CHAPTER VI

AGRICULTURE

FOND DU LAC COUNTY

The Land. Originally the larger part of the area now included in the county was covered with hardwood forest, but very little timber now remains. The wooded area does not exceed one-twelfth of the whole. Almost the entire county (96 per cent.) is farm land, and an average of seven acres in every ten are improved land, that is, have been brought under the plow. The waste land, relatively small in amount, is due for the most part to marshes. In some cases these are the last stages of shallow lakes which are slowly disappearing. At one time, shortly after the close of the Glacial Period, a quarter of the present land of Fond du Lac County was covered with shallow lakes which gradually changed into swamps as vegetation grew inward from the shore; some of the swampy areas have passed into rich black loam. By artificial drainage, most of the marsh land still remaining can be reclaimed.

CONDITION OF AGRICULTURE

Judged by the American standard, agriculture is in a high state of development throughout the county. In the proportion which farm land bears to the total area, Fond du Lac County ranks with the leading four counties of the state, and is one of a group of ten counties which lead the state in average value of land. Four-fifths of the farms are occupied and worked by their owners, one of the evidences and one of the causes of agricultural prosperity.

REASONS FOR THE HIGH AGRICULTURAL DEVELOPMENT

There are four main natural causes for the high development of farming in the county. The same reasons would apply to many of the farming counties of eastern and southeastern Wisconsin.
1. *The land is essentially a plain.* Very little of it is too hilly to be cultivated. Aside from the escarpment of Niagara limestone, almost the only hills are due to glacial deposits, and none of these are high.

2. *Much of the soil is derived from decayed and pulverized limestone,* a kind of rock which yields a strong, fertile soil.

3. *The slope of the land insures reasonably good drainage,* thus limiting the area of swamps.
4. The average rainfall (over 30 inches) and the length of the growing season* (nearly 150 days) are favorable conditions. Besides these four natural causes there are others which are due to man's work in producing favoring conditions for agriculture. Some of these are:

1. Good railroad facilities.
2. Farmers of more than average industry and progressiveness.
3. The widespread practice of dairying, a type of farming which maintains the fertility of the land.

THE SOIL

The entire county has been over-ridden a number of times by glaciers, and all of the soil is either directly or indirectly of glacial origin, or it is formed of deposits of till laid down in former glacial lakes. At times Lake Winnebago has extended farther south and west than it does now as has already been explained in Chapter III. During one or more of these stages red clay was deposited, and upon the withdrawal of the lake from the previously submerged area, this lake-clay mixed with some coarse material

* The growing season extends from the last severe frost in spring to the first in autumn.
became the basis of the soil of the region (see fuller discussion, p. 16). The red color is due to the oxidized iron or iron stain in the soil. About one-eighth of the soil of Fond du Lac county is of this lake-bed origin, derived from deposits of the larger Lake Winnebago.

The fact that the soil is directly or indirectly of glacial origin does not mean that it is uniform in character. The Geological and Natural History Survey has made a soil map of the county; this shows eight different soil series, including 17 soil types. The most important one of these covers 38 per cent of the county. It is a silt loam, grayish brown, soft, smooth to feel of, and contains 95 per cent of very fine sand, silt, and clay. Peat and muck, composed of partially-decayed vegetation which grew in swamps, cover an eighth of the surface, and a dark-colored loam, rich in decayed vegetable matter, occupies the low ground in many places. This soil covers about 11 per cent of the county.

![Diagram](image)

**FIG. 17.** THE DIAGRAM REPRESENTS THE 465,000 ACRES OF LAND IN FOND DU LAC COUNTY. THE SUBDIVISIONS SHOW HOW MANY ACRES ARE DEVOTED TO THE VARIOUS CROPS AND USES

**The Leading Farm Products**

The farmers of Fond du Lac County are engaged in three main lines of production—cattle, hay, and grains. The value of all of the crops of the county is about five million dollars a year, and the grains—mainly oats, corn, and barley—make up nearly two-thirds of this amount. Wheat, once the leading crop, has ceased to be important, due in part to the ravages of pests and in part to the fact that other crops and dairying are more profitable. In America, wheat is primarily a crop for new lands.

