

SOIL SURVEY OF M'CRACKEN COUNTY, KENTUCKY.

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LOCATION AND BOUNDARIES OF THE AREA.

McCracken County comprises an area of 155,136 acres or about 242 square miles, situated in the western part of Kentucky. It is included between the parallels of $36^{\circ} 56'$ and $37^{\circ} 12'$ north latitude and the meridians $88^{\circ} 30'$ and $88^{\circ} 52'$ west longitude. It is bounded on the north by the Ohio and Tennessee rivers, on the west by Ballard County; on the south an east-and-west line divides it from Graves County, and on the east it is separated from Marshall County by a north-and-south line. Paducah, the county seat and the only important town, is advantageously situated at the junction of the Ohio and Tennessee rivers.

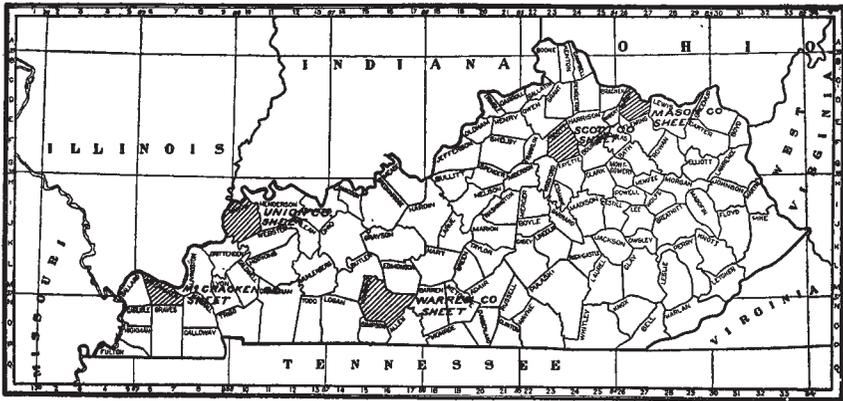


FIG. 28.—Sketch map showing location of the McCracken County area, Kentucky.

HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

The western part of Kentucky was secured to the United States in a general way by the expedition led by George Rogers Clark, during the Revolutionary war, but no attempt was made to occupy the country for many years after the close of the war and the region remained in possession of the Indian tribes. The area now forming McCracken County was a part of what is known as the Jackson Purchase. The Purchase, embracing in Kentucky the land lying between the Tennessee and the Mississippi rivers, was bought, in 1819, from the Chickasaw Indians and opened to settlement. McCracken County, at first a part of Hickman County, was given a separate government

in 1824. Gen. George Rogers Clark, on account of his valuable services during the Revolutionary war, was granted by Congress two tracts of land in the Purchase, one of which embraced the greater part of McCracken County, including the present site of Paducah. This tract was supposed to contain 37,000 acres of land, but by actual survey it was found to cover an area of twice that size. The land soon passed out of the possession of General Clark and his heirs, and was opened to settlement by the public.

The early settlers of this part of Kentucky were for the most part from Virginia and Maryland, with a smaller proportion from Pennsylvania and the Carolinas. Among the immigrants of later arrival who contributed much to the welfare of the county were the Germans who settled in the southern part of the county. Though the land first taken up by them was probably the least productive in the area, they have through industry and patience been uniformly successful in their farming.

Nearly all the early settlers were familiar with the cultivation of tobacco, and this product has from the beginning been the chief money crop of the McCracken County farmers. For breadstuffs the early settlers grew corn and small grains, while the hogs and cattle, kept on the public ranges, furnished them meat at small cost.

The agricultural history of this region has been uneventful, from the first attempts to cultivate the soil to the present day. Corn, tobacco, and wheat have been the staple crops, though the relative acreage devoted to each crop has fluctuated according to prices and changing conditions. In recent years there has been a tendency to make tobacco a less important crop, as the low price of the product and the decrease in the yield on a large part of the lands have caused the farmers to consider the advisability of practicing a crop rotation to maintain the productiveness of lands in cultivation and to improve those already exhausted by the continuous cultivation to one crop. This has resulted in the practice, now becoming general, of rotating with cowpeas to improve the soil, and the results obtained from the practice are such as to justify its continuance.

