Soil Survey
of
Talbot County, Maryland

By
S. O. PERKINS
United States Department of Agriculture, in Charge
and
MERLE HERSHBERGER
Maryland Agricultural Experiment Station

Bureau of Chemistry and Soils
In cooperation with the Maryland Geological Survey and the
Maryland Agricultural Experiment Station

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SOIL SURVEY OF TALBOTT COUNTY, MD.

By S. O. PERKINS, United States Department of Agriculture, in Charge, and MERLE HERSHBERGER, Maryland Agricultural Experiment Station

COUNTY SURVEYED

Talbot County is in the central part of the Eastern Shore of Maryland. (Fig. 1.) Easton, the county seat, is about 50 miles east of Washington, D. C., and the same distance south of Baltimore. The land area of the county is 268 square miles, or 171,520 acres. With the exception of 7½ miles on the northern boundary, the county is surrounded by water. Eastern and Chesapeake Bays form the western boundary, and Choptank River forms the southern and most of the eastern.

The county lies wholly within the Atlantic coastal-plain region, and its one main physiographic feature is that of a flat plain. The main plain is divided into two smaller plains, one a low foreland, poorly dissected country, and the other a higher fairly well dissected upland region. The land surface varies in topographic features from that of the nearly flat foreland section bordering the bays and estuaries to the higher upland plain which has level or gently undulating interior areas and gently or moderately rolling areas nearer the rather shallow valleys. A line drawn roughly from the mouth of Pickering Creek on the northern boundary, southward through Easton and about 1 mile west of Trappe to Kirby Wharf, marks the separation of the low flat country from the upland plain. In most places the rise from lowland to upland is gradual, by gentle slopes. However, in a few places in the upland section the slopes are steep enough to give rise to slight surface wash. The western half of the county lies almost entirely below an elevation of 20 feet. In general the surface is flat, with a few short breaks bordering some of the streams. The foreland section of the county has been indented with numerous short wide deep streams and bays, branching off from Chesapeake Bay, which have cut the western half of the county into long narrow peninsulas and islands. Along Chesapeake Bay and the larger estuaries the waves are gradually cutting back the shore line, in places at a rate ranging from 30 to 40 feet a year. Some of the islands eventually will be washed away and the soil deposited elsewhere.

The low foreland has a very irregular shore line and includes many miles of desirable water-front land. From the low elevation of this section, one would naturally expect to find large areas of marshland, but the contrary is the case in Talbot County. Most of the land can be cultivated to the water's edge, and in only a few
places is there a narrow fringe of tidal marsh. Practically all the tidal marsh occurs along Choptank River and Tuckahoe Creek.

Owing to the short, poorly defined streams in the low plain, surface drainage is poor.

The surface relief of the upland plain division is favorable for the use of modern farm machinery. The elevation above sea level of this upper plain is 35 feet at Easton, 60 feet at Skipton, 60 feet at Cordova, 55 feet at Trappe, and 72 feet at the highest point, about 3 miles east of Easton which lies close to the boundary between the two plains. The channels of the streams range from mere shallow drainage ways in the interior of the plain to fairly deep valleys near or where the streams leave the upland country. The sides of some of the valleys are rather steep, but in only a few places is the surface broken. Most of the streams have reached base level, and the flow is sluggish. A number of small streams reach into practically all parts of the eastern half of the county, or upland. Thus much better drainage is afforded than in the western half. The smaller streams are bordered by narrow strips of low, wet ground, extending from their mouths to their sources in the upland, where there are some small flat, depressed, poorly drained areas, some of them semiswampy. The bays and Choptank, Tred Avon, Miles, and Wye Rivers are navigable.

Talbot County was organized under the provincial government about 1664 and included the present domain of Queen Annes County, much of Caroline and Kent Counties, and about all of its present territory. The present boundaries of Talbot County were established about 1706.

Active settlement of the county began about the middle of the seventeenth century. Most of the earlier settlers were English, from whom the greater part of the present population has descended. The toleration act of 1649 attracted a number of religious refugees, among whom were a good many Quakers from Virginia. Most of the early colonists settled near the navigable streams, as transportation at that time was mainly by water.

According to the 1930 census report,¹ the population of Talbot County is 18,588. Easton is the county seat and the largest town, with a population of 4,092. St. Michaels, Oxford, Trappe, Cordova, Tilghman, Claiborne, and Royal Oak are other towns of importance. In addition to these are several villages.

The Oxford branch of the Pennsylvania Railroad, the Baltimore & Eastern Railroad, freight auto trucks, and steamship lines afford ample transportation for the county. The county roads are good, and the main highways are hard surfaced. Telephone lines reach every section of the county, and good schools are conveniently located. Many of the smaller country churches have been consolidated, owing to good roads and the automobile.

The only industries, other than those connected with agriculture, are fishing, oystering, and crabbing. Packing houses for sea food, canneries, and one fertilizer plant comprise the main industrial plants.

¹ Soil survey reports are dated as of the year in which the field work was completed. Later census figures are given when possible.
Baltimore and Philadelphia are the principal outside markets for the products of the county.

CLIMATE

The climate of Talbot County is oceanic, as it is influenced by the bays. It is mild and healthful. The winters are not extremely cold nor are the summers excessively hot, as the extensive water frontage tempers the heat of summer and moderates the cold of winter. Much of the land along the water is owned by wealthy people living outside the county.

According to records of the United States Weather Bureau station at Easton, the mean annual precipitation for Talbot County is 40.69 inches. The average rainfall on the low plain in the western half of the county is probably somewhat higher. The rainfall is well distributed throughout the year, averaging slightly more in the spring and summer than in the fall and winter. Occasionally a wet spring delays the planting of corn, and in some years dry spells occur during the summer, which cause the soil to harden, the crops to be short, and interfere seriously with the preparation of the land for wheat. Such a season occurred in the summer of 1929. The mean annual temperature at Easton is 55.2° F. This is probably somewhat higher than the mean temperature along the water fronts.

The frost-free period, between the average last killing frost (April 12) and the earliest (October 28), is 199 days. However, frosts have been known to occur as early as October 2 and as late as May 12. The ground never freezes to a great depth and does not remain frozen long at a time. Pasture continues until late in the fall. The average annual snowfall of 16.3 inches is beneficial as a protection to wheat.

Table 1, compiled from records of the United States Weather Bureau station at Easton, gives the more important climatic data for Talbot County.
TABLE 1.—Normal monthly, seasonal, and annual temperature and precipitation at Easton, Md.

