

Income and Expenditures of Minnesota Agriculture

REX W. COX - WARREN C. WAITE - W. B. GARVER



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**AGRICULTURAL EXPERIMENT STATION
UNIVERSITY of MINNESOTA**

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Income and Expenditures of Minnesota Agriculture

Rex W. Cox, Warren C. Waite, and W. B. Garver

AGRICULTURE is one of the principal occupations of the people of Minnesota. Fully one third of the persons in the state live on farms. In addition many are concerned with the processing and marketing of agricultural products. The fluctuation in the income of the farmers has been large in recent years, the situation differing in various sections of the state because of the types of farming followed. This bulletin presents estimates of the cash sales by the farmers of 19 principal agricultural products, and also the principal expenditures involved in the farm operations in the state. The estimates for the state cover the 32-year period from 1910 to 1941. A similar set of estimates has been made for nine type-of-farming areas of the state for the 17-year period from 1924 to 1940.

The gross cash income of the state has been obtained by summing the estimated sales of the 19 principal agricultural products. These products are: wheat, corn, oats, barley, rye, flax, potatoes, hay, hogs, cattle and calves, lambs and sheep, milk and butterfat, chickens, eggs, turkeys, and wool. Other products are also sold by the farmers, but the omitted products are less important than those included, and these 19 products probably account for 95 per cent of the total sales in most years.

It should be noted that these estimates are only of the cash sales of agricultural products and do not represent the total income of the farmers. No allowance has been made for agricultural products used in the home or for income received from other sources, such as for work off the farm. Moreover, changes in inventory values of livestock or stored products have not

been taken into account. Care must be exercised, in consequence, in drawing conclusions based on comparisons of these estimates with income estimates for other groups in the population or other estimates of farm income which may have been made on different bases. The comparisons of the relative changes over a period of time, however, are not subject to all the qualifications necessary in comparing the absolute amounts. This is because the sales of the products not included are likely to fluctuate in a similar manner to those included. The emphasis of the income discussion in this bulletin has therefore been upon relative comparisons. Index numbers presented are believed adequate for this purpose.

The annual farm expenditures for production purposes are estimates of the actual cash outlays for commodities and services used in the year and for

the maintenance of the goods which are in use for more than one year. The various items included in these estimates probably account for more than 90 per cent of the total cash outlay. The amount of taxes and interest payable represents obligations to pay rather than cash outlays. A large proportion of these obligations is paid when due but there is always a certain amount of delinquency, some of which may be settled at full value at a later time, although a certain proportion is never paid. Some of the goods and services purchased by farmers are used for family living as well as for production purposes. It has been necessary to estimate the proportions of the annual expenditures for these items which are used in farm production. The estimated proportions are as follows: real estate taxes payable and interest payable on farm mortgages, 90 per cent; automobiles, 40 per cent; telephone, 50 per cent; electricity, 75 per cent; fire insurance, 75 per cent; and building repairs, 85 per cent.

The estimates of the cash income and cash outlays for the state are shown in figure 1. The cash income from the sale of the included products was about 160 million dollars in 1910. The dollar sales increased greatly during World War I and reached a peak of 450 million dollars in 1918. Following the war there was a sharp decline and then a partial recovery with sales of around 400 million dollars during the period 1924 to 1929. The depression of the 1930's decreased the cash sales greatly and the low of 162 million dollars in 1932 was about the level of 1910. The period from 1935 to 1939 averaged 311 million dollars a year.

The total expenditures or contractual obligations on the included items were more than 56 million dollars in 1910. Increasing costs during World War I and the immediate postwar period resulted in a total approaching 175 million dollars in 1920 which was more than three times the total in 1910. The decline during the next two years was followed by an increase which con-

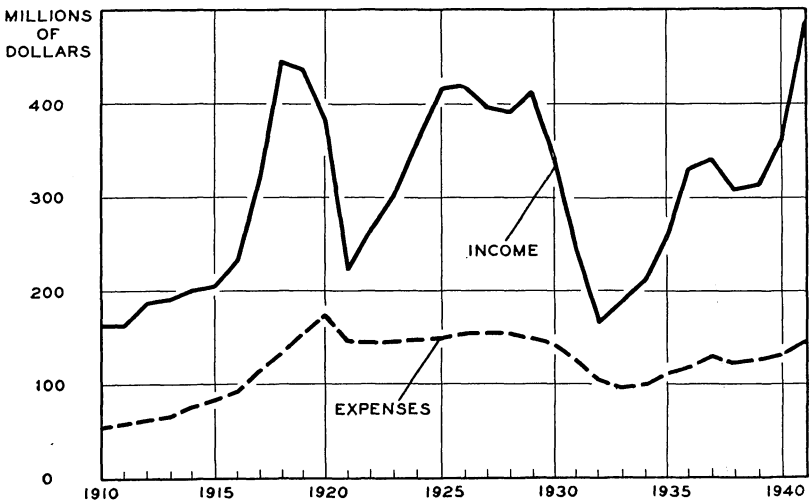


FIG. 1. Cash farm income and expenditures.

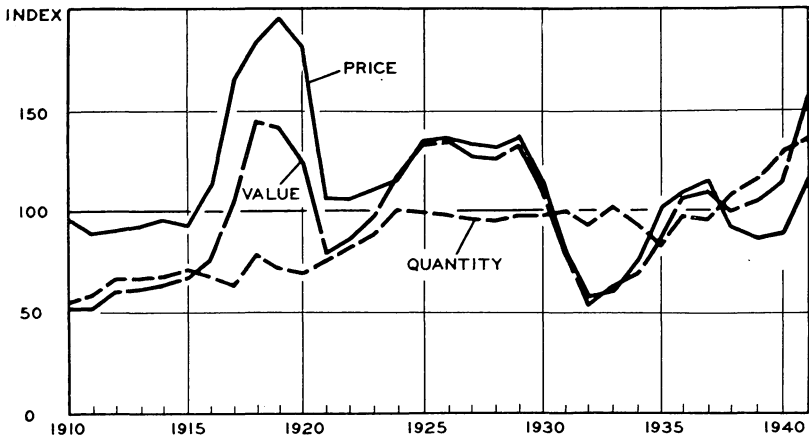


FIG. 2. Indexes of price, quantity, and value of sales of all products.
 (The base period of the indexes in figures 2, 4, 5, 7, 8, 9, 10 is 1935-39.)

tinued until 1927, when the total expenditures reached about 156 million dollars. The subsequent decline, which became particularly significant in 1930, continued until 1933, expenses in the latter year approximating 96 million dollars. Since 1935, the trend has been upward. The estimate of 132 million dollars in 1940 was 38 per cent larger than in 1933.

CHANGES IN GROSS INCOME

The income derived from the sale of farm products depends upon both the prices received for these products and the physical quantities of goods sold. Indexes of the value of sales, prices, and quantities sold are shown in figure 2. The fluctuations in the cash sales have been nearly identical with the changes in prices since 1924, and the general pattern of income prior to 1924 also was determined largely by the fluctuations in prices. The quantities of products sold increased fairly regularly from 1910 to 1924, the total increase amounting to about two thirds

of the 1910 production. Since 1924, physical sales have not changed greatly except for the declines occasioned by the drouth of 1934 and the large volume of sales in the past three years.

The composition of the farm income has changed greatly over the period. Figure 3 shows by five-year averages the proportion of the income derived from the four sources: crops, livestock, dairy products, and other livestock products. The crop group includes the sales of wheat, corn, oats, barley, rye, flax, potatoes, and hay. The livestock group includes the sales of hogs, cattle and calves, and lambs and sheep. The dairy products group includes butterfat, milk, and farm butter. The other livestock products group includes turkeys, chickens, eggs, and wool.

The greatest change has occurred in the importance of crops as a source of cash income. In the period from 1910 to 1914 crops furnished nearly half of the income, but in recent years only about one fifth of the income has been derived from this source. Sales of livestock have furnished close to 40

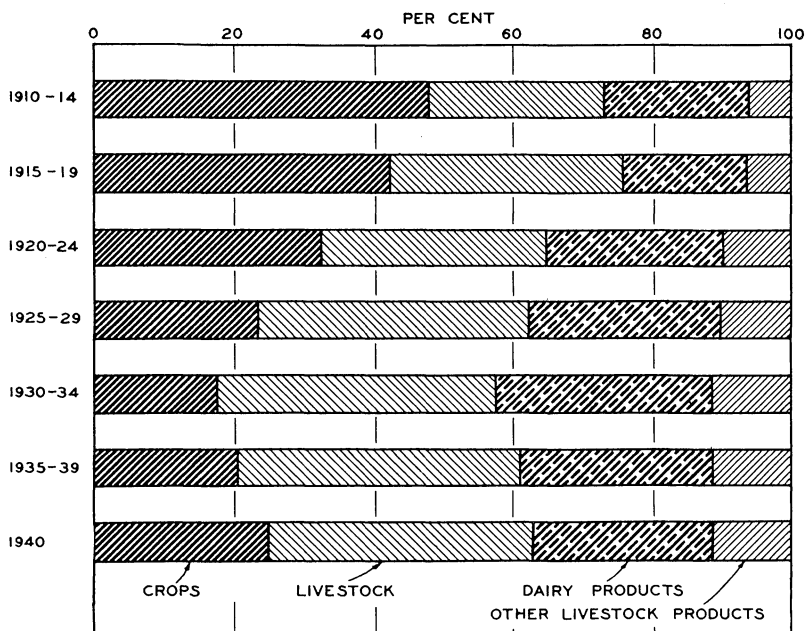


FIG. 3. Distribution of income according to source.

per cent of the total income in recent years and dairy products about 30 per cent. There has been a notable increase in the sales of products in the group we have called other livestock products. These products have about doubled in relative importance, increasing from slightly over 6 per cent of the income in 1910-14 to over 12 per cent in 1935-39.

