pocomoke River they are about one-eighth of a mile wide and extend all the way from the source to the mouth of the stream or to Tidal marsh. The better drained strips are classified as Meadow, the others as Swamp. In extent and agricultural value Meadow is of little importance.

The soil mapped as Meadow is not an individual type, but rather a group of soils differing greatly in color, texture, and structure. Meadow represents, therefore, a condition rather than a soil type. In most places the surface soil is dark gray to black and underlain by material of light-gray color. In some instances this extends to a depth of 36 inches, in others it grades into a whitish material, and in still others into a material more or less mottled with yellow or rusty brown. The texture of the surface soil ranges from sandy loam, loam, or silty clay loam and the subsoil from a sand to sandy clay. This difference occurs within small areas. The subsoil in many places is saturated with water below 20 inches.

Meadow covers a very small total area occurring only along a few of the streams in the central part of the county. A few areas of Meadow have been mapped as Swamp where they merge into each other, and where they did it did not seem advisable, considering the low agricultural value of the land, to go to the expense of making separation.

In its original state Meadow is not a grassland, as the name would seem to imply, but supports a dense growth of forest, mainly water oak, spotted oak, maple, birch, alder, gum, willow, and ash, with a thick mass of vines and other undergrowth. In places where it is sufficiently drained the land may be cleared and cultivated or used for pasture. Areas at present cropped give good yields of corn and potatoes. Adequate drainage and the application of lime to correct acidity are the important steps in improvement of the Meadow areas.

SWAMP.

Swamp consists of low-lying, poorly drained alluvium. It is of greater extent than Meadow and in soil features is very much like Meadow. It is, however, very much more poorly drained and as a result nonagricultural. It is found along the fresh-water streams, has no definite texture, and is subject to overflow and swampy condi-

tions throughout the year. The surface, which is usually a gray to black sandy loam to silt loam, is always high in organic matter and occasionally is quite mucky and spongy. The subsoil usually grades into a brownish-gray silt loam or gray clay loam or into a dark-brown fibrous peaty material. In all the Swamp decaying roots and grasses are found mixed with the soil.

A small strip of Swamp extends along practically all the streams, the largest area being found along the Pocomoke River. Some small areas have been included with Tidal marsh, and the two types lie adjacent. Such areas are small and really form a gradation between Tidal marsh and Swamp.

Swamp supports a tree growth of gum, pine, bay, willow, water oak, cedar, some cypress, and alder, and a dense undergrowth of vines and bushes thriving under swampy conditions. Part of it could be drained by deepening the stream channels and tiling and ditching the land, but under present conditions the expense of reclamation would be prohibitive.

SUMMARY.

Somerset County lies in the extreme southeastern part of Maryland, and forms a part of what is known as the Eastern Shore. It has an area of 339 square miles, or 216,960 acres. The county contains two physiographic features, the upland and the marshes. The upland comprises all the productive soils. The topography in general is flat to slightly undulating.

The elevation of the county ranges from sea level to about 50 feet. The drainage is through the Wicomico, Manokin, Monie and Pocomoke Rivers.

Somerset County was created on August 22, 1666, by proclamation of Lord Baltimore. The present county boundaries were established in 1867. The population of the county is 24,602, of which 20,486 is rural. The population is fairly evenly distributed. The density is 61.9 persons per square mile.

Transportation facilities both rail and water are excellent. Hard roads are built through the county, and most of the dirt roads are in good condition. A number of the farms have modern conveniences.

The climate is very favorable for agriculture. The average growing season is 181 days and the average temperature 56.0° F. The rainfall is evenly distributed and averages 40 inches annually.

Both trucking and general farming are carried on in the county. The principal crops are corn, wheat, hay, potatoes, sweet potatoes, strawberries, tomatoes, and other vegetables and fruits. The growing of cover crops is becoming more general. Poultry and hogs are raised on practically every farm, but the livestock industry is not very well developed.

Where trucking is carried on, the cultivation is rather intensive. The farm machinery is modern. The use of crop rotations and commercial fertilizers is general.

The average size of farms in 1919 was 72.1 acres, a little over half of which was improved land. In 1919 there were 1,820 farms, 78.7 per cent of which were operated by owners. Land values vary considerably. The low, poorly drained land can be obtained cheap, but higher, well-cultivated land lying near a shipping point and well improved brings a high price.

The farmers are fairly well organized into buying and selling associations.

Somerset County lies within the Coastal Plain Province, and the soil materials were originally deposited by coastal waters. The soils, among the most productive of the Atlantic Coast, belong to the Sassafras, Keyport, Elkton, and Portsmouth series. The better drained retentive types are the equal of any trucking soil in the country. Practically all the soils of the area are easily managed, hold improvement well, and are responsive to judicious treatment.

The Sassafras fine sand is not a very important soil agriculturally. It is found in the northern part of the county and is small in extent. It is easily tilled, and when manure and fertilizers are properly applied it is a fairly good trucking soil.

The Sassafras sandy loam is important not because of its extent but because it is one of the best agricultural soils in the county. Some areas of Sassafras loamy sand are included with it on the map. A large percentage of the Sassafras sandy loam is under cultivation. It is an excellent soil for potatoes and is easily handled.

The Sassafras fine sandy loam is next to the sandy loam in agricultural value. It is not very extensive in Somerset County, but it is prized very highly. Practically all of the type is under cultivation. It is used mainly in the production of early potatoes.

The Sassafras loam is found along some of the more important streams in the northwestern part of the county. It is a good strong soil and is especially valued for growing corn, wheat, and grass.

The Keyport fine sandy loam is developed in all parts of the county. A large part of it is under cultivation and gives good returns. It is intermediate in drainage between the Sassafras and Elkton soils.

