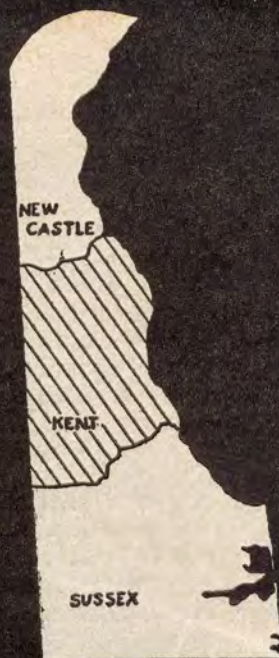


An Economic Study of
 LAND UTILIZATION
 IN KENT COUNTY,
 DELAWARE

by
 R. O. Bausman



Economic Phases of Land Use

What proportion of the land of Kent County is submarginal for cropping purposes? What can be done with this land? What affect does the class of land have on: acreage and kinds of crops grown . . . number and kinds of livestock per farm . . . rates of production of crops and of livestock . . . income of farmers . . . living furnished from the farm . . . size and condition of buildings . . . use of motorized machinery . . . proportion of roads hard-surfaced?

Social Phases of Land Use

What affect does the class of land have on: standard of living of farm families . . . age of farmers . . . nationality of farmers . . . farm experience of farmers . . . number of farmers' sons who become farmers . . . size of farm families . . . education of farmers and of farm children?

old roads

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DIGEST

Since 1900, there has been a decrease in Kent County of 44,523 acres of land in farms. This is an abandonment of 13.2 per cent. Many Kent County farmers have found that it does not pay to use the poorer grades of land for agricultural purpose. The land use, type of soil, size and condition of buildings, crop yields, and net incomes per farm indicate that of the 378,930 acres of land area of Kent County, 138,669 acres (36.6 per cent) were class I land, 19,344 acres (5.1 per cent) were class II land, 109,195 acres (28.8 per cent) were class III land, and 111,722 acres (29.5 per cent) were class IV land at the time of this survey, 1936. Land classes I and II, not being able under existing conditions to produce an adequate farm income, could possibly be utilized to better social and economic advantages as forests, wildlife preserves, and public recreation than for agricultural purposes. More than two-fifths of the land area of Kent County, therefore, is submarginal for agricultural purposes. The general interest of the people of Delaware, and of the large population in near-by metropolitan areas, in wildlife preserves and in public recreational sites, indicates the probable value of developing this phase of the state's natural resources. Land classes III and IV will probably remain permanently in agricultural uses.

AN ECONOMIC STUDY OF LAND UTILIZATION IN KENT COUNTY, DELAWARE

by

R. O. BAUSMAN

Probably one of the chief justifications for a classification of land according to the economic uses for which it is best suited is the fact that farmers themselves have been for many years making adjustments in the use of land. In Delaware, in 1935, there were 144,977 fewer acres of land in farms than there were in 1900. This was a decrease of 13.6 per cent. In Kent County, for the same period, there was a decrease of 44,523 acres of land in farms. This was a decrease of 13.2 per cent, Table 1. A portion of this land has been used for road right-of-ways but a considerable portion has been abandoned for cropping purposes and has been allowed to revert to timber, probably the use for which it is best suited. Farmers have learned that it pays to use only the better grades of land for cropping purposes.

These adjustments which farmers have made have not been entirely voluntary but, for the most part, have been made necessary by economic conditions. Apparently, there are two economic forces which have had a major part in motivating these adjustments. First, the increase in farm wages. "Seventy-five years ago, men were willing to work two days for a bushel of wheat. . . . Before the World War, about two bushels of wheat were required to pay a day's wages. In 1923, it required about three bushels."¹ With low wages, low grades of land could be cultivated at a profit. With high wages, these same grades of land cannot produce high enough yields of crops to return a net gain. High wages make good land more valuable and poor land less valuable for agricultural purposes. Second, the competition of the better grades of land. It is a recognized economic principle that crop and livestock products are produced on the better grade of land in the West and elsewhere at lower costs and are placed on the eastern markets at prices which leave little margin of profit for farm products produced on the lower grades of land in the East.

¹ Warren, G. F., Pearson, F. A., *Gold and Prices*, p. 380. John Wiley and Sons, Inc., 1935.

Acknowledgement—The author is indebted to Mr. F. J. Marschner, Bureau of Agricultural Economics, U. S. Department of Agriculture. Mr. Marschner spent several days in the field advising field men in the technique of using the aerial photographs. He made enlargements of the U. S. Geological Survey Sheets of Kent County to a proper scale for use in this study. He made planimeter measurements of Kent County which served as a base to correct the error in the total of the planimeter measurement by land parcels. His aid made this study more accurate and of greater value. The author is also indebted to Messrs. J. E. H. Lafferty, W. J. Killough, and L. F. Diehl, for doing the field work and assisting in making the land-classification map.

PURPOSE OF STUDY

The purpose of this study is to classify the land of Kent County according to the present economic uses for which it is best suited in order that there may be a scientific basis:

1. For locating areas submarginal for cropping purpose for purchase by the federal and state governments. The federal government recently has purchased two submarginal areas in Kent County for reforestation and wildlife preserves. One area comprises 12,665 acres and the other 2,706 acres.

2. In the event that future study should indicate the desirability of rural zoning in Kent County, this study would serve as a basis for determining zoning areas and thus protect people unfamiliar with the lower grades of agricultural land from purchasing land in these areas.

3. For directing people who desire to purchase farms, to the areas of the better agricultural land.

4. As an aid to established farmers in making adjustments in the use of their land.

5. As an aid in appraising farms for placing mortgages and operating loans.

6. As an aid in farm management studies. Good farm management practices in the best grade of land may be different from those in the next best grade.

7. As an accurate appraisal of the timber, marsh, pasture, and crop resources of the state.

8. As an aid in dealing with some of the rural social problems. Data are presented indicating the effect of the different land classes on age of farmers, nationality of farmers, farm experience of farmers, number of farmers' sons who become farmers, size of farm families, and education of farmers and of farm children.

DESCRIPTION OF KENT COUNTY

Climate

The climate of Kent County is similar to that of the entire region lying between the Delaware River and the Chesapeake Bay. During the summer the days are hot. The high humidity tends to make the heat more oppressive. July, which is the hottest month, has an average temperature of 76.7° F. with a maximum temperature of 104.0° F. During the winter months the atmosphere is usually damp and penetrating. February is the coldest month with a minimum of 12.0° below zero and a mean of 34.6° F.

The mean rainfall is 43.69 inches with a fair distribution throughout the year. Droughts during the growing season occasionally occur, but complete failure of crops is unusual. The normal growing season is about 187 days in length. The average date of the last killing frost is April 20 and that of the first killing frost is October 24.²

Soils

One of the chief soil problems in Kent County is drainage. The western part of the county is quite poorly drained. The drainage problem is not so acute in the eastern part of the county. The central part of the county generally is well drained. The soils fall into four general types; namely, the Sassafras series, the Elkton series, the Portsmouth series, and the Leonardtown series. The Sassafras soils are the most productive and are well drained. The Elkton soils are typically of a grayish color, occupying flat areas and are poorly drained. The Portsmouth soils are black in color in the surface layer and are high in organic matter. They occupy flat areas and are poorly drained. The Leonardtown soils are relatively unimportant in Kent County. The surface soil resembles the Sassafras soils but the subsoil resembles the Elkton types. Drainage is inadequate. The eastern side of the county has wide areas of marsh land, some of which is valuable for wildlife preserves.³

Markets

Kent County is within easy access by railroad and truck to Wilmington, Philadelphia, and New York City. The majority of the fluid milk is shipped to Wilmington and Philadelphia. Most of the fruits, vegetables, eggs, and poultry are shipped by truck to Philadelphia and New York City.

TRENDS IN THE PRODUCTION OF IMPORTANT CROPS, KINDS OF LIVESTOCK, AND LIVESTOCK PRODUCTS IN KENT COUNTY

The number of farms in Delaware, as a whole, and in Kent County has been decreasing slightly since 1910. The number of acres of land in farms in Delaware, as a whole, and in Kent County appears to have been decreasing since 1900, Table 1 and Figure 1. It previously has been pointed out that these trends are due, in part, to the use of land for public improvements, but doubtless are due to a greater degree to the abandonment of land for cropping purposes and allowing it to revert to forests.

² Soil Survey of Kent County, Delaware, Bureau of Soils, U. S. Department of Agriculture, p. 7, 1920.

³ Soil Survey of Kent County, Delaware, Bureau of Soils, U. S. Department of Agriculture, p. 32, 1920.

Table 1—Number of farms and acres of land in farms in Delaware and in Kent County, Delaware, 1850-1935.¹

Year	Number of farms		Acres of land in farms		Index numbers of acres of land in farms 1935 = 100	
	Delaware	Kent County	Delaware	Kent County	Delaware	Kent County
	number	number	acres	acres		
1850	6,063		956,144	282,729	104	96
1860	6,608	1,948	1,004,295	309,582	109	105
1870	7,615	2,309	1,052,322	309,573	114	105
1880	8,749	2,473	1,090,245	319,609	118	109
1890	9,381	2,740	1,055,692	333,328	114	113
1900	9,687	2,814	1,066,228	338,205	116	115
1910	10,836	3,120	1,038,866	335,265	113	114
1920	10,140	2,911	944,511	315,141	102	107
1925	10,257	3,043	899,641	300,576	98	102
1930	9,707	2,874	900,815	302,006	98	103
1935	10,381	2,871	921,251	293,682	100	100

¹ United States Census.

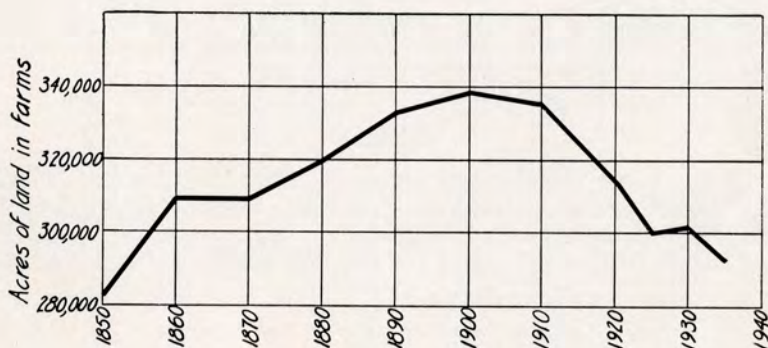


Figure 1—Acres of land in farms, Kent County, Delaware, 1850-1935.

The number of acres of land in farms appears to have been decreasing since 1900. This is due, in part, to the use of land for public improvements. It probably is due more to the abandonment of land for cropping purposes.

The number of milk cows in Delaware increased rapidly from 1850 to 1890. Since 1890 to date, the number of cows has held fairly constant, Table 2. For Kent County there has been an upward trend in the number of dairy cows from 1850 to date, Table 2 and Figure 2. These trends are due to the increasing demand for dairy products in eastern cities.

Table 2—Number of different kinds of livestock in Delaware and in Kent County, Delaware, 1840-1935.¹

Kinds of animals	1840	1850	1860	1870	1880	1890	1900	1910	1920	1925	1930	1935	Increase or decrease during period of data	
	number	number	number	number	number	number	number	number	number	number	number	number	number	per cent
DELAWARE														
Cows milked ²	—	19,248	22,595	24,082	27,284	32,574	32,591	35,708	33,026	32,589	30,057	33,192	+13,944	+72
Swine, all ages	74,228	56,261	47,848	39,818	48,186	44,981	46,732	49,260	38,621	24,106	30,341	26,493	-47,735	-64
Sheep and lambs, all ages ..	39,247	27,503	18,857	22,714	21,967	12,265	11,765	7,806	3,220	1,749	5,326	2,609	-36,638	-93
Chickens over 3 mos. old.	—	—	—	—	268,692	900,212	628,866	785,591	948,656	1,365,032	1,551,114	1,072,909	+804,217	+299
KENT COUNTY														
Cows milked ²	—	5,014	6,178	6,222	7,275	9,067	9,842	11,398	11,827	12,166	10,514	12,311	+7,297	+146
Swine, all ages	27,080	16,092	15,962	11,421	11,830	14,966	13,571	14,667	9,614	7,264	8,580	7,213	-19,867	-73
Sheep and lambs, all ages ..	13,780	7,793	5,514	5,316	6,297	2,840	3,316	4,085	1,237	745	2,025	742	-13,038	-95
Chickens over 3 mos. old	—	—	—	—	64,509	337,082 ³	150,945	233,569 ⁴	246,938	360,612	318,475	300,025	+235,516	+365

¹ United States Census.

² Prior to 1925, dairy cows two years old and over.

³ Apparently in error.

⁴ Poultry of all kinds.

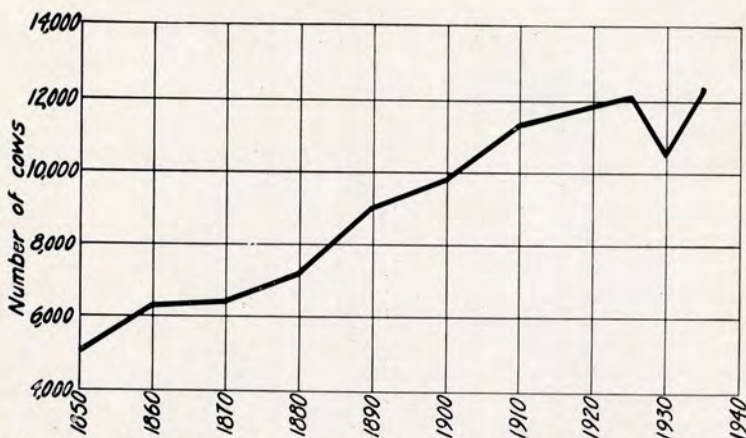


Figure 2—Number of cows milked, Kent County, Delaware, 1850-1935.

The number of cows milked has increased as far back as records are available.

There has been a sharp decrease in the number of swine in Delaware and in Kent County since 1840, Table 2 and Figure 3. Corn is appreciably lower in price in the Corn Belt than in Delaware. Hogs, for the most part, are slaughtered at central Corn Belt packing plants and thus converted into concentrated carcasses on which the marketing costs are relatively low. Because of the low cost of production and the relatively low marketing cost, hogs from the Corn Belt are put on the eastern markets at prices at which there is normally little margin of profit for Delaware farmers.

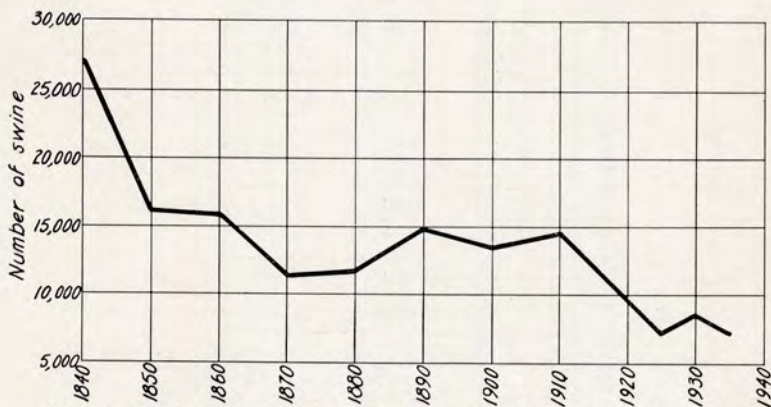


Figure 3—Number of swine, Kent County, Delaware, 1840-1935.

The trend in the number of swine has been downward since records are available.

The trend of sheep production in Delaware and in Kent County also has been sharply downward, Table 2 and Figure 4. The economic background for the trend in sheep production is largely the same as that affecting the hog enterprise.

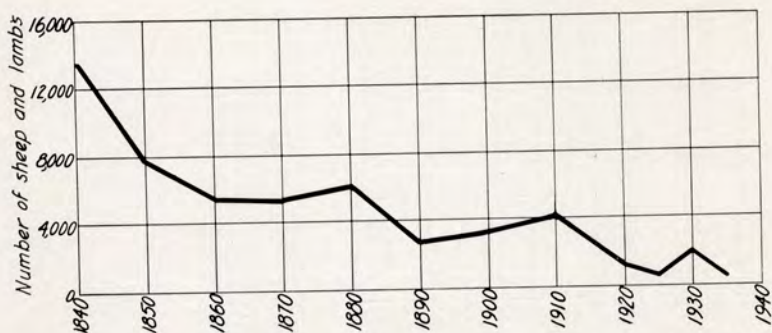


Figure 4—Number of sheep and lambs, Kent County, Delaware, 1840-1935.
The trend in number of sheep and lambs has been downward since records are available.

On the other hand, poultry production, since 1880, has tripled in the state and more than tripled in Kent County, Table 2 and Figure 5. These figures apparently do not accurately record broiler production. If they did the increase in production would be much more phenomenal than these figures indicate. Poultry products in Delaware are marketed as live poultry and fresh eggs. The marketing costs are high because of the perishable nature of eggs and the bulky nature of live poultry. The marketing costs act as a natural tariff against products of a similar nature produced in areas far from market.

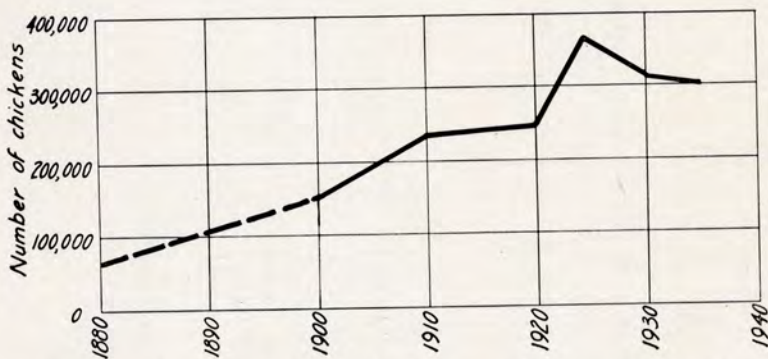


Figure 5—Number of chickens, Kent County, Delaware, 1880-1935.
The number of chickens has nearly quadrupled since 1880.

The increase in the amount of milk produced has been greater than the increase in the number of cows when compared for the same period. This is due to an increase in the milk production per cow because of the better grade of cows and better feeding practices on Delaware dairy farms. The increase in the amount of milk sold has been phenomenal, Table 3 and Figure 6. On the other hand, the amount of butter churned has been

Table 3—Production and sale of dairy products in Delaware and in Kent County, Delaware, 1850-1935.¹

Kind of products	1850	1860	1870	1880	1890	1900	1910	1920	1930	1935	Increase or decrease during period of data	
											number	per cent
DELAWARE												
Milk produced, gals.	—	—	—	—	10,699,362	12,681,268	10,962,356	11,356,313	14,756,728	14,099,350	+3,399,988	+32
Milk sold, gals.	—	—	758,603	1,132,434	—	4,988,462	4,425,909	6,876,251	11,435,267	—	+10,676,664	+1,407
Cream sold, gals. ...	—	—	—	—	—	14,717	25,809	34,252	6,517	—	-27,735 ²	-81 ²
Butter churned, lbs.	1,055,308	1,430,502	1,171,963	1,876,275	2,026,498	1,629,949	1,563,161	894,883	479,609	325,538	-1,700,960 ³	-84 ³
Butter sold, lbs. ...	—	—	—	—	—	1,075,921	1,024,945	675,359	277,705	—	-798,216	-74
KENT COUNTY												
Milk produced, gals.	—	—	—	—	2,637,552	3,380,345	2,821,995	3,660,459	4,891,548	4,778,017	+2,140,465	+81
Milk sold, gals.	—	—	—	89,972	—	741,552	655,479	2,234,535	4,021,423	—	+3,931,451	+4,370
Cream sold, gals. ...	—	—	—	—	—	80	4,817	18,398	1,734	—	-16,664 ²	-91 ²
Butter churned, lbs.	180,016	271,560	221,212	419,312	673,226	533,260	454,114	195,303	84,694	53,271	-619,955 ³	-92 ³
Butter sold, lbs. ...	—	—	—	—	—	312,907	281,315	118,639	44,346	—	-268,561	-86

¹ United States Census.² Period 1920-1930.³ Period 1890-1935.

Data applies to year preceding census date.

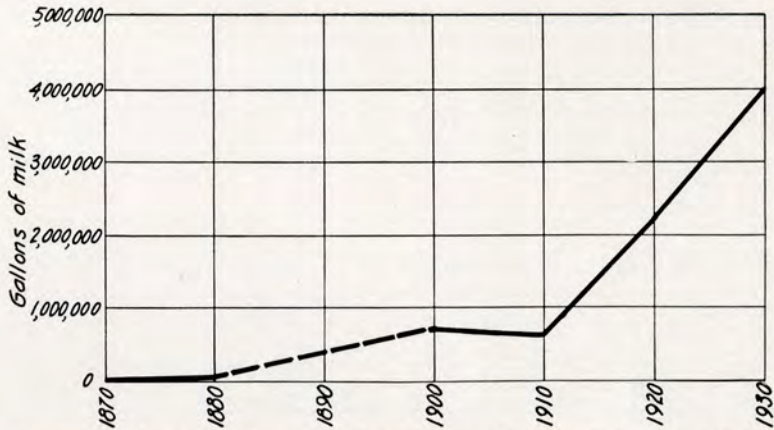


Figure 6—Number of gallons of milk sold, Kent County, Delaware, 1870-1935.
The number of gallons of milk sold has been increasing since 1870.

declining since 1890, Table 3 and Figure 7. This shift in the form in which the product is marketed can be attributed to the increasing demand for fluid milk in eastern cities. Fluid milk is a perishable and bulky product on which the marketing costs are relatively high. This acts as a barrier against fluid milk from areas at distant points from the eastern markets. However, butter, being a concentrated product and less perishable than milk, can be produced economically in areas far from market.

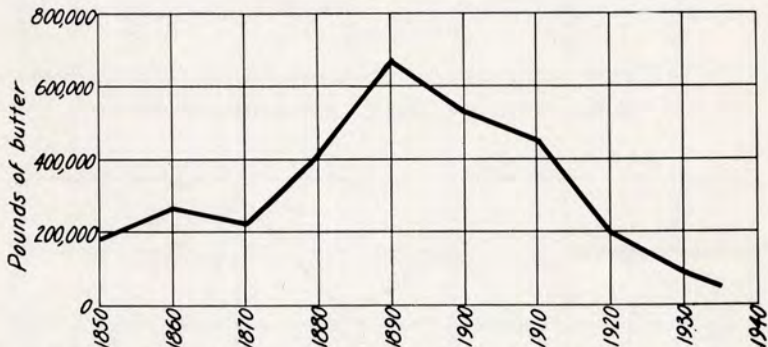


Figure 7—Number of pounds of butter churned, Kent County, Delaware, 1850-1935.

Since 1890, Kent County farmers have been changing from marketing the dairy product as butter to that of fluid milk.

The trend of corn production in Delaware and in Kent County has been downward as far back as data are available, Tables 4 and 5 and Figure 8. Corn being a staple and fairly concentrated product is produced at an advantage in the Corn Belt. Corn in Delaware is grown largely as a feed crop rather than as a cash crop.

Table 4—Acreage of grain crops in Delaware, 1880-1935.¹

Kinds of grain	1880	1890	1900	1910	1920	1925	1930	1935	Increase or decrease during period of data	
	acres	acres	acres	acres	acres	acres	acres	acres	number	per cent
Corn for grain	202,120	174,796	192,025	188,755	170,612	133,182	129,283	136,052	-66,068	-33
Wheat threshed	87,539	94,368	118,740	111,215	125,740	96,703	105,735	80,241	-45,499 ²	-36 ²
Rye threshed	773	775	1,103	1,017	6,198	2,972	5,083	9,094	+8,321	+1,076

¹ United States Census.

² Period 1920-1935.

Data applies to year preceding census date.

Table 5—Acreage of grain crops in Kent County, Delaware, 1880-1935.¹

Kinds of grain	1880	1890	1900	1910	1920	* 1925	1930	1935	Increase or decrease during period of data	
	acres	acres	acres	acres	acres	acres	acres	acres	number	per cent
Corn for grain	60,135	50,507	59,918	56,049	51,817	42,472	38,471	39,382	-20,753	-34
Wheat threshed	35,375	41,966	50,145	45,813	54,289	42,300	46,462	36,340	-13,805 ²	-28 ²
Rye threshed	528	408	806	675	2,155	960	645	2,987	+2,459	+466

¹ United States Census.

² Period 1900-1935.

Data applies to year preceding census date.



Figure 8—Number of acres of corn for grain, Kent County, Delaware, 1880-1935.