Indexes of the prices and quantities of sales of each of the four commodity groups are shown in figures 4 and 5. The fluctuations in the total agricultural income of the state from year to year depend mainly on the changes in the level of prices. However, the change in the relative importance of the four groups in the total income appears to have resulted principally from changes in the physical quantity of sales, and only partly from changed

price relationships. The quantities of crops sold fluctuate greatly from year to year, depending upon the conditions during the growing season. There was, however, a general trend downward through the period, except for the increased sales following the large crops of 1938 and 1939. The quantities of livestock sold increased until 1926, then remained about the same until these sales were sharply curtailed as a result of the drouth in 1934. The quantities of dairy products sold did not increase greatly until 1920, but more than doubled between 1920 and 1933. The quantities of other livestock products sold have increased steadily throughout the period except for an interruption occasioned by the 1934 drouth. It also appears that there has been a tendency for a decline in crop prices relative to the prices of livestock

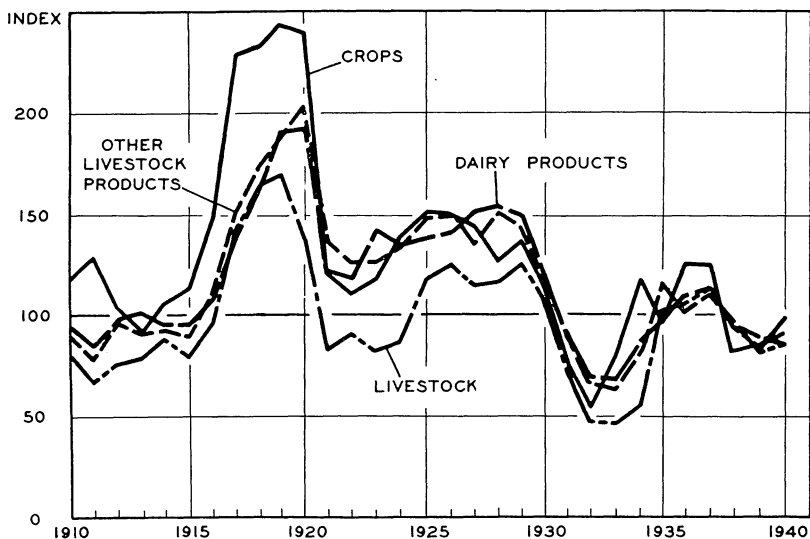


FIG. 4. Indexes of prices of various groups of products.

over the period, although a considerable portion of the appearance of change shown on the graph is due to the choice of a base period in which crop prices were low relative to livestock prices as compared with their average relationship over the entire period.

CHANGES IN CASH EXPENSES

There have been some significant changes among the various expenses during the past 32 years, both in their

absolute amounts and in their relative importance. It is convenient to group these in two general classes: fixed expenses and current operating expenses. The fixed expenses include the following: taxes, which consist of real estate, personal property, and special assessment taxes payable; and interest payable on farm mortgages. The current operating expenses include: interest on short-term obligations; hired labor; farm and commercial feed; automotive expenses, consisting of fuel, oil, tires,

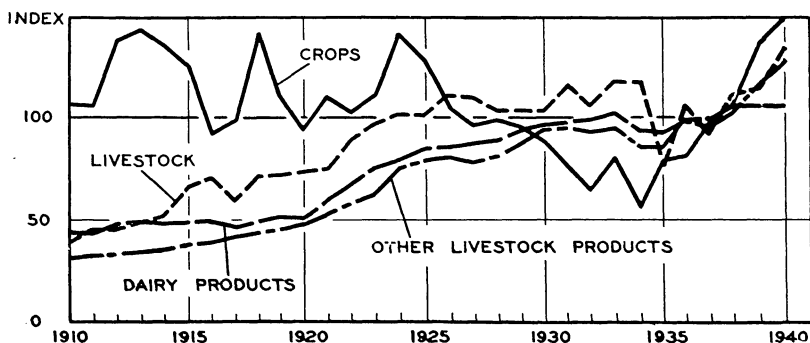


FIG. 5. Indexes of quantities of sales of various groups of products.

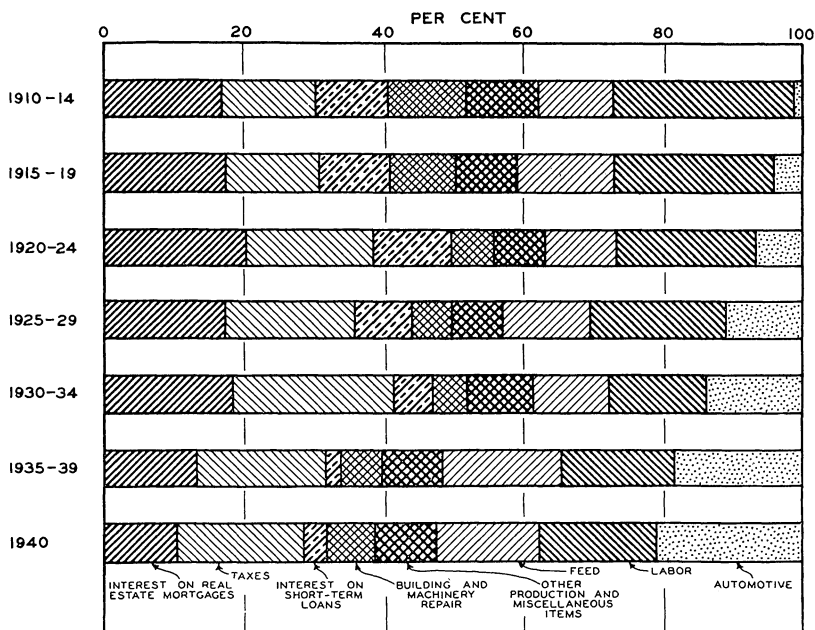


FIG. 6. Distribution of expenditures among various groups of items.

repairs, and licenses for automobiles and trucks, and fuel, oil, grease, and repairs parts for the operation of tractors; building and machinery repairs; other production expenses including spray and seed treatment materials, fertilizers and lime, sacks, and binder twine; and miscellaneous expenses for electricity, telephone, and fire and hail insurance. The proportions of each of these groups to the total are shown in figure 6.

Fixed expenses, which consist of taxes and interest payable, averaged about 30 per cent of the total in 1910-19. The proportion increased to 41 per cent during 1930-34, but declined to 31 per cent in 1935-39. Taxes averaged less than one half of the fixed expenses in 1910-19, but increased to almost two thirds in the last five-year period.

The more important relative changes among the items included in current

operating expenses were the declines in interest payable on short-term obligations and in labor costs, and the increase in expenditures involved in the operation of motor vehicles. Interest payable, which averaged around 10 per cent of all expenditures from 1910 to 1924, declined to 2 per cent in 1935-39.¹ Changes in the methods of farming have caused a considerable shift in the proportion of the expenditures on labor and motor vehicles. During the first five years, labor accounted for about 26 per cent of the total, and motive power for 1 per cent. During the period 1935-39, the corresponding proportions were 16 per cent and 19 per cent, respectively.

Feed expense has shown no consistent trend. It tends to decrease in

¹This item represents interest payable on personal and collateral loans obtained from commercial banks and production credit associations.

relative importance during depression periods when feed prices are low, and to increase during years of widespread drouth. For example, feed averaged 17 per cent of the total in 1935-39 as compared with 11 per cent for the preceding five-year period. Building and machinery repairs were about half as important relatively at the end as at

the beginning of the period chiefly because they did not increase as rapidly as total expenses.

The expenditures on the two remaining groups at no time have constituted more than 11 per cent of the total when taken together. Other production expenses have tended to decline, while miscellaneous expenses have increased.

Sales of the Leading Farm Products

THE estimates of the sales of the various commodities included in this study are largely those made by the Bureau of Agricultural Economics of the United States Department of Agriculture. Where such estimates were not available, estimates have been made on bases which appeared to yield comparable results. Table 1 gives the estimated sales for the period 1910-41.