[Elevation, 35 feet]

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Absolute maximum</th>
<th>Absolute minimum</th>
<th>Mean</th>
<th>Total amount for the driest year (1896)</th>
<th>Total amount for the wettest year (1910)</th>
<th>Snow, average depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
<td>°F</td>
<td>°F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>°F</td>
<td>Inches</td>
<td>°F</td>
<td>Inches</td>
<td>Inches</td>
<td>Inches</td>
<td>Inches</td>
</tr>
<tr>
<td>December</td>
<td>37.0</td>
<td>70.0</td>
<td>-3.0</td>
<td>3.00</td>
<td>0.08</td>
<td>3.61</td>
<td>2.8</td>
</tr>
<tr>
<td>January</td>
<td>34.6</td>
<td>71.0</td>
<td>-8.0</td>
<td>3.00</td>
<td>1.18</td>
<td>3.13</td>
<td>4.3</td>
</tr>
<tr>
<td>February</td>
<td>34.8</td>
<td>71.0</td>
<td>-15.0</td>
<td>3.11</td>
<td>5.01</td>
<td>1.97</td>
<td>5.5</td>
</tr>
<tr>
<td>Winter</td>
<td>35.4</td>
<td>71.0</td>
<td>-15.0</td>
<td>9.29</td>
<td>8.12</td>
<td>8.61</td>
<td>12.6</td>
</tr>
<tr>
<td>March</td>
<td>44.3</td>
<td>89.0</td>
<td>8.0</td>
<td>3.69</td>
<td>4.34</td>
<td>3.78</td>
<td>2.8</td>
</tr>
<tr>
<td>April</td>
<td>53.6</td>
<td>93.0</td>
<td>22.0</td>
<td>3.29</td>
<td>1.68</td>
<td>3.99</td>
<td>6.6</td>
</tr>
<tr>
<td>May</td>
<td>63.5</td>
<td>93.0</td>
<td>33.0</td>
<td>3.29</td>
<td>3.55</td>
<td>0.41</td>
<td>0.0</td>
</tr>
<tr>
<td>Spring</td>
<td>53.8</td>
<td>93.0</td>
<td>8.0</td>
<td>10.24</td>
<td>9.65</td>
<td>14.13</td>
<td>3.8</td>
</tr>
<tr>
<td>June</td>
<td>71.4</td>
<td>95.0</td>
<td>40.0</td>
<td>3.78</td>
<td>3.78</td>
<td>2.81</td>
<td>0.0</td>
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<tr>
<td>July</td>
<td>70.1</td>
<td>101.0</td>
<td>50.0</td>
<td>4.01</td>
<td>2.34</td>
<td>9.63</td>
<td>0.0</td>
</tr>
<tr>
<td>August</td>
<td>74.2</td>
<td>101.0</td>
<td>36.0</td>
<td>4.15</td>
<td>3.85</td>
<td>5.99</td>
<td>0.0</td>
</tr>
<tr>
<td>Summer</td>
<td>73.9</td>
<td>101.0</td>
<td>40.0</td>
<td>12.44</td>
<td>7.63</td>
<td>21.74</td>
<td>0.0</td>
</tr>
<tr>
<td>September</td>
<td>68.8</td>
<td>96.0</td>
<td>35.0</td>
<td>3.00</td>
<td>2.89</td>
<td>2.92</td>
<td>0.0</td>
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<tr>
<td>October</td>
<td>57.8</td>
<td>88.0</td>
<td>27.0</td>
<td>3.12</td>
<td>1.04</td>
<td>3.33</td>
<td>0.0</td>
</tr>
<tr>
<td>November</td>
<td>45.3</td>
<td>78.0</td>
<td>16.0</td>
<td>2.60</td>
<td>1.90</td>
<td>4.33</td>
<td>2.0</td>
</tr>
<tr>
<td>Fall</td>
<td>57.6</td>
<td>96.0</td>
<td>15.0</td>
<td>8.72</td>
<td>5.62</td>
<td>10.82</td>
<td>2.0</td>
</tr>
<tr>
<td>Year</td>
<td>55.2</td>
<td>101.0</td>
<td>-15.0</td>
<td>40.0</td>
<td>30.03</td>
<td>55.66</td>
<td>16.3</td>
</tr>
</tbody>
</table>

AGRICULTURE

Since the earliest settlement of Talbot County agriculture has been the chief industry. At first tobacco was grown almost exclusively, just enough corn and wheat being grown to supply the wants of the colonists. Tobacco was long the medium of exchange. In 1775 there were several tobacco warehouses in Talbot County, but about the beginning of the eighteenth century the tobacco acreage had been greatly reduced and the tobacco warehouses were little used. The larger planters shipped their tobacco directly to England, but the smaller planters traded with local representatives of English houses. Warehouse receipts, representing the quantity of tobacco stored, like tobacco, passed as money.

A change in agriculture had begun previous to the Revolutionary War. Owing to the war, much of the export trade with the mother country was cut off and a demand for subsistence crops to feed the provincial army arose.²

The farmers of Talbot County organized an agricultural society in 1805. They had begun to realize that their soils were being depleted by growing only one crop, and they began to grow more wheat. It was about this time the farmers introduced the 3-year rotation

system, with corn, wheat, and hay as the principal crops. Flax was
grown for fiber until 1850. A few sweetpotatoes have been grown
ever since the earlier days. About 1875 the culture of tomatoes for
selling purposes was started. Oats and rye have never been im-
portant crops.

Table 2 gives the acreage and yields of the three important general
farm crops for the years 1879, 1889, 1899, 1909, 1919, and 1929.

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat</th>
<th>Corn</th>
<th>Hay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acres</td>
<td>Bushels</td>
<td>Acres</td>
</tr>
<tr>
<td>1879</td>
<td>33,128</td>
<td>468,316</td>
<td>26,053</td>
</tr>
<tr>
<td>1889</td>
<td>33,289</td>
<td>603,671</td>
<td>20,133</td>
</tr>
<tr>
<td>1899</td>
<td>42,533</td>
<td>846,340</td>
<td>51,907</td>
</tr>
<tr>
<td>1909</td>
<td>40,706</td>
<td>507,178</td>
<td>22,181</td>
</tr>
<tr>
<td>1919</td>
<td>39,773</td>
<td>532,309</td>
<td>20,485</td>
</tr>
<tr>
<td>1929</td>
<td>38,484</td>
<td>673,031</td>
<td>15,469</td>
</tr>
</tbody>
</table>

The present agriculture consists of general farming in connection
with dairying, sheep raising, and the growing of vegetables for
canning. Corn, wheat, and hay are still the general farm crops,
and tomatoes, sugar corn, garden peas, and beans are canning crops.
The value of all agricultural products by classes in 1929 is given
in Table 3.

<table>
<thead>
<tr>
<th>Agricultural products</th>
<th>Value</th>
<th>Agricultural products</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals..................</td>
<td>$1,198,491</td>
<td>Livestock and livestock products</td>
<td>$1,549,960</td>
</tr>
<tr>
<td>Other grains and seeds..</td>
<td>50,670</td>
<td>Domestic animals........</td>
<td>409,073</td>
</tr>
<tr>
<td>Hay and forage...........</td>
<td>256,491</td>
<td>Dairy products (excluding home use)...</td>
<td>337,703</td>
</tr>
<tr>
<td>Vegetables...............</td>
<td>662,472</td>
<td>Poultry and eggs..........</td>
<td>26,541</td>
</tr>
<tr>
<td>Fruits and nuts..........</td>
<td>110,454</td>
<td>Wool, etc................</td>
<td>2,628,367</td>
</tr>
<tr>
<td><strong>Total</strong> ...............</td>
<td>2,287,484</td>
<td><strong>Total agricultural products</strong></td>
<td>4,810,851</td>
</tr>
</tbody>
</table>

The numbers of animals on the farms of Talbot County on April
1, 1930, were as follows: Horses, 2,922; mules, 2,439; cattle, 9,872;
swine, 6,493; sheep, 24,041; goats, 18; and chickens more than 3
months old, 57,338.

According to the same census, 89 per cent of the area of the county
is in farms, the total number of farms is 1,118, and the average size
is 137.1 acres. The average value of land and buildings is $12,486
a farm and that of implements and machinery is $952. The average
value of land, including buildings, is $91.09 an acre. A large can-
nery company near Cordova owns a number of large farms.