The trend of corn production has been decreasing since 1880.

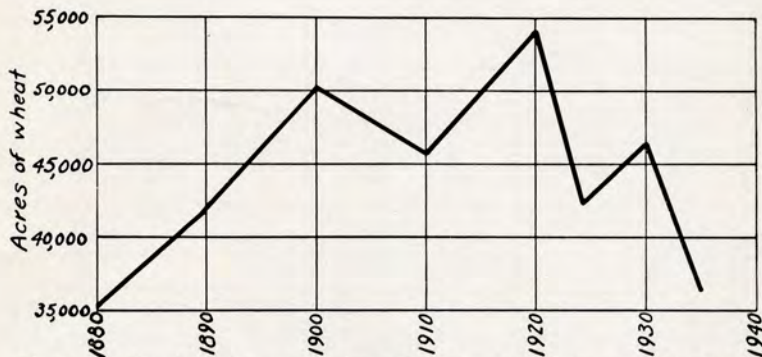


Figure 9—Number of acres of wheat, Kent County, Delaware, 1880-1935.

Eliminating the peak of wheat acreage during the World War, the trend of wheat acreage has been declining since 1900.

Eliminating the peak of wheat acreage during the World War, the trend in wheat acreage in Delaware and in Kent County has been downward since 1900, Tables 4 and 5 and Figure 9. Delaware is at a disadvantage in the production of wheat as it is a recognized economic principle that production costs are less in the West than in the East.

There has been a phenomenal increase in the acreage of alfalfa hay and annual legume hays grown in both Delaware as a whole, and in Kent County, Table 6 and Figures 10 and 11. Delaware farmers are giving more attention to growing a better quality of hay for livestock.

Table 6—Acreage of hay crops in Delaware and in Kent County, Delaware, 1880-1935.¹

Kind of hay crop	1880	1890	1900	1910	1920	1925	1930	1935	increase or decrease during period of data	
	acres	acres	acres	acres	acres	acres	acres	acres	number	per cent
Delaware										
All hay	42,688	76,199	71,732	79,788	70,996	75,292	64,784	60,749	+18,061	+42
Alfalfa hay	—	—	173	205	1,878	3,805	5,308	5,578	+5,405	+3,124
Timothy & clover, alone or mixed	—	—	—	44,452	41,392	49,447	35,228	38,127	-6,325	-14
Annual legumes saved for hay	—	—	—	—	7,138	10,110	10,338	12,697	+5,559	+78
Kent County										
All hay	11,211	24,033	24,085	28,085	22,707	25,705	21,306	19,652	+8,441	+75
Alfalfa hay	—	—	66	132	971	1,296	1,424	1,178	+1,112	+1,685
Timothy & clover, alone or mixed	—	—	—	12,320	13,821	16,939	10,635	11,222	-1,098	-9
Annual legumes saved for hay	—	—	—	—	2,459	4,174	4,705	4,943	+2,484	+101

¹ United States Census.
Data applies to year preceding census date.



Figure 10—Number of acres of alfalfa hay, Kent County, Delaware, 1900-1935.

There has been a phenomenal increase in the acreage of alfalfa hay.

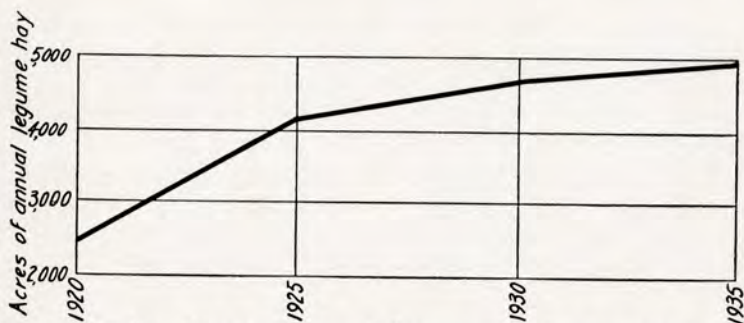


Figure 11—Number of acres of annual legumes used for hay, Kent County, Delaware, 1920-1935.

The increase in annual legumes used for hay has been marked.

There has been a marked increase in the acreage of truck crops for Delaware as a whole. The major part of this increase has taken place in Sussex County where the soils are lighter. The increase in truck crops in Kent County has been less marked. However, eliminating the drop in the acreage during the 1929-1933 depression, there has been a limited upward trend in the acreage of truck crops in Kent County since 1910, Table 7 and Figure 12. This limited increase in acreage of truck crops in Kent County is due largely to the limited areas of light soils adapted to truck crop production. The marketing costs on truck crops are high because of their perishable nature. This gives Kent County farmers an advantage over growers in the West and in the South. Because of economic reasons already pointed out, the margin of profit in the production of truck crops in Delaware normally is greater than in the growing of the staple grain crops. Delaware farmers usually grow a sequence of truck crops or fruits wherever the soil conditions permit.

Table 7—Acreage of truck crops in Delaware and in Kent County, Delaware, 1880-1935.¹

Kinds of truck crop	1880	1890	1900	1910	1920	1925	1930	1935	Increase or decrease during period of data	
	acres	acres	acres	acres	acres	acres	acres	acres	number	per cent
Delaware										
Total vegetables harvested for sale ² ...	—	—	23,987	22,939	30,384	21,087 ³	29,633	37,252	+13,265	+55
White potatoes ...	—	4,870	5,755	9,703	8,255	5,627	4,234	6,803	+1,933	+40
Sweet potatoes ...	2,472	2,158	2,265	5,229	9,813	4,954	6,106	5,500	+3,028	+122
Total truck crops ..	—	—	32,007	37,871	48,452	31,668	39,973	49,555	+17,548	+55
Kent County										
Total vegetables harvested for sale ² ...	—	—	10,388	8,151	9,275	9,142 ³	8,211	9,820	-568	-6
White potatoes ...	—	1,445	1,058	1,313	1,122	2,209	1,358	2,276	+831	+58
Sweet potatoes ...	765	843	808	1,834	1,680	1,286	1,522	1,502	+537	+70
Total truck crops	—	—	12,254	11,298	12,077	12,637	11,091	13,398	+1,144	+9

¹ United States Census.

² Does not include acreage for sweet corn, white potatoes, and sweet potatoes except the years 1910 and 1900 which do include the acreage of sweet corn.

³ Includes acreage for cabbage, cantaloupes and muskmelons, lettuce, onions, tomatoes, and watermelons, only.

Data applies to year preceding census date.

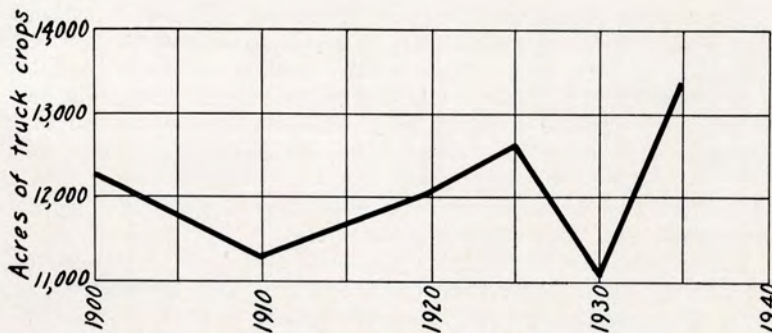


Figure 12—Number of acres of truck crops, Kent County, Delaware, 1900-1935.

Eliminating the drop in acreage during the 1929-1933 depression, there has been an increase in the acreage of truck crops since 1910.

Table 8—Number of fruit trees in Delaware and in Kent County, Delaware, 1890-1935.¹

Kinds of fruit trees	1890	1900	1910	1920	1925	1930	1935
	number	number	number	number	number	number	number
Delaware							
Apple trees of bearing age..	340,648	567,618	429,753	816,109	824,348	792,960	722,956
Peach trees of bearing age..	4,521,623	2,441,650	1,177,402	464,514	—	382,350	386,928
Kent County							
Apple trees of bearing age..	114,371	186,457	182,615	472,835	471,646	470,867	394,582
Peach trees of bearing age..	2,335,740	824,430	596,069	287,194	—	199,995	219,749

¹ United States Census.

Data applies to year preceding census date.

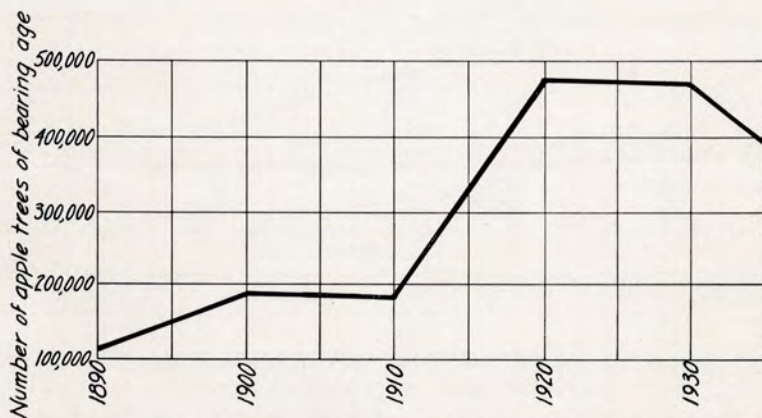


Figure 13—Number of apple trees of bearing age, Kent County, Delaware, 1890-1935.

There was a phenomenal increase in plantings of apple trees during the World-War period. Since that time there appears to be a readjustment in plantings to a more normal state of consumer demand.

There was a phenomenal increase in plantings of apple trees in Delaware and in Kent County during the World-War period. Since that time there appears to be a readjustment in the plantings to a more normal state of consumer demand, Table 8 and Figure 13. There, doubtless, will be changes in the varieties of apples grown in Kent County in order to meet changing market demands. Other fruits on the markets will probably give apples increasing competition. However, because of her strategic position in relation to marketing costs, Kent County will probably continue to be an important apple producing county.

Plantings of peach trees show a marked decrease in Delaware and in Kent County, Table 8 and Figure 14. Peach orchard management at the present time involves grossly different methods than were used in the early part of period in reference. Prior to 1890, peaches were grown on about the same scale as wheat is now grown. The peach belt included northern Kent County, southern New Castle County, and extended across the Eastern Shore of Maryland. Little care was given the orchards and the yields usually were abundant. However, peach tree plantings began to decrease about 1890. Peach production now is in the hands of the relatively few growers who are more expert in peach orchard management and where there is less competition with other types of farming.

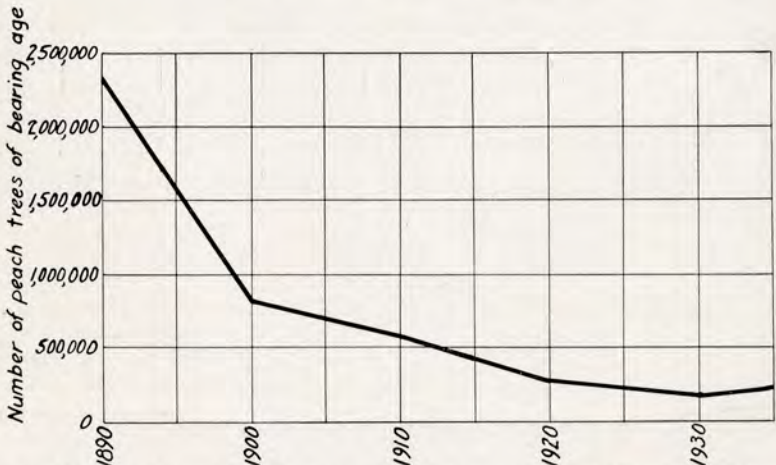


Figure 14—Number of peach trees of bearing age, Kent County, Delaware, 1890-1935.

The plantings of peach trees show a marked decrease since 1890. Apparently, peach production is now largely in the hands of the relatively few growers who are more expert in peach orchard management and where there is less competition with other types of farming.

DISTRIBUTION OF IMPORTANT CROPS AND KINDS OF LIVESTOCK IN KENT COUNTY

Type and drainage of soil are the two chief factors determining the distribution of crops and kinds of livestock within Kent County. The distribution of crops and livestock in Kent County are shown in Figures 15 to 23.



Figure 15—Distribution of the acreage of corn, Kent County, Delaware, 1936.
 The acreage of corn is fairly well distributed over the county. However, the smaller parcels of corn are found in the south-western part of the county. The soils of this area, as a whole, are the least productive and have the poorest drainage of any soils in the county.



Figure 16—Distribution of the acreage of wheat, Kent County, Delaware, 1936.

Wheat is distributed over the entire county; however, a somewhat greater concentration is found in the northern portion. These areas in the northern portion of the county comprise the heavier grades of soil. Some of the soils are well drained while others are poorly drained.

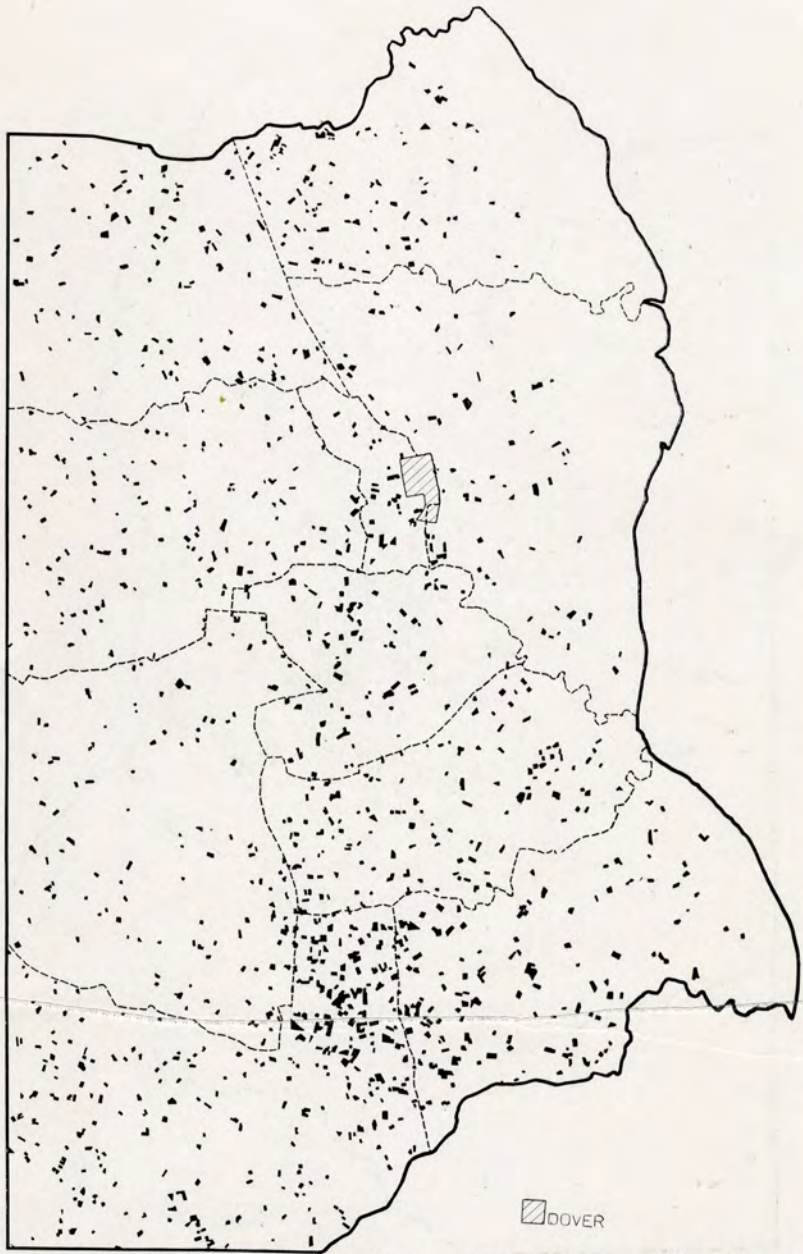


Figure 17—Distribution of the acreage of truck and cannery crops, Kent County, Delaware, 1936.

Truck and cannery crops are grown largely in the south-central part of the county. Truck and cannery crops follow the lighter soils rather closely.

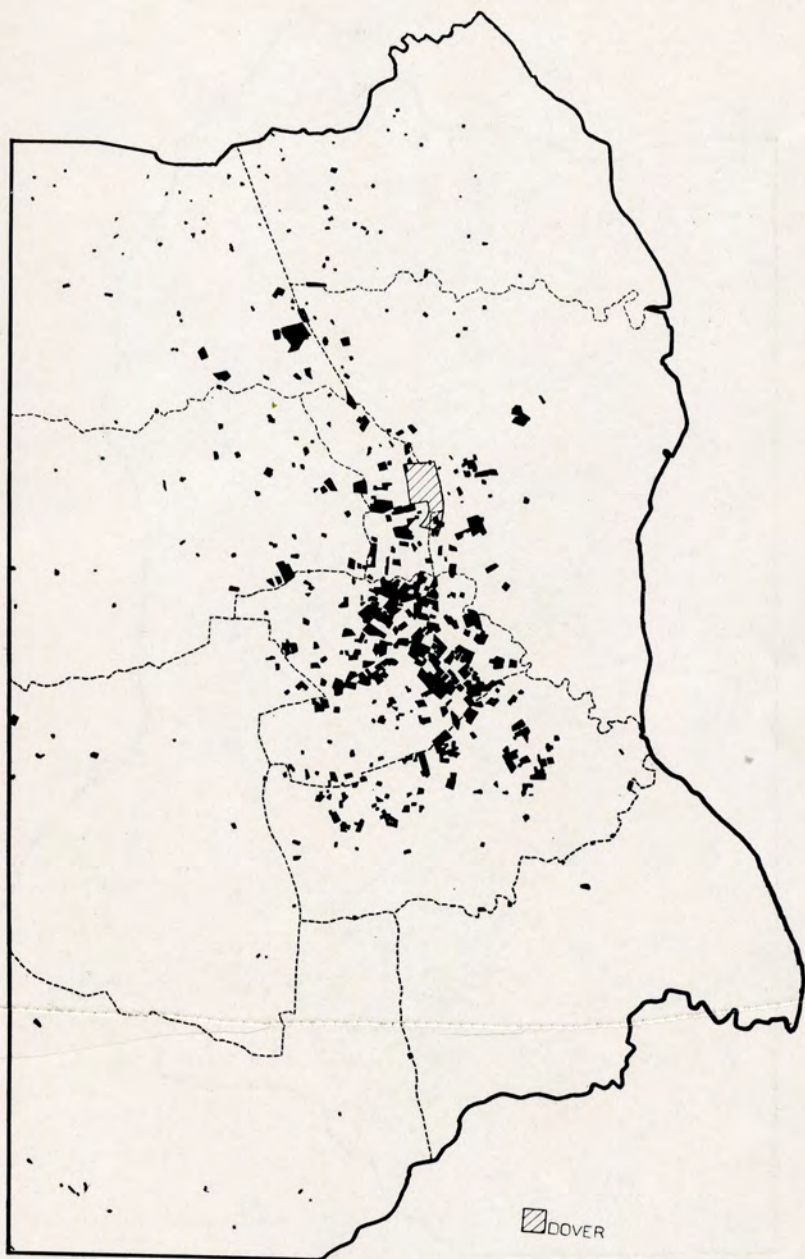


Figure 18—Distribution of the acreage of fruits, Kent County, Delaware, 1936.

The fruit area is located in the central part of the county. This section comprises some of the most productive soils in the county. This is one of the most intensive fruit areas in the country.



Figure 19—Distribution of the acreage of hay, Kent County, Delaware, 1936.

Hay is fairly evenly distributed over the county. However, the larger parcels of hay are located in the northern and eastern parts of the county where the better grades of land are found.

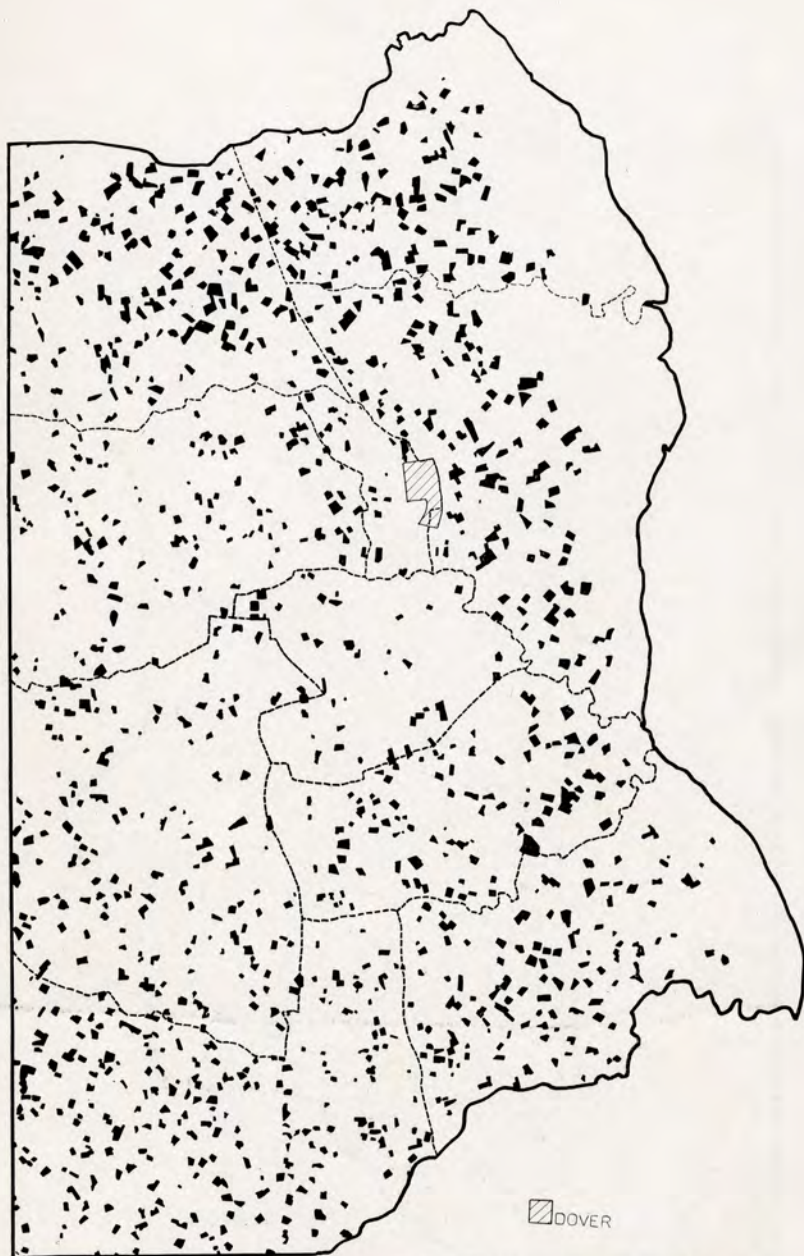


Figure 20—Distribution of the acreage of tillable pasture, Kent County, Delaware, 1936.

Like hay, tillable pasture is distributed fairly evenly over the county, but the larger parcels of tillable pasture are found in the northern and eastern parts of the county.



Figure 21—Distribution of the acreage of timber, brush, and open unillable land, Kent County, Delaware, 1936.

Timber, brush, and open unillable land are found, for the most part, in the western part of the county where the land is flat and poorly drained.