The Keyport loam is not very extensive. The type is given the same cultivation as the Sassafras loam and the crops grown are the same. Yields, however, are somewhat lower. The type is in need of drainage.

The Keyport silt loam occupies flat areas in the vicinity of Princess Anne and Monie Neck. It is not a very extensive soil. Corn, wheat, hay, tomatoes, and strawberries, the principal crops, do well. This type also needs drainage.

About half of the Elkton fine sandy loam is in cultivation. The largest areas lie in the eastern part of the county. Corn, hay, strawberries, and potatoes are the principal crops. Where drainage is adequate good results are obtained.

The Elkton loam is the second of the Elkton soils in extent. It is developed in a large area in the vicinity of Marion and in other parts of the county. Where the type is well drained it is valued as a strawberry soil. It is also used for the production of potatoes, corn, and hay. It is in need of drainage and like other Elkton types requires liberal applications of lime to correct acidity.

The Elkton silt loam is a uniform soil of comparatively large area. A large percentage of this type is still in forest. The type is developed mainly in the northern half of the county. Where drainage is well established good crops of corn, hay, strawberries, and potatoes are obtained. Crops are likely to be injured during seasons of abnormally dry or wet weather.

The Portsmouth fine sandy loam is low and poorly drained. About half of it is in cultivation. Where drainage has been established corn and strawberries are grown.

The Portsmouth loam is found scattered throughout the county. Very little of it is in cultivation, but where artificially drained it gives good yields of corn, potatoes, and strawberries.

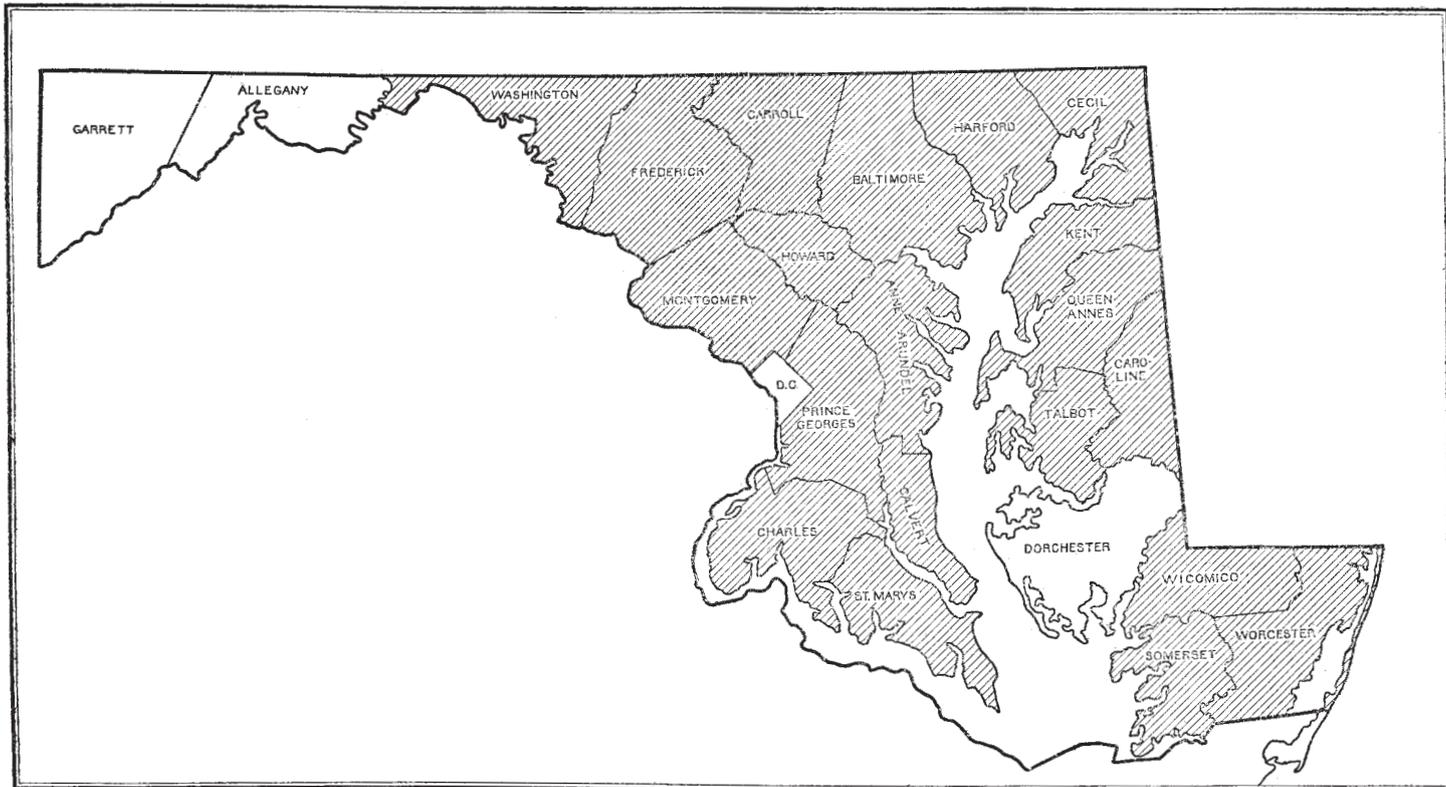
The Portsmouth silt loam is almost all in forest. It is low and poorly drained and during certain seasons of the year remains in a semiswampy condition. Reclamation is possible. The soil is inherently productive for certain crops.

Tidal marsh consists of the extensive salt marshes in the western part of the county and bordering the estuaries which penetrate the upland. It is valued only as pasture land and can be reclaimed only by diking.

Swamp and Meadow make up the low, wet bottom land along the streams. These types are not farmed to any extent at the present time.

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Areas surveyed in Maryland, shown by shading.

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