The total expenditure for fertilizer in 1929 was $206,517, an
average of $230.25 for each of the 893 farms reporting its use. A
few farmers buy the raw materials and mix their own fertilizer, but
the majority buy ready-mixed fertilizers of many brands. The formulas in general use are 0–12–5, 2–12–4, 0–8–8, 1–9–4, and ¾–10–1 for the general farm crops and 5–8–5, 4–8–4, and 6–7–6 for vegetables and truck crops.

Nearly three-fourths of the farms reported an expenditure for labor, in 1929, amounting to a total of $551,383, or an average of $675.71 a farm. Yearly wages average about $30 a month with room and board. If the man has a family he receives in addition a house, garden, and cow. Day laborers receive from $2 to $2.50, except in harvest time when as much as $4 and even $5 is paid. Most of the laborers employed in the canneries and paid by piecework come from Baltimore and Philadelphia for the canning season.

According to the 1930 census report, 55.7 per cent of the farms are operated by owners, 36.8 per cent by tenants, and 7.5 per cent by managers. Most of the tenant farmers are of a high class, which is shown by the excellent appearance of the rented farms. The prevalent system of rental is the share system, in which the land is rented for one year, the landowner furnishing all the lime, paying for one-half of the fertilizer and seed, and receiving one-half of the crop.

The farmhouses and outbuildings are substantial, and fences are good. The farmers throughout the county own good farm machinery. There are a few combined harvesters and threshers and a few headers in the county, which, it is claimed, save much expense in the hiring of labor. Tractors are in use, mostly for power, on the larger farms. Most of the horses and mules are of medium size and are well cared for. The cattle are mainly of dairy breeds, and every farmer raises a few hogs and sheep.

The milk produced is delivered to the receiving stations, cooled, and shipped to Philadelphia. Most of the lambs raised are also shipped to Philadelphia. Some of the wheat is loaded on barges, vessels, or railroad cars direct from the thresher and shipped to Baltimore and Philadelphia, and some is sold to the local mills. A few of the farmers, who own large granaries, hold their wheat for a higher price.

A number of canneries are scattered over the county where tomatoes, sugar corn, peas, beans, and pears are canned. The canned goods are sold locally and shipped to all parts of the country.

SOILS AND CROPS

Talbot County, which is almost surrounded by water, borders Chesapeake Bay and lies midway, from north to south, on the Eastern Shore of Maryland. About 50 per cent of the land area of the county is under cultivation. A large acreage is devoted to pasture, and a smaller acreage is used for the production of apples, peaches, and other fruits. Throughout the county, especially on Sassafras loam, sandy loam, and silt loam, the improvements on the farms indicate a state of prosperity either present or past. The unused land consists mostly of poorly drained areas, particularly in the western part of the county. The cleared areas are used to a great ex-

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a Percentages, respectively, of nitrogen, phosphoric acid, and potash.
tent for pastures, and some of the uncultivated land supports a growth of hardwood, together with some pine. Most of the merchantable timber has been cut, but a few small areas of saw timber still remain.

The natural vegetation of the region in which Talbot County lies was a forest growth consisting almost entirely of hardwoods. White oak was the principal original tree in the low foreland plain, and a mixture of white oak, black oak, red oak, chestnut oak, chestnut, poplar, maple, walnut, black locust, cedar, hickory, and dogwood were the principal trees in the upland. The present tree growth consists of a mixture of loblolly pine, oaks, maples, gums, ash, elm, locust, cedar, walnut, and other trees. The original forests were open except along the streams where there was a thick growth of underbrush and briers.

About 75 per cent of the soils of Talbot County are silt loams and loams, commonly termed the heavy soils. These soils are adapted to general farming, that is, to the production of staple crops (mainly wheat and corn), livestock raising, and dairying. The dominant system of agriculture, which has been in practice for about 100 years in Talbot County, is general farming in connection with more or less dairying and the growing of crops for the canneries.

About 45 per cent of the cultivated area in the county is seeded to wheat, 25 per cent to corn, 20 per cent to hay, and 10 per cent to miscellaneous vegetables. Tomatoes and sugar corn occupy about 90 per cent of the land in vegetables. According to records from the canneries in the county, about 4,000 acres each of tomatoes and sugar corn and 1,000 acres of garden peas were planted to these crops during 1929. In the vicinity of Cordova, beans in large quantity are grown for canning. Early tomatoes do best on the sandier Sassafras soils, but as the canneries start in August and run until the crop is canned, there is no object in producing early tomatoes. Most of the peach orchards are on Sassafras sandy loam, fine sandy loam, and loamy sand. Mainly because of economic conditions the crops grown in this section are grown on nearly every farm, regardless of the character of the soils.

Most of the wheat is grown on the heavier types of soil. It is an important cash crop, and all the surplus wheat not required for home consumption is sold. Both the soils and climate are favorable to the production of wheat, and it fits in admirably with the rotation generally practiced in the county.

Corn is perhaps the most widely distributed crop in the county and is grown, to more or less extent, on practically every soil type. It is used mainly for the feeding of work animals and hogs and for corn meal.

A large acreage of land is devoted annually to the production of tame, or cultivated, grasses which include timothy and clover mixed, clover, alfalfa, and annual legumes. These crops are grown chiefly for use on the farm as feed for work animals and dairy cows.

In addition to the staple crops, a large acreage is devoted to the production of tomatoes, peas, sweet corn, snap beans, and asparagus, for sale as fresh vegetables and for canning. Apples, peaches, pears, and a few grapes are grown.
The sale of wheat, dairy and poultry products, livestock, and canning crops constitutes the principal cash income of the farmers of Talbot County. The sale of dairy products supplies the farmers with necessary ready cash for their farm operations throughout the year.

In many parts of the county a direct relationship exists between the type of agriculture and the various soil types. On the basis of physical and chemical characteristics, as well as on that of their agricultural adaptability, the soils of Talbot County naturally fall into the following two main groups: (1) Brown well-drained soils and (2) light-gray poorly drained soils.

In the following pages the soils of Talbot County are described in detail, and their agricultural importance is discussed; their distribution in the county is shown on the accompanying soil map; and their acreage and proportionate extent are given in Table 4.

**Table 4—Acreage and proportionate extent of soils mapped in Talbot County, Md.**

<table>
<thead>
<tr>
<th>Type of soil</th>
<th>Acres</th>
<th>Percent</th>
<th>Type of soil</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sassafras loam</td>
<td>28,086</td>
<td>16.4</td>
<td>Elkton silt loam</td>
<td>45,184</td>
<td>28.3</td>
</tr>
<tr>
<td>Sassafras silt loam</td>
<td>24,064</td>
<td>14.0</td>
<td>Elkton loam</td>
<td>4,728</td>
<td>2.8</td>
</tr>
<tr>
<td>Sassafras sandy loam</td>
<td>11,968</td>
<td>7.0</td>
<td>Meadow</td>
<td>4,992</td>
<td>2.9</td>
</tr>
<tr>
<td>Sassafras fine sandy loam</td>
<td>9,728</td>
<td>5.7</td>
<td>Total marsh</td>
<td>4,736</td>
<td>2.8</td>
</tr>
<tr>
<td>Sassafras loamy sand</td>
<td>7,04</td>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keyport silt loam</td>
<td>35,130</td>
<td>20.5</td>
<td></td>
<td>171,520</td>
<td></td>
</tr>
<tr>
<td>Keyport loam</td>
<td>2,176</td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BROWN WELL-DRAINED SOILS**

The group of brown well-drained soils includes all the soils of the Sassafras and Keyport series mapped in Talbot County. These soils occur in large areas in all the well-drained parts, particularly of the upland, or eastern half of the county, and to more or less extent in the forelands. They dominate the agriculture of the county and produce some of the most profitable cash crops as well as the greater part of the staple crops. In fact, some of them are the most desirable agricultural lands of the Eastern Shore of Maryland, Virginia, and Delaware.