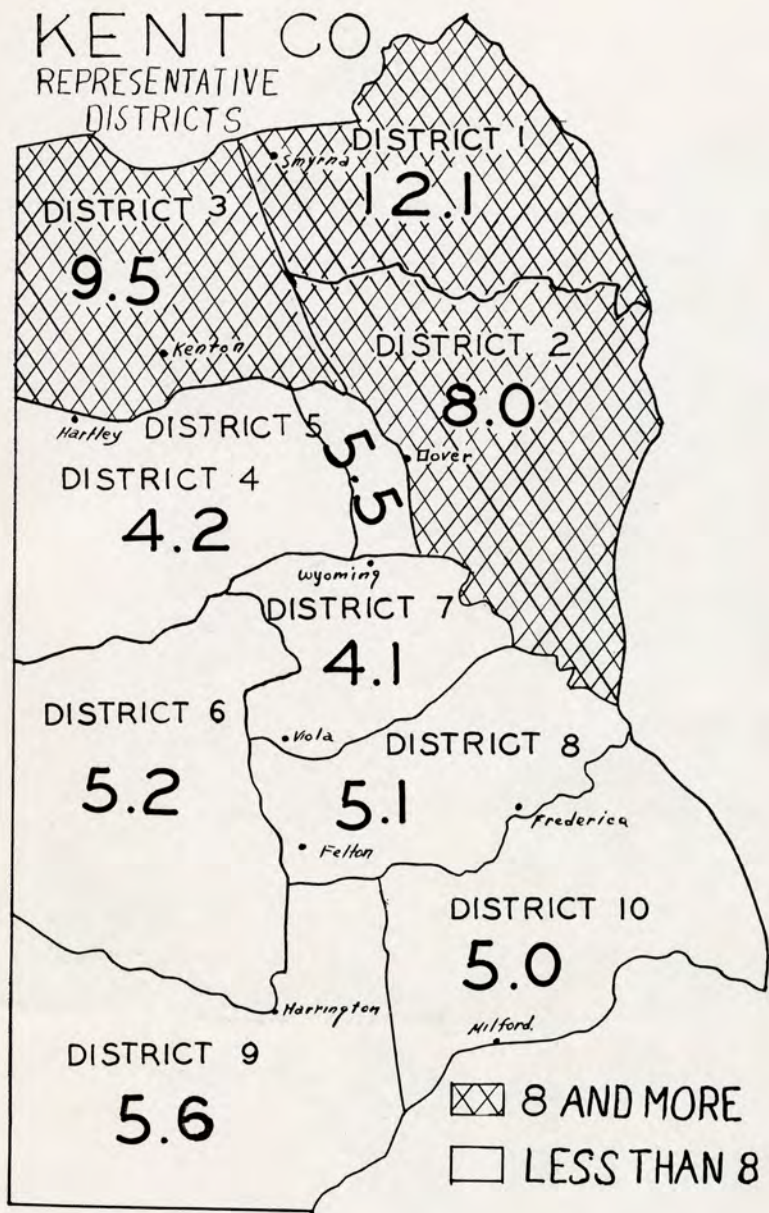


Figure 22—Number of cows per farm, Kent County, Delaware, 1935.

The dairy area is located in the northern part of the county. In this area the soils are heavier and produce hay and pasture somewhat better than in the lighter soils in the southern part of the county.

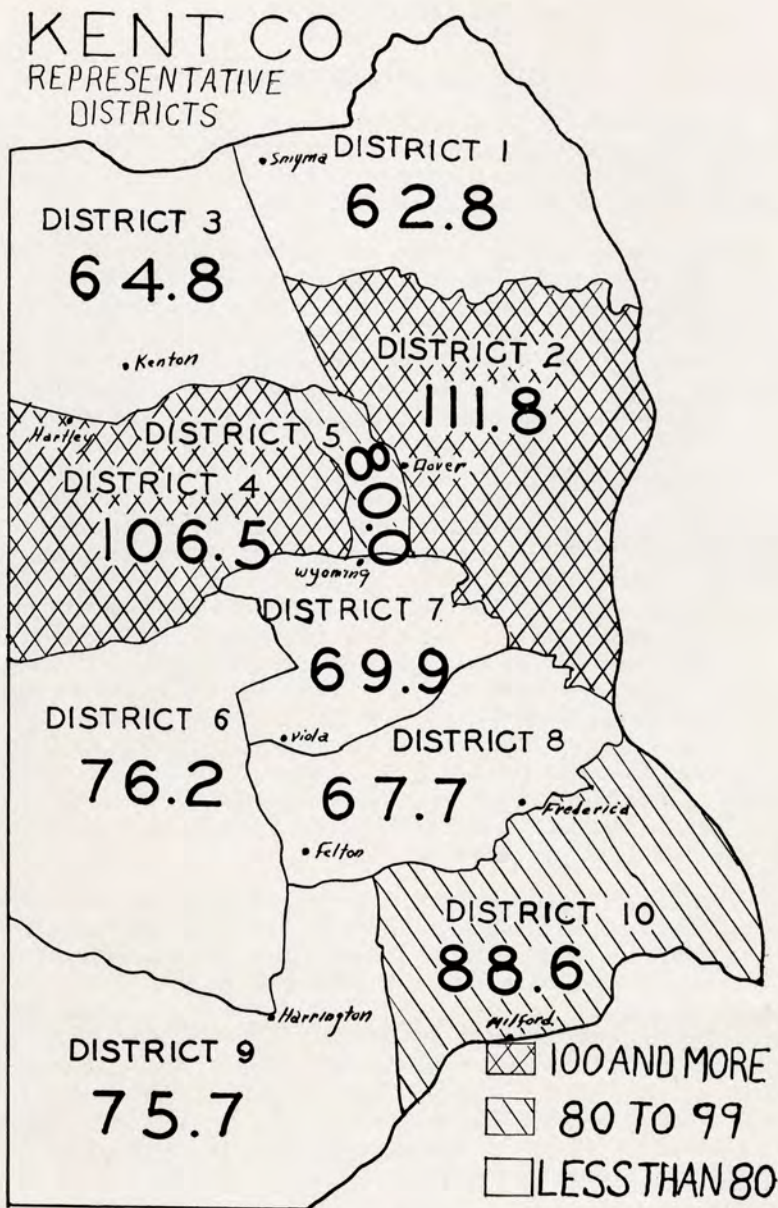


Figure 23—Number of chickens per farm, Kent County, Delaware, 1935.

Chickens are found largely in the central part and to a lesser degree in the southeastern part of the county.

METHODS USED

Measures of Land Classes

There is no precise measure of land classes. Five measures of land classes, therefore, have been used in this study, each of which acts as a check on the others. These measures are use of land, type of soil, size and condition of buildings, crop yields, and net income per farm.

Use of Land. The use farmers are making of the land is the most important measure of land classes and has formed the chief basis for the land classification in this study. Farmers, over a long period of years, through the process of trial and error and economic gain and loss have found the use for which the different types of land are best suited. It is true there is usually a lag in land-use adjustment. It is also true that under a different state of economic conditions some of the land classifications in this study would need readjusting. For example, if farm wages were to continue to increase over a reasonably long period of years, some of the land which has been classified as suitable for cropping purposes would need to be reclassified as submarginal for cropping purposes. Aerial photographs of Kent County were obtained through the courtesy of the United States Geological Survey and the Delaware Highway Department. The negatives were printed on dull, double-weight printing paper in order that they would take the land-use symbols and stand up under the weather conditions in the field. The photographs were of a scale of approximately four inches to one mile. Field men marked on the photographs the symbols which indicated the use of each parcel of land. The use of some parcels of land could be observed from the road while other parcels required considerable walking to get a view of them. In some cases fields had been divided since the photograph was taken. In these cases where no land marks were available, such as a house or a tree, considerable pacing was necessary.

Following the completion of the field work the boundaries and symbols of the different parcels of land were transcribed on topographic maps of the United States Geological Survey. The set of topographic maps of Kent County was enlarged to the same scale as the photographs. This was done through the courtesy of the Bureau of Agricultural Economics of the United States Department of Agriculture. These enlarged maps were super-imposed on the photographs and the boundaries and symbols of the parcels of land were transcribed through the use of a light table. Each parcel of land, whether it be a field crop, marsh, or timber, was measured with planimeters and the area of the parcels indicated on the map. These are known as the land-use maps.

These land-use maps were then in shape to serve as a guide in the initial laying out of the boundaries of the different land classes. This was done by super-imposing tracing sheets on the land-use maps and tentatively drawing the land-class boundaries on the tracing sheets. The intensity of use of land was the determining factor in this initial laying out of the

boundaries. The most intensive crop land, composed the best class of land while the least intensively used land, namely timber and brush, composed the poorest class of land.

Soils. The type of soil is a reasonably good measure of land classes. The soil map of Kent County made by the Bureau of Soils of the United States Department of Agriculture was made use of in this respect. The United States Bureau of Agricultural Economics made enlargements of the soil map of Kent County to the same scale as the aerial photographs. This made it possible to super-impose the tracing sheets (which had the tentative land class boundaries layed out) on the enlarged soil map. The tentative land classes were then checked against the soil types. Where the land classes checked reasonably closely with the soil types of corresponding productivity, more confidence was had in the tentative land class boundaries. Where there was considerable discrepancy between the land classes and the soil types of corresponding productivity, adjustments were made in the land-class boundaries. The tentative land-class boundaries up to this point, then, were a compromise between these two measures.



Figure 24—Field men making final check of land-class boundaries.

The bases for laying out the land classes are: intensity in use of land, soil types, size and condition of farm buildings, crop yields, and net incomes per farm. However, the land class boundaries were finally checked in the field where the crops and vegetation may be observed under growing conditions.

Size and Condition of Buildings. The size and long-time condition of buildings as contrasted with the condition resulting from the depression, in general, is a good measure of the class of land. Normally, the better classes of land support and necessitate buildings of a reasonably large

size in a reasonably good condition. There are, of course, cases where buildings in poor condition are found on good land and where good buildings are found on poor land.

Field men classified the farm buildings and rural residences in Kent County. They traveled together by automobile and checked the judgment of each other in regard to the classification of each set of buildings. No attempt was made to inspect the interior of the buildings. If close to the road, judgment was made without driving into the farmsteads. In other cases, it was necessary to drive into the farmsteads.

The following classifications for farm buildings were used; excellent, good, fair to good, fair to poor, poor, buildings standing but unusable, and buildings falling or gone. For rural residences not farms, the following classifications were used; good (occupied), good (unoccupied), poor (occupied), and poor (unoccupied). For other buildings, including schools, churches, and commercial buildings; used and unused. The field men supplied themselves with a set of Kent County topographic maps made by the United States Geological Survey. Each set of buildings was located on the map and its classification was indicated by a symbol on the map. These condition-of-buildings maps also were enlarged to the same scale as the aerial photographs. The tracing sheets showing the land classes were then super-imposed on the condition-of-buildings maps. Where the land classes, in a general way, checked reasonably well with buildings of a corresponding size and condition, more evidence was had as to the correctness of the land class boundaries. Where there was a reasonably large discrepancy between the land classes and the size and condition of buildings suitable adjustments were made in the land class boundaries.

Crop Yields. Crop yields for the previous five-year period were taken on every fourth farm. Every fourth farm was taken rather than every farm in order to reduce the expense. It is believed that every fourth farm gave a representative sample of the farms in the different land classes. This rule was followed rigidly in order that the farms on which yields were obtained would be representative. In Kent County crop yields were gotten on 498 farms. Each of these farms was located and indicated on the map. A crop-yield index was calculated and the figure indicated on the map opposite each farm. The tracing sheets were then super-imposed on the crop-yield map and in instances where the land classes did not check reasonably closely with the crop yields, appropriate adjustments were made in the land-class boundaries.

Incomes. The net incomes of farmers is the fifth measure of land classes used in this classification. Complete labor income records were taken on the same farms and at the same time as the crop yields. The care in selecting representative farms applies equally to the income data as to the crop-yield data. The labor-income records included acreage of different crops grown, value of crops sold, number of different kinds of livestock and sales of livestock and livestock products, capital investment, all expenses, sources of income outside the farm, and data relating to the

personal history of the farmer and his family. The labor income of each farm was indicated on the map opposite the farm. The tracing sheets were super-imposed on this map and the land classes were checked against the labor incomes of the different farms.

The final land-class boundaries, then, were a compromise between these five measures. As a final check the land-class boundaries were checked in the field. During the growing season two men traveled over every road in the entire county and checked each parcel of land and satisfied themselves that each parcel was properly classified. The land-class boundaries having now become final, the area of each parcel of land was then tabulated according to use and according to the land class. This tabulation shows the acreage of each crop, timber, brush, marsh, etc., in each land class.

The printing of the map was accomplished by using as a base map the United States Geological Survey Sheets. Towns, streams, railroads, and other features appearing on the United States Geological Survey Sheets also appear on the printed land utilization map. The tracing sheets showing the final land classes were printed over the base map.



Figure 25—A drainage project in class III land.

Definition of Land Classes

Class I land, as used in this study, is the poorest grade of land. It is made up largely of timber, brush, and marsh land. Marsh land is indi-

cated as IM. Most of the farms in this land class have been abandoned. With relatively few exceptions the land is poorly drained. Most of the land in this class will probably remain permanently in its present use, namely, forests, wildlife preservation, and public recreation.

Class II land comprises largely open untillable land. There is some crop land in this land class but most of the farms have been abandoned. Most of this land is poorly drained. The land use, the soil types, the size and condition of the buildings, the crop-yield indices, and the net incomes of farmers indicate that the land in this class is poorly suited for agricultural purposes.

Class III land comprises largely the poorest grade of land suited for cropping purposes. Most of this land is fairly well drained and the majority of it will probably remain permanently in agricultural uses.

Class IV land is the best grade of crop land. In general, the land in this class is well drained and is more intensively used than is the land in class III.

It is impractical to endeavor to classify land in too great detail. There are, therefore, some of the poorer grades of land in class IV but the areas are too small to make a classification of them. Likewise, class III comprises some land which logically should be classified as IV land but the areas are so small they would be little more than perceptible on the map. Furthermore, the location of land influences its economic use. For example, a parcel of land which is not suited for cropping purposes but does produce fairly good pasture, if located adjacent to class II land, would be classified as II land. However, if the same parcel of land were located adjacent to class IV land it may be classified as IV land. A parcel of land in itself may be submarginal for agricultural purposes but when managed in connection with a good farm it may become supra-marginal for agricultural purposes. Untillable pasture land may be a distinct asset to a "going" farm.

EXTENT OF LAND AND WATER AREA IN DELAWARE AND IN KENT COUNTY⁵

Delaware has only in recent years been in a position to have its land and water area measured with a greater degree of accuracy. The first topographic quadrangle sheets representing portions of Delaware were published by the United States Geological Survey, Washington, D. C., in 1898, while the last one was issued as recently as 1936. With the com-

⁵ This discussion and Tables 9 and 10 were prepared by Mr. F. J. Marschner, Division of Land Economics, Bureau of Agricultural Economics, U. S. Department of Agriculture. Table 10 was used as a base to check the data and correct the error in the areal data of this study. For Kent County as a whole there was an areal error of minus .038 per cent. This error along with the errors in the data by representative districts have been corrected. It is of interest that the land area of Delaware as a whole, as reported by the United States Census Bureau for 1935, indicates that Delaware has 2,096 more acres of land area than there are in the state. For New Castle County the land area reported by the Census indicates 4,286 more acres than there are in the county. For Kent County the land area reported is 15,950 more acres than there are in the county. For Sussex County the land area reported by the Census Bureau is 18,140 less acres than there are in the county.

pletion of this survey, the entire State of Delaware was covered for the first time with horizontally controlled surveys, on a uniform scale of 1:62,500, that could be used as the basis of direct areal measurements yielding results of determinable reliability.

Controlled surveys are essential to obtain controlled areal measures on maps. On horizontally controlled surveys the triangulation net provides a rigid framework that acts as control in the representation of natural and cultural features in the area. For every one of the triangulation stations, the geographic position in terms of latitude and longitude has been computed to a high degree of precision. Before the survey starts, the triangulation points are plotted in corresponding position in the grid of parallels and meridians of the field sheets, thus serving as points of reference of location for the other features. As a result, all of the surface features are represented on the map, correctly placed with reference to the geographic coordinate system of parallels and meridians. Survey maps of this kind, on which only a small portion of the earth spheroidal surface is represented on the plane, may be considered for practical purposes as images true to scale in all directions; consequently, they are also free of angular and areal distortions. The quadrilaterals formed by the parallels and meridians are therefore preserved in true proportion to the scale of the map, and their known acreage provides a positive control for direct areal measures taken on the map.

The acreage of quadrilaterals bounded by parallels and meridians, computed independently of the map as geometric surface divisions of the mathematical figure of the earth, permits not only a close control of areal measures themselves, but at the same time eliminates the error induced by the small variations in map scale as a result of the instability in the size of the paper on which the maps are printed. Shrinkage and expansion of the paper are primarily the reaction to its hygroscopic sensitiveness, which is by no means a constant, applicable alike to all sheets. Rather frequent minor adjustments in the setting of the planimeter must be made to counteract the vagaries in behavior of the paper of different map sheets on the same scale.

The degree of accuracy obtainable in direct areal measurements taken on a miniature image of the original in terms of actual size is, of course, not absolute. It would be illusory to expect for every square inch recorded as measured quantity on the map an areal equivalent of exactly 3,906,250,000 square inches in nature. This, at least, is the areal ratio of represented to natural surface that applies to maps on the scale of 1:62,500. A certain amount of error is unavoidable in such direct measurements, but the margin of probable error can be held within definite bounds. The recording precision of a high-class instrument is perhaps more than equal to the precision with which a careful and skilled operator can follow the outline of an irregular area with the tracer point of the planimeter. Differences in the recorded amount from repeated measurements of the same area are, therefore, not so much the result of instrumental imperfections as of the inability of the operator to trace the outline of an area without the slightest

deviations. Repeated measurements are necessary, therefore, in most cases to average and verify the results. The tabulation of these data for Delaware as a whole, by counties, and for Kent County, by representative districts, is shown in Tables 9 and 10.

Table 9—Land and water area of Delaware, by counties, 1936.

	acres	square miles
Land area of New Castle County	274,114	428.30
Land area of Kent County	378,930	592.08
Land area of Sussex County	602,460	941.34
Total land area	1,255,504	1,961.72
Total interior water surface	33,128	51.76
Delaware River area	34,087	53.26
Delaware Bay area	212,791	332.49
Total land and water area of state	1,535,510	2,399.23

Table 10—Land and water area of Kent County, Delaware, by representative districts, 1936.

Representative districts	Land	Interior water	Land	Interior water
	acres	acres	square miles	square miles
1	38,772	2,339	60.58	3.65
2	50,957	1,225	79.62	1.91
3	39,054	—	61.02	—
4	40,690	49	63.58	0.08
5	6,300	106	9.84	0.17
6	52,357	46	81.81	0.07
7	21,366	214	33.39	0.33
8	30,221	416	47.22	0.65
9	55,488	42	85.70	0.07
10	43,725	613	68.32	0.96
Total	378,930	5,050	592.08	7.89
Total land area	378,930		592.08	
Interior waters (ponds, reservoirs, rivers, canals, & inshore tidal waters)	5,050		7.89	
Delaware Bay	131,943		206.16	
Total land and water area of county	515,923		806.13	

The representative district boundaries are in some parts of Delaware the least distinct of the boundaries that had to be recognized. Representative districts have developed from the old townships called "Hundreds," with their boundaries identical in most places. The Hundreds are an old institution; they began to be established in colonial times. "The first mention of the term "Hundred" was in 1690 when on April 9th of that year, the Provincial Council instructed the magistrates and grand juries of the Counties to divide them into hundreds. The term "Hundred" is supposed to be derived from a suggestion made by William Penn, that the

land be divided between ten families in accordance with an old English custom, assuming that each family was ten in number making one hundred.⁷⁶ Neither the representative district boundaries nor the hundred boundaries have ever been properly surveyed and marked on the ground.⁷ The nearest approach to a survey of the hundreds boundaries is found in Beers' Atlas of the State of Delaware, which is composed of maps of the hundreds as they existed at that time.⁸ Although the representative districts are now the political subdivisions of counties, the hundreds are still referred to and used by the people. In fact, rural election districts of the representative districts are described in every case as portions of hundreds, or in cases where they are coextensive with a hundred, they are identified with the name of the hundred.⁹

For the two northern counties, the boundaries of representative districts are almost completely delineated on the topographic quadrangle sheets, but changes have occurred since the maps were issued. Wilmington City has expanded its corporate limits, and has thus altered the representative district boundaries. Changes in water channels, with which the boundary of a representative district is identified, have also affected in some instances the location of these boundaries.

In Sussex County, the representative district boundaries are not indicated on the topographic maps. Other maps showing these boundaries do so with notable discrepancies in their location. To a large extent, these boundaries are identified with roads, rivers, and creeks. These features provide visible evidence of their location all along the line, and do not admit a great deal of misinterpretation. The discrepancies are found, therefore, principally where boundaries run across the country. To establish their location in such doubtful places, actual field investigation was necessary.

At a number of points, where highways and hundred boundaries intersect each other, the Historic Markers Commission has set a laudable precedent in erecting markers. These not only fix the boundary location at these points, but contain also pertinent historical annotations. In between such points, the boundary in use, fixed by custom and tradition, may not follow the straight line indicated on the existing maps. Local residents along the boundaries point out certain landmarks, such as old trees, stumps, ditches, etc., which are used as boundary signs separating the voters of adjoining districts. Evidence of this kind had to be accepted to determine the location of the boundaries in these doubtful places, and to delineate them on the maps. Definite representative district boun-

⁷⁶ Conrad, Henry C., *History of the State of Delaware from the Earliest Settlement to the Year 1907*, Wilmington, Del., 1908, Vol. II, p. 684—See also Scharf, *idem*, Vol. II, p. 611 for letter of William Penn on the subject to the justices of peace in Sussex County dated Chester, the 25th of Tenth Month, 1682.

⁷ Revised Code of Delaware, 1915, p. 10, Section 9.

⁸ Beers, D. G., *Atlas of Delaware*, 1868.

⁹ Registration, Primary and General Election Laws of the State of Delaware. Compiled by the Secretary of State, 1936, pp. 102-151.

daries had to be drawn also in Indian River and Rehoboth Bay to allot the riparian water areas to the respective districts.

As a rule, representative district boundaries do not follow property lines. In this respect they are not unique, however. The state boundary between Maryland and Delaware exhibits the same disregard for land ownership. Essentially, it could not be otherwise. Straight political boundary lines, about 34 and 82 miles long, drawn after the land was settled, cannot be expected to coincide with property lines.

As the determining factor of the area, boundary lines, natural and political, necessarily had to receive first attention as a preliminary step, before the measurements of land and water areas were taken.

Tabulation of the results of measurements was done by unit areas—quadrilaterals of 5 minutes square—in which the component parts of land and water areas were arranged in distinct columns, supplemented by headings for the bay and river areas and the outside complements. In this way the results were balanced with the control, and provided an automatic check to guard against tabulation errors.

EXTENT OF LAND CLASSES

Table 11 shows the extent of the land classes in the different representative districts. Table 12 shows the percentage of the land classes in the different representative districts. Land class I and IM comprised 36.6 per cent of the land in Kent County. Land class II comprised 5.1 per cent of the land, class III 28.8 per cent, and class IV 29.5 per cent. More than two-fifths of the land area of Kent County was found to be submarginal for agricultural purposes under the existing conditions. The proportion of the land area in the different representative districts which fell in the various land classes varied greatly. The extent of these submarginal areas opens a wide field of activity in developing the forest, wildlife, and public recreational resources of the county. The general interest of the people of Delaware and of the large population in near-by metropolitan areas in wildlife preserves and public recreational sites, indicate the importance of developing this phase of the state's resources.

Table 11—Land area by land classes and by representative districts, Kent County, Delaware, 1936.

Representative districts	Land classes				Districts acres
	I & IM	II	III	IV	
	acres	acres	acres	acres	
1	18,691	1,093	6,243	12,745	38,772
2	21,440	2,181	9,172	18,164	50,957
3	9,599	2,954	14,836	11,665	39,054
4	12,545	4,583	19,310	4,252	40,690
5	1,523	3	1,383	3,391	6,300
6	21,428	4,621	21,327	4,981	52,357
7	4,118	442	1,598	15,208	21,366
8	8,148	738	2,571	18,764	30,221
9	21,399	1,508	24,539	8,042	55,488
10	19,778	1,221	8,216	14,510	43,725
County	138,669	19,344	109,195	111,722	378,930

Table 12—Percentage of land area by land classes and by representative districts, Kent County, Delaware, 1936.

Representative districts	Land classes				Districts
	I & IM	II	III	IV	
	per cent	per cent	per cent	per cent	
1	48.2	2.8	16.1	32.9	100.0
2	42.1	4.3	18.0	35.6	100.0
3	24.6	7.6	38.0	29.8	100.0
4	30.8	11.3	47.5	10.4	100.0
5	24.1	.1	22.0	53.8	100.0
6	40.9	8.8	40.8	9.5	100.0
7	19.3	2.1	7.5	71.1	100.0
8	27.0	2.4	8.5	62.1	100.0
9	38.6	2.7	44.2	14.5	100.0
10	45.2	2.8	18.8	33.2	100.0
County	36.6	5.1	28.8	29.5	100.0

USE OF LAND

It has been indicated previously that the degree of intensity in the use of land is an important measure of land classes.

Use of Land in the Different Land Classes

Table 13 shows the use of land in the different land classes. Table 14 indicates that the proportion of the land devoted even to such crops as grains and hays tended to increase with the better classes of land. However, the proportion of the land devoted to the different intensive crops, such as truck crops, cannery crops, and fruits, varied from zero in class I land to 9.1 per cent in class IV land, as was true in the case of total fruit crops. On the other hand, the proportion of the land utilized by timber, brush, and marsh land varied from 98.3 per cent in class I land to 3.4 per cent in class IV land.