The decline in the importance of crops has evidently been due largely to the decline in wheat as a source of income. In the two early periods wheat was the most important single source of income, but by 1935-39 it had dropped to sixth place in relative importance. Among the other crops, sales of oats, rye, potatoes, and hay declined considerably in relative importance

Table 1. Annual Gross Cash Sales of Various Agricultural Products by Minnesota Farmers, Five-Year Averages 1910-1939, Annual 1940 and 1941

	1910-14	1915-19	1920-24	1925-29	1930-34	1935-39	1940	1941
	Million Dollars							
State Total	180.4	330.4	313.0	408.1	232.3	310.9	361.3	467.7
Crops	85.7	138.9	100.1	94.3	40.5	63.0	87.9	92.0
Wheat	39.9	70.6	28.8	25.2	8.3	16.4	15.8	17.1
Corn	6.0	10.5	12.7	10.9	6.8	11.1	30.2	22.4
Oats	7.7	15.1	14.8	12.2	4.4	6.1	7.5	7.3
Barley	9.6	11.5	5.0	7.2	3.7	9.9	8.4	11.6
Rye	3.0	7.0	10.1	4.5	1.2	2.8	1.5	1.5
Flax	4.7	5.5	9.5	14.1	7.4	9.1	17.4	25.3
Potatoes	9.2	15.6	15.3	15.7	6.8	5.7	5.8	5.3
Hay	5.6	3.1	3.9	4.5	1.9	1.9	1.3	1.5
Livestock	45.7	110.8	103.1	159.2	92.4	125.8	141.8	203.1
Hogs	25.8	63.0	66.0	99.2	52.2	65.5	69.2	108.7
Cattle and Calves	19.0	46.3	35.1	56.1	36.2	52.9	65.8	85.3
Sheep and Lambs	0.9	1.5	2.0	3.9	4.0	7.4	6.8	9.1
Dairy Products	37.9	59.1	79.4	111.9	71.6	86.1	91.4	114.8
Butterfat	25.0	42.4	61.3	89.8	53.7	64.5	67.0	83.3
Milk and Farm Butter	12.9	16.7	18.1	22.1	17.9	21.6	24.4	31.5
Other Livestock Products	11.1	21.6	30.4	42.7	27.8	36.0	40.2	57.8
Chickens	2.3	4.1	7.4	13.2	9.8	10.6	9.2	12.2
Eggs	7.3	14.8	19.5	24.1	14.0	18.4	21.6	33.4
Turkeys	1.0	1.7	2.7	4.0	3.0	5.2	7.2	9.0
Wool	0.5	1.0	0.8	1.4	1.0	1.8	2.2	3.2

while corn, barley, and flax tended to maintain about the same position. Butterfat when combined with milk assumed first rank as a source of income in the 1920-24 period, followed by hogs and cattle. In some years hogs have exceeded butterfat and milk as a source of income but usually the income from them has been somewhat smaller. All of the livestock and livestock products tended to increase in relative importance, with comparatively large increases in the products of lesser importance such as sheep, lambs, chickens, and turkeys.

In the following discussion the products have been grouped into the four main categories previously described. (See page 5.)

INCOME FROM CROPS

Annual indexes of the prices, quantities sold, and value of sales of this group are shown in figure 7. The income from this source has been a highly variable one. The quantities of crops sold change greatly from year to year since the growing conditions during particular years influence the total production materially. The major fluctuations in the income, however, have been largely the result of changes in prices, as is also the case with the other groups. The largest crop income was received in 1918 when a combination of good crops and high prices resulted in an income of 207 million dollars. The lowest income from this source was received

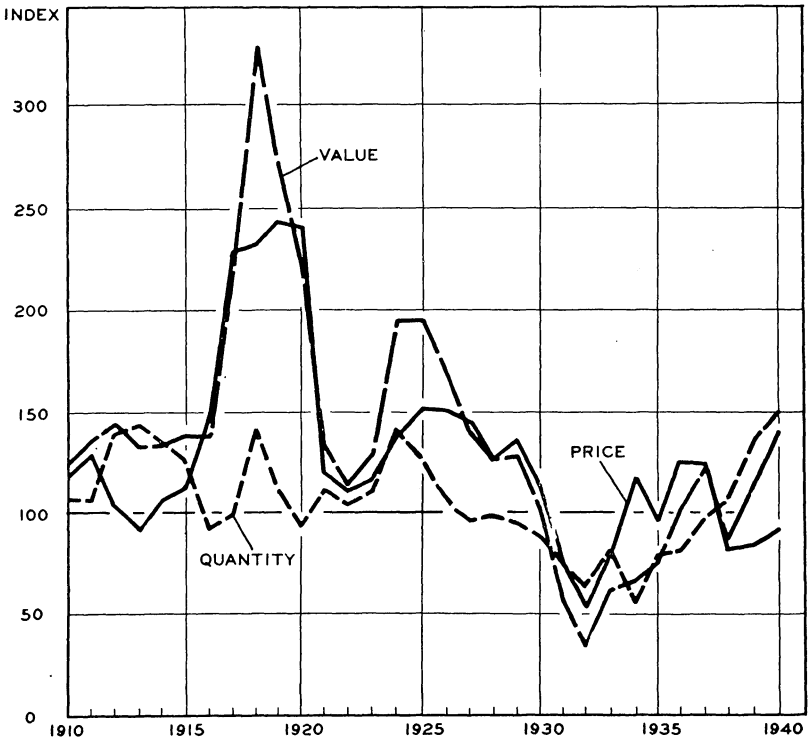


FIG. 7. Indexes of price, quantity, and value of sales of crops.

in 1932 when low yields together with low prices resulted in an income of only 22 million dollars.

There has been a tendency for the quantity of crops sold to decline. A large part of the decline in physical volume of sales in the 1930's was due to a series of years with comparatively low yields but most of the general trend has been due to a shift in the acreage between cash crops and feed crops. The total acreage in the seven crops included in the study increased from an average of 11.2 million acres in the five-year period 1910 to 1914 to an average of 14.4 million acres in the five-year period 1935 to 1939. However, the acreage of the four cash crops—wheat, flax, rye, and potatoes—declined from 4.5 million acres in 1910-14 to 3.5 million acres in 1935-39, while the acreage of the three feed crops—corn, oats, and barley—was increasing from 6.7 million acres to 10.9 million acres in the same periods. Cash crops thus occupied 40 per cent of the acreage in these seven crops in 1910-14 but only 24 per cent of the acreage in 1935-39. The lowest proportion of the acreage in cash crops was reached in 1930-34 when only 21 per cent of the acreage of the seven crops was devoted to crops of this type.

The increased production of feed crops has been absorbed largely by the increased feeding on the farms where raised. Examination of table 1 will show that while the proportion of the farm income derived from the sale of cash crops declined from 31 per cent of the total in the first period to 11 per cent in the 1935-39 period, the income from the sale of feed crops also declined from 13 per cent of the total in the first period to less than 9 per cent in the latter period.

INCOME FROM LIVESTOCK

The sales of hogs, cattle and calves, and sheep and lambs now provide about 40 per cent of the cash income of Minnesota farms. This is a considerable increase from 1910-14 when the sales amounted to only about one fourth of the total income. Cattle and calves, and sheep and lambs were relatively more important in the last five-year period than in the earlier periods, while hogs attained their greatest relative importance in the 1925-29 period. The receipts from the sale of hogs have exceeded those for cattle and calves throughout the 32 years, except for 1915 and 1934, when the sale of cattle and calves appears to have been larger. From 1924 to 1927 hog sales were nearly twice as great as those of cattle and calves, but during most of the other years were not over one third greater. The sales of lambs and sheep are of course comparatively small, but on a relative basis have shown the largest increase over the period as a whole.

The annual indexes of prices, quantities sold, and value of sales of this group of products are shown in figure 8. The largest part of the fluctuation in value of sales has been occasioned by changes in prices, as was the case with crops, although the magnitude of the fluctuations has not been as great. The largest dollar sales were in 1926 with sales of about 174 million dollars, compared with average sales of about 126 million dollars in the five-year period 1935-39. In contrast to crops, sales were larger in the 1926 to 1929 period than during World War I. The quantities of livestock sold increased rapidly between 1910 and 1926, but do not appear to have increased greatly

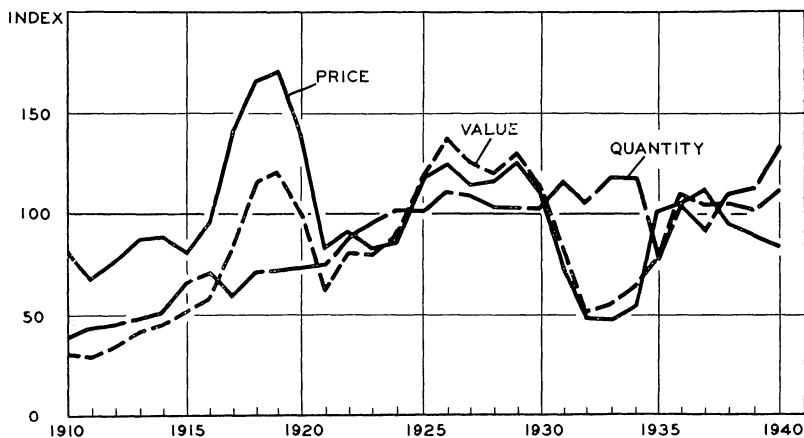


FIG. 8. Indexes of price, quantity, and value of sales of livestock.

since then. The influence of the drouths of 1934 and 1936 will be observed in the decreased quantities of sales in 1935 and 1937.

The increase in physical quantities of livestock sold was due both to an increase in the number of livestock kept on farms and also to a larger production and sales relative to the numbers of animals on farms on January 1. These changes are shown in table 2. Though influenced by various circumstances, the ratio of sales to animals on farms indicates in general

that farmers have improved in the efficiency of their livestock production during these years.