The increase in population and wealth of the county has furnished the farmer a growing market, and the demand for agricultural products has equaled the production. When the river was the only avenue of transportation, the advantageous site of Paducah naturally made it one of the most important towns of western Kentucky, and it has always enjoyed a large share of the river commerce. Since the railroads have taken much of the traffic that formerly belonged to the river, such lines have been laid into Paducah from all sides and the farmers have profited by abundant transportation facilities. In 1853 the first railroad through McCracken County was projected under the name of the New Orleans and Ohio Railroad. This road

is now a part of the Nashville, Chattanooga, and St. Louis Railway. In 1872 the Paducah and Elizabethtown Railroad, now known as the Illinois Central Railroad, was completed to Paducah. The line connecting Paducah and Cairo was completed in 1904 and became a great convenience to the farmers of the western part of the county.

CLIMATE.

The tables given below show the normal monthly and annual temperature and precipitation for Paducah, in McCracken County, and Blandville, in Ballard County. As these stations represent the extremes of elevation and distance from the rivers the figures compiled here may be safely taken to represent the average climatic conditions of McCracken County. The annual mean temperature, as shown by these tables, is nearly 60° F. The heaviest rainfall is likely to occur in the early summer and short droughts are expected during the fall months, but extremes are very rare.

Normal monthly and annual temperature and precipitation.

Month.	Paducah.		Blandville.		Month.	Paducah.		Blandville.	
	Tem- pera- ture.	Pre- cipita- tion.	Tem- pera- ture.	Pre- cipita- tion.		Tem- pera- ture.	Pre- cipita- tion.	Tem- pera- ture.	Pre- cipita- tion.
	° F.	In.	° F.	In.		° F.	In.	° F.	In.
January.....	37.2	4.02	34.9	4.52	August.....	80.6	2.90	77.6	1.78
February.....	36.2	3.62	33.1	3.19	September...	73.9	3.17	70.8	3.25
March.....	49.5	4.76	47.1	5.33	October.....	61.8	2.40	59.4	2.67
April.....	59.4	4.05	55.9	3.60	November...	49.4	4.05	47.0	3.51
May.....	69.9	3.87	67.3	3.87	December...	38.9	3.63	36.2	4.14
June.....	77.8	5.33	75.1	5.07	Year...	59.6	45.55	56.9	45.13
July.....	81.3	3.75	78.2	4.20					

Data relative to the dates of the latest and earliest killing frost in spring and autumn show that at Paducah there are, on an average, 207 days free from frost. At Blandville, owing to its elevation, the average is less, 196 days being frostless. This gives a growing season generally of sufficient length for all crops attempted in this latitude. When the tobacco crop is late, however, it is sometimes caught by an early frost, but this is of rare occurrence. Peaches are uncertain, owing to the frosts occurring late in the spring.

The climate is reasonably even and pleasant. The springs and autumns are long and delightful. In the uplands the healthfulness of this region is unsurpassed. In the comparatively small bottom land areas malarial disorders are prevalent, particularly in the more unsettled districts. This condition will doubtless disappear wholly or in part as the bottom lands are drained and brought under cultivation, as this has been the usual history of such districts elsewhere.

PHYSIOGRAPHY AND GEOLOGY.

The surface of McCracken County may be divided into two physiographic divisions—the uplands, occupying the greater proportion of the area, and the comparatively narrow bottoms extending as strips along the larger streams. The uplands rise abruptly from the rivers or their low-lying flood plains to a height of 40 to 50 feet near the streams, and attain a height of more than 100 feet above river level in some parts of the county. These uplands vary in topography from sharply rolling hills, with occasional steeply eroded sides in the southwestern part of the county, to stretches of nearly level land several square miles in extent, most common in the eastern side of the county.

The surface material of the uplands, and the formation from which the soil is almost entirely derived, is a yellow unconsolidated silt or its weathered product. This silty material, to which the term loess has been applied, is widely distributed over the Mississippi Basin, as well as over the Rhine Valley in Europe, and large districts in China. The vast extent of the deposits, its uniformity, and the lack of well-marked stratification lines have involved its origin in doubt, and the probable manner of its deposition is still a matter of contention among geologists. It is certain that the loess was assorted by either wind or water, or both, during the glacial period, from the mass of material left over regions to the north of this area at the time of the retreat of the ice sheet. Whether the silty loam of the area is derived from the original deposit or from some of the material that was transported and redeposited is immaterial, but it is evident that the loess mantle was of a general uniform thickness, as it covers hilltops and valleys to a depth of 6 to 10 feet. The loess rests unconformably on a bed of reddish-brown gravel or coarse, loosely cemented conglomerate. This lower stratum enters but rarely into the composition of the surface soil, as it is only exposed in narrow bands along the deeper stream slopes.