Even though class I land is made up, almost entirely, of timber and marsh land, it affords valuable natural resources. Well managed timber land obviously is a source of valuable forest materials. Good muskrat marsh land has an important economic value. In an effort to determine the approximate value of the annual harvest of muskrats in Delaware, the Department of Entomology of the Delaware Agricultural Experiment Station made a survey among the important fur buyers and owners of marsh land. The data obtained through this survey indicate that the average annual Delaware harvest of muskrat hides amounts to approximately \$201,000. The probable distribution of this income among the different counties is as follows: New Castle County, \$122,610; Kent County, \$28,140; and Sussex County, \$50,250.

Table 13—Acres of land used for the different purposes by land classes, Kent County, Delaware, 1936.

Use of land	Land classes				County acres
	I & 1M acres	II acres	III acres	IV acres	
Corn—grain, sweet corn, and silage	156	1,421	27,451	26,489	55,517
Wheat	101	686	24,044	26,038	50,869
Rye	—	11	253	235	499
Other grains	14	72	574	536	1,196
Total grain crops	271	2,190	52,322	53,298	108,081
Clover and timothy hay	4	242	2,628	1,525	4,399
Clover hay	17	24	1,451	2,100	3,592
Alfalfa hay	6	—	315	801	1,122
Soybean and cowpea hay ¹	36	165	3,922	3,241	7,364
Other legume hay	—	—	143	54	197
Other non-legume hay	3	27	201	90	321
Total hay crops	66	458	8,660	7,811	16,995
Sweet potatoes	—	2	176	728	906
White potatoes	5	20	188	313	526
Asparagus	—	—	16	163	179
Cantaloupes	—	—	87	317	404
Watermelons	—	—	22	45	67
Cucumbers and pickles	—	1	20	14	35
Other truck crops	29	105	2,018	2,087	4,239
Garden	19	64	236	240	559
Total truck crops	53	192	2,763	3,907	6,915
Tomatoes	22	173	2,649	2,581	5,425
Lima beans	—	7	446	1,125	1,578
String beans	—	—	7	7	14
Total cannery crops	22	180	3,102	3,713	7,017
Orchard—apples and peaches	10	20	1,063	9,589	10,682
Vineyard	—	6	179	762	947
Strawberries	8	3	108	53	172
Other small fruits	—	—	2	12	14
Total fruit crops	18	29	1,352	10,416	11,815
Tillable land lying out	84	235	5,616	2,956	8,891
Tillable pasture	51	325	14,303	15,061	29,740
Open, untillable pasture	77	1,499	3,556	765	5,897
Brush pasture	828	48	131	21	1,028
Total pasture	956	1,872	17,990	15,847	36,665
Timber	82,195	1,310	1,606	1,112	86,223
Brush not pastured	6,545	903	838	517	8,803
Marsh land	46,587	—	28	92	46,707
Other wasteland	—	—	5	12	17
Open, untillable idle land	875	10,975	6,529	2,044	20,423
Total timber, marsh and wasteland	136,202	13,188	9,006	3,777	162,173
Farmsteads	50	360	4,143	3,580	8,133
Other houses	141	252	787	608	1,788
Roads	654	290	2,262	2,554	5,760
Railroads	38	24	172	177	411
Villages and towns ²	89	19	695	2,446	3,249
Miscellaneous ²	25	55	325	632	1,037
Total development	997	1,000	8,384	9,997	20,378
Total land area	138,669	19,344	109,195	111,722	378,930
Internal water area ³	4,975	—	—	75	5,050
Total land and water area	143,644	19,344	109,195	111,797	383,980
Per cent of land area in each land class	36.6	5.1	28.8	29.5	100.0

¹ Some probably was harvested for seed.

² Includes land used for recreation, cemeteries, schools, and churches.

³ Internal water areas, villages, and towns classified according to the land class they border.

Table 14—Percentage of land used for the different purposes, by land classes, Kent County, Delaware, 1936.

Use of land	Land classes				County per cent
	I & IM	II	III	IV	
	per cent	per cent	per cent	per cent	
Corn—grain, sweet corn, and silage	.1	7.3	25.1	23.7	14.7
Wheat	.1	3.5	22.0	23.3	13.4
Rye	—	.1	.3	.2	.1
Other grains	*	.4	.5	.5	.3
Total grain crops	.2	11.3	47.9	47.7	28.5
Clover and timothy hay	*	1.3	2.4	1.4	1.2
Clover hay	*	.1	1.3	1.9	.9
Alfalfa hay	*	—	.3	.7	.3
Soybean and cowpea hay ¹	*	.9	3.6	2.9	1.9
Other legume hay	—	—	.1	*	.1
Other non-legume hay	*	.1	.2	.1	.1
Total hay crops	*	2.4	7.9	7.0	4.5
Sweet potatoes	—	*	.2	.7	.2
White potatoes	*	.1	.2	.3	.2
Asparagus	—	—	*	.1	*
Cantaloupes	—	—	.1	.3	.1
Watermelons	—	—	*	*	*
Cucumbers and pickles	—	*	*	*	*
Other truck crops	*	.6	1.8	1.9	1.1
Garden	*	.3	.2	.2	.2
Total truck crops	*	1.0	2.5	3.5	1.8
Tomatoes	*	.9	2.5	2.3	1.4
Lima beans	—	*	.4	1.0	.4
String beans	—	—	*	*	*
Total cannery crops	*	.9	2.9	3.3	1.8
Orchard—apples and peaches	*	.1	.9	8.6	2.8
Vineyard	—	—	.2	.7	.2
Strawberries	*	*	.1	*	.1
Other small fruits	—	—	*	*	*
Total fruit crops	*	.1	1.2	9.3	3.1
Tillable land lying out	.1	1.2	5.2	2.6	2.4
Tillable pasture	*	1.7	13.1	13.5	7.8
Open, untillable pasture	.1	7.8	3.3	.7	1.6
Brush pasture	.6	.2	.1	*	.3
Total pasture	.7	9.7	16.5	14.2	9.7
Timber	59.3	6.8	1.5	1.0	22.8
Brush	4.7	4.7	.7	.5	2.3
Marsh land	33.6	—	*	.1	12.3
Other wasteland	—	—	*	*	*
Open, untillable idle land	.7	56.7	6.0	1.8	5.4
Total timber, marsh and wasteland	98.3	68.2	8.2	3.4	42.8
Farmsteads	*	1.9	3.8	3.2	2.1
Other houses	.1	1.3	.7	.5	.5
Roads	.5	1.5	2.1	2.3	1.5
Railroads	*	.1	.2	.2	.1
Villages and towns ³	.1	.1	.6	2.2	.9
Miscellaneous ²	*	.3	.3	.6	.3
Total developments	.7	5.2	7.7	9.0	5.4
Total land area	100.0	100.0	100.0	100.0	100.0

* Less than .05 per cent.

¹ See footnote 1 to Table 13.

² See footnote 2 to Table 13.

³ See footnote 3 to Table 13.

Farm Tenancy and the Use of Land

In class IV land, 50.8 per cent of the farms were operated by tenants while only 28.0 per cent of the farms were operated by tenants in class II land. In class IV land, 40.7 per cent of the farmers were owner-operators while in class II land 64.0 per cent of the farmers were owner-operators, Table 15. This may be due largely to the different amounts of capital required per farm in the different land classes. It will be shown later that the capital investment in real estate per farm in land class II was \$2,088 while in class IV land it was \$6,528. Many persons who because of inadequate capital would be forced to be tenant-operators in class IV land were able to buy farms in class II land and become owner-operators.

Table 15—Percentage of owner-operators, owners-additional, and tenants by land classes, Kent County, Delaware, 1935.¹

	Land classes			County ³
	II	III	IV	
Number of farms	25	251	177	498
	per cent	per cent	per cent	per cent
Owner-operators	64.0	53.4	40.7	49.8
Owners-additional ²	8.0	8.0	8.5	7.6
Tenants	28.0	38.6	50.8	42.6
Total	100.0	100.0	100.0	100.0

¹ The data of this table and of many of the tables to follow, were obtained through the tabulations of the data of the 498 farms for which labor-income records were taken. Some farms fell on the boundary between two land classes. In classifying these farms according to land classes they were placed in the land class in which the majority of the land area fell. There were 45 of the farms placed in class I land. Although the majority of the land area of these farms was class I land, in the case of several farms the minority land area was among the better grades of crop land. The data of these 45 farms, therefore, are not representative of class I land and have been omitted from this table and from all tables to which they appertain.

² A farmer who operates rented land in addition to the land he owns.

³ According to the United States Census, 1935, Kent County, Delaware, had 54.7 per cent owner-operators, 2.5 per cent owners-additional, and 42.8 per cent tenants.

SOILS

Land classifications as made in this study refer to the larger areas of land and no attempt is made to classify separately small isolated parcels of land. Furthermore, the location of a parcel of land may affect its economic use. A parcel of land of one of the poorer types of soil, for example, which may lie adjacent to a farm in class IV land may be classified as class IV land, because of its value for hay or pasture when operated in conjunction with class IV land. Some land of the poorer soil types, therefore, appears in class IV land and some land of the better soil types appears in class II land.

Table 16—Percentage of farms having the different types¹ of soil, by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
General soil types	per cent	per cent	per cent	per cent
Sassafras series	24.0	60.6	96.6	70.9
Elkton series	32.0	23.1	3.4	16.7
Portsmouth series	44.0	14.3	0	11.2
Leonardtown series	0	2.0	0	1.2
Total	100.0	100.0	100.0	100.0

¹ Farms where the soil type predominates.

² See footnote 1 to Table 15.

Table 17—Percentage distribution of the general soil types by land classes, Kent County, Delaware, 1936.

General soil types	Land classes				County
	I & IM	II	III	IV	
	per cent	per cent	per cent	per cent	per cent
Sassafras series ¹	24.3	34.3	57.0	86.3	51.7
Elkton series ²	20.9	33.3	26.9	6.5	19.3
Portsmouth series ³	15.4	23.7	10.5	1.2	10.5
Leonardtown series ⁴	1.3	3.0	2.0	.7	1.4
Marsh ⁵	38.1	5.7	3.6	5.3	17.1
Total	100.0	100.0	100.0	100.0	100.0
Acres in each land class (land and internal water)	143,810	20,510	113,550	107,360	385,230
Per cent error	+1	+6.0	+4.0	-4.0 ⁷	+3 ⁶

¹ Includes Sassafras Sand, Sassafras Loamy Sand, Sassafras Sandy Loam, Sassafras Sandy Loam (deep phase), Sassafras Loam, Sassafras Silt Loam, and Sassafras Silt Loam (level phase).

² Elkton Sandy Loam, Elkton Loam, and Elkton Silt Loam.

³ Portsmouth Sandy Loam, Portsmouth Loam, and Portsmouth Silt Loam.

⁴ Includes Leonardtown Sandy Loam and Leonardtown Loam.

⁵ Includes some coastal beach, the area of which was too small to measure with the method herein used.

⁶ Calculated by using as the base, planimeter measurements made of the county by the Division of Land Economics of the United States Bureau of Agricultural Economics.

⁷ Calculated by using as the base, planimeter measurements made of the land classes by the Department of Agricultural Economics, Delaware Agricultural Experiment Station.

Distribution of Soil Types in the Different Land Classes

Practically all the farms in land class IV had the Sassafras series as the dominant general type of soil. From class IV land to class II land, the Sassafras series became of less importance and the Elkton, and especially the Portsmouth series, were of greater prominence, Table 16.

The same general trend was evident relative to the percentage of the land area in the different land classes which was made up of the various soil types. Class IV land was made up largely of the Sassafras series but the percentage of the Sassafras types decreased drastically from class IV to class I land. However, the percentage of the land area made up of the Elkton, Portsmouth, and Leonardtown series increased from class IV to class I land, Table 17. Table 18 shows the percentage of the land in the different representative districts made up of the various general soil types.

Table 18—Percentage distribution of the general soil types by representative districts, Kent County, Delaware, 1936.

General soil types	Representative districts										County
	1	2	3	4	5	6	7	8	9	10	
	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Sassafras series ¹	43.0	48.0	56.0	45.0	77.8	32.5	79.7	77.3	49.8	57.2	51.7
Elkton series ²	9.0	10.5	23.7	23.1	10.9	34.4	8.5	5.1	35.6	9.7	19.3
Portsmouth series ³	2.6	3.9	13.0	28.7	2.4	26.7	5.7	2.2	7.0	0	10.5
Leonardtown series ⁴ . . . . .	.6	.5	1.3	.1	.2	2.8	0	.1	1.6	4.7	1.4
Marsh ⁵	44.8	37.1	6.0	3.1	8.7	3.6	6.1	15.3	6.0	28.4	17.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Acres in each district (land & internal water)	41,030	52,440	39,310	41,160	5,870	53,350	21,960	31,030	55,080	44,000	385,230
Per cent error ⁶	-.2	+.5	+.6	+1.0	-8.4	+1.8	+1.8	+1.3	-.8	-.8	+.3

¹⁻⁵ See footnotes 1 to 5 to Table 17.

⁶ Calculated by using as the base, planimeter measurements made of the districts by the division of Land Economics of the United States Bureau of Agricultural Economics.

Soil Types and Crop Yields

The productivity of the different general soil types as indicated by the crop yield indices ranked as follows: Sassafras series, Elkton series, Leonardtown series, and Portsmouth series, Table 19.

Table 19—Crop yield indices¹ on 498 farms by general soil types, Kent County, Delaware, 1935.

Soil types	Number of fields	Crop index
Sassafras series	911	103
Elkton series	258	88
Leonardtown Series	13	85
Portsmouth series	88	81
Total or average	1,270	100

¹ Unweighted. Includes corn, wheat, and hay.

SIZE AND CONDITION OF BUILDINGS

Size of Business and Income on Farms with the Different Classes of Buildings

Size and condition of buildings, in general, is a reliable measure of land classes. Table 20 indicates that the farms with the better classes of buildings were larger, had a larger capital investment, larger receipts, and larger labor incomes than the farms with the poorer class of buildings.

Classification of Farm Buildings and Rural Residences in the Different Land Classes and in the Different Representative Districts

The percentage of occupied farmsteads and good occupied rural residences decreased from class IV to land class I. However, the percentage of poor occupied rural residences, buildings standing but unusable, and

Table 20—Size of business and income per farm on farms with the different classes of buildings, Kent County, Delaware, 1935.

Classes of buildings	No. of farms	Acres per farm	Total capital per farm ²	Total receipts	Total net receipts per farm ¹	Taxes paid per farm	Labor income per farm
	number	acres	dollars	dollars	dollars	dollars	dollars
Excellent	13	158.3	12,330	3,225	2,941	54	46
Good	147	129.6	7,734	2,062	1,862	35	24
Fair to good	150	143.4	6,451	1,606	1,449	31	— 19
Fair to poor	109	117.7	4,811	1,082	912	22	— 87
Poor	79	90.8	2,928	613	502	14	— 103

¹ Total net receipts as used in this study are total receipts, minus (livestock purchased and decrease in capital).

² Real estate and operating capital.

buildings gone or falling increased from class IV to land class I, Tables 21 and 22. Table 23 indicates the percentage of farmsteads, rural residences, and other buildings, occupied and vacant, in the different representative districts.

The percentage of the better classes of occupied farm buildings decreased rapidly from class IV to class I land. However, the percentage of the poorest class of farm buildings increased rapidly from class IV to class I land, Table 24. Table 25 shows the classification of occupied farm buildings in the different representative districts.

Table 21—Number of farmsteads, rural residences, and other buildings, occupied or vacant, by land classes, Kent County, Delaware, 1936.¹

Classes of buildings	Land classes				County
	I	II	III	IV	
	number	number	number	number	number
Farmsteads					
Occupied	114	241	1,580	1,058	2,993
Vacant	—	2	4	1	7
Rural residences					
Occupied					
Good	18	11	82	147	258
Poor	64	39	125	117	345
Unoccupied					
Good	2	1	1	3	7
Poor	8	6	13	8	35
Other buildings ³					
Occupied	27	13	88	116	244
Vacant	12	4	23	13	52
Buildings standing but unusable	13	15	32	26	86
Buildings gone or falling ²	64	43	96	86	289
Total	322	375	2,044	1,575	4,316

¹ In addition there were 445 unclassified buildings, such as tenant houses, which were located apart from the farmsteads but were used in conjunction with the farmsteads.

² Buildings gone were shown on the United States Geological Survey maps. Approximately one-third of the maps in Kent County, were surveyed in 1917, one-half were surveyed in 1926, and one-sixth in 1933.

³ Includes school houses, churches, and commercial establishments.

No count was made of hamlets and towns having 20 or more houses.



Figure 26—An abandoned farmstead in class I land.

Class I land is mostly timber, brush and marsh land. Many of the buildings in class I land are gone or falling and most of the farmsteads have been abandoned for agricultural purposes. However, practically all of the houses that were at all unusable, regardless of how poor the condition, were occupied usually by persons in non-agricultural pursuits.

Table 22—Percentage of farmsteads, rural residences, and other buildings, occupied or vacant, by land classes, Kent County, Delaware, 1936.¹

Classes of buildings	Land classes				County per cent
	I per cent	II per cent	III per cent	IV per cent	
Farmsteads					
Occupied	35.4	64.3	77.3	67.2	69.3
Vacant	—	.5	.2	.1	.2
Rural residences					
Occupied					
Good	5.6	2.9	4.0	9.3	6.0
Poor	19.9	10.4	6.1	7.4	8.0
Unoccupied					
Good .....	.6	.3	.1	.2	.2
Poor	2.5	1.6	.6	.5	.8
Other buildings ³					
Occupied	8.4	3.5	4.3	7.4	5.7
Vacant	3.7	1.1	1.1	.8	1.2
Buildings standing but unusable	4.0	4.0	1.6	1.6	2.0
Buildings gone or falling ²	19.9	11.4	4.7	5.5	6.6
Total	100.0	100.0	100.0	100.0	100.0
Number of farmsteads and other buildings	322	375	2,044	1,575	4,316

¹ See footnote 1 to Table 21.

² See footnote 2 to Table 21.

³ Includes school houses, churches, and commercial establishments.

Table 23—Percentage of farmsteads, rural residences, and other buildings, occupied or vacant, by representative districts, Kent County, Delaware, 1936.¹

Classes of buildings	Representative districts										County percent
	1 per cent	2 per cent	3 per cent	4 per cent	5 per cent	6 per cent	7 per cent	8 per cent	9 per cent	10 per cent	
Farmsteads											
Occupied . . .	68.3	57.5	65.8	74.5	51.6	72.3	57.6	72.8	79.4	71.7	69.3
Vacant . . . .				.2		.5	.2		.1	.2	.2
Rural residences											
Occupied											
Good . . .	3.5	14.4	5.2	3.9	19.4	4.3	10.5	4.7	1.5	4.4	6.0
Poor	6.9	7.0	14.0	7.8	16.1	5.0	18.0	8.4	1.6	6.0	8.0
Unoccupied											
Good . . .	.5	.2	.5				.2	.5	.6		.2
Poor . . .	.5	1.0	1.2	.8	1.6	.3	1.0	.8		.9	.8
Other buildings ³											
Occupied . . .	5.9	9.9	5.0	6.5	5.6	3.8	5.8	5.2	4.2	5.7	5.7
Vacant	2.0	1.5	.9	1.1		1.9	.7	.2	.9	2.1	1.2
Buildings standing but unusable . . .	3.5	.4	1.7	2.6		3.1	2.0	2.2	2.5	.5	2.0
Buildings gone or falling ²	8.9	8.1	5.7	2.6	5.7	8.8	4.0	5.2	9.2	8.5	6.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of farmsteads and other buildings	202	459	421	615	124	581	401	404	674	435	4,316

¹ See footnote 1 to Table 21.

² See footnote 2 to Table 21.

³ Includes school houses, churches, and commercial establishments.



Figure 27—An occupied farmstead in class II land.

Class II land is made up largely of abandoned land. Some of the farmsteads in class II land are still occupied by persons in agricultural pursuits but most of the buildings are small and in poor condition.

Table 24—Percentage classification of occupied farmsteads, by land classes, Kent County, Delaware, 1936.

Classes of buildings	Land classes				County
	I	II	III	IV	
	per cent	per cent	per cent	per cent	
Excellent	0	.8	1.1	5.0	2.4
Good	2.6	2.9	14.4	38.3	21.4
Fair to good	11.4	5.8	25.6	34.0	26.5
Fair to poor	11.4	21.2	30.5	16.5	24.1
Poor	74.6	69.3	28.4	6.2	25.6
Total	100.0	100.0	100.0	100.0	100.0
Number of farmsteads	114	241	1 580	1 058	2 993

Table 25—Percentage classification of occupied farmsteads, by representative districts, Kent County, Delaware, 1936.

Classes of buildings	Representative districts										County
	1	2	3	4	5	6	7	8	9	10	
	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	
Excellent	4.3	4.2	2.5	2.2	7.8	1.9	3.9	2.4	.6	2.2	2.4
Good	25.4	37.5	21.3	16.6	26.6	20.0	31.6	31.0	9.3	18.6	21.4
Fair to good	32.6	39.0	25.3	20.5	32.8	19.8	26.4	31.9	26.4	25.7	26.5
Fair to poor	25.4	14.4	24.2	26.4	20.3	28.3	18.2	20.1	29.3	22.1	24.1
Poor	12.3	4.9	26.7	34.3	12.5	30.0	19.9	14.6	34.4	31.4	25.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of farmsteads	138	264	277	458	64	420	231	294	535	312	2,993

Occupied Farmsteads of the Different Classes per Square Mile in the Different Land Classes

The better classes of land had the larger number of farmsteads of the better classes per square mile, Table 26.



Figure 28—An abandoned farmstead in class II land.

Many of the buildings in class II land are gone or falling. Many of the farmsteads are abandoned for agricultural purposes, although most of them are occupied by persons in non-agricultural pursuits.

Table 26—Classification of occupied farmsteads per square mile, by land classes, Kent County, Delaware, 1936.

Classes of buildings	Land classes				County
	I	II	III	IV	
	Number of farmsteads	Number of farmsteads	Number of farmsteads	Number of farmsteads	Number of farmsteads
Excellent	0	.07	.11	.31	.12
Good .....	.01	.23	1.33	2.32	1.07
Fair to good .....	.06	.46	2.38	2.06	1.32
Fair to poor .....	.06	1.69	2.83	1.00	1.20
Poor .....	.38	5.54	2.63	.38	1.28
Total .....	.51	7.99	9.28	6.07	4.99

CROP YIELDS

Crop Yields and Rates of Livestock Production in the Different Land Classes

Yields per acre of crops and production rates of livestock, in general, harmonized quite closely with the different classes of land, Table 27.

Table 27—Yields per acre of major crops, crop-yield indices, and production rates of major kinds of livestock, by land classes, Kent County, Delaware, for the five-year period, 1931-1935.

	Land classes			County ⁵
	II	III	IV	
Number of farms	25	251	177	498
Kinds of crops and livestock				
Wheat, bu.	12.1	14.4	16.2	15.0
Corn, bu.	18.9	28.3	33.6	29.5
Hay ¹ , ton	1.0	1.2	1.4	1.3
Crop index ²	69	96	107	100
Milk per cow, ³ lbs.	2,493	4,199	4,702	4,370
Eggs per hen, ³ number	88.9	100.8 ⁴	95.5	98.1

¹ Mixed hay, clover hay, and soybean hay.

² Unweighted index of wheat, corn, and hay.

³ Weighted index, year 1935, only.

⁴ Egg production index is higher in land class III than class IV due to the fact the Hartly area, one of the best poultry areas in the state, falls largely in land class III.

⁵ See footnote 1 to Table 15.

INCOME

Income per Farm in the Different Land Classes

Each of the measures of net income indicated in Table 28 show there was a close relationship between income per farm and the land classes.

Table 28—Incomes per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ⁵
	II	III	IV	
Number of farms	25	251	177	498
Farm income ¹ , dollars	minus 98	162	499	270
Labor income ² , dollars	minus 225	minus 92	78	minus 33
Labor earnings ³ , dollars	81	252	456	315
Per cent return on capital ⁴	minus 13.4	minus 2.7	2.1	minus .5

¹ Farm income is the income from labor and capital. It is calculated by deducting the expenses, except interest on capital, from total receipts.

² Labor income is the income a farmer receives for his time. In addition a farmer has the living furnished from the farm. Labor income is calculated by deducting total expenses, including interest on capital, from total receipts.

³ Labor earnings is calculated by adding to the labor income the value of the living furnished from the farm.

⁴ Weighted.

⁵ See footnote 1 to Table 15.