INCOME FROM DAIRY PRODUCTS

The income from the sales of milk, butterfat, and farm butter now comprises between 25 and 30 per cent of the total farm sales. The sales of milk include sales to cheese factories and condenseries as well as sales for fluid milk purposes. The largest dollar sales of dairy products were in 1929 when

Table 2. Sales of Livestock, Number of Head on Farms, and Sales per Head on Farms, Five-Year Averages, 1910-1939

	1910-14	1915-19	1920-24	1925-29	1930-34	1935-39
Sales in Thousands of Hundredweight						
Cattle and Calves	3,899	6,212	6,085	7,143	7,462	7,783
Hogs	3,648	5,156	8,188	10,233	10,579	8,068
Sheep and Lambs	167	148	219	317	731	954
Head on Farms Jan. 1 in Thousands						
Cattle and Calves	1,190	1,423	1,489	1,238	1,549	1,525
Hogs	1,611	2,138	3,072	3,563	3,572	2,266
Sheep and Lambs	600	570	466	611	1,083	1,282
Sales in Pounds per Head on Farms						
Cattle and Calves	327	437	409	577	482	511
Hogs	226	241	264	287	296	356
Sheep and Lambs	27	26	47	51	67	74

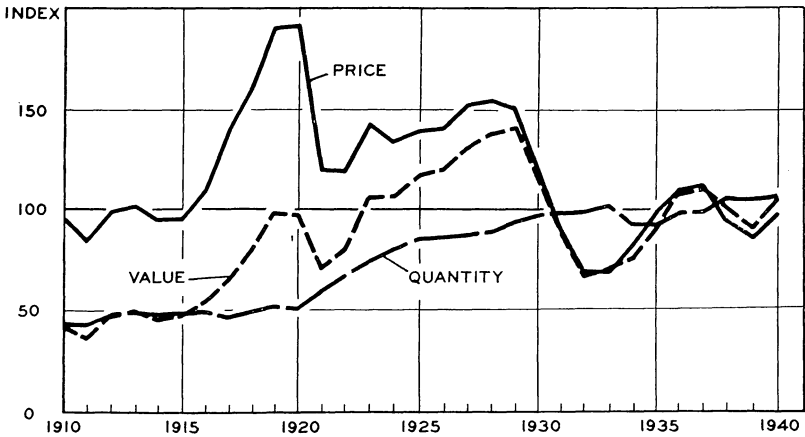


FIG. 9. Indexes of price, quantity, and value of sales of dairy products.

about 122 million dollars was received for these products. The sales from 1922 to 1930 were considerably above the levels of World War I, because of the much larger physical volume of products sold, and because the prices of dairy products were somewhat better sustained through that period than other agricultural products. The average sales in the five-year period 1935-39 were around 86 million dollars.

Butterfat is the largest source of income in the group, amounting to nearly three times the sale of milk. The most marked change in this group has been the decline in the sales of farm butter. Farm butter sales amounted to about 5 million dollars in 1910 but had declined to less than \$200,000 on the average in the 1935-39 period.

The indexes of prices, quantities sold, and value of sales of dairy products are shown in figure 9. The physical volume of sales increased most rapidly between 1920 and 1932. This was occasioned largely by an increase in the number of cows kept for milk (table 3). With the increase in milk production there has also been a reduction in the proportion of milk used on the farm. Thus the census of 1909 indicates nearly a quarter of the milk to have been consumed on the farm where produced while the census of 1929 indicates only about 10 per cent to have been retained for farm use. The increase in the number of dairy cows was interrupted by the drouths of 1934 and 1936, but there has been a resumption of the upward trend in subsequent years.

Table 3. Number of Cows Kept for Milk and Average Annual Milk Production per Cow, Five-Year Averages, 1910-1939

	1910-14	1915-19	1920-24	1925-29	1930-34	1935-39
Number of Cows Kept for Milk (in Thousands)	1,114	1,284	1,465	1,529	1,726	1,706
Average Annual Milk Production per cow (Pounds)				4,854	4,740	4,870

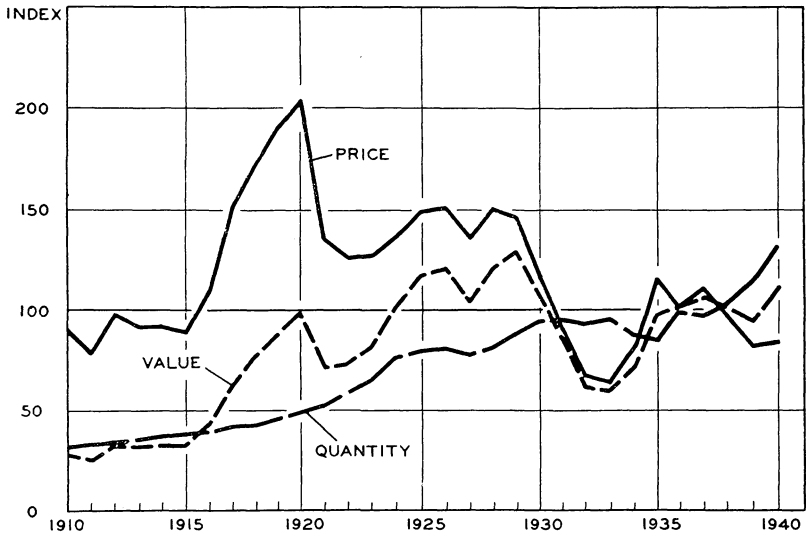


FIG. 10. Indexes of price, quantity, and value of sales of other livestock products.

OTHER LIVESTOCK PRODUCTS

The other livestock products group includes chickens, eggs, turkeys, and wool. Although these are among the smaller income items, they have all increased in importance over the period and the group has shown a relative increase greater than any of the other three groups.

The dollar value of sales in 1935-39

averaged 36 million dollars. Of this total, 29 million dollars came from the sales of chickens and eggs, 5 million dollars from turkeys, and nearly 2 million dollars from the sale of wool. The indexes of prices, quantities sold, and total value of sales are shown in figure 10. There has been a continuous and marked upward trend in the quantities of the products sold in this group throughout the entire period.

Table 4. Estimated Number of Farms and Total Gross Cash Sales by Groups of Farms in Designated Income Groups, Minnesota, 1939

Value of Sales Per Farm	Number of Farms	Proportion of Farms	Total Cash Sales	Proportion of Sales
	Thousands	Per Cent	Million Dollars	Per Cent
Under \$500	51	25.9	12.8	4.2
\$500-\$999	41	20.8	30.8	10.2
\$1,000-\$1,499	32	16.3	39.8	13.2
\$1,500-\$1,999	24	12.2	41.3	13.7
\$2,000-\$2,499	15	7.6	32.3	10.7
\$2,500-\$2,999	12	6.1	33.0	10.9
\$3,000-\$3,499	6	3.1	19.5	6.5
\$3,500-\$3,999	5	2.5	18.8	6.2
\$4,000-\$4,999	6	3.0	27.0	8.9
\$5,000 and over.....	5	2.5	47.0	15.5

DISTRIBUTION OF CASH SALES BY FARMS

There is a wide range in the cash income from the sale of agricultural products by the different farms in the state. An estimate of the number of farms having cash sales of the designated amounts in 1939 is given in table 4. These estimates have been made by adjusting the data reported in the 1940 census of the value of farm products sold, traded, or used by the farm household to cash sales by eliminating an estimated value of farm products used in the household. The census estimate of sales is about 5 per cent below our estimate.

About 47 per cent of Minnesota farms in 1939 had cash sales below \$1,000 and provided less than 15 per cent of the total sales of agricultural products in the state. About 36 per cent of the farms had sales between \$1,000 and

\$2,500 and the sales by these farms made up about 37 per cent of the total. The 17 per cent of the farms with sales exceeding \$2,500 contributed about 48 per cent of the total sales of the state. The farms with smaller sales depend more upon dairy products as a source of income than the farms with larger sales. The census group with value of products sold, traded, and used in the household below \$1,000, received about 40 per cent of their income from dairy products, 24 per cent from livestock sales, and 20 per cent from field crops. The farms in the \$1,000 to \$2,500 group had 31 per cent of their sales arising from dairy products and 24 per cent and 20 per cent from livestock and field crops, respectively. The farms in the \$2,500 to \$4,000 group derived only 22 per cent of their sales from dairy products and secured 30 per cent from livestock and 38 per cent from field crops.



Cash Farm Production Expenses

THE total farm expenses incurred in farm operations more than doubled from 1910 to 1940, and the proportions which the individual items constituted of the total changed materially. Fixed expenses, namely taxes and mortgage interest, were about 30 per cent of the total expenses both at the beginning and the end of the period under review. The relative importance of taxes increased, however, and that of interest payments declined. Among the current expenses, the greatest relative increase was in expenditures for auto-

motive power; the greatest relative decrease was in expenditures for hired labor and interest payable on short-term loans. The other categories of current expenses varied greatly in importance in the different periods. Data by years are shown in table 5.