The second physiographic division of the area includes all the alluvial lowlands. Of these two subdivisions have been made, based on the character of the prevailing soils. The heavier type of soil, to which the name Waverly clay has been given, occupies a strip of uniform width along almost the entire course of the Ohio River and extends a short distance up the Tennessee River. These rivers bring their sediments from great distances, and they are made up of a great variety of materials, so that the heavy clays deposited over these bottoms are distinctly different from the deposits of the smaller streams. The lighter soil is found along the smaller streams, the largest area of which follows Mayfield Creek in its course through the county. This type is of more local derivation and consists largely of reworked material from the silt-covered uplands. Both of these soils are of very recent age, and, except on the higher bottoms, they are yet

in the course of deposition, as fresh accretions of soil are obtained from the sediments of the streams in every time of flood.

The rainfall over McCracken County is drained off in three portions, which find their way, respectively, to the Tennessee, the Ohio, and the Mississippi rivers. Of the smaller streams only Mayfield Creek and Clarks River maintain their flow throughout the year, and both of these have their source outside the county. The local drainage is effected by a number of small intermittent streams, which become dry after a short period of drought. There is sufficient slope to provide ample drainage for all parts of the area, though the drainage of some of the more level lands must be assisted by surface ditches. The small streams are not cutting back into the hills with great rapidity, which is extremely fortunate, as the loess succumbs rapidly to running water, and in other localities where this material is found washing and gully-ing have progressed to such an extent that the protection of the farming lands is a very serious problem. In McCracken County it is only necessary to keep the land well covered with vegetation and exercise a little care in dealing with the washes that start on newly plowed land, to hold the soil intact.

SOILS.

The soils of McCracken County have been divided into three types— one upland type, called the Memphis silt loam, and two alluvial types, the Waverly clay and the Waverly silt loam.

The area of each soil and the percentage of the total area are given in the following table:

Areas of different soils.

Soil.	Acres.	Percent.
Memphis silt loam.....	139,776	90.1
Waverly clay.....	9,536	6.1
Waverly silt loam.....	5,824	3.8
Total.....	155,136

MEMPHIS SILT LOAM.

About 90 per cent of the surface of McCracken County, comprising the whole of the upland, is covered by the Memphis silt loam. The soil, to a depth of 8 to 12 inches, is a silt loam, composed mainly of silt with smaller percentages of clay and fine sand. The textural difference between soil and subsoil, to a depth of 3 feet, consists of a small increase in the clay content and a decrease in the amount of the various grades of sand. In color the top soil is brown and in some places a chocolate brown, owing to the presence of organic matter. The subsoil has a characteristic yellow, and at a depth of several feet it is often of a

reddish-yellow color. When dry, the Memphis silt loam crumbles readily to a floury material. It dries rapidly and the roads become dusty shortly after rains wherever drainage is at all facilitated. When wet, the soil is slightly plastic and sticky, but does not have the properties of a clay. One of the characteristic features of the Memphis silt loam is its remarkable imperviousness. The common method of providing water for stock is to scrape out a reservoir on the surface and slightly puddle the sides and floor, though no special attention is paid to this part of the work. This pond fills during the rainy seasons and furnishes a supply of water for the stock sufficient to carry them through any ordinary drought. There is practically no underground drainage from the reservoirs and the only waste comes by evaporation. When plowed wet, the soil clods to some extent, but when worked in the proper condition, no difficulty is experienced in preparing the land. The soil often assumes a granular condition after plowing that gives it the appearance of being a coarser material than it really is, but it may be easily reduced to a silty powder. There are few localities in the area where iron stains and iron concretions may not be found in the subsoil, and they are abundantly distributed through the subsoil in those localities where drainage was originally poor. This would seem to indicate an excessive amount of iron in the Memphis silt loam of this area, but the accumulations are seldom in the form of crusts, hardpan, or other large bodies of ferruginous material, and never in such quantity as to interfere with the cultivation of the soil. The Memphis silt loam is uniform in texture over the whole area. The only differences to be observed are those due to the varying proportions of organic matter or to drainage conditions. Over a large part of the area, where drainage was originally poor and the humus content small, the soil is of a pale yellow or white color and the subsoil white mottled with drab, containing many iron concretions. Everywhere, at a depth of from 6 to 10 feet, the Memphis silt loam is underlain by beds of gravel or loosely-cemented conglomerate. The gravel strata are rarely exposed, except in deep and narrow stream channels or on the slope toward the Ohio River, and the areas of soil derived from these outcrops are never of sufficient extent to be of any agricultural importance and have therefore not been indicated on the soil map.