Figure 29—A farmstead in class III land.

Class III land is mostly crop land but is less intensively used than class IV land. Normally, the buildings in class III land are smaller and less well kept than in class IV land.

Living Furnished From the Farm in the Different Land Classes

Tables 29 and 30 indicate the value of living furnished from the farm per family and per capita. Tables 31 and 32 indicate the volume of living furnished from the farm per family and per capita. It is significant that

Table 29—Value of living furnished from the farm per family by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Use of dwelling	dollars 85	dollars 99	dollars 124	dollars 105
Milk	34	29	31	30
Butter	8	3	1	2
Eggs	26	21	18	20
Poultry	17	22	23	22
Pork	36	53	62	55
Veal	*	1	*	*
Beef	1	2	2	2
Wheat flour	5	14	14	13
Potatoes	6	10	13	11
Fruit	1	3	7	4
Garden	45	51	51	50
Fuel	42	36	32	34
Miscellaneous	—	*	*	*
Total food and fuel	221	245	254	243
Total food, fuel, and dwelling	306	344	378	348

* Less than \$.50.

¹ See footnote 1 to Table 15.

Table 30—Value of living furnished from the farm per capita by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of persons at home per family	3.4	4.0	4.0	3.9
Use of dwelling	dollars 25.18	dollars 24.83	dollars 30.68	dollars 26.88
Milk	10.29	7.32	7.75	7.53
Butter	2.29	.75	.25	.61
Eggs	7.83	5.21	4.55	5.08
Poultry	4.92	5.48	5.57	5.49
Pork	10.68	13.45	15.34	14.03
Veal	.08	.12	.04	.08
Beef	.36	.59	.39	.48
Wheat flour	1.45	3.44	3.36	3.25
Potatoes	1.83	2.59	3.09	2.74
Fruit	.30	.69	1.62	1.02
Garden	13.37	12.86	12.53	12.76
Fuel	12.52	8.93	7.91	8.78
Miscellaneous	—	.01	.06	.02
Total food and fuel	65.92	61.44	62.46	61.87
Total food, fuel, and dwelling	91.10	86.77	93.14	88.75

¹ See footnote 1 to Table 15.

Table 31—Amount of products per family furnished from the farm, by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Milk and milk equivalent, qts.	1,396	1,103	1,099	1,088
Eggs, dozen	132.9	108.4	95.8	104.1
Poultry, lbs.	113	147	153	147
Pork, lbs.	383	564	660	585
Veal, lbs.	*	*	*	*
Beef, lbs.	12	25	25	25
Wheat, lbs.	385	1,077	1,077	975
Potatoes, lbs.	750	1,250	1,625	1,320
Fruit ¹	—	—	—	—
Garden ¹	—	—	—	—
Fuel ¹	—	—	—	—

* Less than .05 pounds.

¹ Number of units not available.

² See footnote 1 to Table 15.

Table 32—Amount of products per capita furnished from the farm, by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Milk and milk equivalent, qts.	410.6	275.8	274.8	279.0
Eggs, doz.	39.1	27.1	24.0	26.7
Poultry, lbs.	33.2	36.8	38.2	37.7
Pork, lbs.	112.6	141.0	165.0	150.0
Veal, lbs.	*	*	*	*
Beef, lbs.	3.5	6.2	6.2	6.2
Wheat, lbs.	113.2	269.2	269.2	250.0
Potatoes, lbs.	220.6	312.5	406.2	338.5
Fruit ¹	—	—	—	—
Garden ¹	—	—	—	—
Fuel ¹	—	—	—	—

* Less than .05 pounds.

¹ Number of units not available.

² See footnote 1 to Table 15.

the farms in the poorer land classes used more milk, butter, eggs and fuel per family and per capita than the farms in the better land classes. This is probably explained by the fact that the farms in the poorer land classes were largely on a self-sustenance basis and used on the farms what was produced of these products without much attempt at making sales. This is true despite the fact that a larger percentage of the farms in the poorer land classes had no cows and no chickens than in the better land classes. However, with practically all other items of living, including the use of the dwelling, meats, wheat flour, fruits and potatoes, larger amounts per family and per capita were used on the farms in the better land classes than in the poorer land classes.

SIZE OF BUSINESS

Size of Farms and Use of Land per Farm in the Different Land Classes

Farms in land classes III and IV were approximately twice the size of farms in land class II. Farms in land classes III and IV not only had a larger acreage of extensive as well as intensive crops but a larger percentage of the land was devoted to crops, especially intensive crops, as compared with land class II. On the other hand, the percentage of untillable land in land class II was approximately one-sixth greater than in land class III and almost twice as great as in land class IV, Tables 33 and 34.



Figure 30—A farmstead in class IV land.

Class IV land is the best grade of crop land. Normally, the buildings are of a fairly good size and are in a reasonably good condition.

Table 33—Size of farms and use of land per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Total land operated per farm, acres	65.6	123.1	133.8	125.7
Tillable land per farm, acres	36.2	75.3	101.7	81.3
Use of land	acres	acres	acres	acres
Corn for grain	9.3	17.6	21.0	18.1
Corn for silage .....	.1	.4	.7	.4
Sweet corn .....	.1	.1	*	.1
Wheat	3.9	16.8	24.7	18.5
Rye .....	.1	1.1	1.8	1.3
Soybeans .....	.2	.8	1.7	1.0
Oats	—	.2	.2	.2
Barley	—	—	*	*
Buckwheat	—	*	*	*
Miscellaneous extensive .....	.6	.5	.6	.5
Clover and timothy hay	2.4	5.4	4.5	4.8
Clover hay .....	.3	.9	2.3	1.4
Alfalfa hay	—	.1	.8	.3
Soybean and cowpea hay	1.7	2.3	3.0	2.5
Other legume hay .....	.1	1.0	.6	.7
Other non-legume hay .....	.6	.6	.6	.7
Total extensive crops	19.4	47.8	62.5	50.5
Sweet potatoes	*	.2	1.0	.4
White potatoes .....	.2	.4	.9	.5
Tomatoes	2.3	3.7	4.4	3.8
Asparagus	—	*	.2	.1
Peas	—	.3	.8	.5
Lima beans	—	*	.8	.4
String beans, cannery	—	.1	.1	.1
String beans, fresh	—	*	—	*
Cantaloupes	—	.1	.3	.1
Watermelons	—	*	.1	.1
Cucumbers	*	.1	*	.1
Pickles	—	—	*	*
Miscellaneous intensive .....	.4	*	—	*
Apples, bearing .....	.1	.7	4.4	1.9
Apples, not bearing	—	.1	.3	.2
Peaches, bearing	—	*	2.4	.8
Peaches, not bearing	*	—	.1	.1
Other tree fruit	*	*	.2	.1
Grapes .....	.4	.1	.8	.3
Strawberries .....	.3	.3	.1	.2
Other small fruit	—	—	—	—
Garden .....	.7	1.1	1.2	1.1
Total intensive crops	4.4	7.2	18.1	10.8
Total	23.8	55.0	80.6	61.3

Table 33—Size of farms and use of land per farm by land classes, Kent County, Delaware, 1935 (continued).

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Use of land	acres	acres	acres	acres
Acres double cropped .....	.4	1.4	4.3	2.4
Difference = acres in crops	23.4	53.6	76.3	58.9
Tillable land lying out	8.3	7.0	6.8	7.4
Tillable pasture	4.5	14.7	18.6	15.0
Total tillable land	36.2	75.3	101.7	81.3
Woods not pastured	19.2	33.1	20.4	28.3
Woods pastured	3.1	1.9	.6	1.3
Untillable pasture	2.1	2.5	1.3	2.0
Farmsteads, roads, and fence rows	2.2	3.4	2.8	3.0
Muskrat marsh	—	—	1.0	.6
Marsh hay	—	1.8	.1	1.2
Other marsh	—	1.4	2.4	4.3
Wasteland	2.8	3.7	3.5	3.7
Total untillable land	29.4	47.8	32.1	44.4
Total land operated	65.6	123.1	133.8	125.7
Land cash rented	5.1	2.8	1.0	2.4
Land share rented	20.9	56.7	79.0	64.3
Land rented out .....	.8	.2	.1	.2
Land owned	40.4	63.8	53.9	59.2

* Less than .05 acres.

¹ See footnote 1 to Table 15.

Table 34—The percentage of land devoted to the various uses per farm, by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Total land operated per farm, acres	65.6	123.1	133.8	125.7
Tillable land per farm, acres	36.2	75.3	101.7	81.3
Use of land	per cent	per cent	per cent	per cent
Corn for grain	14.2	14.3	15.7	14.4
Corn for silage .....	.2	.3	.5	.3
Sweet corn .....	.2	.1	*	.1
Wheat	5.9	13.6	18.5	14.7
Rye .....	.2	.9	1.4	1.0
Soybeans .....	.3	.6	1.3	.8
Oats	—	.2	.2	.2
Barley	—	—	*	*
Buckwheat	—	*	*	*
Miscellaneous extensive .....	.9	.4	.4	.4
Clover and timothy hay	3.6	4.4	3.4	3.8
Clover hay .....	.4	.7	1.7	1.1
Alfalfa hay	—	.1	.6	.2
Soybean and cowpea hay	2.6	1.9	2.2	2.0
Other legume hay .....	.2	.8	.4	.6
Other non-legume hay .....	.9	.5	.4	.6
Total extensive crops	29.6	38.8	46.7	40.2
Sweet potatoes	*	.2	.7	.3
White potatoes .....	.3	.3	.7	.4
Tomatoes	3.5	3.0	3.3	3.0
Asparagus	—	*	.1	.1
Peas	—	.2	.6	.4
Lima beans	—	*	.6	.3
Stringbeans, cannery	—	.1	.1	.1
Stringbeans, fresh	—	*	—	*
Cantaloupes	—	.1	.2	.1
Watermelons	—	*	.1	.1
Cucumbers	*	.1	*	.1
Pickles	—	—	*	*
Miscellaneous intensive .....	.6	*	—	*
Apples, bearing .....	.2	.6	3.3	1.5
Apples, not bearing	—	.1	.2	.2
Peaches, bearing	—	*	1.8	.6
Peaches, not bearing	*	—	.1	.1
Other tree fruit	*	*	.1	.1
Grapes .....	.6	.1	.6	.2
Strawberries .....	.4	.2	.1	.2
Other small fruit	—	—	—	—
Garden	1.1	.8	.9	.8
Total intensive crops	6.7	5.8	13.5	8.6
Total	36.3	44.6	60.2	48.8

Table 34—The percentage of land devoted to the various uses per farm, by land classes, Kent County, Delaware, 1935 (continued).

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Use of land	per cent	per cent	per cent	per cent
Acres double cropped .....	.6	1.1	3.2	1.9
Difference = acres in crops	35.7	43.5	57.0	46.9
Tillable land lying out	12.6	5.7	5.1	5.9
Tillable pasture	6.8	12.0	13.9	11.9
Total tillable land	55.1	61.2	76.0	64.7
Woods not pastured	29.3	26.9	15.3	22.5
Woods pastured	4.7	1.5	.4	1.0
Untillable pasture	3.2	2.0	1.0	1.6
Farmsteads, roads, and fence rows ..	3.4	2.8	2.1	2.4
Muskrat marsh	—	—	.7	.5
Marsh hay	—	1.5	.1	1.0
Other marsh	—	1.1	1.8	3.4
Wasteland	4.3	3.0	2.6	2.9
Total untillable land	44.9	38.8	24.0	35.3
Total land operated	100.0	100.0	100.0	100.0
Land cash rented	7.8	2.3	.7	1.9
Land share rented	31.8	46.1	59.1	51.2
Land rented out	1.2	.2	.1	.2
Land owned	61.6	51.8	40.3	47.1

* Less than .05 per cent.

¹ See footnote 1 to Table 15.

Capital per Farm in the Different Land Classes

Farms in land class IV had more than three times the invested capital in each real estate and operating equipment as farms in land class II, Table 35. The fact that farms in land class II could be bought, on the average, for approximately \$2,000 seems to attract to these areas many persons who were unfamiliar with this class of land. The purchase of some of these farms was financed through the down-payment of only \$500 to \$600. After a short time most of these persons found they could realize little more than a meager existence in this class of land. Their problem, then, was to dispose of the farms, oftentimes to other persons unfamiliar with this class of land. A farm worthless for agricultural purposes usually has a selling value just as the "wind broken" horse usually has a trading value.

Table 35—Capital¹ per farm in real estate and operating equipment by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Total acres per farm	65.6	123.1	133.8	125.7
	dollars	dollars	dollars	dollars
Real estate				
Operator's house	650	848	1,149	925
Other houses	32	72	112	78
Barns and other buildings	399	747	1,369	945
Land	1,007	2,187	3,898	2,724
Total buildings and land	2,088	3,854	6,528	4,672
Operating equipment				
Machinery	131	382	674	467
Livestock	262	648	908	702
Feed and supplies	70	203	296	224
Total operating equipment	463	1,233	1,878	1,393
Total real estate and operating equipment	2,551	5,087	8,406	6,065

¹ Farmers' estimates.

² See footnote 1 to Table 15.

It is significant, however, that on an acre basis the farms in land class II were valued as high as farms in land class III, Table 36. This apparent over-valuation of farms in land class II probably was due to two factors. First, the per-acre value of buildings on small farms is usually greater than on larger farms. Second, the low total capital investment in these farms apparently created more competition for these farms than for the larger farms in classes III and IV. It is a commonly accepted economic fact that good land normally is under-valued and poor land is over-valued.

Table 36—Amount of capital per acre invested in real estate by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Total acres per farm	65.6	123.1	133.8	125.7
	dollars	dollars	dollars	dollars
Real estate				
Operator's house	10	7	9	7
Other houses	1	1	1	1
Barns and other buildings	6	6	10	7
Land	15	17	29	22
Total buildings and land	32	31	49	37
Operating equipment				
Machinery	2	3	5	4
Livestock	4	5	7	5
Feed and supplies	1	2	2	2
Total operating equipment	7	10	14	11
Total real estate and operating equipment	39	41	63	48

¹ See footnote 1 to Table 15.

Volume of Products Produced per Farm in the Different Land Classes

The average production per farm of corn for grain in land class II was 178.2 bushels as compared with 761.8 bushels in class IV land. The average production of wheat per farm in land classes II and IV was 50.5 bushels and 408.6 bushels, respectively. Milk produced per farm was 5,136 pounds in class II as compared with 35,064 pounds in class IV land. No intensive crops of significance were grown on farms in class II land, Table 37.

Table 37—Volume of major products produced per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products				
Extensive crops				
Corn for grain, bu.	178.2	520.2	761.8	579.9
Corn for silage, T.	1.6	2.9	6.0	3.7
Sweet corn, T. . . . .	.2	.1	.1	.2
Wheat, bu.	50.5	240.7	408.6	283.4
Rye, bu.	1.2	11.9	22.7	15.7
Soybeans, bu. . . . .	.8	6.0	23.8	11.8
Oats, bu.	—	3.3	4.9	3.4
Barley, bu.	—	—	.3	.1
Buckwheat, bu.	—	.2	.2	.2
Clover and timothy hay, T. . . .	1.6	6.3	5.6	5.6
Clover hay, T. . . . .	.3	1.3	4.2	2.4
Alfalfa hay, T.	—	.2	1.5	.6
Soybean and cowpea hay, T. . . .	1.7	3.0	4.7	3.4
Other legume hay, T. . . . .	.1	1.1	1.0	.9
Other non-legume hay, T. . . . .	.5	.5	.6	.6
Intensive crops				
Sweet potatoes, bu.	—	19.0	106.6	48.0
White potatoes, bu.	—	17.4	61.4	31.8
Tomatoes, T.	2.7	7.1	11.7	8.6
Asparagus, cr.	—	2.8	8.8	4.5
Peas, T.	—	.2	.9	.5
Lima beans, T.	—	.1	.5	.2
Stringbeans, cannery, T.	—	.1	*	.1
Stringbeans, fresh, bu.	—	*	—	*
Cantaloupes, cr.	—	16.0	84.3	38.0
Watermelons, each	—	2.4	83.4	30.9
Cucumbers, bu.	—	7.7	1.3	5.1
Pickles, bu.	—	—	.4	.2
Apples, bu.	—	39.6	316.5	132.4
Peaches, bu.	—	—	9.4	3.4
Grapes, 12-qt. ba.	15.3	22.1	207.6	85.7
Strawberries, cr.	8.1	19.3	9.4	14.1
Livestock products				
Milk, lbs.	5,136	22,778	35,064	25,325
Eggs, doz.	541.8	767.6	621.8	680.9

* Less than .05 of unit.
¹ See footnote 1 to Table 15.

Percentage of Farm Products Sold in the Different Land Classes

In general, the better the class of land the greater the degree of commercialization, Table 38. Farms in land class II were operated largely for self-sustenance purposes.

Table 38—Percentage of major products produced per farm which are sold by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products	per cent	per cent	per cent	per cent
Extensive crops				
Corn for grain, bu.	15.0	32.8	43.1	38.0
Sweet corn, T.	100.0	100.0	100.0	100.0
Wheat, bu.	54.2	70.5	79.7	75.2
Rye, bu.	0	55.5	62.6	61.1
Soybeans, bu.	0	61.7	77.3	73.7
Oats, bu.	—	12.1	16.3	14.7
Clover and timothy hay, T.	0	4.8	3.6	3.6
Clover hay, T.	0	*	0	*
Soybean and cowpea hay, T.	0	3.3	2.1	2.9
Intensive crops				
Sweet potatoes, bu.	—	78.9	92.9	89.2
White potatoes, bu.	—	69.0	60.4	63.5
Tomatoes, T.	100.0	100.0	100.0	100.0
Asparagus, cr.	—	100.0	100.0	100.0
Peas, T.	—	100.0	100.0	100.0
Lima beans, T.	—	100.0	100.0	100.0
Stringbeans, cannery, T.	—	100.0	—	100.0
Cantaloupes, cr.	—	99.4	99.9	99.7
Watermelons, each	—	100.0	100.0	100.0
Cucumbers, bu.	—	100.0	100.0	100.0
Pickles, bu.	—	—	100.0	100.0
Apples, bu.	—	86.4	96.3	94.9
Peaches, bu.	—	—	92.7	92.7
Grapes, 12 qt. ba.	100.0	97.7	99.7	99.4
Strawberries, cr.	100.0	99.5	100.0	99.6
Livestock products				
Milk, lbs.	18.3	75.4	81.6	77.3
Eggs, doz.	70.8	84.1	73.4	82.0

* Less than .05 per cent.

¹ See footnote 1 to Table 15.

Receipts per Farm in the Different Land Classes

Tables 39, 40, 41, and 42 indicate the summary of receipts per farm, receipts per farm from the different products, percentage of receipts per farm from the different products, and receipts per farm from sources other than the usual farm operations. All data are shown by land classes. The farms in land classes III and IV not only had larger receipts per farm but, with the exception of the poultry enterprise, had a larger percentage of the receipts from crop and livestock production than the farms in land class II. Although less in amount on farms in land class II, the percentage of the receipts from the poultry enterprise on these farms was greater than with the farms in the better classes of land. However, receipts per farm from the poultry enterprise were greater on class III land than class IV land. Apparently, there is no close relationship between the size of the poultry enterprise and land classes in Kent County. Receipts per farm were greater from sources other than the usual farm operations in class II land than on either classes III or IV land. Many farmers operating farms in class II land were compelled to supplement the farm income by obtaining work off the farm. Total receipts per farm of \$455 indicates a low standard of living among farmers in class II land.

Table 39—Summary of receipts per farm from crops, livestock, and other sources, by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products	dollars	dollars	dollars	dollars
Crops	99	450	1,038	635
Livestock products	107	446	661	487
Livestock sold	108	242	255	231
Other than usual farm operations ¹ ..	122	84	95	94
Increase in capital	19	70	51	63
Total	455	1,292	2,100	1,510

¹ See Table 42.

² See footnote 1 to Table 15.

Table 40—Receipts per farm from the different products, by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products	dollars	dollars	dollars	dollars
Corn for grain	14	97	193	127
Sweet corn	3	2	2	3
Wheat	21	129	249	162
Rye	—	4	10	6
Soybeans	—	3	16	8
Oats	—	*	*	*
Buckwheat	—	—	*	*
Miscellaneous extensive crops	—	3	6	4
Clover and timothy hay	—	3	2	2
Clover hay	—	*	—	*
Alfalfa hay	—	—	—	—
Soybean and cowpea hay	—	1	2	1
Other legume hay	—	—	1	*
Other non-legume hay	—	—	—	—
Straw sold	—	—	—	—
Marsh hay	—	6	—	3
Total extensive crops	38	248	481	316
Sweet potatoes	—	9	57	25
White potatoes	—	7	21	11
Tomatoes	24	82	138	100
Asparagus	—	3	10	5
Peas	—	10	47	24
Lima beans	—	2	22	11
Stringbeans, cannery	—	3	2	3
Stringbeans, fresh	—	—	—	—
Cantaloupes	—	5	17	8
Watermelons	—	*	5	2
Cucumbers	—	4	*	3
Pickles	—	—	*	*
Miscellaneous intensive crops	17	2	—	2
Apples, bearing	—	25	154	67
Apples, cull and cider	—	*	1	*
Peaches, bearing	—	—	11	4
Other tree fruit	*	—	2	1
Grapes	3	4	46	19
Strawberries	16	44	19	31
Other small fruit	—	—	—	—
Garden	1	2	5	3
Total intensive crops	61	202	557	319
Total crops	99	450	1,038	635

Table 40—Receipts per farm from the different products, by land classes, Kent County, Delaware, 1935 (continued).

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products	dollars	dollars	dollars	dollars
Milk wholesaled	9	275	437	305
Milk retailed	4	4	90	35
Cream retailed	—	—	1	*
Butter	3	2	6	4
Other dairy products	—	—	2	1
Total dairy products	16	281	536	345
Wool	—	1	—	*
Eggs	91	163	124	141
Miscellaneous	—	1	1	1
Total livestock products	107	446	661	487
Cows	10	21	38	26
Heifers (1 yr. or over)	—	2	1	2
Heifers (under 1 yr.)	—	1	2	1
Veal calves	15	44	55	44
Herd bulls	2	4	5	4
Total dairy cattle	27	72	101	77
Other cattle	—	5	—	2
Horses	4	7	8	7
Mules	—	6	4	4
Ewes	—	*	—	*
Lambs, weaned	—	3	—	2
Brood sows	*	1	2	1
Other hogs	2	9	9	9
Pigs, weaned	2	5	8	6
Total hogs	4	15	19	16
Chickens	28	25	21	24
Miscellaneous	1	1	*	1
Cockerels	22	29	33	29
Broilers	—	20	9	13
Turkeys	18	55	56	52
Geese	1	1	1	1
Ducks	3	3	3	3
Total poultry	73	134	123	123
Total livestock	108	242	255	231
Total miscellaneous receipts	122	84	95	94
Increase in capital	19	70	51	63
Total farm receipts	455	1,202	2,100	1,510

* Less than \$.50.

¹ See footnote 1 to Table 15.

Table 41—Percentage of receipts per farm from the different products, by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products	per cent	per cent	per cent	per cent
Corn for grain	3.1	7.5	9.2	8.4
Sweet corn .....	.7	.2	.1	.2
Wheat	4.6	10.0	11.8	10.7
Rye	—	.3	.5	.4
Soybeans	—	.2	.8	.5
Oats	—	*	*	*
Barley	—	—	—	—
Buckwheat	—	—	*	*
Miscellaneous extensive crops	—	.2	.3	.3
Clover and timothy hay	—	.2	.1	.1
Clover hay	—	*	—	*
Alfalfa hay	—	—	—	—
Soybean and cowpea hay	—	.1	.1	.1
Other legume hay	—	—	*	*
Other non-legume hay	—	—	—	—
Straw sold	—	—	—	—
Marsh hay	—	.5	—	.2
Total extensive crops	8.4	19.2	22.9	20.9
Sweet potatoes	—	.7	2.7	1.7
White potatoes	—	.5	1.0	.7
Tomatoes	5.3	6.3	6.6	6.6
Asparagus	—	.2	.5	.3
Peas	—	.8	2.3	1.6
Lima beans	—	.2	1.0	.7
Stringbeans, cannery	—	.2	.1	.2
Stringbeans, fresh	—	—	—	—
Cantaloupes	—	.4	.8	.5
Watermelons	—	*	.2	.1
Cucumbers	—	.3	*	.2
Pickles	—	—	*	*
Miscellaneous intensive crops	3.7	.2	—	.1
Apples, bearing	—	1.9	7.3	4.4
Apples, cull and cider	—	*	.1	*
Peaches, bearing	—	—	.5	.3
Other tree fruit	*	—	.1	.1
Grapes .....	.7	.3	2.2	1.3
Strawberries	3.5	3.4	.9	2.1
Other small fruit	—	—	—	—
Garden .....	.2	.2	.2	.2
Total intensive crops	13.4	15.6	26.5	21.1
Total crops	21.8	34.8	49.4	42.0

Table 41—Percentage of receipts per farm from the different products, by land classes, Kent County, Delaware, 1935 (continued).