FIXED EXPENSES

Taxes

The property tax bill of the Minnesota farmer is now close to 24 million dollars annually, and constitutes about

Table 5. Annual Cash Farm Expenditures for Various Items by Minnesota Farmers, Five-Year Averages 1910-1939, Annual 1940 and 1941

	1910-14	1915-19	1920-24	1925-29	1930-34	1935-39	1940	1941
	Million Dollars							
Total	64.7	115.6	152.3	153.0	113.9	121.1	132.0	146.0
Fixed	19.6	35.4	58.1	54.1	46.8	37.9	37.5	36.8
Taxes	8.7	15.4	27.4	27.9	26.0	22.0	23.7	23.2
Real estate	7.4	12.7	22.2	22.9	22.0	19.1	20.8	20.3
Special assessment .....	.5	1.1	2.2	2.8	2.1	1.1	.7	.7
Personal property .....	.8	1.6	3.0	2.2	1.9	1.8	2.2	2.2
Interest payable on farm real estate mortgages	10.9	20.0	30.7	26.2	20.8	15.9	13.8	13.6
Current operating	45.1	80.2	94.2	98.9	67.1	83.2	94.5	109.2
Interest payable on short-term loans	6.5	11.5	16.7	12.6	6.0	2.4	4.1	4.5
Labor	17.1	26.7	30.2	29.5	15.7	19.3	22.0	27.0
Feed	6.8	15.9	15.5	19.1	12.7	21.1	20.0	26.0
Automotive .....	.7	4.7	10.9	17.5	16.0	22.8	27.8	29.3
Automobiles .....	.6	3.3	5.8	8.3	6.5	7.6	8.3	8.6
Trucks	*	.3	2.2	4.4	3.3	3.8	4.0	4.3
Tractors .....	.1	1.1	2.9	4.8	6.2	11.4	15.5	16.4
Building repair	5.0	6.9	5.8	4.7	2.4	4.0	5.2	6.3
Machinery repair	2.5	4.0	4.0	3.8	3.7	3.5	3.8	3.9
Other production items	3.0	5.4	4.8	5.2	3.6	3.2	3.7	3.7
Binder twine	2.2	4.2	3.4	3.7	2.3	2.1	2.3	2.1
Sprays and seed treatment materials .....	.5	.5	.6	.5	.6	.5	.5	.5
Fertilizer and lime .....	.1	.3	.5	.7	.6	.5	.8	1.0
Sacks .....	.2	.4	.3	.3	.1	.1	.1	.1
Miscellaneous items	3.5	5.1	6.3	6.5	7.0	6.9	7.9	8.5
Veterinary	1.8	2.1	2.3	2.2	2.5	2.3	2.5	2.5
Insurance	1.2	2.3	2.9	2.9	2.9	2.7	2.6	2.6
Electricity .....	.1	.2	.4	.6	.9	1.4	2.3	2.8
Telephone .....	.4	.5	.7	.8	.7	.5	.5	.6

* Less than \$50,000.

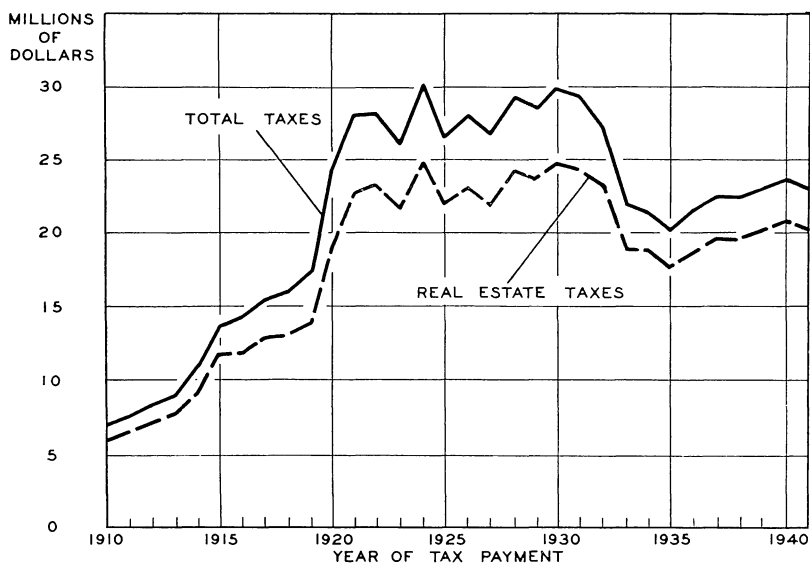


FIG. 11. Total taxes payable on farm property and farm real estate.

18 per cent of his cash expenditures. More than 85 per cent of the farm property tax is derived from farm real estate as is shown in figure 11. The greatest increase in taxes occurred in the early 1920's, following World War I. The tax bill of 7 million dollars in 1910 had increased to 28 million dollars by 1921 and remained near that level until 1933. The lowest level in recent years was in 1935 when the tax bill was 20 million dollars.

Real Estate Taxes. The tax levy on farm real estate depends upon the assessed valuation and the tax rate per \$1,000 of assessed valuation. These will vary widely among the different areas because the general property tax is used largely to raise revenue for local purposes. The assessed valuation reflects the changes in the valuation of farm real estate, especially land, but usually with a lag of a few years. The tax rate is adjusted to the need of revenue requirements. As shown in

figure 12, both the assessed valuation and tax rate rose greatly between 1910 and 1920 with the result that the tax levy of 18.8 million dollars on farm real estate payable in the latter year was about three times the levy of 1910. The assessed valuation, after reaching a peak in 1921 and 1922, declined, but the tax rate increased sufficiently so that the tax levy remained at a fairly uniform level through 1932. The rapid decline in the assessed valuation from 1933-35 was accompanied by only a moderate change in the tax rate; in consequence, the tax levy payable in 1935 was the lowest during the past 20 years. Although the assessed valuation has remained at relatively low levels since 1935, the need for revenue has necessitated the upward adjustment of the tax rate.

The tax on an acre basis has changed greatly. The levy on farm real estate payable in 1910 averaged 25 cents per acre and rose to 91 cents in 1924. A

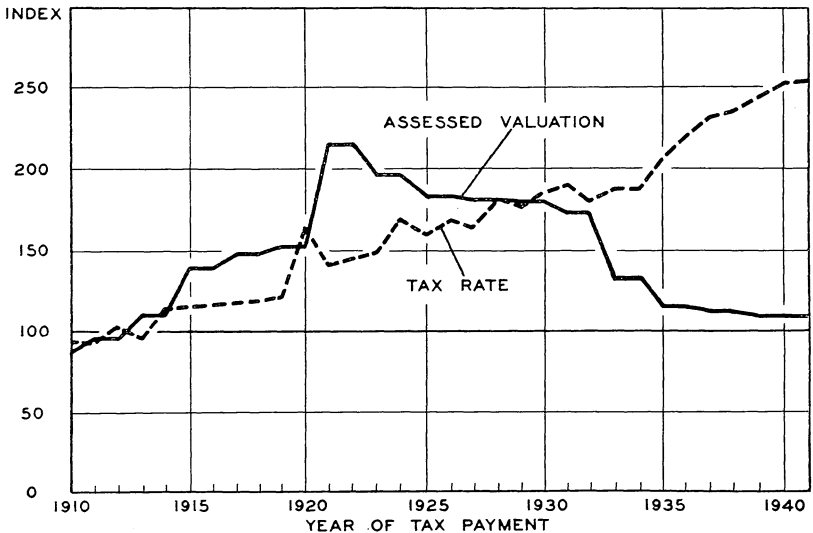


FIG. 12. Indexes of assessed valuation of farm real estate and the tax rate per \$1,000 of assessed valuation (1910-14=100).

lower level prevailed during the next few years, but in 1930 it averaged 90 cents. A low point of 60 cents was reached in 1935. In more recent years the levy has averaged around 70 cents per acre (figure 13). Although the tax per acre declined rapidly in the early 1930's, the burden of taxes was particularly heavy in these years because of the drastic decline in the value of farm real estate and cash farm income. The amount of tax per \$100 of real estate value increased from \$1.31 in 1930 to about \$1.65 in 1932 and 1933. During the same period, cash farm income declined from \$11.16 to about \$5.60 per acre. The situation had improved slightly by 1935. In the following five years, the tax levy again increased relative to land values, but decreased relative to cash farm income.

Tax Delinquency. The heavy burden of taxes resulted in a large increase in tax delinquency during the early 1930's particularly in the northern

areas of the state. The total delinquency on farm property, which amounted to 6.8 million dollars on January 1, 1929, had increased to 18.2 million dollars on January 1, 1935. This was subsequently reduced and approximated 7.2 million dollars in 1941. In each year some back taxes are paid or the taxpayer obtains concessions in the form of a partial cancellation or abatement. In consequence, the cumulative delinquency on January 1 of a given year is not equal to the cumulative delinquency on January 1 of the previous year plus the current delinquency. For example, the current delinquency of the 1936 levy was 2.3 million dollars, but the cumulative delinquency had declined from 15.6 million dollars on January 1, 1937 to 10.8 million on January 1, 1938, indicating that back payments, cancellations, or other concessions had accounted for a decline of 7.1 million dollars in the total delinquency.