These soils have brown, light-brown, or grayish-brown surface soils and yellowish-brown or reddish-brown subsoils. They range in texture from sands to silt loams, the dominant and most extensive types in Talbot County being loam and silt loam. The surface soils are friable and mellow, and the subsoils are dominantly sandy clays or clay loams, which are also friable. Most of the subsoils possess favorable characteristics for holding soil moisture and plant food. All these soils are easy to cultivate, and a good mellow tilth can be obtained in most places. The silt loam and loam areas are not so easy to cultivate as the sandy loams and loamy sands, and in some places the soils have a tendency to clod. Where they have been in grass several years or heavily manured, there is a good quantity of organic matter in the surface soil.

All the soils of this group are naturally well drained in the surface soil and also in the subsoil; even below the subsoils of the heavier soils, at a depth ranging from 30 to 40 inches below the
surface, there is a loose sandy stratum which allows good drainage throughout. In fact, the brown color of the surface soil and subsoil indicates good drainage, aeration, and thorough oxidation of the iron salts.

By virtue of their texture and structure, combined with good drainage, these soils warm up early in the spring, especially the more sandy types, and can be cultivated soon after ordinary rains.

The soils of this group respond quickly to the addition of manures, to the turning under of green-manure crops, and to commercial fertilizers. The effect of turning under green-manure crops is fairly lasting, especially on the loams, silt loams, and sandy loams.

All the soils of this group have favorable surface relief, that is, they range from almost level to undulating or gently rolling.

The greater parts of the Sassafras and Keyport soils are under cultivation, the remainder supporting a forest growth of loblolly and scrub pine, white, post, red, and pin oaks, together with a few hickory, dogwood, cedar, poplar, beech, and maple, with sassafras and chestnut bushes on the more sandy areas. The greater part of the truck crops and the greater part of the crops grown for the canneries are produced on these soils. The heavier members of the group are especially suited to the production of wheat, corn, and hay, and the sandy loams are well suited to the production of truck crops and crops for the canneries.

**Sassafras loam.**—The surface soil of Sassafras loam consists of grayish-brown or brown loam to a depth of 8 or 10 inches. It is mellow, friable, and easy to till. In most places a subsurface layer, consisting of a few inches of pale yellowish-brown or brownish-yellow loam occurs between the surface soil and the subsoil. The subsoil is yellowish-brown or reddish-brown sandy clay, light clay, or heavy sandy loam, extending to a depth ranging from 30 to 40 inches. It is the heaviest layer in the profile, that is, it contains more clay and silt, but it is friable. Beneath the subsoil is light-brown loamy sand or sandy material which is very porous and open, allowing good subdrainage to the surface soil and subsoil. In a few areas, included with this soil in mapping, the surface soil is deeper and approaches sandy loam in texture and the subsoil is lighter in texture and more friable than the representative areas. In the wooded areas there is a shallow covering of leaf mold, and beneath this is a 2 or 3 inch brown surface layer. The subsurface layer of yellowish brown is much nearer the surface than in cultivated fields. On some of the slopes, where the surface loam has been removed by erosion, yellowish-brown clay loam is exposed. Such spots are a little more difficult to till than the typical surface soil. They are sometimes called "clay hills."

Sassafras loam is one of the most extensive soils, and by far the most important agricultural soil, in the county. It occurs in large areas in the eastern half, and smaller areas occur on the west side in the vicinity of Wittman. Large areas are developed north and east of Trappe, around Easton, east and northwest of Cordova, and in the vicinity of Matthews. The surface relief, characterized by nearly level or gently rolling areas, is favorable for agricultural operations with improved machinery.
About 90 per cent of the Sassafras loam is cleared and in cultivation. Probably 40 per cent of this is used for the production of wheat, yields of which range from 18 to 35 bushels an acre. About 30 per cent is used for corn, with yields ranging from 25 to 60 bushels. About 18 per cent is devoted to hay or grass crops, consisting of clover and timothy mixed, timothy, and alfalfa which does well when properly seeded in soil thoroughly prepared, limed, and manured. The yields of these crops are good. A large acreage is devoted to the production of canning crops and vegetables. Tomatoes and sugar corn are the main crops grown for trucking and canning, and fairly large quantities of garden peas and beans are grown.

**Sassafras silt loam.**—In cultivated fields the 6 to 10 inch surface soil of Sassafras silt loam is light-brown or grayish-brown, drying out to brownish-gray, friable silt loam. Although this is the heaviest Sassafras soil in Talbot County, it is a smooth mellow silt loam which under ordinary conditions is easily tilled. The subsoil is yellowish-brown, brown, or slightly reddish brown heavy clay loam or light clay extending to a depth of 28 or 32 inches. The material is friable and breaks into irregular lumps which are easily crushed. It is underlain by slightly compact fine sandy clay, and this, in turn, grades into brown sandy loam or brown sand. Both surface soil and subsoil are prevailing lighter in color than the corresponding layers in other Sassafras soils. In some places Sassafras silt loam grades imperceptibly into Keyport silt loam.

Sassafras silt loam occurs in large broad areas in the eastern part of the county, the more continuous areas lying southeast and northeast of Easton and northwest of Skipton. It also occupies nearly level areas in the upland country and smaller areas bordering the water in the foreland. Drainage is not so thorough in the silt loam as in the lighter-textured soils of the Sassafras series, but it is adequate for all practical purposes. This difference in aeration and oxidation probably accounts to some extent for the lighter color of both surface soil and subsoil.

Most of the Sassafras silt loam is under cultivation. About 45 per cent of it is seeded to wheat, yields of which range from about 20 to 35 bushels an acre. About 28 per cent of the land is devoted to the production of corn, yields ranging from 30 to 60 bushels; about 20 per cent to the production of hay crops; and about 7 per cent to the production of crops for canning. In some places the first cutting of clover is used for hay and the second cutting is allowed to ripen for seed. The yields of all the crops grown on this soil depend on the quantity of barnyard manure that has been applied, on the quantity of commercial fertilizer used, or to some extent on the natural condition of the soils as regards the organic-matter content. This is naturally a strong soil and one that can be built up and maintained in a high state of productivity.

**Sassafras sandy loam.**—The surface soil of Sassafras sandy loam to a depth ranging from 8 to 12 inches is grayish-brown or brown sandy loam carrying a noticeable quantity of silt, and in wooded areas the first 2 or 3 inches of soil contains a noticeable quantity of organic matter. The subsoil consists of yellowish-brown or reddish-brown sandy clay or heavy sandy loam and extends to a depth ranging from about 26 to 34 inches. The material in this layer is friable
and crumbly. It breaks into irregular lumps which are easily crushed. It is underlain by reddish-brown or brownish-yellow loamy sand or light sandy loam of rather coarse texture. In places a pale-yellow slightly compact subsurface layer lies between the cultivated surface soil and the subsoil. In some of the flatter areas, where drainage is not so good as in the more representative areas, the subsoil is brownish yellow or light yellowish brown and contains less sand than the typical subsoil. In many places the reddish-brown color of the subsoil of Sassafras sandy loam is more pronounced than in most of the Sassafras soils. Gravel is present in the sandy substratum. Included in mapped areas of this soil are spots of loamy sand, loam, or silt loam. The depth of the soil varies according to the surface relief. In places where erosion has been active on the slopes the surface soil is shallow, and near the base of the slopes the sandy material has accumulated to a depth ranging from 15 to 20 inches.