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Kinds of products	per cent	per cent	per cent	per cent
Milk wholesaled	2.0	21.3	20.8	20.2
Milk retailed . . . . .	.9	.3	4.3	2.3
Cream retailed	—	—	*	*
Butter . . . . .	.6	.1	.3	.3
Other dairy products	—	—	.1	.1
Total dairy products	3.5	21.7	25.5	22.9
Wool	—	.1	—	*
Eggs	20.0	12.6	5.9	9.3
Miscellaneous	—	.1	.1	.1
Total livestock products	23.5	34.5	31.5	32.3
Cows	2.2	1.6	1.8	1.7
Heifers (1 yr. or over)	—	.2	.1	.1
Heifers (under 1 yr.)	—	.1	.1	.1
Veal calves	3.3	3.4	2.6	2.9
Herd bulls . . . . .	.4	.3	.2	.3
Total dairy cattle	5.9	5.6	4.8	5.1
Other cattle	—	.4	—	.1
Horses . . . . .	.9	.5	.4	.5
Mules	—	.5	.2	.3
Ewes	—	*	—	*
Lambs, weaned	—	.2	—	.1
Brood sows	*	.1	.1	.1
Other hogs . . . . .	.4	.7	.4	.6
Pigs, weaned . . . . .	.5	.4	.4	.4
Total hogs . . . . .	.9	1.2	.9	1.1
Chickens	6.2	1.9	1.0	1.5
Miscellaneous . . . . .	.2	.1	*	.1
Cockerels	4.8	2.3	1.6	1.9
Broilers	—	1.5	.4	.9
Turkeys	4.0	4.3	2.7	3.4
Geese . . . . .	.2	.1	.1	.1
Ducks . . . . .	.6	.2	.1	.2
Total poultry	16.0	10.4	5.9	8.1
Total livestock	23.7	18.8	12.2	15.3
Total miscellaneous receipts	26.8	6.5	4.5	6.2
Increase in capital	4.2	5.4	2.4	4.2
Total farm receipts	100.0	100.0	100.0	100.0

* Less than .05 per cent.
¹ See footnote 1 to Table 15.

Table 42—Receipts per farm from sources other than the usual farm operation, by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
	dollars	dollars	dollars	dollars
Man labor off farm	97	24	11	23
Team work off farm	3	3	2	3
Machine work off farm	—	7	29	15
Trucking off farm	—	6	4	6
Cash rent for land	—	*	—	*
Livestock pastured	—	*	—	*
Rents	—	1	3	2
Lumber, posts, wood, etc.	7	8	*	5
Muskrat hides	—	*	7	3
Muskrat carcasses	—	*	*	*
Custom hatching	—	—	—	—
Custom packing fruit	—	—	*	*
Other receipts	15	35	39	37
Total	122	84	95	94

* Less than \$.50.

¹ See footnote 1 to Table 15.

Productive Man-Work Units per Farm in the Different Land Classes

There was a close relationship between the number of productive man-work units per farm and the land classes. Farms in land class IV had more than twice as many productive man-work units, on the average, as farms in class II land, Table 43.

Table 43—Productive man-work units¹ per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
	P. M. W. U.	P. M. W. U.	P. M. W. U.	P. M. W. U.
Livestock	48.4	107.1	137.8	111.7
Crops	108.4	209.1	312.5	235.8
Miscellaneous	66.8	26.8	17.7	26.4
Total	223.6	343.0	468.0	373.9

¹ A productive man-work unit is the average amount of productive work accomplished by a man in one day. For example, producing and harvesting one acre of corn for grain comprises 6 productive man-work units, an acre of white potatoes 8, and one acre of tomatoes for the cannery 12. Caring for one cow for a year comprises 15 productive man-work units and for hens, per 100 birds a year, entails 20 productive man-work units.

² See footnote 1 to Table 15.

Livestock per Farm in the Different Land Classes

Farms in the better land classes had more livestock per farm than farms in land class II, Table 44.

Table 44—Number of livestock and total number of animal units per farm by land classes, Kent County, Delaware, 1935.³

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Kinds of livestock	number	number	number	number
Cows	2.1	5.4	7.4	5.8
Heifers (1 yr. or over) .....	.2	.8	1.0	.8
Heifers (under 1 yr.) .....	.1	.8	1.1	.8
Veal calves	—	*	.1	.1
Herd bulls .....	.1	.3	.4	.3
Total dairy cattle	2.5	7.3	10.0	7.8
Other cattle	—	*	—	*
Horses	1.2	2.2	2.6	2.2
Mules .....	.4	.8	1.2	.9
Stallions	—	*	—	*
Colts	—	.1	.3	.2
Ewes	—	.5	—	.3
Lambs, weaned	—	.1	—	.1
Brood sows .....	.2	.3	.6	.4
Other hogs .....	.6	.4	.7	.5
Pigs weaned .....	.4	.4	1.5	.8
Chickens	73.2	90.8	78.1	83.1
Miscellaneous poultry .....	.4	.4	.2	.5
Broilers	—	7.0	.8	3.8
Baby chicks	—	—	—	—
Turkeys	3.0	6.3	7.9	6.7
Geese .....	.5	.4	.2	.3
Ducks	1.0	1.5	1.7	1.6
Total poultry	78.1	106.4	88.9	96.0
Total animal units ¹ per farm	4.8	10.8	14.1	11.4

* Less than .05 of an animal.

¹ An animal unit represents an average mature horse, or cow, or the equivalent in other livestock, based on the amount of feed eaten and manure produced.

² See footnote 1 to Table 15.

³ On hand December 31.

Value of Livestock per Head in the Different Land Classes

As indicated by value per head of livestock, the better the class of land the higher the quality of the livestock, Table 45.

Table 45—Value per head* of important livestock by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
	dollars	dollars	dollars	dollars
Dairy cows	38	43	47	45
Horses	54	79	85	80
Mules	72	73	88	80
Chickens .....	.75	.80	.88	.83

* Based on farmers' estimates.

¹ See footnote 1 to Table 15.

Purchased Feed per Farm in the Different Land Classes

Heavier feeding of dairy cattle was practiced on farms in the better land classes than in class II land. The amount of purchased feed per farm and per cow increased with the farms in the better land classes, Tables 46 and 47.

Table 46—Amount of dairy concentrates purchased per farm and per cow by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
	pounds	pounds	pounds	pounds
Dairy concentrates purchased per farm	480	1,800	2,940	2,020
Other dairy feed purchased per farm	100	500	1,360	780
Total dairy feed purchased per farm	580	2,300	4,300	2,800
Purchased feed fed per cow	284	423	578	484

¹ See footnote 1 to Table 15.

Table 47—Value of dairy concentrates purchased per farm and per cow, by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
	dollars	dollars	dollars	dollars
Dairy concentrates purchased per farm	10	30	48	34
Other dairy feed purchased per farm	2	7	26	13
Total dairy feed purchased per farm	12	37	74	47
Purchased feed fed per cow	5.61	6.83	9.99	8.14

¹ See footnote 1 to Table 15.

Use of Automobiles, Trucks, and Tractors in the Different Land Classes

The percentage of the farms which had automobiles, trucks, and tractors, corresponded closely with the land classes, Table 48.

Table 48—Percentage of farms having automobiles, trucks, and tractors by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
	Number of farms	25	251	177	498
	per cent	per cent	per cent	per cent
Automobiles	52.0	69.3	76.8	71.1
Trucks	8.0	16.3	29.4	21.1
Tractors	8.0	23.9	35.0	26.3

¹ See footnote 1 to Table 15.

Summary of Size of Business Factors

Table 49 shows a summary of size of business per farm according to the different land classes. Table 50 shows a summary of size of business per 100 acres according to the different land classes. This latter table eliminates the differences in average size of farms in the different land classes and makes it possible to compare size of business factors strictly on a land class basis. Table 50 indicates, therefore, that there is a close relationship between land classes and size of business factors.

Table 49—Summary of size of business per farm by land classes, Kent County, Delaware, 1935.

Land classes	Acres per farm	Capital in real estate per farm	Operating capital per farm	Total receipts per farm	Total net receipts per farm ¹	Dairy cows per farm	Animal units per farm ²	Labor income per farm	Taxes paid per farm
	acres	dollars	dollars	dollars	dollars	number	number	dollars	dollars
II	65.6	2,088	463	455	368	2.1	4.8	-225	16
III	123.1	3,854	1,233	1,293	1,147	5.4	10.8	- 92	24
IV	133.7	6,528	1,878	2,100	1,881	7.4	14.1	- 78	38
County average ³	125.7	4,672	1,393	1,510	1,341	5.8	11.4	- 33	28

¹ Net receipts as used in this study are total receipts minus (livestock purchased and decrease in capital).

² See Table 44 for definition of animal units.

³ See footnote 1 to Table 15.

Table 50—Summary of size of business per 100 acres of land by land classes, Kent County, Delaware, 1935.

Land classes	Capital in real estate per 100 acres	Operating capital per 100 acres	Total receipts per 100 acres	Total net receipts per 100 acres ¹	Dairy cows per 100 acres	Animal units per 100 acres ²	Labor income per 100 acres	Taxes paid per 100 acres
	dollars	dollars	dollars	dollars	number	number	dollars	dollars
II	3,183	706	694	561	3.2	7.3	-343	24
III	3,131	1,002	1,050	932	4.4	8.8	-75	19
IV	4,882	1,405	1,571	1,406	5.5	10.5	- 58	28
County average ³	3,717	1,108	1,201	1,067	4.6	9.1	-26	22

¹ See footnote 1 to Table 49.

² See footnote 2 to Table 49.

³ See footnote 1 to Table 15.

USE OF LABOR

Use of Labor in the Different Land Classes

The farms in class II land used, on the average, less than one month of hired labor annually at a cost of \$29 including board. The farms in class IV land used, on the average, nearly ten months of hired labor annually at a cost of \$293, including board. The labor in class IV land was more efficient as indicated by 226 productive man-work units per man equivalent in class IV land as compared with 173 productive man-work units per man equivalent in class II land. The estimated average value of the operators' time for one year in class IV land was \$319 as compared with \$245 for farm operators in class II land, Table 51.

Table 51—Amount and value of hired labor and unpaid family labor per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ⁵
	II	III	IV	
Number of farms	25	251	177	498
Months of hired labor (month and day labor) ¹ , number .....	.9	4.2	9.6	5.8
Months of unpaid family labor ² , number	2.6	3.8	3.2	3.3
Total months of labor, number	3.5	8.0	12.8	9.1
Value of hired labor, including board (month and day labor), dollars	29	144	293	186
Value of unpaid family labor, including board, dollars	71	110	95	96
Total value of hired and unpaid family labor, including board, dollars	100	254	388	282
Operators' estimate of the value of their own time for one year, dollars	245	301	319	299
Man equivalents per farm ³ , number	1.29	1.67	2.07	1.76
Productive man work units per man equivalent ⁴ , number	173	205	226	212

¹ Converted to months.

² Excluding the operator.

³ Calculated by dividing the average number of months of labor per farm for the year by 12.

⁴ See footnote 1 to Table 43.

⁵ See footnote 1 to Table 15.

SOCIAL ASPECTS OF LAND USE

The social implication is an important phase of land utilization. The effect of land utilization on the standard of living of farmers has already been referred to. Many additional questions arise. What is the effect of land utilization on the age of farmers and the age at which they retire? From where did the farmers come who reside in the different land classes. That is, were they local people or did they come to Delaware from other

states and foreign countries? Are the farmers residing in the different land classes experienced in farming or is their previous experience confined largely to city occupations? What is the influence of land utilization on the size of farm families and the education of farmers and farm children? And last, does land utilization have an influence on the number of farmers' sons who become farmers.

Age of Farmers in the Different Land Classes

Of the farmers 70 years of age and over, 24.0 per cent were in class II land, 7.6 per cent in class III land, and 7.9 per cent in class IV. Of the farmers 60 years of age and over, 44.0 per cent were in class II land, 29.9 per cent were in class III land, and 22.6 per cent were in class IV land, Table 52. Apparently, farmers in the better classes of land are financially able to retire at an earlier age. Farmers in class II land are compelled to reside on the farms during their declining years, endeavoring to make a living.

Table 52—Percentage of farmers by age groups who reside in the different classes of land, Kent County, Delaware, 1935.

Age—years	Land classes			County ¹ per cent
	II per cent	III per cent	IV per cent	
Less than 30	12.0	4.8	5.1	5.4
30—39.9	16.0	15.1	11.9	14.1
40—49.9	16.0	25.1	31.6	27.5
50—59.9	12.0	25.1	28.8	24.9
60—69.9	20.0	22.3	14.7	19.5
70 and over	24.0	7.6	7.9	8.6
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

Birthplace of Farmers in the Different Land Classes

Of the farmers in class II land, 72.0 per cent were born outside rural Delaware. Of this number, 24.0 per cent were born in foreign countries. Of the farmers in land classes III and IV, only 37.0 per cent and 22.6 per cent, respectively, were born outside of rural Delaware and 11.1 per cent and 2.8 per cent, respectively, were born in foreign countries, Table 53.

Table 53—Birthplace of farmers by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Birthplace	per cent	per cent	per cent	per cent
Kent County	28.0	58.6	72.3	61.6
Sussex County	—	2.8	4.0	3.0
Rural New Castle County	—	1.6	1.1	1.2
Total rural Delaware	28.0	63.0	77.4	65.8
Wilmington, Delaware	4.0	.8	—	.6
Other states of the United States ..	44.0	25.1	19.8	24.9
Foreign countries	24.0	11.1	2.8	8.7
Total outside rural Delaware	72.0	37.0	22.6	34.2
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

Of the fathers of farmers in class II land, 72.0 per cent were born in states other than Delaware with 32.0 per cent born in foreign countries. In land classes III and IV, 42.2 per cent and 26.5 per cent, respectively, of the fathers of farmers were born in states other than Delaware and 15.9 per cent and 4.5 per cent, respectively, were born in foreign countries, Table 54.

Table 54—Birthplace of fathers of farmers by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Birthplace	per cent	per cent	per cent	per cent
Delaware	28.0	57.8	73.5	61.4
Other states of the United States ..	40.0	26.3	22.0	25.7
Foreign countries	32.0	15.9	4.5	12.9
Total outside Delaware	72.0	42.2	26.5	38.6
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

Former Place of Residence of Farmers in the Different Land Classes

Of the farmers in land classes II, III, and IV, 40.0 per cent, 30.4 per cent, and 22.6 per cent, respectively, came from outside of rural Delaware immediately before going on the farm occupied at the time of the survey, Table 55. Almost twice as many farmers came from outside rural Delaware in land class II as in land class IV.

Table 55—Place of residence of farmers immediately before going on farm occupied in 1935 (at time of survey) by land classes, Kent County, Delaware.

	Land classes			County ¹
	II	III	IV	
Number of records	20	204	84	342
Place of residence	per cent	per cent	per cent	per cent
Kent County	60.0	68.1	75.0	67.5
Rural New Castle County	—	—	2.4	.6
Sussex County	—	1.5	—	.9
Total in rural Delaware	60.0	69.6	77.4	69.0
Wilmington, Delaware	5.0	1.0	1.2	1.7
Pennsylvania	10.0	8.3	7.1	8.2
Maryland	5.0	7.8	4.7	7.3
New York	5.0	5.9	—	4.6
New Jersey	10.0	2.9	1.2	2.9
Ohio	—	.5	3.6	1.5
Illinois	—	—	1.2	.6
District of Columbia	5.0	.5	—	.6
Virginia	—	.5	1.2	.6
Rhode Island	—	—	—	.3
Colorado	—	—	—	.3
Minnesota	—	.5	—	.3
Indiana	—	.5	—	.3
Kansas	—	.5	—	.3
West Virginia	—	.5	—	.3
Massachusetts	—	.5	—	.3
California	—	—	1.2	.3
Canada	—	.5	—	.3
Scotland	—	—	1.2	.3
Total outside rural Delaware	40.0	30.4	22.6	31.0
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

Experience of Farmers in the Different Land Classes

Practically two-thirds of the farmers in land class II had vocations other than farming immediately before going on the farms occupied at the time of the survey. However, less than one-third of the farmers in land class IV had vocations other than farming before going on the farm occupied at the time of the survey, Table 56.

Table 56—Occupation of farmers immediately before going on farm occupied in 1935 (at time of survey) by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms reporting	23	247	177	492
	per cent	per cent	per cent	per cent
Farming	34.8	64.8	70.6	63.0
Other than farming	65.2	35.2	29.4	37.0
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

More than three times the percentage of fathers of farmers in land class II had non-agricultural vocations as compared with fathers of farmers in land class IV, Table 57.

Table 57—Occupation of fathers of farmers by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Occupation	per cent	per cent	per cent	per cent
Farmers and farm laborers	72.0	87.3	91.5	87.8
Non-agricultural vocations	28.0	12.7	8.5	12.2
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

Of the living farmers who occupied the farms immediately preceding the incumbents at the time of the survey, more than four times the proportion in class II land went into non-agricultural vocations after leaving the farms as did in class IV land, Table 58. It appears with a considerable proportion of the farmers in class II land, that farming is simply a link in their careers. They come to the farms from non-agricultural vocations and leave the farms and return to non-agricultural vocations.

Table 58—Occupation immediately after leaving the farms, of living farmers who preceded the incumbent of 1935 (at time of survey), by land classes, Kent County, Delaware.

	Land classes			County ¹
	II	III	IV	
Number of farms	17	188	138	373
Occupation	per cent	per cent	per cent	per cent
Farming	58.8	66.5	75.4	68.6
Non-agricultural occupations	35.3	16.5	7.9	14.8
Retired	5.9	17.0	16.7	16.6
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

Table 59 shows the non-agricultural occupations which had been pursued by Kent County farmers.

Table 59—Non-agricultural occupations of farmers before taking up farming, Kent County, Delaware, 1935.

Occupation	191
	Farmers who had the different occupations Per cent
Factory worker	25.6
Mechanic	12.6
Carpenter	8.9
Workman for railroad	7.8
Office clerk	5.8
Storekeeper	5.2
Road worker	4.7
Truck driver	4.2
Railroad engineer	3.1
Fisherman	2.6
Mason	2.6
Miner	2.6
Small processing business ¹	2.6
Street car conductor	2.1
School teacher	2.1
Store clerk	2.1
Salesman	2.1
Produce dealer	1.6
Teamster	1.6
Baker	1.6
Painter	1.6
Railroad conductor	1.6
Hotel worker	1.0
Policeman	1.0
Chauffeur	1.0
Cook	1.0
Fireman	1.0
Bartender	1.0
Hospital attendant	1.0
Electrician	1.0
Lumberman	1.0
Shipyards foreman	1.0
Livery stable	1.0
Miscellaneous	7.8
Total	123.5²

¹ Butcher, miller, creamery man, etc.

² Total equals more than 100 per cent because some farmers had experience in more than one occupation.

Size of Farm Families in the Different Land Classes

It is commonly thought that the size of farm families is larger in the poorer land classes. This appears to be untrue. In fact, the average number of living children per farm family was slightly less in class II land than in the better land classes, Table 60. However, it is true that the size of the farm families in class II land was almost as great as in the better land classes despite an appreciably lower standard of living.

Table 60—Number of living children per farm family by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
	average number	average number	average number	average number
Females	1.5	1.5	1.5	1.5
Males	1.6	1.8	1.9	1.7
Total	3.1	3.3	3.4	3.2

¹ See footnote 1 to Table 15.

Education of Farmers and of Farm Children in the Different Land Classes

Despite the fact that the school facilities were less adequate at the time many of the present-day farmers attended school than is true at the present time, Table 61 indicates that the farmers now residing in the better land classes took advantage of the school facilities to a somewhat greater degree than the farmers in class II land. Either the better education received by the farmers in the better land classes was of sufficient value to aid them in occupancy of farms in class IV land, or their parents owned class IV land and the farmers came into occupancy through inheritance.

Table 61—Percentage of farmers who attended grade school, high school, and other institutions of learning, by land classes, Kent County, Delaware, 1935.

	Land classes			County ¹
	II	III	IV	
Number of farms	25	251	177	498
Institution of learning	per cent	per cent	per cent	per cent
Attended no school	8.0	3.2	2.8	3.2
Grade school	84.0	84.8	85.8	85.2
High school	4.0	7.6	6.2	6.6
Trade school	4.0	2.4	—	1.6
Business college	—	—	2.3	.8
College short course	—	.4	.6	.6
Four-year college course	—	1.6	2.3	2.0
Total	100.0	100.0	100.0	100.0

¹ See footnote 1 to Table 15.

At the age of 14 years, 32.0 per cent of the children in land class II had left school. However, only 13.2 per cent and 8.1 per cent of the children in land classes III and IV, respectively, had left school at the age of 14 years. At the age of 16 years, 82.0 per cent, 62.5 per cent, and 61.9

per cent of the children in land classes II, III, and IV, respectively, had left school, Table 62. It will be remembered that the present school laws were not effective when many of the children in question were of school age.

Table 62—Percentage of farm children who left school¹ at the different ages, by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Ages children left school	per cent	per cent	per cent	per cent
Less than 12 years	—	.2	.7	.4
12 years	—	.4	2.3	1.2
13 years	2.0	.9	2.6	1.8
14 years	32.0	13.2	8.1	12.2
15 years	44.0	27.1	22.1	25.6
16 years	82.0	62.5	61.9	62.9
17 years	96.0	79.6	80.2	80.4
18 years	98.0	97.7	98.1	97.9
19 years	98.0	99.1	99.7	99.3
Over 19 years	100.0	100.0	100.0	100.0

¹ Grade school and high school.

² See footnote 1 to Table 15.

At the end of the eighth grade, 72.1 per cent of the children in land class II had left school. However, in land classes III and IV only 58.1 per cent and 44.7 per cent, respectively, of the children had left school at the end of the eighth grade. The percentage of children who had left school at the end of the twelfth grade in land class II was not greatly in excess of that for land class IV. However, of the children who continued in school after the twelfth grade, 4.3 per cent enrolled in four-year colleges in class IV land while in class II land none enrolled in four-year colleges, Table 63.

Table 63—Percentage of farm children who left the grade schools or high schools at the end of the different grades and who attended other institutions of learning, by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Number of children	54	487	374	963
Grade children left school	per cent	per cent	per cent	per cent
Less than 3d grade	—	.2	.3	.2
3d grade	—	.6	.3	.5
4th grade	3.7	2.0	1.4	1.9
5th grade	12.9	6.1	3.8	5.5
6th grade	31.4	13.7	9.7	13.4
7th grade	42.5	25.0	18.5	23.5
8th grade	72.1	58.1	44.7	53.4
9th grade	75.8	64.3	55.4	61.6
10th grade	83.2	72.5	64.7	70.0
11th grade	85.1	79.7	67.9	75.1
12th grade	92.5	93.3	87.4	91.2
Nurses training ¹	—	1.4	1.3	1.2
Business college ¹	3.7	2.1	5.1	3.3
Teachers training ¹	1.9	1.6	1.3	1.5
Trade school ¹	1.9	.6	.3	.5
Post graduate work in high school ¹	—	.2	.3	.2
Four-year college course ¹	—	.8	4.3	2.1
Total	100.0	100.0	100.0	100.0

¹ Children attending indicated institutions are not counted under grade schools or high schools.

² See footnote 1 to Table 15.

Occupation of Mature Farm Children in the Different Land Classes

Nearly three times the proportion of children reared in class IV land took up farming as an occupation as in class II land. This was probably due to sons who were reared in class IV land having received more aid from their parents in getting established and in that they anticipated greater opportunities in farming than sons reared in class II land. There were, however, a larger proportion of children reared in class II land who became farm laborers than in the better land classes, Table 64. Apparently, due to their better experience, education, and financial support a larger proportion of sons of farmers in the better land classes avoided being farm laborers than in land class II.

Table 64—Occupation of mature farm children¹ by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
Occupations	per cent	per cent	per cent	per cent
Farmers	7.5	13.4	19.2	16.5
Farm laborers	10.0	5.2	6.5	6.2
Housewives	40.0	42.2	43.0	41.8
Non-agricultural vocations	42.5	39.2	31.3	35.5
Total	100.0	100.0	100.0	100.0

¹ Children who have entered a vocation.