In a broad sense, dairy farming prevails; there are nearly as many cows in the county as there are people (about 50,000), and nearly 50,000,000 quarts of milk are produced annually, the greater part of which is made into butter and cheese. In 1913 the
30 creameries and 40 cheese factories in the county made 5,600,000 pounds of butter and 3,400,000 pounds of cheese. Nearly a million pounds of butter were also made on the farms, giving a total of six and one-half million pounds a year, worth nearly two million dollars.

In dairy farming, a major part of the land is devoted to the growing of feed for the cattle—pastures for summer feeding, meadows for hay, and corn both for the grain itself and for ensilage. A large part of the oats and practically all of the corn are fed to farm animals. The barley is both a money crop, and a food crop for the farm animals.

The development of dairy farming has been of great value to the county. Where the farmer produces only the usual farm crops, he must wait for his money until the crops are harvested and sold. During the larger part of the year he has but little money coming in. The dairy farmer receives his check every month or perhaps every two weeks, and he is in a position to "pay as he goes". Moreover, the dairy farmer feeds out the major part of his crops on his farm and returns to the land the fertility which the crops have taken out. The silo and the Babcock milk test are benefiting dairy farming very materially. The raising of hogs is a profitable side line, but is not carried to any such extent as it is in the "Corn Belt" of Illinois and Iowa. For example, the average number of hogs per farm in Fond du Lac County in 1910 was about ten, while in Pottawattamie County, Iowa, it was 48.

Sugar beets are raised, though not to a large extent. In the entire state, only Sheboygan and Manitowoc counties produce as much fruit as Fond du Lac; 140,000 bushels of apples are grown in an average year. Potatoes are much less important in the grain-growing counties than they are in the sandy soils of the central part of the state. The difference may be seen by comparing such counties as Portage, Waupaca, and Waushara, each producing from 2 million to 3 million bushels of potatoes a year, with Fond du Lac County which produces less than one million bushels. On the other hand, Fond du Lac County raises 6 million bushels of grain a year against less than 2 million bushels in the counties with the sandy soil. Grass and most grains require a large amount of water, and clay soils hold water much better than sandy soils.
AGRICULTURE

WINNEBAGO COUNTY

GENERAL CONDITIONS OF FARMING

Nearly 90 percent of the land area of Winnebago County is farm land; in this particular it ranks high among the counties of Wisconsin. Originally most of the land was covered with hardwood forests, but the virgin timber has all been cut, and scatter-

![Diagram showing land use percentages]

FIG. 18. THE VALUE OF ALL FARM PROPERTY IN WINNEBAGO COUNTY IN 1910 WAS $25,000,000, DIVIDED AS SHOWN IN THE ABOVE DIAGRAM

ing pieces of woods of second growth occupy 7 per cent of the 294,000 acres in the county. The improved land constitutes about two-thirds of the entire land area. The surface is so nearly flat that drainage is imperfect and there are nearly 50,000 acres of marsh land, mainly along the streams and lakes. The well drained land is of excellent quality. Two thirds of the farmers are American-born and 4 farms in every 5 are worked by their owners. As a rule the farms are not large; the average size is 95 acres.

THE WORK OF GLACIERS

The entire county, in common with all of eastern Wisconsin, was covered by the great continental glaciers which came from the north and northeast, spread over our northern states, and
when they melted left a mantle of glacial drift spread over the surface of the ground. If the mantle of drift were removed, bedrock would everywhere be revealed. This rock surface would be considerably less plain-like than the present surface; the glacial drift tends to smooth the irregularities, because it is usually thicker in the valleys than on the hills. Winnebago County is unquestionably more plain-like than it was before the mantle of glacial drift was spread over it. There is now hardly a hill of any size in the county. Much of the drift is composed of decayed and pulverized limestone combined with clay and a moderate mixture of sand and boulders which are totally unlike the bed rock of the region where they are now found; these boulders are known as erratics, or wanderers.