The Memphis silt loam occupies a large area in western Kentucky, stretching beyond the limits of McCracken County toward the south-east and west. It is the most important soil of the county, as it occupies the whole area, except narrow strips of alluvial soil along the larger streams.

The topography of the Memphis silt loam varies from rolling hills, with many precipitous slopes, in the southwestern part of the county, to the "flat woods" of the eastern and central parts, in which areas of several square miles have barely sufficient slope to remove the surface

water. In the hilly section the land washes and gullies where hillsides are left exposed, but the excessive erosion resulting in great bluffs and the perpendicular weathering characteristic of the areas of this type in Mississippi are not seen in McCracken County. The small creeks that drain the greater part of the area are not cutting their channels very rapidly, and some have reached an appearance of maturity. By means of surface ditches the entire area may be drained toward these streams without danger of rapid washing. The surface of the land may be protected from gulying by keeping it well sodded with lespedeza and the native grasses. Uncultivated lands, where well forested or covered with vegetation of any kind, are amply protected against washing, but the farmer in the hill section must constantly guard against gullies starting in his plowed land.

The Memphis silt loam is the product of the weathering of a vast sheet of silty material, known as loess. That the deposit of this material was remarkably uniform in texture and maintained a general uniform thickness is evident from the character and depth of the soil. Over a large part of the county the material has evidently weathered in the position of its original deposition at the close of the Glacial period, but over a smaller part the silt has washed into the depressed localities and formed many, but perhaps not all, of the flat level areas.

A large proportion of the area of this type has never been cleared of its original forest growth. The largest solid bodies of timber cover the level stretches in the eastern part of the county and the steeper hill slopes to the south, where farming would not be advisable, but there is scarcely a farm that does not have considerable acreage of woodland. The forest growth consists of the common varieties of oak and hickory, with a scattering growth of sweet gum, tulip, elm, maple, and chestnut. The hickory thrives especially well on the Memphis silt loam and bears heavily. A few pecan trees grow wild and bear well, but this tree is better adapted to the bottom lands.

The Memphis silt loam has never been classed as a very productive soil for purposes of general farming in comparison with the sedimentary lowland types of this section, but it has always supported a fairly prosperous population. When crop yields are considered, it ranks above the average in agricultural value, and in many sections would be a very desirable type of soil. It has never yet been necessary to make use of commercial fertilizers, as the soil responds readily to green manuring and stable manure, and these have been found efficient in maintaining the productiveness of the soil sufficiently to grow the crops common to this locality.

Tobacco is the principal money crop, though some corn and pea-vine hay is exported nearly every year. A satisfactory yield of tobacco is from 800 to 1,200 pounds per acre. The price varies so greatly from year to year and the quality is so important a factor that no definite idea can be gained as to the average profits, but usually 6 to 10 cents

can be obtained for a good quality, and, as no expenditure is made for fertilizers, it will be seen that the tobacco grower of this part of the State is quite as well off as the majority of growers throughout the country. The average yield of corn is good, as few failures result from any cause. Good crops yield from 25 to 40 bushels, but the average yield for good and poor farmers is below the former figure. Wheat is grown to some extent, but the average yields are small. The crop that is probably grown with greatest profit to the farmer, all things considered, is the cowpea. It is grown to provide feed or pasturage and to improve the condition of the soil. The usual procedure is to cut the vines for hay and leave the roots in the ground. It has been the general experience that this method is preferable to that of plowing under the vines.

Where the Memphis silt loam is left uncultivated it is soon covered with a growth of vegetation that furnishes good pasturage. The soil seems especially adapted to the so-called Japan clover, or lespedeza, which, if not kept down by the cattle, will grow more than a foot high and might be cut for hay, though this is seldom done.

A considerable dairy business is done near Paducah on this type of soil. Market gardening is also carried on to supply the city markets. Some attempt is made to hasten the spring crop by keeping the soil as warm as possible by thorough drainage, and tile is sometimes used for this purpose. No attempt has been made to grow vegetables on a large scale for distant markets.