² See footnote 1 to Table 15.

Summarizing the social aspects of land use, as compared with farmers residing in the better land classes, a larger proportion of the farmers in the poorer land classes were older men; a larger proportion of them were born outside of rural Delaware and in foreign countries; and a smaller proportion had farm experience. It is also true that a smaller proportion of the farmers and of the farm children residing in the poorer land classes had taken advantage of the school facilities offered by the state; a smaller proportion of farmers' sons took up farming as a vocation; and the number of living children per family was practically as great as in the better land classes, despite an appreciably lower standard of living.

ROADS

A system of improved farm-to-market roads appears to be an important service in the full utilization of the land resources of a county. The attached land classification map shows a system of improved farm-to-market roads for Kent County. The map shows the hard-surface roads which were intact at the time of the survey, 1936. It indicates the dirt roads that it would appear desirable eventually to hard-surface. It also indicates the dirt roads that it would appear desirable to allow to remain as dirt roads. Obviously, the hard-surfacing of the indicated dirt roads would be contingent on available funds.

The bases used for the laying out of this system of roads are the classes of land, the classes of farms, and the concentration of farms. Group A roads are, at present, dirt roads and serve the largest number of the better farms and rural residences per mile of road, largely in class IV land. Group B roads are dirt roads that serve largely farms in land class III. These roads serve fewer of the better farms and rural residences per mile of road than Group A roads. Group C includes dirt roads that are used somewhat for agricultural purposes and serve as connecting roads. These roads often times extend through the poorer land classes. Group D roads are largely in land classes III and IV but because they serve so few farms they will probably remain as dirt roads. Group E are dirt roads in or tributary to land classes I and II. If land class II were reforested some of these roads may be closed. Most of them probably would be needed for forest trail purposes. Group G roads appear on the United States Geological Survey Maps, but are now closed and receive little or no use.

Table 65—Miles of road in the different road groups by land classes, Kent County, Delaware, 1936.

Road groups	Land classes				County ² miles
	I miles	II miles	III miles	IV miles	
Hard-surface roads					
Concrete	12.5	6.9	81.0	153.6	254.0
Macadam	2.4	.7	11.2	12.9	27.2
Total	14.9	7.6	92.2	166.5	281.2
Dirt roads desirable eventually to hard-surface					
Group A ¹	9.3	1.6	45.7	186.4	243.0
Group B ¹	17.4	7.5	200.2	55.7	280.8
Group C ¹	7.0	8.0	2.1	.5	17.6
Total	33.7	17.1	248.0	242.6	541.4
Permanent dirt roads					
Group D ¹	35.0	12.8	112.1	64.9	224.8
Roads that might be closed or used for forest purposes if land were reforested					
Group E ¹	43.9	22.3	10.4	1.3	77.9
Unused or abandoned roads					
Group G ¹	29.5	5.4	20.9	13.8	69.6
Grand total	157.0	65.2	483.6	489.1	1,194.9
Present hard-surface roads plus					
Group A	24.2	9.2	137.9	352.9	524.2
Groups A and B ..	41.6	16.7	338.1	408.6	805.0
Groups A, B, and C	48.6	24.7	340.2	409.1	822.6

¹ Group A roads are dirt roads which serve the largest number of the better farms and rural residences per mile of road, largely in land class IV. Group B roads are dirt roads which serve largely farms in land class III. These roads serve fewer of the better farms and rural residences per mile of road than Group A roads. Group C includes dirt roads used somewhat for agricultural purposes and for connecting roads. These roads often times extend through the poorer land classes. Group D roads are largely in land classes III and IV but because they serve so few farms they will probably remain as dirt roads. Group E are dirt roads in or tributary to land classes I and II. If land class II were reforested some of these roads may be closed. Most of them probably would be needed for forest trail purposes. Group G roads appear on the United States Geological Survey Maps, but are now closed and receive little or no use.

² This mileage includes the roads to the boundaries of villages and towns. Exceptions are Routes 13 and 113, the entire county mileage of which have been included. The Delaware Highway Department reports 1,064.39 miles of roads in Kent County in 1938. Part of the difference between this mileage and that gotten by measuring the roads on the United States Geological Survey Maps is due to the fact the Delaware Highway Department did not include the unused or abandoned roads.

Classification of Roads in the Different Land Classes

According to the United States Geological Survey Maps, Kent County had 1,194.9 miles of roads when these surveys were made. Of these roads 281.2 miles, or 23.6 per cent, were hard-surfaced in 1936. Class I land had 9.5 per cent of the roads hard-surfaced; class II land, 11.7 per cent; class III land, 19.1 per cent; and class IV land, 34.0 per cent of the roads were hard-surfaced, Tables 65 and 66.

Group A included 243.0 miles of road of which 186.4 miles were in class IV land. Group A made up 20.3 per cent of the roads in Kent

Table 66—Percentage of road mileage in the different road groups by land classes, Kent County, Delaware, 1936.

Road groups	Land classes				County ² per cent
	I per cent	II per cent	III per cent	IV per cent	
Hard-surface roads					
Concrete	8.0	10.6	16.8	31.4	21.3
Macadam	1.5	1.1	2.3	2.6	2.3
Total	9.5	11.7	19.1	34.0	23.6
Dirt roads desirable eventually to hard-surface					
Group A ¹	5.9	2.4	9.5	38.1	20.3
Group B ¹	11.1	11.5	41.4	11.4	23.5
Group C ¹	4.5	12.3	.4	.1	1.5
Total	21.5	26.2	51.3	49.6	45.3
Permanent dirt roads					
Group D ¹	22.3	19.6	23.2	13.3	18.8
Roads that might be closed or used for forest purposes if land were reforested					
Group E ¹	28.0	34.2	2.1	.3	6.5
Unused or abandoned roads					
Group G ¹	18.7	8.3	4.3	2.8	5.8
Grand total	100.0	100.0	100.0	100.0	100.0
Present hard-surface roads plus					
Group A	15.4	14.1	28.6	72.1	43.9
Groups A and B	26.5	25.6	70.0	83.5	67.4
Groups A, B, and C	31.0	37.9	70.4	83.6	68.9

¹ See footnote 1 to Table 65.

² See footnote 2 to Table 65.

County and 38.1 per cent of the roads in class IV land. Group B included 280.8 miles of roads of which 200.2 miles were in land class III. This is 23.5 per cent of the roads of Kent County and 41.4 per cent of the roads in land class III. Group C comprised only 17.6 miles of road in the county, mostly in land classes I and II. Group E roads constituted 224.8 miles, or 18.8 per cent of the roads of the county. Group E comprised 77.9 miles of road in the county. Group G included 69.6 miles of road in the county, mostly in land classes I and II.

The hard-surface roads plus Groups A, B, and C roads included 31.0 per cent of the roads in class I land, 37.9 per cent in class II land, 70.4 per cent in class III land, 83.6 per cent in class IV land, and 68.9 per cent of the roads of the county.

Classification of Farms and Rural Residences in the Different Road Groups

There were in Kent County 3,000 farmsteads; 645 rural residences; 296 commercial establishments, churches, and schools; 86 buildings standing but unusable; and 289 buildings appearing on the United States Geological Survey Maps that were gone or falling, Table 67.

Approximately 68.1 per cent of the farms classified as "excellent," 44.3 per cent of the "good" farms, 35.6 per cent of the "fair to good" farms, 28.4 per cent of the "fair to poor" farms, 21.6 per cent of the "poor" farms, and 32.9 per cent of all farms of the county were located along hard-surface roads. Practically 50 per cent of the rural residences were located along hard-surface roads. However, 100 per cent of the farms classified as "excellent," 96.1 per cent of the "good" farms, 93.4 per cent of the "fair to good" farms, 81.1 per cent of the "fair to poor" farms, 68.5 per cent of the "poor" farms, and 84.9 per cent of all farms of the county would be located along hard-surface roads if road Groups A, B, and C were improved as hard roads. Approximately 92.3 per cent of the rural residences would be located on hard-surface roads if road Groups A, B, and C were improved as hard roads.

Concentration of Farms and Rural Residences per Mile of Road in the Different Road Groups

The present hard-surface roads served 3.5 farms per mile of road, Table 68. The large proportion of the farms served were the better classes of farms. Group A roads served 2.86 farms per mile of road, Group B roads served 2.91 farms per mile of road, and Group C served 2.56 farms per mile of road. This is an average for road Groups A, B, and C of 2.88 farms per mile of road. Although Group B roads served more farms per mile of road than Group A, Group A served more of the better classes of farms. Group D roads served 1.39 farms per mile of road (mostly the poorer classes of farms) and Group E roads served 1.83 farms per mile of road (mostly the poorer classes of farms). The concentration of farms along road Groups A, B, and C was only slightly less than that along the present hard-surface roads. The average concentration of farms along the present hard-surface roads plus roads A, B, and C was 3.09 farms per mile of road as compared with 3.5 farms per mile of road along the present hard-surface roads.

The concentration of rural residences along the present hard-surface roads was 1.13 residences per mile of road as compared with an average of .52 rural residences along road Groups A, B, and C.

Table 68—Number of farms and rural residences of the different classes per mile of road in the various road groups, Kent County, Delaware, 1936.

Road groups	Farms per mile of road							Rural residences per mile of road				Com. estab., churches, schools per mile of road	Buildings standing but unusable per mile of road	Buildings gone or falling per mile of road ²	County total of all buildings per mile of road
	Excellent	Good	Fair to good	Fair to poor	Poor	Vacant	County total	Good occupied	Poor occupied	Vacant	County total				
	number	number	number	number	number	number	number	number	number	number	number	number	number	number	number
Hard-surface roads															
Concrete .....	.17	1.04	.98	.75	.62	—	3.56	.66	.48	.04	1.18	.64	.09	.28	5.75
Macadam .....	.15	.81	1.18	.55	.25	—	2.94	.55	.15	.04	.74	.29	—	.33	4.30
Average .....	.17	1.02	1.00	.73	.58	—	3.50	.65	.44	.04	1.13	.62	.08	.28	5.61
Dirt roads desirable eventually to hard-surface															
Group A ¹ .....	.07	.86	.87	.58	.48	*	2.86	.17	.41	.04	.62	.21	.06	.22	3.97
Group B ¹ .....	.02	.44	.88	.82	.74	.01	2.91	.10	.26	.04	.40	.16	.07	.26	3.80
Group C ¹	—	.06	.11	.63	1.70	.06	2.56	.06	.68	.17	.91	.23	.11	.74	4.55
Average .....	.04	.62	.85	.70	.66	.01	2.88	.13	.34	.05	.52	.18	.07	.25	3.90
Permanent dirt roads															
Group D ¹	—	.11	.17	.45	.66	*	1.39	.02	.14	.01	.17	.06	.07	.16	1.85
Roads that might be closed or used for forest purposes if land were reforested															
Group E ¹	—	.01	.18	.45	1.19	—	1.83	.05	.09	.01	.15	.10	.12	.30	2.50
Unused or abandoned roads															
Group G ¹	—	—	—	—	—	—	—	—	—	—	—	—	.07	.16	.23
Average .....	.06	.54	.66	.60	.64	.01	2.51	.22	.29	.03	.54	.25	.07	.24	3.61
Present hard-surface roads plus															
Group A .....	.12	.94	.94	.66	.54	*	3.20	.43	.42	.05	.90	.43	.07	.25	4.85
Groups A and B .....	.09	.77	.92	.71	.61	*	3.10	.31	.37	.04	.72	.33	.07	.26	4.48
Groups A, B, and C .....	.08	.75	.90	.71	.64	.01	3.09	.31	.37	.05	.73	.33	.07	.26	4.49

* Less than .005.

¹ See footnote 1 to Table 65.

² See footnote 2 to Table 21.

Farm Capital, Net Receipts, and Taxes Paid per Mile of Road in the Different Road Groups

Each total farm capital per mile of road, total net receipts per mile of road, and taxes paid per mile of road was somewhat greater for the present hard-surface roads than for the average of road Groups A, B, and C, Table 69.

Table 69—Calculated total farm capital, total net farm receipts, and total farm taxes paid per mile of road in the different road groups, Kent County, Delaware, 1935.²

Road groups	Total farm capital per mile of road ³ dollars	Total net farm receipts per mile of road ⁴ dollars	Total farm taxes paid per mile of road dollars
Hard surface-roads			
Concrete	21,884	4,851	100
Macadam	19,104	4,287	88
Average	21,646	4,805	100
Dirt roads desirable eventually to hard-surface			
Group A ¹	17,321	3,838	81
Group B ¹	15,439	3,272	71
Group C ¹	9,183	1,698	43
Average	16,071	3,473	74
Permanent dirt roads			
Group D ¹	6,045	1,192	28
Roads that might be closed or used for forest purposes if land were reforested			
Group E ¹	6,887	1,287	33
Average	13,935	3,005	64
Present hard-surface roads plus			
Group A	19,570	4,338	90
Groups A and B	18,202	3,986	84
Groups A, B, and C	17,882	3,904	83

¹ See footnote 1 to Table 65.

² Calculations based on the average number of farms of each class per mile of road (Table 68), and on the average capital, net receipts, and taxes paid per farm in each class (Table 20).

³ See footnote 2 to Table 20.

⁴ See footnote 1 to Table 20.

Each of these same three factors was somewhat greater for Group A roads than for Group B and greater for Group B roads than for Group C. It is likewise true that each of these factors was appreciably greater for the average of Groups A, B, and C roads than for Group D or for Group

E roads. Total farm capital, total net receipts, and total taxes paid per mile of road with the present hard-surface roads were \$21,646, \$4,805, and \$100, respectively. The same three factors for the average of Groups A, B, and C roads were \$16,071, \$3,473, and \$74, respectively. However, for Group D roads these factors amounted to \$6,045, \$1,192, and \$28, respectively.

Value per Acre of Farm Real Estate in the Different Road Groups

The value of farm real estate on hard-surface roads was \$6.48 per acre greater (14.4 per cent) than farm real estate on dirt roads (Groups A, B, and C) in class IV land. The value of farm real estate on hard-surface roads was \$3.72 per acre greater (11.9 per cent) than farm real estate on dirt roads (Groups A, B, and C) in class III land, Table 70. The value of farm real estate in class IV land was \$16.61 per acre greater (47.6 per cent) than in class III land on hard-surface roads. The value of farm real estate in class IV land was \$13.85 per acre greater (44.4 per cent) than in class III land on dirt roads (Groups A, B, and C). In Tompkins County, New York it was found that the value per acre of farm real estate was 18.9 per cent greater on hard-surface roads than on dirt roads in both land classes III and IV.⁶

Table 70—Relation of road group and of land class to value per acre of farm real estate in classes III and IV, Kent County, Delaware, 1935.

	Value per acre of farm real estate			
	Land class IV	Land class III	Difference	Per cent difference
Number of farms	172	212		
Road groups	dollars	dollars	dollars	per cent
Hard-surface roads	51.54	34.93	16.61	47.6
Dirt roads desirable eventually to hard-surface (A, B, and C)	45.06	31.21	13.85	44.4
Amount by which farms on hard-surface roads are greater than farms on dirt roads	6.48	3.72	—	—
Per cent difference	14.4	11.9	—	—

Affect of Building Hard-Surface Roads on Value of Farm Real Estate

The calculations in Table 71 are based on data presented in Table 70. These calculations indicate that the building of one mile of hard-surface road in Kent County increases the value of farm real estate in class III land \$1,098 and in class IV land \$1,610. In Tompkins County, New York, it was found that the building of one mile of road increased the value of farm real estate in class III land \$1,865 and in class IV land \$2,240.⁶

⁶ Lewis, A. B., An Economic Study of Land Utilization in Tompkins County, New York, Cornell University Agricultural Experiment Station Bulletin 590, p. 45, 1934.

Table 71—Calculated increase in farm real estate value that would result from building one mile of hard-surface road in land classes III and IV, Kent County, Delaware, 1935.

Land classes	Value per acre of farm real estate not on hard-surface roads ¹	Acres per mile of road ³	Value of farm real estate per mile of road	Percentage increase in value of farm real estate from building one mile of hard-surface road	Increase in value of farm real estate from building one mile of hard-surface road
	dollars	acres	dollars	per cent	dollars
III	31.21 ²	295.7	9,229	11.9	1,098
IV	45.06 ²	248.2	11,184	14.4	1,610

¹ Estimated by farmers.

² See Table 70.

³ Acres per mile of road in land class IV were obtained by dividing the acres in land class IV by the miles of hard-surface roads plus the dirt roads that it would be desirable to hard-surface in land class IV; namely, A, B, and C roads. In this land class, with one exception, every farm would eventually be served by a hard-surface road. In land class III, it was thought inadvisable to suggest the hard-surfacing of some roads where the number of farms was quite sparse. It was found that 84.5 per cent of the farms on class III land would eventually be served by hard-surface roads according to the proposed road improvement plan. Therefore, to obtain acres per mile of road in land class III, 84.5 per cent of the acres of land were divided by 84.5 per cent of the miles of hard-surface roads plus the dirt roads that it would be desirable to hard-surface. The number of acres per farm for those farms that would be left on permanent dirt roads was practically the same as for the farms on the hard-surface roads.

ELECTRIC POWER AND TELEPHONE SERVICES

Electric power and telephones are also services essential in making the fullest use of land. Since this survey made in 1936, the United States Rural Electrification Administration has made considerable progress in making electric power available to a larger number of farmers in Delaware and at more attractive rates. Where the concentration of farms permit, electric power and telephone services should be available for farm use.

Farms Having Electric Power and Telephone Services in the Different Land Classes

Of the 2,993 occupied farms in Kent County, 9.4 per cent had electric power connections and 18.1 per cent had telephone connections. The farms having electric power connections varied from 3.5 per cent in class I land to 17.8 per cent in class IV land. The farms having telephone connections varied from 6.1 per cent in class I land to 30.6 per cent in class IV land, Table 72.

Table 72—Percentage of occupied farms having electric power connections and telephone connections, by land classes, Kent County, Delaware, 1936.¹

	Land classes				County
	I	II	III	IV	
	per cent	per cent	per cent	per cent	
Electric power connections	3.5	2.1	5.3	17.8	9.4
Telephone connections ..	6.1	6.2	12.5	30.6	18.1
Total number of occupied farms ..	114	241	1,580	1,058	2,993

¹ Probably some farmsteads had electric power connections and telephone connections but did not have electric power or telephones.

Of the 847 rural residences, commercial establishments, churches, and schools in Kent County, 29.8 per cent had electric power connections and 21.4 per cent had telephone connections. The number of this class of buildings having electric power connections varied from 6.4 per cent in class I land to 48.2 per cent in class IV land. The number of these buildings having telephone connections varied from 7.3 per cent in class I land to 31.6 per cent in class IV land, Table 73.

Table 73—Percentage of occupied buildings other than farmsteads¹ having electric power connections and telephone connections by land classes, Kent County, Delaware, 1936.²

	Land classes				County
	I	II	III	IV	
	per cent	per cent	per cent	per cent	
Electric power connections	6.4	17.5	17.3	48.2	29.8
Telephone connections ..	7.3	11.1	15.6	31.5	21.4
Total number of buildings other than farmsteads ..	109	63	795	380	847

¹ Buildings other than farmsteads include rural residences, school houses, churches, and commercial establishments.

In addition there were three unclassified buildings having telephone connections and five unclassified buildings having power connections (see footnote to Table 21 for definition of unclassified buildings).

² See footnote 1 to Table 72.

SUMMARY AND CONCLUSIONS

Trends in the Production of the Different Crops and Kinds of Livestock

Since 1910, the number of farms in Kent County has decreased from 3,120 to 2,871.

Since 1900, the number of acres of land in farms in Kent County has decreased from 338,205 to 293,682. This is an abandonment of 13.2 per cent. It appears that many Kent County farmers have learned that it pays to use only the better grades of land for agricultural purposes.

Since 1850, the number of cows milked in Kent County has increased from 5,014 to 12,311, an increase of 146 per cent.

Since 1840, the number of swine has decreased from 27,080 to 7,213, a decrease of 73 per cent.

Since 1840, the number of sheep and lambs has decreased from 13,780 to 742, a decrease of 95 per cent.

The number of chickens over 3 months old, since 1880, has increased from 64,509 to 300,025, an increase of 365 per cent.

Since 1880, the number of gallons of milk sold has increased from 89,972 to 4,021,423. On the other hand, since 1890, the number of pounds of butter churned has decreased from 673,226 to 53,271, a decrease of 92 per cent.

Corn for grain, since 1880, has decreased from 60,135 acres to 39,382 acres, a decrease of 34 per cent.

Wheat, since 1900, has decreased from 50,145 acres to 36,340 acres, a decrease of 28 per cent.

Since 1900, alfalfa hay has increased from 66 acres to 1,178 acres. Annual legume hays increased from 2,459 acres to 4,943 acres since 1920.

Total truck crops have increased from 12,254 acres to 13,398 acres, an increase of 9 per cent since 1900.

From 1890 to 1920, the number of bearing apple trees increased from 114,371 to 472,835. Since 1920, the number has decreased to 394,582.

The number of bearing peach trees, since 1890, has decreased from 2,335,740 to 219,749.

In general, the trend of agriculture in Kent County has been a shift from the staple crops, such as grain crops and the concentrated products such as butter, pork, and mutton, to the more perishable products, such as fluid milk, eggs, live poultry, and truck crops. More legume roughages are also being grown.

Extent of Land Classes and Relation of Farm Practices to Land Classes

As used in this study, class I land is the poorest grade of land. It is made up largely of timber, brush, and marsh land. This land class included 36.6 per cent of the land of Kent County. Class II land comprises largely open unillable land and included 5.1 per cent of the land of the county. Class III land comprises largely the poorest grade of land suited for cropping purposes and included 28.8 per cent of the land. Class IV land is the best grade of crop land and amounted to 29.5 per cent of the county area. More than two-fifths of the land of Kent County was submarginal for agricultural purposes under prevailing conditions.

There was a close relationship between the land classes and the intensity of agricultural practices. Of the land area in land classes I, II, III, and IV, 0.2 per cent, 11.3 per cent, 47.9 per cent, and 47.7 per cent, respectively, were devoted to grain crops. Of the land devoted to hay crops, none was in land class I, 2.4 per cent was in class II, 7.9 per cent in class III, and 7.0 per cent in class IV. Of the land devoted to truck crops, none was in land class I, 1.0 per cent was in class II, 2.5 per cent in class III, and 3.5 per cent in class IV. Of the land in cannery crops, none was in land class I, 0.9 per cent was in class II, 2.9 per cent in class III, and 3.3 per cent in class IV. Of the land in the fruit crops, none was in land class I, 0.1 per cent was in class II, 1.2 per cent in class III, and 9.3 per cent in class IV. However, devoted to timber, brush, and marsh land in the different land classes were 98.3 per cent, 68.2 per cent, 8.2 per cent, and 3.4 per cent, respectively.

There was a reasonably close relationship between general soil types and land classes. In land classes I, II, III, and IV, 24.3 per cent, 34.3 per cent, 57.0 per cent, and 86.3 per cent, respectively, of the land were of the Sassafras soil series. However, 20.9 per cent, 33.3 per cent, 26.9 per cent, and 6.5 per cent, respectively, of the land were of the Elkton soil series.

There was a reasonably close relationship between size and condition of farm buildings and land classes. In land classes I, II, III, and IV, 2.6 per cent, 3.7 per cent, 15.5 per cent, and 43.3 per cent, respectively, of the farm buildings were classified as "good" or "excellent."

In land classes II, III, and IV, the crop yield indices were 69, 96 and 107, respectively.

Labor incomes in land classes II, III, and IV were minus \$225, minus \$92, and plus \$78, respectively.

Capital in real estate per farm in land classes II, III, and IV were \$2,088, \$3,854, and \$6,528, respectively.

Total receipts per farm in land classes II, III, and IV were \$455, \$1,292, and \$2,100, respectively. These data indicate a low standard of living in class II land.

Productive man-work units per farm in land classes II, III, and IV were 224, 343, and 468, respectively.

Animal units per farm in land classes II, III, and IV were 4.8, 10.8, and 14.1, respectively.

Percentage of farms having automobiles in land classes II, III, and IV were 52 per cent, 69 per cent, and 77 per cent, respectively. Percentage of farms having tractors were 8 per cent, 24 per cent, and 35 per cent, respectively.

Months of hired labor in land classes II, III, and IV were 0.9, 4.2, and 9.6, respectively.