The Red Till and Clay

Almost all of the county was once covered by a portion of larger Lake Winnebago which is discussed on page 16. In this lake the water of the melting glacier deposited red clay which a later advance of the glacier changed to red glacial till. Some of this till seems to have been again worked over by the waves and currents of the lake and spread out so as to fill the depressions and transform the area which it covers into a remarkably level plain. The red soil is rich in plant food and grows excellent crops. At the surface it is often gray or black in color, due to the action of vegetation.

Crops

The soil of the county is notably uniform in quality. Drainage is one of the most important considerations. There is little sandy or gravelly land; the red clay is very similar in composition wherever found. Clay soils are particularly well adapted to grass and grains, which require much water. Hay, pastures, and oats make up half of the total acreage (See Fig. 19); corn and barley are large but not major crops. Wheat has all but disappeared and potatoes are grown only a little in excess of the requirements of the population of the county. The difference between the crops on clay-loam and sandy-loam soils is well shown by a comparison of Winnebago County with Waushara County, which joins Winnebago County on the west, but which is underlain by a sandstone rock and has a relatively high percentage of sand in its soil. In 1909 Winnebago County produced
375,000 bushels of potatoes, but Waushara produced 2,250,000 bushels, or six times as many. Winnebago produced 18,000 bushels of rye, but Waushara produced 230,000 bushels, 12 times as much. Potatoes and rye are crops which do well on sandy loams. On the other hand, Winnebago County produced twice as much hay, three times as much oats, and 15 times as much barley as Waushara County; these are the characteristic products of clay-loam soils. The difference also comes out in a comparison of the value of farms in the two counties. According to the U. S. census of 1910, farm land in Winnebago County has an average value per acre more than double that in Waushara County. This is undoubtedly due in part to the presence of cities and to better railroad facilities in Winnebago County.

**Dairying**

Like so many parts of Wisconsin, Winnebago is a county of dairy farms—and in Wisconsin this has come to mean prosperity. The making of cheese is particularly concentrated in the northern half of the county. In the eastern tier of townships, cheese factories and creameries are mingled, while in the western tiers of townships creameries have almost a monopoly. There are less than 20 creameries and skimming stations, but nearly 40 cheese factories. A comparison of the quantity of milk produced in the different counties of the Valley is shown in Fig. 20. Winnebago County has the largest number of cattle in proportion to area of any of the four counties with which we are dealing.
Outagamie and Brown counties have one cow to every seven acres; Fond du Lac County, one to every six acres; and Winnebago, one to every five acres. In this particular, the county stands with the foremost in Wisconsin. There are nearly 30,000 dairy cows in Winnebago County, which is more than the entire number in the state of Arizona. As is commonly the case in a region of dairy farms, the farm buildings are excellent. It is not unusual to find barns with the attached silo which are worth $3,000 to $4,000.
OUTAGAMIE COUNTY

THE SOIL

Several factors besides the climate and the inherent quality of the soil have a part in determining the value of farm land and the profitableness of farming. Some of these are
(1) railroad facilities,
(2) nearness to large cities, and
(3) the length of time during which the region has been undergoing improvement or development.
Two quite different kinds of soil, each including many variations, are found in the county. The whole county was covered by the

![Diagram](image)

FIG. 21. THE VALUE OF ALL FARM PROPERTY IN OUTAGAMIE COUNTY IS ABOUT 30 MILLION DOLLARS, DISTRIBUTED OVER FOUR ITEMS AS SHOWN IN THE ABOVE DIAGRAM

great ice sheet of the Glacial Period, and so the soil is all of glacial origin, made up of clay, sand, gravel, and some boulders, mixed in varying proportions. Most of the boulders were transported a long distance, many of them from Canada; but the major part of the drift of which the soil is made, was transported only a short distance, and is sandy or clayey in character according as the underlying rock of the region is sandstone or limestone.
The glaciers which overspread Outagamie County came from a northerly and northeasterly direction; they had, therefore, been moving over and eroding limestone rocks which are the predominant rocks of eastern Wisconsin. The eastern half of the county is itself underlain by limestone, but the western half is partly underlain by sandstone. This is mentioned because of