Sassafras sandy loam occurs in large areas in the northeastern part of the county. The largest body is in the vicinity of Lewistown, and a large area is east of Skipton. This soil occurs only in the upland part, or eastern half, of the county. The surface relief ranges from moderately sloping to gently rolling and undulating. In the more level or undulating areas are poorly drained spots in which the soil resembles the Keyport or Elkton soils.

Probably 75 per cent of the Sassafras sandy loam is under cultivation. It is adapted to a wider range of crops than any other soil in the county and is considered among the best farming soils of the region. Corn, wheat, hay, potatoes, sweetpotatoes, tomatoes, peas, beans, cantaloupes, watermelons, and some asparagus are grown. In general the yields of hay and wheat are not so high on the sandy loam as those obtained on the loam or silt loam, but a few farmers report yields equally as good as those on the heavier soils. The sandy loam is well adapted to the production of tomatoes, and yields range from 4 to 10 tons an acre. Corn yields from 30 to 60 bushels and potatoes from 75 to 125 bushels.

**Sassafras fine sandy loam.**—The principal difference between Sassafras fine sandy loam and Sassafras sandy loam is in the texture of the surface soil. In a few places the subsoil is more friable, that is, it is heavy fine sandy loam or fine sandy clay. Most of the land has a more rolling surface relief than the sandy loam or loam, and practically all of it occurs on the slopes bordering the tributaries extending from the eastern to the southern boundary of the county. The largest areas of this soil are developed 2 miles southeast of Trappe in the southeastern part of the county. A few areas occur on the neck south of Claiborne, and in this locality the surface is almost level or undulating. A few small spots are west of Cordova.

About 60 per cent of the land is under cultivation. The same kind of crops are grown as on the adjoining Sassafras loam and Sassafras sandy loam. Yields are not quite so large as those obtained on the loam but are about the same as those obtained on the sandy loam. Fertilization practices and methods of cultivation are practically the same on the two soils.

**Sassafras loamy sand.**—The surface soil of Sassafras loamy sand consists of a 5 to 7 inch layer of light-brown or grayish-brown loamy
sand. It is underlain by yellowish-brown or reddish-brown loamy sand which extends to a depth ranging from 30 to more than 40 inches. Beneath this is yellowish-brown or brownish-yellow sand. In places at a depth of 20 to 24 inches a thin layer of light sandy loam or rather heavy loamy sand occurs. Included with Sassafras loamy sand in mapping are spots of Sassafras sand which were too small and of insufficient importance to separate on the soil map. Such areas consist of light-brown medium-textured sand underlain by yellowish-brown, reddish-brown, or brownish-yellow sand usually containing a small quantity of small rounded quartz gravel. Such areas are less productive than the loamy sand.

Sassafras loamy sand occurs in small areas, the largest of which lie in the southeastern part of the county in the vicinity of Windyhill. Only a small percentage of the soil is under cultivation, mainly to corn, peaches, and light truck crops. The land is exceptionally well drained, warms up quickly in the spring, and planting can be done earlier than on the other soils in the county. It is well suited to potatoes, sweetpotatoes, melons, cucumbers, and cantaloupes. For best results it is necessary to use heavy applications of a high-grade commercial fertilizer. The soil responds readily to fertilization and to the application of organic matter in the form of stable manure or green manure.

**Keyport silt loam.**—In cultivated fields the surface soil of Keyport silt loam is light-brown or grayish-brown silt loam to a depth of 6 or 8 inches. It dries out to a light brownish-gray or light-brown color. It grades into grayish-yellow or brownish-yellow silty clay loam which extends to a depth ranging from 12 to 18 inches. The lower part of the subsoil is mottled gray and brown or yellow rather heavy clay or stiff heavy very fine sandy clay extending to a depth ranging from about 30 to 40 inches. This material is similar to the subsoil of Elkton silt loam but is not quite so heavy. It is slightly plastic when wet and hard and brittle when dry. It is underlain by a substratum of light-gray fine sandy loam or sandy gravelly material which in most places is saturated with water.

Keyport silt loam may be considered an intermediate soil, as regards color, structure, and drainage conditions, between the Sassafras soils and the Elkton soils. In the flatter, more poorly drained areas of Keyport silt loam the surface soil is lighter in color and grades in its characteristics toward Elkton silt loam, and in some places only an arbitrary boundary can be drawn between areas of these two soils. The surface soil and upper part of the subsoil are similar to the corresponding layers of Sassafras silt loam, though the material is slightly lighter in color. This soil is mellow and friable and therefore easy to till.

Keyport silt loam is a very extensive soil in Talbot County and is widely distributed throughout the county. The largest and most continuous areas are along the rivers and on the various necks in the western part of the county, although fair-sized areas occur in the vicinity of Woodland, Queen Anne, around Oxford, and southeast of Easton. As previously mentioned, drainage is good, not so good as on the Sassafras soils, but better than on the Elkton soils. The surface relief ranges from almost level to undulating.

Probably 90 per cent of this soil is under cultivation. It is well suited to the staple crops—wheat, corn, and hay. The yields of
these crops in some places compare favorably with those obtained on Sassafras loam under similar treatment. As a whole, however, this soil is not considered quite so strong a soil as Sassafras loam or Sassafras silt loam. In a few places, near the largest bodies of water, oyster shells have been mixed in the soil for a long time. The surface soil in these localities is much darker than in the representative areas. The presence of lime probably accounts for the fact that the soil holds organic matter well. These areas are also more productive than the remainder of the soil, probably owing to the content of lime. Alfalfa and sweetclover do well in such places.

**Keyport loam.**—Keyport loam differs from Keyport silt loam mainly in texture, structure, and to some extent in drainage conditions. It is coarser in texture than the silt loam, as it contains more sand and is naturally more open in structure, and this allows the soil to dry out earlier in the spring. It is slightly easier to cultivate than the silt loam. Only small areas of this soil occur in the county, and these lie mainly in the southeastern part. The crops grown, fertilizer treatment, methods of cultivation, and yields are practically the same as those on Keyport silt loam.

**LIGHT-GRAY POORLY DRAINED SOILS**

The group of light-gray poorly drained soils may be termed the Elkton group because it includes only Elkton silt loam and Elkton loam in Talbot County, in addition to meadow and tidal marsh. These soils are locally called "pipe-clay land" or "white-oak land." They are important in area because they constitute a greater part of the foreland plain, or practically all the western part of the county lying west of a north and south line through Easton. The largest areas are in the peninsula lying between the estuaries. The broad flat, or central, part of these large areas is nearly level, and both surface and internal drainage are poor. Areas of these soils also occupy slight depressions or flat areas within areas of Sassafras soils. Artificial drainage is necessary to reclaim these soils for agricultural purposes. Much of the land lying near the water fronts may be successfully drained by shallow, broad land furrows, but the more remote and flatter areas can only be drained by open ditches or canals. The walls of the ditches stand up remarkably well, owing to the heavy character of the subsoil. In most places the water table, in ordinary seasons, is at a depth of about 3 feet below the surface, or in the sandy substratum. Locally these soils grade into tidal marsh with no decided descent, and in such places dikes are the only effective means of reclamation.