Delinquency may result from several

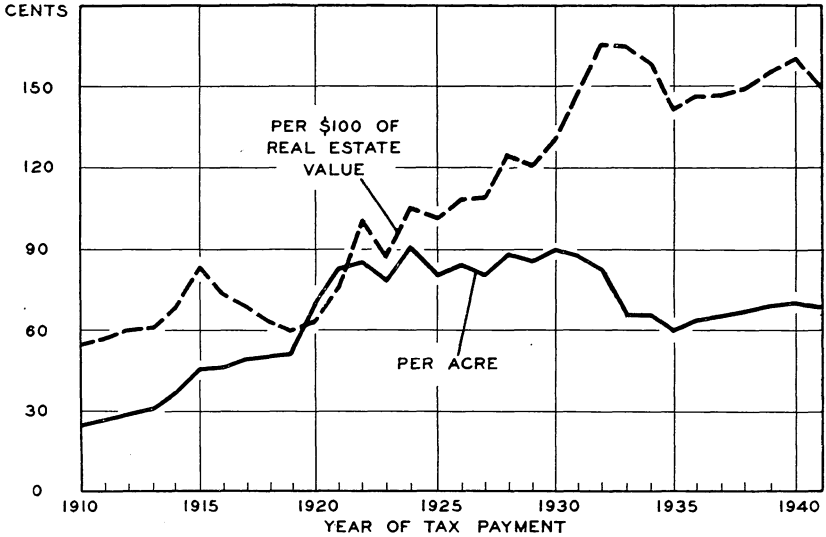


FIG. 13. Tax levy on farm real estate: amount per acre and per \$100 of real estate value.

factors among which are the tax load relative to the farm income, the amount of farm expenses other than taxes, and the attitude of the taxpayer, which is influenced by the tax collection procedure, especially the possibility of obtaining cancellations, abatement, or other forms of adjustment.²

The tax load relative to the cash income is of special significance because it is an indication of the farmer's ability to pay his current tax obligations. The relationship between the tax load both current and total and the relative amount of current delinquency is shown in figure 14. In this figure, the current tax load represents the proportion that the current levy is of the cash farm income; and the total tax load, the proportion that the current levy plus the cumulative delinquency is of the cash farm income. Current delinquency is also expressed relatively

and represents the proportion that the current delinquency is of the current levy.

From 1928 to 1930, current delinquency increased at about the same rate as the current tax load, the former changing from 7.3 to 10.7 per cent and the latter, from 7.7 to 11.5 per cent. The rapid decline in the current tax load subsequent to 1931 was not accompanied by a similar decline in the current delinquency. Although the current tax load had declined to 13.2 per cent in 1932, current delinquency reached its highest level of 19.3 per cent of the current levy. Probably most of the lag in the adjustment of current delinquency to the current tax load was due to the burden of back taxes which was represented in part in the total tax load. The inability of farmers to pay their current obligations in previous years had resulted in such a large cumulated delinquency that the total tax load reached its highest point

²U.S.D.A., Bureau of Agricultural Economics. Agricultural Finance Review 3(2): 7-14.

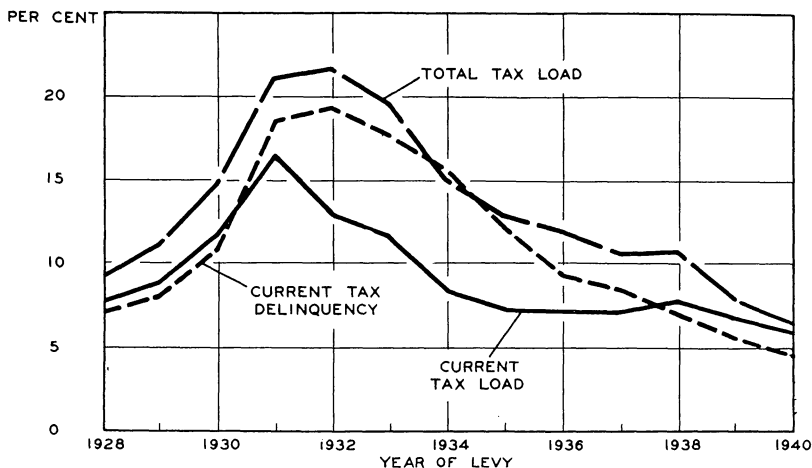


FIG. 14. Current tax delinquency, current and total tax load.

of 21.6 per cent in 1932. A comparison of the three curves in figure 14 shows that, subsequent to 1931, the general trend in current delinquency follows rather closely the trend in the total tax load. The delinquency situation has improved greatly in recent years, and, as shown by the positions of the three curves, now closely approaches that prevailing in 1928.

Interest Payable on Farm Mortgages

Farm Mortgage Debt. The farm mortgage debt of Minnesota farmers increased from 156 million dollars in 1910 to around 600 million dollars in the years 1921 to 1924 (figure 15). The rise during the first part of this period resulted from the continued expansion of agriculture, but during the years of war prosperity, the increases were due primarily to the increasing values of farmland and the expectations of a continuance of the rise. During this boom period there was also a large increase in the volume of agricultural loans made on an unsecured basis or

on security other than farm real estate. The continued increase in the debt structure accompanying and following the decrease in prices of agricultural products and of land values in 1920 and 1921 resulted in part from the completion of real estate transfers entered into previously, but was due primarily to the insistence of the lenders for an improved status of those loans which were either unsecured or were secured by collateral of reduced value. When the peak of the mortgage debt was reached in 1923, the various factors responsible for the increase had declined in importance, and the processes of foreclosures and transfer of distressed real estate were well under way. These accounted for a large part of the decline of the debt from 592 million in 1924 to 511 million in 1926. Continued liquidation and voluntary adjustments during the next few years resulted in a reduction of the debt to 484 million in 1929.³

³ U.S.D.A., Bureau of Agricultural Economics. Agricultural Finance Review 2(2): 90-92.

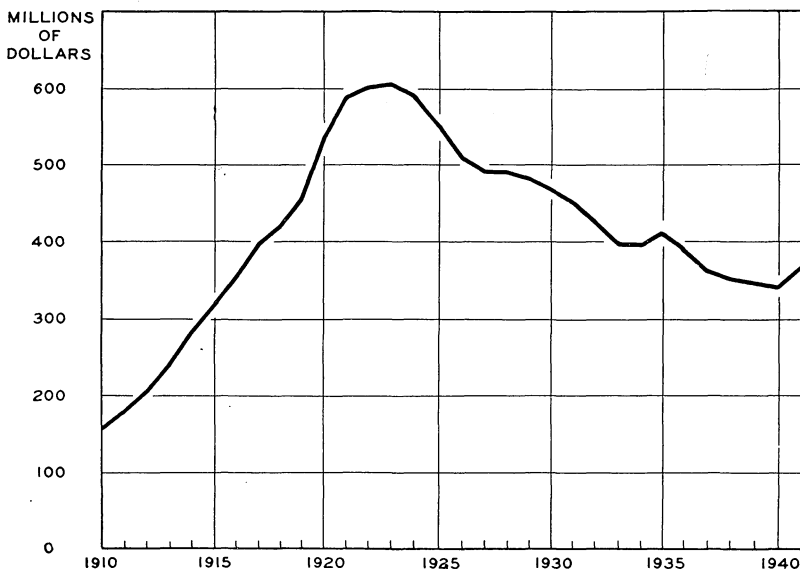


FIG. 15. Mortgage debt on farm real estate.

The drastic decline in farm income in 1930-32 was accompanied by a further reduction in debt. The decline in land values reduced the equity of many farm borrowers to a point where liquidation became a necessity. In addition the closing of many banks limited the possibilities of obtaining not only new loans but also the renewal of the old. The debt in 1933 approximated 396 million which represented a decline of about 18 per cent from that prevailing in 1929. The decline was temporarily halted in 1934. This was due to the large scale refinancing program of the Farm Credit Administration, and the emergency debtor relief laws which placed a temporary obstacle in the way of foreclosure.

The increase occurring in 1935 was due in part to the availability of land bank commissioner loans and to new loans made by private lenders which accompanied the improvement in the price situation. The decline in debt

since 1935 represents a gradual liquidation of mortgages through foreclosures and the increased volume of principal repayments on those loans which had been placed on a long-term basis. The debt per acre of farmland exceeded 19 dollars in 1924 or almost four times the corresponding figure for 1910. Since 1924, the debt per acre has shown a gradual but consistent decline dropping to \$15.74 in 1929 and to \$10.30 in 1941 (figure 16).

Another way of characterizing the debt situation is the ratio of debt to the value of farm real estate. Mortgage debt rose steadily between 1910 and 1920. During the first five years the debt ratio increased because land values did not rise greatly, but during the second five years the ratio fell because of the very rapid rise in land values. As a result of the increase in debt and the decline in land values during the five years following 1920, the ratio rose to 23.1 in 1925. The variations from 1925

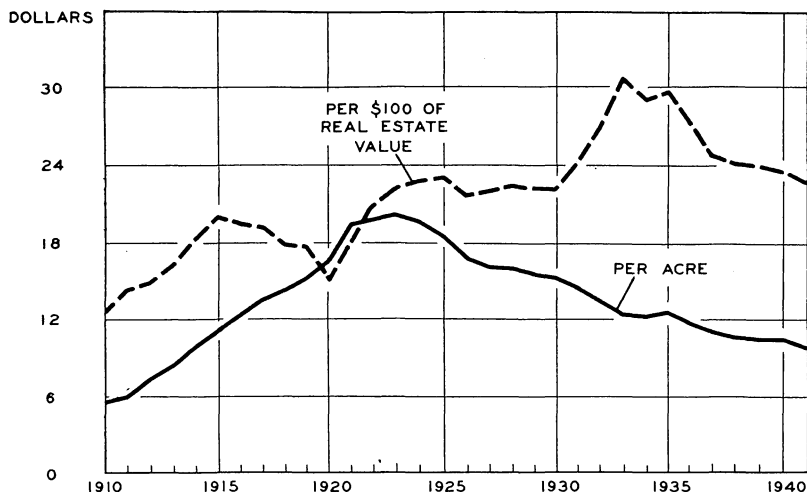


FIG. 16. Mortgage debt on farm real estate: amount per acre and per \$100 of real estate value.

to 1930 were slight, but the ratio increased to 30.8 in 1933. The subsequent decline in debt and the moderate rise in land values reduced the ratio to 21.9 in 1941.