![Diagram showing land use](image)

**FIG. 22. DIAGRAM SHOWING THE USE THAT IS MADE OF THE 413,000 ACRES OF LAND IN OUTAGAMIE COUNTY.** (Census of 1910).

Non farm land is that used for roads, cities, railways, etc.

the great difference in the character of the soil which is derived from limestone and from sandstone. Soil derived from limestone is very largely clay and silt,—fine grained, and rich in plant foods; while soil derived from sandstone is mostly sand, which is deficient in plant food and hence is less productive. This difference is plainly apparent in different sections of Outagamie County. Eight townships in the western and northwestern part
of the county, while containing many good farms, also contain a high proportion of sandy and swampy land. This inferior land is in the sandstone belt previously mentioned. The eastern and southern townships are underlain by limestone and their soil is mainly derived from this rock or similar rock a little further east.

A considerable area in the southeastern part of the county was covered by the glacial lake which occupied the whole Fox River Valley from Green Bay southward beyond Fond du Lac, and in which was deposited the red clay which is so noticeable throughout the Valley.

Value of Farm Property

The difference between the sandy and poorly drained land which is common in several of the northern and western townships, and the clay loam soil which predominates in the southern and eastern half of the county, comes out in the value placed upon these lands for assessment purposes; all of the property in the former 10 is given a "true value" of a little less than 11 million dollars, while about an equal area in the 10 southern and eastern townships is valued at over 20 millions; city and village property is not here included. Nearly two-thirds of the value of all farm property is in land. Outagamie County is a dairy county and that means good buildings, and especially, good barns; 22 percent of the value of all farm property in the county is in the buildings; this is well above the average for the state as a whole, even though Wisconsin is a dairy state and ranks high in the average value of its farm buildings.

Cattle are the leading farm animals; hogs and sheep are raised but not in large numbers. The average value of farm property per acre for the county as a whole in 1914 was about $80, as compared with $83, for Brown County, $90 for Winnebago, and $100 for Fond du Lac. The poorer showing made by Outagamie County is mainly due to the sandy and swampy character of the land in certain townships, previously referred to. The eastern and southern part of the county (and some sections in the rest of the county) rank with the best farm lands of the state and sell for as high as $150 per acre.

The proportionate value of the four main items of farm property is shown in the diagram (Fig. 21).
The total land area of the county is a little over 400,000 acres, of which two-thirds is improved. The unimproved land is partly in the former Oneida Reservation tract, which is now organized under township government and is being brought under cultivation; and partly in the undrained lands in the western and northwestern half of the county. The magnificent pine forests which once existed are all gone and only about 85 square miles of scattered timber remains and that is largely second growth.

All of the usual grains are grown, but oats lead, with corn second. Barley is not a leading crop, rye is unimportant, and wheat, once all important, is grown only on a small scale. Hay actually leads in acreage, as is shown in Fig. 22; potatoes are grown much in excess of local demand. The extensive practice of dairying requires that a considerable area be devoted to pastures, probably not less than 20 per cent of the total farm land.

Dairying

Outagamie County stands high in dairying, ranking 13th or 14th among the 71 counties of the state in total number of dairy cows (40,000). There are thirty creameries, about fifty cheese factories, and (in 1913) one large milk condensing factory in New London, which is on the western boundary. There are produced annually in the county the enormous quantity of 38 to 40 millions quarts of milk, one half of which is made into cheese. The general advance in the value of farms and the increasing rural prosperity are in a large degree due to the practice of dairy farming.
AGRICULTURE