The growing of fruit on the Memphis silt loam has not been attempted with any system, but the soil seems well adapted to many fruits, especially the apple. Orchards, though neglected and uncultivated, sometimes give results which indicate that a well-cared for apple orchard would be very profitable.

The farmers of the area are much interested in the possibility of growing alfalfa on the Memphis silt loam. One small field of alfalfa near Heath is in a most flourishing condition. Other farmers who have tried to grow it report a failure to secure a stand, so it can not be said with certainty that alfalfa would be wholly successful on this type of soil. There is nothing in the texture of the soil to prevent success, and the farmers should persevere in their efforts to secure a stand of this valuable plant on their farms.

The following table shows the average results of mechanical analyses of the soil and subsoil of this type:

Mechanical analyses of Memphis silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
13365	Soil.....	0.2	1.1	0.6	1.2	3.5	78.3	15.0
13366	Subsoil.....	.4	2.1	.8	1.0	2.9	68.7	23.9

A study of the manurial requirements of this soil was made by the paraffine-pot method. For this purpose a sample was selected from a field $2\frac{1}{2}$ miles east of Woodville. At this place the soil is a dark-brown silt loam, containing a considerable amount of finely divided organic matter with a yellow silt loam subsoil.

The field from which the sample was taken has been under cultivation for more than fifty years, the principal crops being corn, wheat, and occasionally tobacco, with poor crops of cowpeas in recent years. The soil is considered run down, and the yields are unsatisfactory. Results obtained from this examination indicate that an excellent increase in productiveness may be obtained by heavy applications of manure, and that a large increase may be secured by the use of nitrogen, nitrate of soda, or cowpeas or alfalfa. The use of lime gave a small increase, but no increase was obtained by the use of either potash or phosphates.

In these tests wheat plants were used as an indicator, and the results are not held to be applicable to other and unrelated crops or to fields which have received treatments essentially different from that from which the sample was taken. In general, however, they agree with the best farm practice and are, it is believed, applicable to a large part of this type of soil in the areas.

WAVERLY CLAY.

The Waverly clay is the soil of the bottoms formed by deposits from the Ohio and Tennessee rivers in times of overflow. A soil deposited in this manner and derived from the various sources that supply the upper reaches of the rivers with sediment is naturally variable in texture. In general, however, the typical soil of these river lands may be described as a brown clay, somewhat loamy, with an average depth of 15 inches, underlain by a light-colored clay with a larger proportion of clay and silt. Iron concretions are numerous throughout the soil and subsoil, being more abundant in localities where the drainage has been by some means obstructed. Near the Ohio River the newly formed portions of this type sun-crack when drying and break up into blocks several inches in diameter.

The river bottoms covered by the Waverly clay are a series of terracelike formations having an elevation of from 4 to 40 feet above the mean river level. The greater proportion of these river lands is subject to overflows which are of almost annual occurrence in the winter or early spring. It is seldom that floods damage the growing crops, but the spring floods saturate the soil, and in the absence of adequate drainage facilities often hinder the spring planting in the lower bottoms. Some of the highest land of this type is now above the line of high water, and an area of perhaps one-fourth of the bottoms is seldom flooded.

The several terraces were formed at different times in the history of the river, but all are of very recent age from a geological standpoint. As the river has cut its channel deeper, the lands, once low-lying flats subject to frequent overflow, have been left in their present position, where they are seldom if ever flooded.

The low-lying bottoms, flooded periodically and poorly drained, for the most part are still uncleared. A very heavy growth of oak, hickory, gum, and tulip covers the land, and near the streams there are considerable bodies of cypress timber. One of the principal reasons for the uncleared condition of these lands is the prevailing idea that the bottoms are not healthful. The prevalence of malaria in the lowlands shows that this idea is well founded, but it is very likely that these conditions will be greatly improved when the bottoms are cleared and fully drained.

The Waverly clay is naturally the best soil of the county, and nearly the whole of the area of this type will be brought under cultivation in the near future. The prices of both the cleared and the uncleared bottoms have greatly increased within the last few years, which indicates a growing recognition of the agricultural value of this soil.

Corn is the principal crop grown on the Waverly clay and the yields are uniformly large. A yield of 40 to 50 bushels is not uncommon. Cowpeas are extensively grown, either separately or by sowing between the corn rows, though the latter practice is not always best, as the vines make a very rank growth on this soil. Some tobacco is produced, but while the quantity is large the quality is not usually first class. The Waverly clay is adapted to a wide range of general farm crops, and while all crops of the area do well on the bottoms, it is simply a question with the farmer of growing the most profitable. Watermelons, sweet potatoes, and all vegetables that are favored by a heavy loam do well on this type of soil.