These light-colored soils range from almost white to light gray in the surface soil. The original soil has been subject to alternate wetting and drying, and this is responsible for the light color of the surface soil and the mottled color of the subsoil. The subsoils are light-gray heavy plastic clays or sandy clays, mottled with rust brown. The surface soil of Elkton loam in most places is darker than the surface soil of Elkton silt loam, owing to the presence of organic matter. These soils are all acid except where they have been heavily limed or a large quantity of oyster shells has been applied. They require from 1,000 to 3,000 pounds of lime an acre to correct the acidity.
Owing to their poor drainage and their silty heavy texture, these soils do not warm up so early in the spring and plowing is much later than on the well-drained Sassafras soils. The silt loam clods when it is not piowed under proper moisture conditions, and when wet it runs together. These soils require stronger work animals and heavier machinery for their successful operation than do the Sassafras soils. Barnyard manure or any form of organic matter greatly improves their physical condition.

In comparison with the Sassafras soils, the Elkton soils are considered poor agriculturally. About two-thirds of the land occupied by the Elkton soils in Talbot County is cleared, and perhaps about one-half of the cleared land is used for pasture. On the uncleared part the tree growth consists principally of white, Spanish, and black oaks, loblolly pine, holly, black gum, and an undergrowth of maple, huckleberry, and other shrubs. Only a few areas of merchantable timber remain.

The Elkton soils are used mainly for the production of corn, wheat, and hay, and some crops are grown for canning. Truck crops are grown because of the necessity of having a cash crop rather than because of the adaptability of these soils, in many places, for such crops. These soils seem well suited to the production of soybeans. If the farmer has none of the well-drained brown soils for growing canny crops, the Elkton soils are used. Near Chesapeake Bay and some other large estuaries, farming is supplemented locally by fishing and oystering.

**Elkton silt loam.**—Elkton silt loam, locally known as “white-oak land,” has a light-gray or almost white surface soil to a depth ranging from 6 to 10 inches. In the forested areas a thin veneer of leaf mold covers the surface, or a slight accumulation of organic matter is present in the first inch or two of soil. The surface soil is very silty, having a flourlike feel when dry but being clammy when wet, and it runs together after rains and bakes on drying. The subsoil is light-gray or bluish-gray, mottled with rust brown and in some places yellow heavy plastic silty clay or clay. It is sticky and plastic when wet but becomes compact and hard when dry and cracks. Below a depth ranging from 30 to 40 inches is light-gray sandy loam or sand, which is usually saturated with water. In places the subsoil is bluish-gray or lead-colored silty clay which is only slightly mottled.

Elkton silt loam is the most extensive soil in Talbot County. It is an important agricultural soil and is developed in large continuous areas in the western half of the county, mainly in the vicinities of Unionville, St. Michaels, McDaniel, Bozman, Bellevue, Royal Oak, Kirkham, and Trappe and southeast of Trappe. It is the principal soil in the peninsulas lying between the estuaries.

Approximately 60 per cent of Elkton silt loam has been cleared and is either farmed or used for pasture. About 45 per cent of the cleared land is seeded to wheat, and the yields range from 12 to 25 bushels an acre. About 35 per cent is devoted to hay crops, which yield from 1 to 1½ tons an acre, and about 15 per cent to corn, with yields ranging from 30 to 35 bushels. A small acreage is devoted to the production of canny crops, principally tomatoes. In the vicinity of Cordova crops of various kinds are grown for canning.
Bordering some of the larger estuaries or bays, fragments of shells are mixed throughout the surface soil, and in these well-drained places sweetclover and alfalfa grow, indicating the effect of good drainage and lime on the soil.

In Dorchester County, Elkton silt loam is one of the principal agricultural soils, especially where the land has been drained and the soil manured and properly handled. It appears that the essential step in the improvement of the Elkton soils is adequate drainage. This should be followed by an application of lime sufficient to correct the acidity. The incorporation of barnyard manure or the turning under of green-manure crops not only loosens the soil and improves the aeration but adds the needed nitrogen. The yields obtained on Elkton silt loam in any year depend on these factors and the rotation practice.

Elkton loam.—Elkton loam differs mainly from Elkton silt loam in that the surface soil of the loam contains a larger quantity of organic matter, more sand, and is darker. In places there are spots in which the surface soil is black loam or sandy loam, and these areas would have been mapped as Portsmouth loam had they been more extensive. Much of the Elkton loam occurs in slight depressions or saucerlike positions. The soil on the outer edges of these areas is lighter in color and more sandy in texture than that in the interior of the basins. In such places the subsoil is sandy loam. There are some nearly level areas of Elkton loam in the county; the largest of which is south of Claiborne.

Elkton loam occurs in small areas in the extreme western part of the county and to some extent in the eastern part. Some of the largest areas are east of Woodland, south of Stumptown, and north of Wittman. Very little of this soil is used in the production of crops. Corn, wheat, and hay give the best returns. Some of the land has been cleared and is used for pasture. The greater part should be used for pasture and forest.

Meadow.—Meadow occurs in a few narrow strips along the creeks and small streams. It is subject to overflow by fresh water but is not flooded by salt water. The material is extremely variable in color, texture, and structure. It has been washed from the adjoining uplands and deposited by the streams at times of overflow. In its natural condition meadow is best suited for summer pasture for cattle or for wood lots. Only small spots of it have been cleared and used for crops. Some of the streams could be straightened and the channels deepened, and much of the land could be sufficiently drained for agricultural purposes. When this is done and the soil lined, good yields of corn and hay would probably be obtained, but the best use of meadow at present is for pasture.

Tidal marsh.—Tidal marsh occurs in a few narrow strips along Choptank River and in smaller areas in the marshes along the estuaries in the southern part of the county. It lies near sea level and is subject to overflow by brackish or salt water at high tides. The material to a depth ranging from 20 to 30 or more inches is dark drabish-brown slick oozy silt loam or clay loam. It is underlain by sandy material or clay material. A large quantity of grass roots and partly decomposed vegetable matter occurs in the first few inches of the soil and a noticeable quantity in the lower part. This material
is wet or saturated at all times. It supports a rank growth of coarse grass, cattails, and salt-water bushes. Tidal marsh has no agricultural value other than for scant grazing for cattle in some places, where the land is solid enough for the cattle to walk on.

AGRICULTURAL METHODS AND MANAGEMENT

The Agricultural Experiment Station of the University of Maryland has conducted experiments on several of the principal soil types represented in Talbot County, using fertilizer treatments with and without lime in order to determine the most profitable way of handling the soils. The results show that in practically every case there is a slight response to nitrogen, a pronounced response to phosphorus, and very little gain with potash. Where an ample quantity of manure is used there seems to be very little, if any, advantage in using complete commercial fertilizer containing high quantities of nitrogen. Manure applied at the rate of 20 tons an acre for each rotation gives a decided increase in yield. The nitrogen contained in the manure is responsible for a part of this response, but the effect of the manure on the physical condition of the soil is probably the most important. The best treatment seems to be manure at the rate of 20 tons an acre for each rotation, supplemented with phosphorus. The phosphorus should be applied at the rate of 80 pounds of phosphoric acid (P₂O₅) an acre for each rotation. This is equivalent to 500 pounds of 16 per cent superphosphate. The effect seems to be but very little different whether rock phosphate or superphosphate (acid phosphate) is used as the source of phosphorus, provided sufficient manure is used. Lime should be applied to these soils when necessary, but it is advisable not to use it in excess. Organic matter in most places is low and must be supplied either in the form of barnyard manure or green manure. Thus it is evident that rotations should be planned which provide for turning under at least one cover crop. To get the best results with either manure or green manure, phosphorus must be added either in the form of rock phosphate or superphosphate.