BROWN COUNTY

GENERAL CONDITIONS OF FARMING

The soil of about three-fourths of the county is red till or clay loam. The remaining quarter, mainly the old Oneida Reservation and the townships bordering on Green Bay, is more or less sandy. In the vicinity of the city of Green Bay this sandy loam is ideal for truck gardening and this type of farming is more generally practiced than in any other part of the Fox River Valley. Two other factors combine to stimulate truck gardening in this region: (1) the high proportion of Belgians* in the population, a people who are trained in this kind of farming, and (2) the excellent market for garden products in the mining regions of the Upper Peninsula of Michigan. Thousands of acres near Green Bay are devoted to the raising of peas, beans, beets, tomatoes, etc., for the canning factories, to cucumbers for the pickle factory, to sugar beets for the beet sugar factory at Marinette, and to cabbage. The soil is of glacial origin; most of the county is nearly level; a part of the eastern tier of townships

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* There are about 1,800 Belgians in Brown County, nearly half of the total number in the state.

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is on the Niagara limestone upland and here is found the prize farming township of the county, Morrison. Though there is no railroad or city in this township, its farms have the highest average value of any strictly rural township in the county. There is a somewhat higher percentage of unimproved land in Brown County than in any other of the four counties here considered.

THE SOIL AND CROPS

The land area of the county is about 340,000 acres, of which 60 per cent is improved farm land. Scattered woodland amounting to 50,000 acres still remains. The largest number of acres (63,000) devoted to any one crop is given up to hay; this is due both to the high percentage of clay soil, which is best suited to the grasses, and to the large number of cattle which are kept. Only three of the grains are grown to a large extent, oats, barley and rye (See Fig. 25). Rye is a crop which thrives in sandy soil, and over 10,000 acres of this crop are raised annually on the sandy areas.

The decline in corn-growing as we go northward from Fond du Lac County to Brown County is rather striking. Fond du Lac raises 40,000 acres of corn, Outagamie County 28,000 acres, and Brown County only 5,500 acres. This is not wholly due to climate, for the growing season (period between the last killing frost in spring and the first one in fall) is practically as long in Brown County as it is in the other three counties, namely 140 to 150 days. Evidently the farmers of the county can raise corn if they so desire. The relation of corn-growing to hog-raising is shown in the fact that Brown County raises only one-fourth as many hogs as Fond du Lac County.
A.—THRESHING OATS IN BROWN COUNTY

Each of the Fox River Valley Counties produces from 1,500,000 to 3,000,000 bushels of Oats annually.

B.—TYPICAL FARM SCENE ON THE LEVEL LAND WHICH WAS FORMERLY COVERED BY LARGER LAKE WINNEBAGO (NEAR DEPERE)
AGRICULTURE

Dairying and Stock Raising

The agricultural interests center around dairying. The big red barn and the silo are everywhere in evidence. Cheese making is more in favor than butter making; there are 20 creameries and skimming stations, but nearly twice as many cheese factories; 40,000,000 quarts of milk are produced yearly. Many farmers are acquiring herds of blooded Guernseys and Holsteins. As is true throughout the dairy section of the state, so in Brown County, the dairy cow is making prosperity, for she is adding a million dollars every year to the wealth of the county. Relatively few sheep are raised; in fact poultry have four times the value of sheep in the county.

A fact deserving of comment is the exceedingly high percentage of farms that are operated by their owners. For example, in Rock and Green counties in the southern part of the state, from 30 to 35 percent of the farms are operated by tenants, while in Brown County only seven per cent are so operated.

Ownership and Size of Farms

The large proportion of small farms is noticeable; only one-third of the farms exceed 100 acres in size, and the average for the county is 83 acres, the lowest in the state except Milwaukee County and its neighbor, Ozaukee. In Grant County, in the extreme southwestern part of the state, the farms average 170 acres in size, and in Adams County in the middle of the state the average is 183 acres. This condition of small farms is closely related to the high proportion of Belgians, Danes, Germans, and Hollanders who have settled in the county and who in their own country were accustomed to small farms, intensively cultivated. Nearly half of the farmers of the county are foreign born; they are industrious, thrifty, and conservative. The second generation is said to be more progressive than the first and to make the best of farmers.