The following table shows the average results of mechanical analyses of typical samples of the soil and subsoil of the Waverly clay:

Mechanical analyses of Waverly clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
13616, 14044	Soil.....	0.1	1.0	1.7	5.5	8.1	49.5	33.9
13617, 14045	Subsoil.....	.1	.7	.7	2.9	4.9	54.1	36.4

WAVERLY SILT LOAM.

The very silty bottom lands that usually occur within the Memphis silt loam areas and owe their origin to the wash from the loess hills have been correlated with the Waverly silt loam, a type first encountered in Mississippi. In this area the Waverly silt loam consists of a silt loam

to a depth of more than 3 feet, there being little difference in texture between soil and subsoil. In color, however, at lower depths the soil changes from gray or dark brown to nearly white or more often white mottled with drab. Numerous iron stains and iron concretions occur below the surface foot, and in the more poorly drained localities the iron accumulations are found in thick masses.

The Waverly silt loam occupies the valleys of the smaller streams, the largest and only important area occurring along Mayfield creek, which skirts along the southern boundary of the county. Along the small creeks the Waverly silt loam passes gradually into the Memphis silt loam, but the area of the type along Mayfield Creek, occupying as it does a depressed flood plain, is more distinctly a river deposit, and is more sharply separated from the soil of the uplands. The soil is nowhere as heavy in texture as the typical soil of the Ohio River bottoms and is much more uniform. The only exception to this uniformity are the strips of gravelly soil near the bluffs, where the gravel deposits underlying the loess have been washed down into the lowlands. These strips are narrow and of no agricultural importance.

The Waverly silt loam, wherever found along the smaller streams, is well drained, and only the areas near stream channels are subject to overflow when the streams are swollen. The Mayfield bottoms are more level and drainage is somewhat difficult. The cultivated bottoms are flooded in season of excessive rainfall by the overflow of the creek, and drain off slowly, so that the spring plantings are sometimes delayed, but a failure of crops from this cause is very rare. The lower lying bottoms are elevated but slightly above the level of the stream and are, for the most part, still uncleared. Mayfield Creek meanders through this low flood plain forming the oxbows and cut-offs characteristic of this topography, and overflows the lower levels after every heavy rain. The low flats, comprising about one-fourth of the land deposited by Mayfield Creek, are not suited to general farming, but there is much of the higher land subject to only occasional overflow that will be cleared and brought under cultivation and make valuable farming land. This land is at present covered with a dense growth of oak, sweet gum, hickory, tulip, and cypress. The expense of clearing the densely timbered areas has had much to do with the slowness of bringing them under cultivation, but as the price of land is advancing it is probable that these lands will be cleared more rapidly. A number of sawmills are in active operation cutting out the valuable timber.

In productiveness and general agricultural worth the Waverly silt loam ranks second to the best of the Ohio bottoms. The principal crops grown are corn, wheat, cowpeas, and tobacco. Corn is doubtless the most profitable crop, as failures are rare and the average yield is good. Forty bushels of corn per acre is considered a satisfactory yield, but larger yields are frequently made. The average is about 30

bushels per acre. Tobacco makes a rank growth and produces a greater weight per acre than the uplands, but this increase is usually at the expense of the quality. Cowpeas are extensively grown as in other parts of the county for their feeding value and their beneficial effect on the soil. A large part of the cleared area of the Waverly silt loam and the whole of the wooded portion is devoted to pasture, and the cattle find good grazing on the lespedeza and native grasses.

Alfalfa has never been tried on the Waverly silt loam in this area, so it can not be said that this crop would be successful, but it is probable that it would do well on the better drained portions of the type.

The following table shows the results of mechanical analysis of the soil and subsoil of the Waverly silt loam:

Mechanical analysis of Waverly silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
14043	Soil.....	1.1	3.0	2.3	4.1	3.5	65.6	20.1

AGRICULTURAL CONDITIONS.

McCracken County has always borne an unfavorable comparison with the surrounding counties that have a larger proportion of alluvial land, but when we consider the total agricultural wealth of the county and the yield of the soil, when compared with the average for the entire country, it will be seen that this depreciation is, to a large extent, unmerited. The average production is good, crop failures are rare, the average wealth per capita of the farming class is high, and the farmers are now enjoying a period of great prosperity. One of the most noticeable indications of the latter fact is the large number of new houses that are being built throughout the country. New land is coming into cultivation, and the price of farm property is steadily rising. More money is spent on public improvements, and the country roads are being rapidly brought into a condition befitting the wealth and ability of the county.