Interest Rates. The interest rates on farm mortgages did not change greatly from 1910 to 1921, averaging 5.7 per cent for the period.⁴ Increases during the next few years brought the average rate to 6.0 per cent in 1924, but the rate declined to 5.5 in 1929. The decrease continued and the rate averaged 4.7 per cent for the period 1934-39. The change from 5.1 in 1935 to 4.5 in 1940 has been occasioned not only by the subsidized rate of the Farm Credit Administration but also by decreases in the rates charged by private lending agencies.

Amount of Interest Payable. As shown in figure 17, interest payable on farm mortgages has been characterized by two distinct trends, an upward

movement from 1910 to 1923 and a downward movement beginning in 1924 and continuing through 1941. Interest payable amounted to 32.3 million dollars in 1923 or about four times that of 1910. By 1941 it had decreased to 13.6 million dollars, which was still more than one and a half times that of 1910.

CURRENT OPERATING EXPENSES

Interest Payable on Short-term Loans

Personal and collateral loans obtained by farmers from commercial banks increased from 84 million dollars in 1910 to 235 million in 1921. The decrease which occurred during the next few years was in part occasioned by foreclosures and by the refinancing of some of these loans, the latter involving the shifting from short-term to long-term credit. Following a moderate rise from 1925 to 1927, the amount of these loans declined, a decline which continued until 1938. The rapid decrease during the early thirties was due to the

⁴ U.S.D.A., Bureau of Agricultural Economics. Agricultural Finance Review 4(1): 61-62.

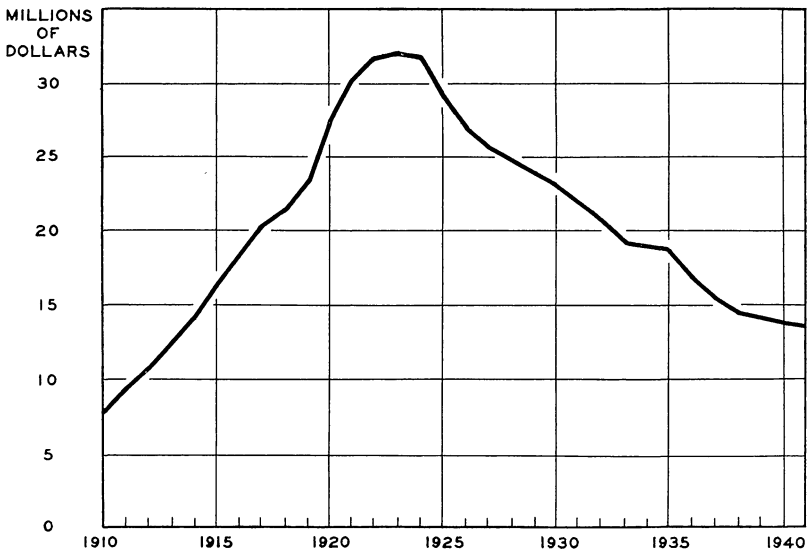


FIG. 17. Interest payable on farm real estate mortgage debt.

drastic drop in farm prices and farm income, which reduced the value of farmers' collateral for such loans, and to the increased number of bank suspensions. Later there was some re-financing of the short-term loans on a longer term basis by the Farm Credit Administration. The outstanding loans in 1935 totalled 32 million, as compared with 140 million in 1929, a decline of 77 per cent. Increased activity of loaning operations on the part of commercial banks during the past three years has resulted in an increase in the amount of personal and collateral loans from 32 million dollars in 1936 to 73 million in 1941. The production credit system initiated by the Farm Credit Administration began operations in 1935. The loans made through this system increased from 3.4 million dollars in 1935 to 6.2 million in 1941.

Interest payable on short-term loans was 19.7 million dollars in 1921 or three times the amount in 1910. It had declined to 10.5 million dollars in 1929 and

reached its lowest level of 2.1 million in 1936. Interest payable on loans in 1941 was 4.5 million dollars.

Hired Labor

Expenditures for hired labor by Minnesota farmers rose rapidly during World War I, increasing from about 16 million dollars in 1910 to 45.5 million dollars in 1920. Two years later in 1922 expenditures were only 24.5 million dollars (figure 18). Following the rise to 32 million dollars in 1926, this expenditure declined to 27.5 million in 1929. The depression brought a sharp curtailment in these expenditures, with a low of 11.6 million dollars in 1933. Increasing wage rates subsequent to 1933 resulted in increased expenditures, the amount approximating 27 million in 1941, or more than twice that of 1933. These variations have been the result of changes in both the amount of labor hired and the wage rates.

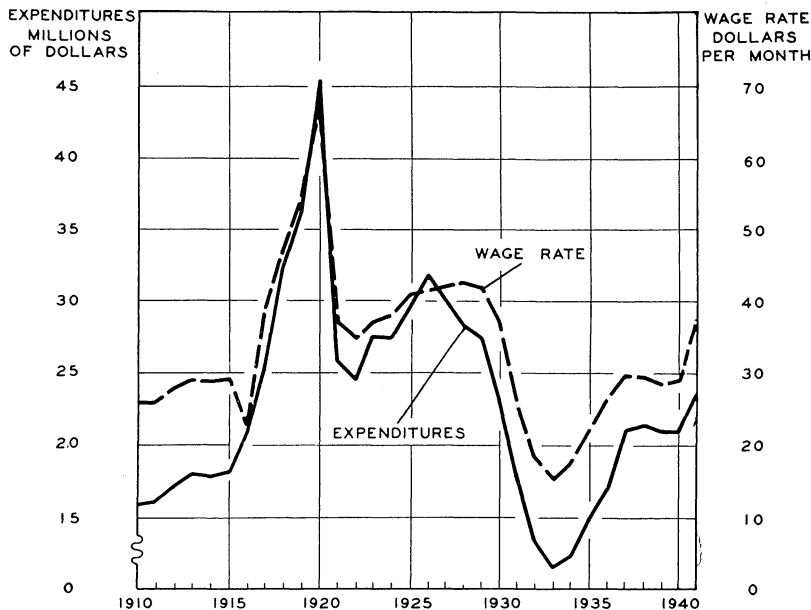


FIG. 18. Expenditures for hired labor and average monthly wage rates with board.

Wage rates have changed greatly during the period. Monthly wage rates with board reached a peak of \$67 in 1920 but dropped to \$35 in 1922. A moderate rise occurred during the next few years, the rate averaging \$42 in 1929, but by 1933 it had decreased to \$16, the lowest level of the 32-year period. A considerable increase has occurred in recent years, the rate rising to about \$37 in 1941, an increase of 130 per cent over the level in 1933.

The size of the aggregate farm business of Minnesota has increased significantly over the past 32 years. Most of this expansion occurred previous to 1925. The aggregate size measured in man work units was about one-third larger in 1920-24 than in 1910-14. The increase in the total size as measured in man work units during 1930-34 was due mainly to an expansion in the dairy industry in response to the relatively

favorable prices of dairy products. During the succeeding five years there was some contraction in this industry.

The months of labor hired increased only about half as rapidly as the aggregate size of farm business between 1910-14 and 1920-24 (table 6). There was a large decrease in the amount of labor hired in 1930-34. The depression in industry retarded the movement of farmers' sons to industrial centers and, in consequence, there was a larger available supply of home labor.

The relative decrease in the amount of hired labor required to operate the farm business in Minnesota is largely a reflection of increasing efficiency in the utilization of labor. Some idea of the increase in efficiency of utilization may be obtained by dividing the months of labor hired by the aggregate size of the farm business. As shown in table 6, the index representing this

Table 6. Indexes of Size of the Aggregate Farm Business, Months of Labor Hired, and Months of Labor Hired per 1,000 Units of Size, Five-Year Averages 1910-1939 (1935-39 = 100)

	Index of Size	Index of Months of Labor Hired	Index of Months of Labor Hired per 1,000 Units of Size
1910-14.....	70.4	89.2	126.7
1915-19.....	80.2	97.9	122.1
1920-24.....	90.4	102.8	113.7
1925-29.....	94.2	104.5	110.9
1930-34.....	102.5	92.7	90.4
1935-39.....	100.0	100.0	100.0

ratio was about 21 per cent less in 1935-39 than in 1910-14, and 10 per cent less than in 1925-29. The drop to 90 in 1930-34 was due not only to increasing efficiency, but also to the greater available supply of home labor. The increasing efficiency of labor performance has been made possible by greater use of machines and more mechanical power.