Social Aspects of Land Use

Apparently, farmers in the better land classes were able to retire at an earlier age. The percentage of farmers 60 years of age and over in land classes II, III, and IV were 44 per cent, 30 per cent, and 23 per cent, respectively.

A smaller proportion of the farmers in land class II were born in rural Delaware. In land classes II, III, and IV, 28 per cent, 63 per cent, and 77 per cent, respectively, were born in rural Delaware. Likewise, 24 per cent, 11 per cent, and 3 per cent, respectively, of the farmers were born in foreign countries.

Farmers in land class II were relatively inexperienced in farming. The percentage of the farmers in land classes II, III, and IV who were engaged in non-agricultural vocations at the time they took up occupancy of the farm on which they resided at the time of the survey, were 65 per cent, 35 per cent, and 29 per cent, respectively.

A relatively large proportion of the farmers who left the farms in class II land returned to non-agricultural vocations. The percentage of farmers in land classes II, III, and IV who left the farms and returned to non-agricultural vocations were 35 per cent, 16 per cent, and 8 per cent, respectively.

The average number of living children per farm family in land classes II, III, and IV were 3.1, 3.3, and 3.4 respectively. The average size of families in class II land was practically as great as in the better land classes despite an appreciably lower standard of living.

At the end of the eighth grade 72 per cent, 58 per cent, and 45 per cent of the farm children in land classes II, III, and IV, respectively, had discontinued school.

Nearly three times the proportion of the farmers' sons took up farming as a vocation in land class IV as in land class II.

Farm-to-Market Roads in the Different Land Classes

In land classes I, II, III, and IV, 9.5 per cent, 11.7 per cent, 19.1 per cent, and 34.0 per cent, respectively, of the roads were hard-surfaced. For the county as a whole, 23.6 per cent of the roads were hard-surfaced. If the roads in Groups A, B, and C were hard-surfaced, 31.0 per cent, 37.9 per cent, 70.4 per cent, and 83.6 per cent of the roads in land classes I, II, III, and IV, respectively, would be hard-surfaced. For the county as a whole, 68.9 per cent of the roads would be hard-surfaced.

For the county as a whole, 32.9 per cent of the farms were served by hard-surface roads. If the roads in Groups A, B, and C were improved, 84.9 per cent of the farms would be served by hard-surface roads. This would include practically all farms in class IV land and the better farms in class III land.

Apparently hard-surface roads have increased the value per acre of farm real estate from \$31.21 to \$34.93, an increase of 11.9 per cent, in class III land. Likewise, hard-surface roads have increased the value per acre of farm real estate from \$45.06 to \$51.54, an increase of 14.4 per cent, in class IV land.

APPENDIX

Table A—Acres of land used for the different purposes by representative districts, Kent County, Delaware, 1936

Use of land	Representative districts										County acres
	1 acres	2 acres	3 acres	4 acres	5 acres	6 acres	7 acres	8 acres	9 acres	10 acres	
Corn - grain, sweet corn, and silage	4,879	6,535	6,845	7,006	972	7,625	3,665	5,081	7,148	5,761	55,517
Wheat	5,510	7,832	7,220	6,237	579	7,098	2,170	4,028	6,258	3,937	50,869
Rye	—	—	—	—	—	6	—	54	247	192	499
Other grains	124	65	60	223	14	152	115	123	38	282	1,196
Total grain crops	10,513	14,432	14,125	13,466	1,565	14,881	5,950	9,286	13,691	10,172	108,081
Clover & timothy hay	418	421	870	524	51	662	157	294	612	390	4,399
Clover hay	163	547	166	307	77	553	138	203	465	973	3,592
Alfalfa hay	144	87	262	164	23	169	54	71	31	117	1,122
Soybean or cowpea hay ¹	614	701	792	903	153	649	338	480	1,779	955	7,364
Other legume hay	22	—	22	—	3	83	30	6	31	—	197
Other non-legume hay	14	23	47	2	3	30	2	55	141	4	321
Total hay crops	1,375	1,779	2,159	1,900	310	2,146	719	1,109	3,059	2,439	16,995
Sweet potatoes	2	—	2	—	8	35	12	171	471	205	906
White potatoes	24	98	77	57	14	33	54	81	30	58	526
Asparagus	54	—	11	—	—	7	32	38	34	3	179
Cantaloupes	4	—	—	—	—	38	9	80	189	84	404
Watermelons	—	—	—	—	—	—	—	29	27	11	67
Cucumbers & pickles	—	—	12	—	—	—	—	3	15	5	35
Other truck crops	96	278	201	431	190	290	364	619	1,265	505	4,239
Garden	113	57	150	61	36	21	18	39	13	51	559
Total truck crops	293	433	453	549	248	424	489	1,060	2,044	922	6,915
Tomatoes	425	559	638	485	92	568	391	618	1,015	634	5,425
Lima beans	—	—	—	—	—	—	2	248	461	867	1,578
Stringbeans	—	—	—	—	—	—	4	5	3	2	14
Total cannery crops	425	559	638	485	92	568	397	871	1,479	1,503	7,017
Orchard	272	947	561	534	685	211	4,916	2,161	215	180	10,682
Vineyard	82	177	17	124	87	14	280	139	12	15	947
Strawberries	14	4	5	2	—	21	11	37	74	4	172
Other small fruits	—	—	—	—	—	3	8	3	—	—	14
Total fruit crops	368	1,128	583	660	772	249	5,215	2,340	301	199	11,815
Tillable land lying out	286	1,171	654	756	67	1,100	434	946	1,835	1,642	8,891

Table A—Acres of land used for the different purposes by representative districts, Kent County, Delaware, 1936.
(continued)

Use of land	Representative districts										County
	1	2	3	4	5	6	7	8	9	10	
	acres	acres	acres	acres	acres	acres	acres	acres	acres	acres	acres
Tillable pasture	3,301	3,794	4,673	2,549	350	3,594	963	2,734	4,788	2,994	29,740
Open untillable pasture ..	761	685	1,039	1,129	64	1,005	127	299	591	147	5,897
Brush pasture	7	39	88	97	—	215	6	27	492	57	1,028
Total pasture	4,069	4,518	5,850	3,775	414	4,814	1,096	3,060	5,871	3,198	36,665
Timber	3,220	4,354	8,853	11,183	1,444	19,894	3,360	4,986	19,636	9,293	86,223
Brush not pastured	426	647	1,245	1,721	73	1,671	457	557	1,404	602	8,803
Marsh land	15,411	16,874	184	153	32	—	808	2,927	384	9,934	46,707
Other wasteland	—	—	—	—	—	—	—	17	—	—	17
Open untillable idle land ..	892	2,766	2,372	3,966	225	4,259	757	1,130	2,391	1,665	20,423
Total timber, marsh, and wasteland	19,949	24,641	12,654	17,023	1,774	25,824	5,382	9,617	23,815	21,494	162,173
Farmsteads	439	805	831	870	141	1,125	516	802	1,653	951	8,133
Other houses	57	192	151	264	75	246	241	169	222	171	1,788
Roads	382	607	615	698	105	842	481	545	848	637	5,760
Railroads	33	31	69	39	44	—	43	20	109	23	411
Villages & towns	437	523	160	46	664	57	324	306	441	291	3,249
Miscellaneous ²	146	138	112	159	29	81	79	90	120	83	1,037
Total development	1,494	2,296	1,938	2,076	1,058	2,351	1,684	1,932	3,393	2,156	20,378
Total land area	38,772	50,957	39,054	40,690	6,300	52,357	21,366	30,221	55,488	43,725	378,930
Internal water area	2,339	1,225	—	49	106	46	214	416	42	613	5,050
Total land and water area	41,111	52,182	39,054	40,739	6,406	52,403	21,580	30,637	55,530	44,338	383,980

¹ Some probably was harvested for seed.

² Includes land used for recreation, cemeteries, schools and churches.

Table B—Percentage of land used for the different purposes by representative districts, Kent County, Delaware, 1936.

Use of land	Representative districts										County per cent
	1 per cent	2 per cent	3 per cent	4 per cent	5 per cent	6 per cent	7 per cent	8 per cent	9 per cent	10 per cent	
Corn - grain, sweet corn, & silage	12.6	12.8	17.5	17.2	15.4	14.6	17.2	16.8	12.9	13.2	14.7
Wheat	14.2	15.4	18.5	15.3	9.2	13.5	10.1	13.3	11.3	9.0	13.4
Rye	—	—	—	—	—	*	—	.2	.4	.4	.1
Other grains .....	.3	.1	.2	.5	.2	.3	.5	.4	.1	.7	.3
Total grain crops	27.1	28.3	36.2	33.0	24.8	28.4	27.8	30.7	24.7	23.3	28.5
Clover & timothy hay	1.1	.8	2.2	1.3	.8	1.2	.8	1.0	1.1	.9	1.2
Clover hay	4.4	1.1	.4	.8	1.2	1.1	.6	.7	.8	2.2	.9
Alfalfa hay .....	.4	.2	.7	.4	.4	.3	.3	.2	.1	.3	.3
Soybean or cowpea hay ¹	1.5	1.4	2.0	2.2	2.5	1.2	1.6	1.6	3.2	2.2	1.9
Other legume hay	*.1	—	.1	—	*	.2	*.1	—	.1	—	.1
Other non-legume hay	*	*	.1	*	*	.1	*	.2	.2	—	.1
Total hay crops	3.5	3.5	5.5	4.7	4.9	4.1	3.4	3.7	5.5	5.6	4.5
Sweet potatoes	*	—	*	—	.1	.1	.1	.6	.9	.5	.2
White potatoes .....	.1	.2	.3	.1	.2	.1	.3	.3	.1	.1	.2
Asparagus	*.1	—	*.3	—	—	*	.1	.1	.1	*	*
Cantaloupes	—	—	—	—	—	.1	*	.3	.3	.2	.1
Watermelons	—	—	—	—	—	—	—	.1	*	*	*
Cucumbers & pickles	—	—	*	—	—	—	—	*	*	*	*
Other truck crops .....	.3	.5	.5	1.0	3.1	.5	1.7	2.0	2.3	1.2	1.1
Garden .....	.3	.1	.4	.2	.6	*	.1	.1	*	.1	.2
Total truck crops .....	.8	.8	1.2	1.3	4.0	.8	2.3	3.5	3.7	2.1	1.8
Tomatoes	1.1	1.1	1.6	1.2	1.5	1.1	1.9	2.1	1.8	1.4	1.4
Lim ¹ beans	—	—	—	—	—	—	*	.8	.9	2.0	.4
Stringbeans	—	—	—	—	—	—	*	*	*	*	*
Total cannerly crops	1.1	1.1	1.6	1.2	1.5	1.1	1.9	2.9	2.7	3.4	1.8
Orchard .....	.7	1.8	1.4	1.3	10.7	.5	23.0	7.1	.4	.4	2.8
Vineyard .....	.2	.4	.1	.3	1.4	*	1.3	.5	*	*	.2
Strawberries	*	*	*	*	—	*	.1	.1	*	*	.1
Other small fruits	—	—	—	—	—	—	*	*	—	—	—
Total fruit crops .....	.9	2.2	1.5	1.6	12.1	.5	24.4	7.7	.5	.4	3.1
Tillable land lying out .....	.8	2.3	1.7	1.9	1.1	2.1	2.0	3.2	3.3	3.8	2.4

Table B—Percentage of land used for the different purposes by representative districts, Kent County, Delaware, 1936 (continued).

Use of land	Representative districts										County
	1	2	3	4	5	6	7	8	9	10	
	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Tillable pasture	8.5	7.4	12.0	6.3	5.6	6.9	4.5	9.0	8.6	6.9	7.8
Open untillable pasture ..	2.0	1.4	2.8	2.8	1.0	1.9	.6	1.0	1.1	.3	1.6
Brush pasture	*	.1	.2	.2	—	.4	*	.1	.9	.1	.3
Total pasture	10.5	8.9	15.0	9.3	6.6	9.2	5.1	10.1	10.6	7.3	9.7
Timber	8.3	8.6	22.7	27.5	23.1	38.0	15.8	16.5	35.4	21.3	22.8
Brush not pastured	1.1	1.3	3.2	4.2	1.2	3.2	2.1	1.9	2.5	1.4	2.3
Marsh land	39.7	33.1	.4	.4	.1	—	3.7	9.6	.7	22.7	12.3
Other wasteland	—	—	—	—	—	—	—	.1	—	—	*
Open untillable idle land ..	2.3	5.4	6.1	9.8	3.8	8.1	3.6	3.7	4.3	3.8	5.4
Total timber, marsh, and wasteland	51.4	48.4	32.4	41.9	28.2	49.3	25.2	31.8	42.9	49.2	42.8
Farmsteads	1.1	1.5	2.1	2.2	2.2	2.1	2.4	2.7	3.0	2.1	2.1
Other houses .....	.2	.4	.4	.6	1.2	.5	1.1	.5	.4	.4	.5
Roads	1.0	1.2	1.5	1.7	1.7	1.6	2.3	1.8	1.5	1.4	1.5
Railroads .....	.1	.1	.2	.1	.7	—	.2	.1	.2	.1	.1
Villages & towns	1.1	1.0	.4	.1	10.5	.1	1.5	1.0	.8	.7	.9
Miscellaneous ² .....	.4	.3	.3	.4	.5	.2	.4	.3	.2	.2	.3
Total development	3.9	4.5	4.9	5.1	16.8	4.5	7.9	6.4	6.1	4.9	5.4
Total land area	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Less than .05 per cent.

¹ See footnote 1 to Appendix Table A.

² See footnote 2 to Appendix Table A.

Table C—Distribution of expenses per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
	dollars	dollars	dollars	dollars
Total hired and unpaid family labor (including board) ¹	100	254	388	282
New buildings	20	32	20	30
Repairs on buildings	38	44	54	46
New fences	3	3	5	4
Repairs on fences	5	8	11	8
Auto expense, farm share	40	69	78	71
Machinery bought	9	41	46	39
Tractor expense	3	20	36	25
Truck expense	9	19	30	22
Repairs on other machinery	5	20	31	23
Truck hire	*	3	7	5
Machines hired	5	6	5	5
Silo filling	1	1	1	1
Wheat treating	—	*	1	*
Wheat cleaning	*	*	*	*
Wheat threshing	3	15	25	18
Soybean threshing	*	1	2	1
Baling	—	*	—	*
Fuel, other than auto, truck, and tractor	2	5	6	5
Twine	2	5	7	5
Ice	3	6	10	7
Milk hauling	1	24	35	26
Bottles, cans, buckets	*	3	6	4
Cow testing	—	*	*	*
Registration fees	—	*	*	*
Breeding fees	*	*	*	*
Medicine and disinfectant	2	4	4	4
Veterinary	*	2	3	2
Feed	121	168	146	150
Feed grinding	1	7	10	7
Bedding	—	*	1	1
Manure	—	—	1	*
Fertilizer	30	99	160	115
Lime	3	7	13	9
Seeds and plants	18	36	61	44
Horse shoeing	*	1	1	1
Trees	—	*	*	*
Spray material	4	4	22	10
Telephone	—	3	9	5
Electricity	—	2	6	3
Light plant expense	—	2	2	2
Barrels, baskets, etc.	5	16	47	26
Custom packing	—	—	*	*
Egg cases	*	*	*	*
Custom hatching	*	1	1	1
Hatching eggs	1	1	*	1
Lumber sawing	*	1	1	1

Table C—Distribution of expenses per farm by land classes, Kent County, Delaware, 1935 (continued).

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
	dollars	dollars	dollars	dollars
Cutting and sawing wood	2	4	3	3
Freight and express	*	1	13	5
Insurance	10	15	20	16
Taxes	16	24	38	28
Cash rent	—	—	*	*
Miscellaneous	4	7	16	10
Total	466	984	1,382	1,071
Increased value allowed for new buildings, fences, and machinery	32	77	71	72
Difference = current farm expense	434	907	1,311	999
Livestock purchased	33	66	71	65
Decrease in capital	54	80	148	104
Total expense	521	1,053	1,530	1,168

* Less than \$.50.

¹ See Table 51 for composition of these figures.

² See footnote 1 to Table 15.

Table D—Percentage distribution of expenses per farm by land classes, Kent County, Delaware, 1935.

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
	per cent	per cent	per cent	per cent
Total hired and unpaid family labor (including board) ¹	23.0	28.0	29.6	28.2
New buildings	4.6	3.5	1.5	3.0
Repairs on buildings	8.8	4.9	4.1	4.6
New fences .....	.7	.3	.4	.4
Repairs on fences	1.2	.9	.8	.8
Auto expense, farm share	9.2	7.6	5.9	7.1
Machinery bought	2.1	4.5	3.5	3.9
Tractor expense .....	.7	2.2	2.7	2.5
Truck expense	2.1	2.1	2.3	2.2
Repairs on other machinery	1.2	2.2	2.4	2.3
Truck hire	*	.3	.5	.5
Machines hired	1.2	.7	.4	.5
Silo filling .....	.2	.1	.1	.1
Wheat treating	—	*	.1	*
Wheat cleaning	*	*	*	*
Wheat threshing .....	.7	1.7	1.9	1.8

Table D—Percentage distribution of expenses per farm by land classes,
Kent County, Delaware, 1935 (continued).

	Land classes			County ²
	II	III	IV	
Number of farms	25	251	177	498
	per cent	per cent	per cent	per cent
Soybean threshing	*	.1	.2	.1
Bailing	—	*	—	*
Fuel, other than auto, truck, and tractor .....	.5	.6	.4	.5
Twine .....	.5	.6	.5	.5
Ice .....	.7	.7	.8	.7
Milk hauling .....	.2	2.6	2.7	2.6
Bottles, cans, buckets	*	.3	.4	.4
Cow testing	—	*	*	*
Registration fees	—	*	*	*
Breeding fees	*	*	*	*
Medicine and disinfectant .....	.5	.4	.3	.4
Veterinary	*	.2	.2	.2
Feed	27.8	18.5	11.1	15.1
Feed grinding .....	.2	.8	.8	.7
Bedding	—	*	.1	.1
Manure	—	—	.1	*
Fertilizer	6.9	10.9	12.2	11.5
Lime .....	.7	.8	1.0	.9
Seeds and plants	4.1	4.0	4.7	4.4
Horse shoeing	*	.1	.1	.1
Trees	—	*	*	*
Spray material .....	.9	.4	1.7	1.0
Telephone	—	.3	.7	.5
Electricity	—	.2	.4	.3
Light plant expense	—	.2	.2	.2
Barrels, baskets, etc.	1.2	1.8	3.6	2.6
Custom packing	—	—	*	*
Egg cases	*	*	*	*
Custom hatching	*	.1	.1	.1
Hatching eggs .....	.2	.1	*	.1
Lumber sawing	*	.1	.1	.1
Cutting and sawing wood .....	.5	.4	.2	.3
Freight and express	*	.1	1.0	.5
Insurance	2.3	1.7	1.5	1.6
Taxes	3.6	2.7	2.9	2.8
Cash rent	—	—	*	*
Miscellaneous .....	.9	.8	1.2	1.0
Total	107.4	108.5	105.4	107.2
Increased value allowed for new buildings, fences, and machinery ..	7.4	8.5	5.4	7.2
Difference = current farm expense	100.0	100.0	100.0	100.0

* Less than .05 per cent.

¹ See Table 51 for composition of these figures.

² See footnote 1 to Table 15.

LAND CLASSIFICATION MAP OF KENT COUNTY DELAWARE

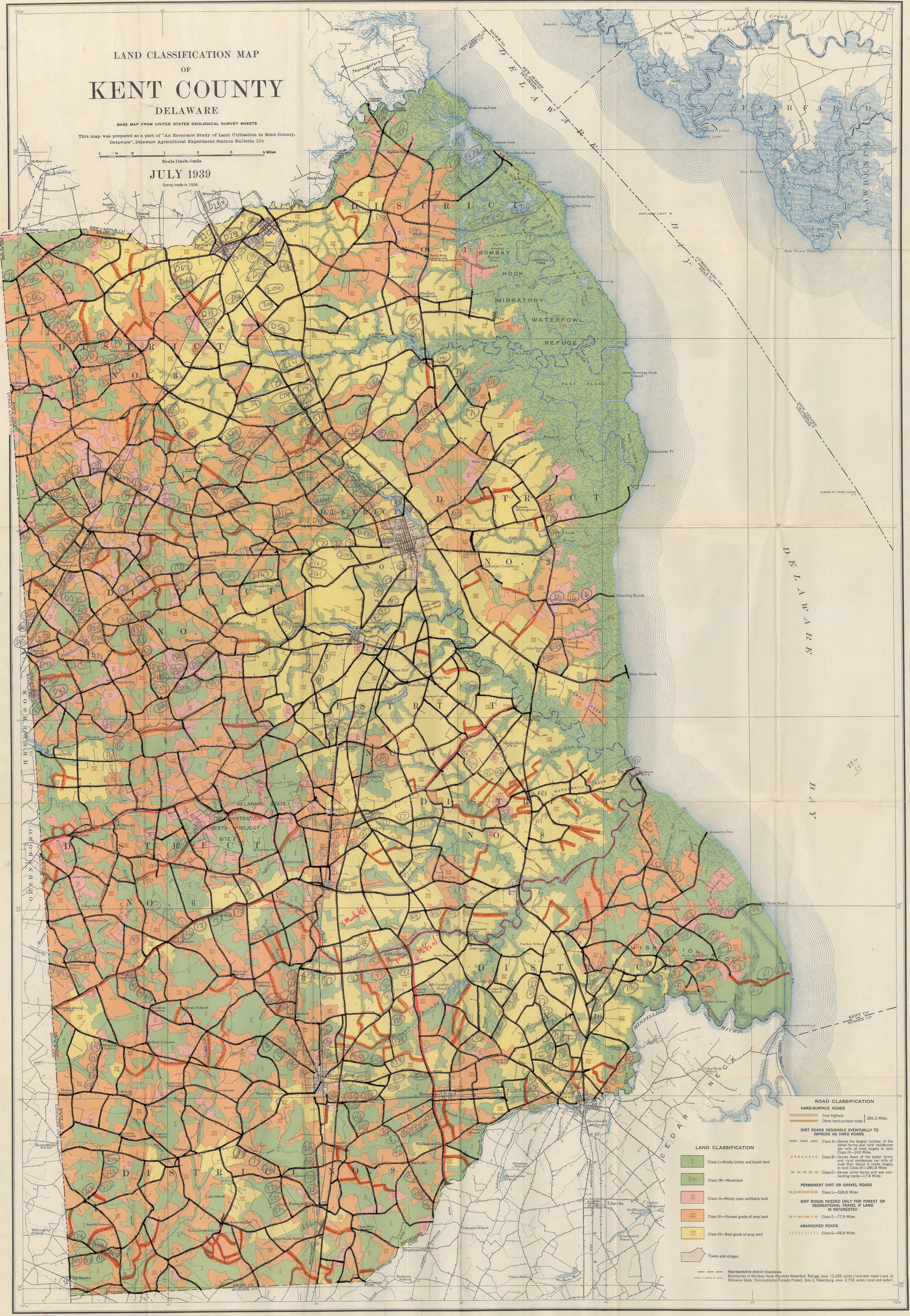
BASE MAP FROM UNITED STATES GEOLOGICAL SURVEY SHEETS

This map was prepared as a part of "An Economic Study of Land Utilization in Kent County, Delaware", Delaware Agricultural Experiment Station Bulletin 224

Scale 1 inch = 1 mile

JULY 1939

Survey made in 1936



LAND CLASSIFICATION	
 I	Class I—Mostly timber and brush land
 Im	Class Im—Marshland
 II	Class II—Mostly open unutilized land
 III	Class III—Poorest grade of crop land
 IV	Class IV—Best grade of crop land
	Towns and villages

ROAD CLASSIFICATION	
	Dual Highway
	Other hard-surface roads
} 281.2 Miles	
	Class A—Serves the largest number of the better farms and rural residences per mile of road, largely in land Class IV—24.3 Miles
	Class B—Serves fewer of the better farms and rural residences per mile of road than Group A roads, largely in land Class II—280.6 Miles
	Class C—Serves some farms and are connecting roads—17.6 Miles
PERMANENT DIRT OR GRAVEL ROADS	
	Class U—224.8 Miles
DIRT ROADS NEEDED ONLY FOR FOREST OR RECREATIONAL TRAVEL, IF LAND IS REFORESTED	
	Class E—77.9 Miles
ABANDONED ROADS	
	Class G—69.6 Miles

Representative district boundaries
 Boundaries of Bombay Hook Migratory Waterfowl Refuge, area 12,665 acres (land and water) and of Delaware State Demonstration Forests Project, Site 2, Petersburg, area 2,706 acres (land and water)