The arable land of McCracken County amounts to more than 133,500 acres, of which 84,704 acres are improved and cultivated. The average farm, according to the census of 1900, from which these figures are taken, contains 85.7 acres. The tendency is toward a decrease in the size of land holdings, which will be in every way beneficial, as neither the character of the soil nor the labor conditions favor farming on an extensive scale. The percentage of farms operated by the owners is 62.2, and the proportion of farmers owning the land they cultivate seems to be on the increase.

The price of good upland in McCracken County ranges from \$20 to \$50 an acre, varying with the character of improvements and the

distance from the railroads. Remote and unimproved lands are much below these prices. The river lands have greatly enhanced in value within the last few years, but so little changes hands that it is difficult to form a general estimate. Prices range, however, from \$25 to \$75 an acre, depending upon the amount of clearing and improvements and the liability to overflow. Despite the fact that there is much undeveloped land in the county there is a small but steady flow of emigration, chiefly to the Far West. The loss to the farming population by this cause is counterbalanced by an inflow from Illinois and other Northern States to take advantage of the cheaper lands in McCracken County.

Labor for farm operations is scarce and fairly high priced, owing to the proximity of manufacturing enterprises. Little hired labor is employed during the ordinary farming season, because of the diversity of crops and the distribution of work over a long season. The only season when labor is imperatively demanded is during the cutting and curing of tobacco. The usual price for labor at that time is \$1 a day or about \$20 a month with board. A large part of the farmers, however, get along by an exchange of labor during the busy season, as their tobacco crops do not reach maturity at the same time. The labor is both white and colored, and is fairly efficient. There is noticeable here, as nearly everywhere in the South, a tendency upon the part of the colored population and of that portion of the white dependent upon day labor to move to the towns where new manufacturing plants and construction work of all kinds offers more remunerative employment and more agreeable surroundings.

The crop of greatest total value grown in the county is corn, which averages nearly 600,000 bushels, and is sufficient to supply the local markets, feed the live stock on the farms, and leave a surplus for shipment. The quality of corn is fair, but more attention should be paid to the breeding and selection of seed corn. The average yield for good and poor seasons and for all types of soil is not far from 25 bushels per acre, but careful farmers may average 35 to 40 bushels per acre.

The crop second in gross value is tobacco. The average acreage devoted to this crop is between 4,500 and 5,000 acres, and the average total yield is not far from 3,000,000 pounds. A large number of farmers have small patches of tobacco, but no one at the present time grows this crop on an extensive scale. Six acres is a good crop for the small farmer, and the average field is less than this. The price received for the product varies widely from year to year, and this is a discouraging feature in the production of an expensive crop. The average price for the tobacco crops, taken as a whole, is from 4 to 5 cents per pound. Crops that have been carefully handled may bring the owner 8 cents, and a fancy lot even more. The tobacco grown is the dark shipping type generally grown throughout northern Tennessee

and western Kentucky. The quality favored by the dealer is a heavy oily leaf as thick and strong as can possibly be grown, but free from coarse, hard ribs and fibers, and the color should range from a light to a dark brown.

The production of this type of tobacco involves the constant work and attention of the farmer from early spring to the latter part of October. The seed is sown in beds and the plants are later transplanted in rows. The land must be constantly cultivated during the summer and the plants kept free from worms. In October cutting and curing are well under way. Curing is carried on in barns over open fires. The process requires several days, during which time the heat is at its height for two days and nights. When thoroughly cured the tobacco is usually sold to dealers, who go through the country and negotiate for the crops as a whole. The dealer then has the tobacco graded, packed into hogsheads of 1,000 to 1,200 pounds weight, and hauled to the storage warehouse at Paducah, from which point it is shipped to the manufacturer. The farmer sometimes hauls his tobacco into town and sells it on the street for the best offer he can obtain from the local buyers. Some of these buyers are direct agents for the large manufacturing companies, both foreign and domestic, but a large number are independent speculators. The greater part of the product of this section finds a market in foreign countries, chiefly in Italy. It is used in the manufacture of smoking and plug tobacco and cheap cigars.