In the heavy soil types, such as Elkton silt loam, Sassafras silt loam, and Keyport silt loam, grain farming and dairying should be practiced. On these soils a rotation consisting of wheat, hay (clover and timothy), and corn, with a part of the cornland planted to tomatoes, is a satisfactory rotation. This rotation provides for keeping one-fourth of the plowed land under cultivation each season. It is not advisable to have half the land planted to corn and tomatoes or other cultivated crops each season as is the tendency on some farms, as under such conditions it is very difficult to maintain sufficient organic matter in the soil. On dairy farms a special rotation consisting of corn for silage, followed by winter wheat and three or four years of alfalfa, would be found satisfactory. On farms where this special rotation is practiced, it is usually best to select the required acreage from land located near the farm buildings, provided suitable soil drainage may be had. The total acreage necessary must be determined by the number of cows in the dairy herd, allowing 1 acre of alfalfa for each two dairy animals. If a 5-year rotation

*Prepared by the Agricultural Experiment Station of the University of Maryland*
is practiced, three-fifths of the land will be in alfalfa each season. One crop of alfalfa may be harvested after removing the wheat crop. In the corn, wheat, and hay rotation, 500 pounds of 2–12–4 fertilizer, together with a liberal quantity of stable manure, for each rotation should be sufficient to not only maintain but increase the fertility of the soil. If additional quantities of nitrogen are needed for any crop they should be added as either a top or a side dressing. Where tomatoes occur in the rotation, from 500 to 800 pounds of a 4–8–7 fertilizer should be most satisfactory.

The important lighter-textured soils of the county are Sassafras loam, Sassafras sandy loam, and Sassafras fine sandy loam. These are best adapted to the growing of canning and truck crops. Unless a special canning crop rotation is used the same order of cropping as on the heavier soils might be practiced, except that tomatoes occupy a regular place in the rotation. A cover crop of crimson clover or vetch and rye, to be turned under for the corn, should be grown after the tomatoes. On some farms sugar corn is grown in the area ordinarily devoted to field corn. As with the heavier soils, constant attention should be given to the maintenance of the supply of organic matter in the soil. This means liberal use of manure and green-manure crops and restricting the cultivated area to not more than 33 per cent of the total land farmed. The applications of fertilizer recommended are as follows: For tomatoes, 500 pounds of 4–8–7; for sugar corn, 300 pounds of 5–10–5; and for wheat, 300 pounds of 2–12–4. These soils are also well adapted to the production of alfalfa, but the life of the stand is usually not more than two or three years.

**RECOMMENDATIONS FOR SOIL IMPROVEMENT**

Talbot County contains a wide variety of soil types, and any recommendations made for their improvement must be of a general nature.

As a general county-wide recommendation for improving the physical properties and also the productiveness of the soils of this county, it would seem that the growing of leguminous cover crops, liberal applications of lime, and better drainage would about cover the situation.

Many sections of the county are flat, and in such places especially is it necessary to provide a system of drainage that will carry off the excess surface water. Some sections could be greatly improved by the use of tile drains which can be worked over and do not interfere with the cultivation of the crops; others can be adequately drained with open ditches.

Repeated soil tests have shown that a large percentage of the land is in need of lime, and production has shown marked improvement in the sections where lime is being applied.

Soybeans, cowpeas, rye, vetch, and clovers are recommended as soil-improvement crops and in some sections are now being used extensively. Heavier applications of commercial fertilizers are proving profitable in all sections, particularly in the growing of truck crops and alfalfa.

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*Information supplied by Mr. Brown, Talbot County agent*
On most farms a rather careful study of the situation must be made before soil-improvement methods are recommended, as methods applicable to one farm will probably not be suitable for the adjoining farms. However, no Talbot County farmer will make a mistake by growing legumes, liming liberally, and thoroughly drain- ing his land.

SOILS AND THEIR INTERPRETATION

Talbot County is located just east of Chesapeake Bay and north of Choptank River, in a well-known section of the Eastern Shore of Maryland. The county lies within the brown forest soil region, or the Hudson-Potomac belt, of the Atlantic coastal plain.

The soils of Talbot County are prevalingly light in color, that is, they range from almost white or gray to brown. They have formed under forest cover, mainly of deciduous trees, together with a few pines. All the soils are deficient in organic matter, as there has been no chance for the accumulation of this material as in the grass-covered soils of the West. In the forested areas the upper 1 to 3 inches of the surface soil contains a noticeable quantity of organic matter, and in a few places there is a shallow covering of leaf mold and plant débris.

The soils of the county are either neutral or slightly acid in reaction. The light-colored Elkton soils are prevalingly acid and require rather heavy applications of lime to neutralize the acidity. There has been and still is much leaching going on. The rainfall is heavy and the temperature is mild, and large quantities of the bases have been leached from the surface soil, particularly in the more sandy-textured soils. Erosion has been active on the more rolling areas, and in many places a noticeable quantity of material has accumulated at the bases of the slopes as a result of sheet erosion. In some places the finer material from the slopes and ridges has been carried away by the lateral movement of the rainfall in the soil.

In Talbot County the soils are developed on, and derived from, two distinct classes of materials, the Wicomico and Talbot formations, which consist of unconsolidated beds of sands, sandy clays, and silts. The dividing line, or scarp line, between these two formations is easily discerned and continuous throughout the county. It extends in an almost north and south direction through Easton. Practically all the area lying west of this line consists of a low, level plain and is locally known as the Talbot terrace. The materials comprising this formation are younger than those of the Wicomico formation, and in many places, especially to the north-east of Easton, they penetrate those of the Wicomico formation. The soil materials in the extensive forelands and necks are mainly silt deposits and resemble some of the loessial material in other parts of the United States. The silt deposit occurs also in many areas, especially in the flat stretches, in the uplands. Much of this material maintains the constructional form as it was laid down under the sea. Such flat areas have suffered little from erosion and have been only slightly modified by present drainage.

The coarser or more sandy materials, comprising the Wicomico formation, consist of beds of sands and sandy clays and occupy all
the eastern half of the county or that part lying east of a north-south line extending through Easton. Erosion has been more active in this part than in the western part of the county, as this region is somewhat higher and natural drainage ways have developed. There has also been better aeration and more complete oxidation of the soil material than in the foreland region.

Underlying all the soils of the county, below a depth ranging from 3 to 4 feet, are beds of coarser material, in most places alternate layers of sand, sandy clay, and gravel. These alternate strata are of various thicknesses, ranging from thin seams to 2 or more feet, and they present a great variety of textures and colors. This sandy and light-textured substratum provides good drainage to the greater part of the soils of the county. It is this good drainage, by producing excellent aeration, that has developed the yellowish-brown or reddish-brown colors in the profile of the Sassafras soils.