In growing a crop like tobacco, when quality determines so largely the value, every effort should be made to improve the character of the product, and to this end the use of good seed can not be too strongly recommended. The seed used in this county is grown by the farmers themselves, and there is naturally some deterioration unless great care is taken. There would no doubt be much benefit derived from the careful breeding of a desired type of plant and from the more careful selection of seed generally.

The yield of wheat in McCracken County is not encouraging and is only barely sufficient to supply local needs. Cowpeas are extensively grown in all parts of the county, and there is a marked increase in the production, as the benefits to be derived from this crop, both as a feed and as a renovator of the soil, become more widely known. It is the almost universal custom to cut the vines about the time the peas mature. The hay is usually baled in the field and, as a rule, enough of the peas are thrashed to supply seed for the next year's sowing. The income from the sale of farm animals and dairy products amounts to considerable. The cows are usually Jersey, mixed with common stock, but there are a few herds of pure Jersey and Holstein cattle. Sheep are not raised in large numbers as formerly, owing to the destruction of the flocks by dogs. Angora goats are kept to a small extent

and are said to be more hardy than sheep, not likely to be destroyed by dogs, and are in every way more profitable.

Dairying and truck growing are confined to within a few miles of Paducah, which is the chief market for such produce. Dairying is quite profitable, although the prices for milk and butter are not high. This market is also good for all kinds of vegetables, and many make market gardening a business. There are also quite a number of florists, all of whom have made a success.

Fruits, especially apples, yield well, and, considering the profits, this branch of agriculture has been much neglected. Orchards are not cultivated nor cared for, yet under these unfavorable conditions, considerable money is sometimes realized for the fruit produced. Apples nearly always bring a good price, and often, for good quality of the fruit, reach \$1 to \$2 a bushel. Such a price would be considered extremely profitable in most apple-growing districts. The crop is reasonably certain in this locality, and it would seem that the growing of apples would be very profitable to some of the farmers who would devote their whole time to the industry. Peaches are more uncertain, owing to late frosts in the spring. Small fruits do well and are grown to some extent for the local market. The pecan does remarkably well, especially on the river soils. There are many wild trees throughout the river land, and they bear heavily nearly every year. The better varieties would no doubt be very profitable.

The uniformity of the upland soils has encouraged a uniform cropping system throughout the county, and but little difference is made in the treatment of the several types of soil. The time land has been in cultivation seemingly has more to do with the productiveness than any noticeable difference in texture. Newly cleared land is considered best for tobacco of the preferred quality, and the land seems to attain its best condition about the third year of cultivation. The bottoms, for reasons dependent upon both soil and flood conditions, have been largely devoted to corn. It is also generally recognized that melons and all vegetables thrive best on the river soil. On the Memphis silt loam the injurious effects of long cultivation of land to one or two crops are generally recognized, and the cultivation of cowpeas is resorted to for the improvement of this unproductive condition. This procedure has proved of marked benefit in most cases and a continuation of the practice and the exercise of care in the succession of crops may in time bring the upland soils to their former condition of productiveness.

McCracken County is well supplied with transportation facilities to distant markets. Four railway lines radiate from Paducah through the county. Three of these are controlled and operated by the Illinois Central Railroad and one by the Nashville, Chattanooga and St. Louis Railway. Besides these lines of travel the city of Paducah

is in contact with a long line of navigable water by way of the Tennessee and Ohio rivers, which rivers have their junction at Paducah. It is this situation that gives Paducah its preeminence as a shipping point. The river traffic, while not holding its former position, is still of considerable importance. There are quite a number of regular packets that run to Cairo and to points on the Tennessee and Ohio rivers; also many irregular steamers that move large amounts of freight.

The country roads are far above the average as to condition. The main roads leading out of Paducah are of gravel, and the work of improvement is steadily going on. The gravel roads were formerly toll roads owned by private capital, but now all of them are owned by the county and are free to the public. The cost of improving the roads with gravel, as now practiced by the county, is \$400 to \$500 a mile.

Paducah, with its population of more than 20,000, affords the only important market for the produce of the county. Tobacco warehouses have been provided for the storage of that product, and buyers are always ready to take corn and other farm produce. The public market at Paducah affords a place for the sale of vegetables and country produce and is well patronized. The city has a large retail trade, and several wholesale houses do a good business.

There are a number of manufacturing enterprises within the area that consume a large quantity of raw material. Saddles and leather goods, barrels, rope, brick, pottery, and furniture are the principal manufactured products.

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