With respect to color, drainage, oxidation, and aeration of material, there are two distinct groups of soils in Talbot County. The greater part of the soils in the eastern part of the county have been classed in the Sassafras and Keyport series. The Sassafras soils constitute the normal maturely developed soils of Talbot County and may be considered the soils which express the normal characteristics of the climate. They are mature podzolic soils having an eluviated A horizon and an illuviated B horizon.

In the western part of the county the Elkton soils predominate in the necks and foreland and on the low flat areas. Strips of Keyport soils border most of the estuaries. These soils have not developed normally mature profiles, or profiles characteristic of the region. They are young in their profile development, owing to imperfect drainage, aeration, and oxidation. Here the soils have been subjected for a long time to the influence of excessive moisture and imperfect internal drainage during parts of the year and to conditions of deficient moisture during periods of dry weather, that is, to alternating wet and dry conditions. The surface soils are gray or nearly white. They are heavier in texture than the mature soils, and the subsoils are tougher, more compact, and more mottled than those of the eastern side of the county. Here no sharp lines mark the various horizons in the profile.

The profile descriptions of representative sections of Sassafras loam, Elkton silt loam, and Keyport silt loam, at definite localities, give the ranges from the normally developed soils to the soils which have not developed a normal profile.

In an area of Sassafras loam 1½ miles south of Skipton, the 0-to-1 inch layer is dark-gray loam containing a large quantity of organic matter, with some forest débris on the surface. Between depths of 1 and 14 inches the material is light-brown, mellow, and friable loam of almost single-grained structure. These two layers constitute the A horizon.

The B horizon, between 14 and 34 inches, is reddish-brown heavy sandy clay or clay loam. It is friable, breaks into irregular lumps, and is easily crushed between the fingers into a friable mass. The color of the outside of the breakage particles is the same as on the inside. The cut surface of this layer appears yellowish brown or brownish yellow. The heavy texture of the B horizon bears evidence
of the well-advanced stage of development in the soils of this region. It is the seat of deposition of material carried down from above by the downward percolation of soil water. Consequently it contains a higher percentage of finer material than the A horizon. It is the alluviated layer and constitutes the reservoir of soil moisture and usually contains a higher percentage of potash than the surface soil. It is the lowest horizon in which weathering and oxidation of the soil material is approximately complete. Below this uniformly oxidized layer is the C horizon which consists of alternating yellow or brown layers of clay material, sandy material, or sand and gravel. There is no uniformity in the color, texture, or structure of this underlying material.

A sample of Elkton silt loam, taken near Kirkham, shows the following profile:

0 to 1 inch, gray silt loam containing much organic matter or organic debris on the surface.
1 to 6 inches, light-gray or nearly white silt loam having a floury, powdery feel. The light color and high percentage of silt are the most marked characteristics of this layer.
6 to 12 inches, light-gray heavy silt loam, mottled with rust brown or yellow.
12 to 44 inches, bluish-gray heavy silty clay slightly mottled with rust brown. The material is plastic when wet but when dry breaks into cubes and blocks having a smooth shiny bluish-gray surface on the outside of the breakage particles and being bluish gray, mottled with rust brown, on the inside.
44 to 60 inches, gray sticky sandy material saturated with water. Below this layer a heavy blue clay or sandy material is reached.

Occupying a position between the Sassafras and Elkton soils is an intermediate grade of material as regards color, drainage, and consistency. These conditions give rise to soils that have been grouped in the Keyport series.

A sample of Keyport silt loam, taken three-fourths mile northeast of Oxford, shows the following profile:

0 to 9 inches, brownish-gray mellow and friable silt loam, having a powdery feel.
9 to 22 inches, brownish-yellow silty clay loam which breaks into irregular-shaped particles or lumps but is easily crushed to a granular structure. The particles, or lumps, when cut, have a somewhat yellow cast. In places breakage planes show gray coatings, and small insect holes are filled with gray and brownish-gray material. These two layers of material are somewhat similar to the corresponding layers of the Sassafras soils.
22 to 54 inches, light-gray heavy silty clay, streaked with rust brown or yellow. This material is compact and hard when dry and breaks into irregular-shaped lumps that are crushed with difficulty. The material is plastic when wet but not quite so heavy as the corresponding layer of Elkton silt loam.
54 inches +, yellow or brownish-yellow stratified sand or sandy clay material.

The other soils of the Sassafras series differ from the Sassafras profile described mainly in texture and consistency. This also holds true for Elkton loam, which differs from Elkton silt loam, and for Keyport loam, which differs from Keyport silt loam. In addition to the soils described in this report are two classifications of recently deposited materials which give rise to meadow and tidal marsh. These materials are so young and so saturated by water that no soil development has taken place.
SUMMARY

Physiographically, Talbot County consists of two plains, separated by a gentle slope, a low level poorly dissected foreland plain and a higher more dissected upland plain.

Most of the foreland plain, comprising the western half of the county, lies at an elevation of less than 20 feet above sea level. This part of the county is severely indented by estuaries. The interior of this low foreland is poorly drained.

Most of the upland plain is well drained, except in flat places where dissection has not yet reached. The dissection nowhere is very deep, and the slopes toward the streams are gentle. The highest elevation of the upland is about 75 feet above sea level. The foreland country is rather uniformly level, whereas the upland region contains many depressions.

The soils of the county comprise two main groups, the Sassafras group, or brown well-drained soils, and the Elkton group, or light-gray poorly drained soils.

The brown well-drained soils of Talbot County are among the most productive and the easiest to manage of any of the soils in this section of Maryland. The yields of wheat on the heavier Sassafras and Keyport soils almost equal the yields on the best wheat soils in the United States. The sandier soils are adapted to truck crops and fruits. The light-gray heavy soil is not generally considered a good soil, but with good management it is important for the production of wheat, hay, and pasture.

The dominant crops in Talbot County are corn, wheat, and hay. Canning crops are also important. All the crops grown in this section of the country are produced in every part of the county, irrespective of the soil type. Tomatoes, sugar corn, garden peas, and beans are the principal vegetable truck crops grown for canning.

Sassafras loam, Sassafras silt loam, Keyport silt loam, and Elkton silt loam are best suited to livestock raising and dairying. These soils cover between 75 and 80 per cent of the county. Acre yields on these soils, with the exception of the Elkton soils, where yields of corn are low, are as follows: Wheat, from 15 to 35 bushels; corn, from 35 to 75 bushels; and hay, from 1½ to 2½ tons.

Talbot County offers attractive inducements to prospective settlers desiring to do general farming in connection with dairying and livestock raising. The waters abound in fish, oysters, and crabs. Fishing in the summer and duck hunting in the winter are attractive to sportsmen, and much of the water-front property is being bought up by sportsmen and families seeking a quiet, cool place to spend their summers.
Authority for printing soil-survey reports in this form is carried in the acts making appropriations for the Department of Agriculture, as follows:

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 soil area surveyed by the Bureau of Chemistry and Soils, Department of Agriculture, in the form of advance sheets bound in paper covers, of which not more than two hundred and fifty copies shall be for the use of each Senator from the State and not more than one thousand copies for the use of each Representative for the congressional district or districts in which a survey is made, the actual number to be determined on inquiry by the Secretary of Agriculture made to the aforesaid Senators and Representatives, and as many copies for the use of the Department of Agriculture as in the judgment of the Secretary of Agriculture are deemed necessary.
Areas surveyed in Maryland, shown by shading
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