Feed

The majority of Minnesota farms raise most of the feed required for livestock production. Some areas of the

state, however, are partially deficit areas and purchase a considerable proportion of their total annual consumption. Other areas find it necessary in years of drouth to supplement their home-grown supply with purchases of commercial feedstuffs or grains and hay produced elsewhere. In every area there are some inter-sales among the farms each year. The expenditures shown in figure 19 include not only feed that comes from outside the state or area but also those purchases that the individual farmers make from neighbors.

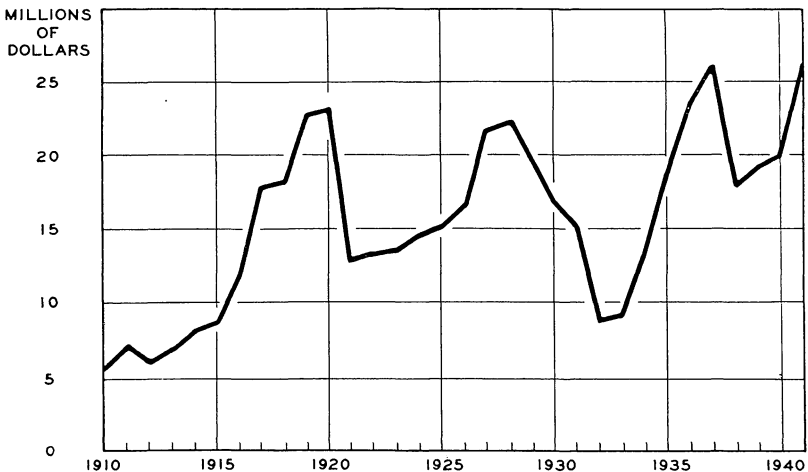


FIG. 19. Expenditures for feed.

The total expenditures increased nearly four times between 1910 and 1920. In the following year they decreased by about 45 per cent. Advances in prices during the next few years were primarily responsible for the rise occurring between 1921 and 1928. The low point was reached in 1932 and was about 40 per cent of the 1928 level. The expenditures in 1937, which were the highest during the 32-year period, were the result of lack of home-grown feed due to the drouth in 1936 and the relatively high prices of purchased feed. Expenditures were about 26 million in 1941.

Automotive Power

The rapid motorization of Minnesota's agriculture increased the expenditures for the operation of automobiles, trucks, and tractors from an average of 700 thousand dollars in 1910-14 to 28 million dollars in 1940. In the former period these expenditures constituted about one per cent of the total cash expenditures of Minnesota farmers, but

in 1940 they were 21 per cent of the total. The rapid increase in the expenditures for motor power has been due not only to the great increase in the number of automobiles, trucks, and tractors, but also to their more intensive use.

The number of automobiles doubled from 1921 to 1941 and the number of trucks increased about threefold (figure 20). The most rapid increase occurred in the case of tractors, the number in 1941 being more than five times that in 1921. At the present time about seven eighths of the farmers on Minnesota farms have automobiles, nearly one fifth have trucks, and one half have tractors. Automobiles average around 5,000 miles per year, but only 40 per cent of the mileage is assumed to be the result of productive farm operations, and the remaining 60 per cent the result of family use. Trucks average close to 4,000 miles. The tractor in common use at the present time is adaptable to a wide variety of farm operations as compared to the type prevailing in the

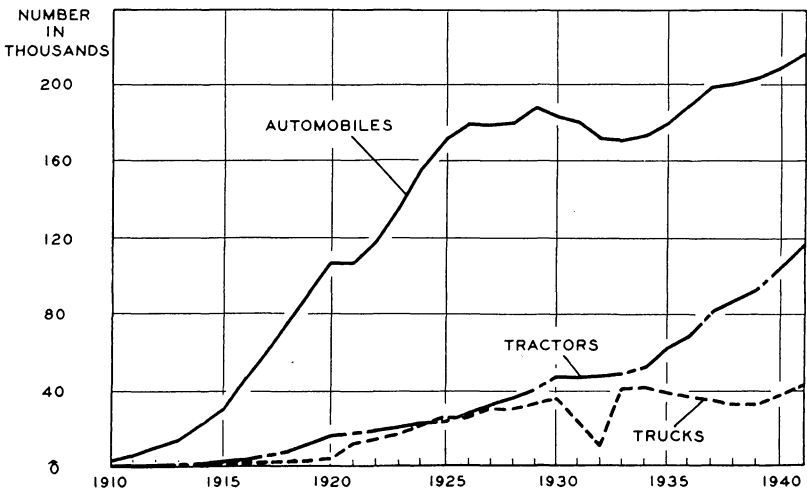


FIG. 20. Number of automobiles, trucks, and tractors in use on farms.

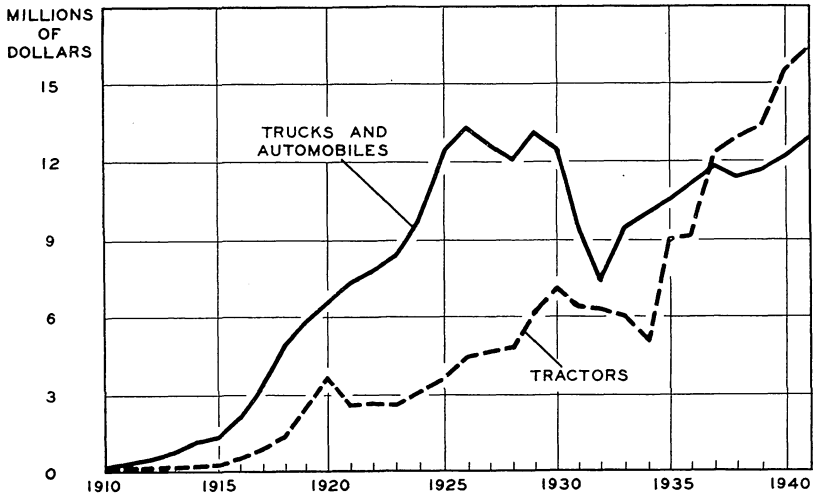


FIG. 21. Expenditures for operation of automobiles, trucks, and tractors on farms.

early 1920's. At that time the use of the tractor was principally for heavy work on the farm such as plowing, disking, and threshing. It is estimated that tractors in Minnesota averaged around 510 hours of use in 1941, as compared to 430 hours in 1924.

The expenditures involved in the operation of automobiles and trucks are shown in figure 21. The expenditures for gasoline, oil, tires, repairs, and licenses increased gradually during the first 15 years of the 32-year period, and amounted to 13.3 million dollars in 1926. Accompanying the decline in the number of registrations and the use of automobiles and trucks during the early 1930's, expenditures declined rapidly and were about 7.5 million dollars in 1932. By 1941 they had increased to 12.9 million dollars.

There has been little change in the consumption of gasoline per mile of use by automobiles and trucks. As motor vehicles have improved, heavier and more powerful automobiles and trucks have been constructed with about the same gasoline consumption as pre-

viously.⁵ The price per gallon of gasoline has varied greatly, ranging from a high of 26.6 cents in 1920 to 15.3 cents in 1933. The price in recent years has averaged around 18.5 cents. The cost of gasoline and oil per automobile in 1941 averaged about 30 per cent higher than in 1921-24. The effects of increased mileage was in part offset by the reduced price of gasoline and oil per gallon. In the case of trucks the increase in mileage was less than that of automobiles; consequently, the cost of gasoline and oil per truck in 1941 was about the same as in 1921-24.

Although mileage per automobile and truck has increased, the great improvement in the quality and reduced price of tires has resulted in the reduction of tire expense per vehicle in 1941 to slightly more than two fifths of the expense in 1921-24. The expense for mechanical repairs on automobiles and trucks in 1941 averaged about two

⁵ U.S.D.A., Income Parity for Agriculture. Part II, Expenses of Agricultural Production. Section 4, Farmers' Expenditures for Operating Automobiles, Motor Trucks, and Tractors, October 1940.

thirds and one half, respectively, of the costs in 1921-24. Major repairs are required less frequently than formerly, but automobiles and trucks have become more complicated, requiring expert service. In consequence, the decrease in repair cost has been somewhat less than that of tires. In 1921-24 the expenditures on gasoline and oil averaged 45 per cent and those on tires and repairs 55 per cent of the total on these items. In 1941 the proportions were 70 and 30 per cent, respectively.

The expenditures for fuel, oil, grease, and repair parts for tractors were 3.6 million dollars in 1920 (figure 21). During the next 10 years they increased rapidly due to the increasing number and more intensive use of the tractor, and more than doubled by 1930. Following the decline in 1934, expenditures increased and amounted to 16.4 million dollars in 1941.

The variation in the amount of tractor fuel used per hour has been due principally to the changes in the size of the tractor. By 1924, when the smaller machine was in common use, the average consumption of fuel had declined to 2 gallons per hour as compared to 5 gallons in 1910-15. There has been but slight change in the average rate of consumption during the past 18 years, but due to the more intensive use of the tractor, the fuel expense per machine was about 21 per cent larger in 1941 than in 1924.

At the present time about one half as much motor oil is required per gallon of fuel as formerly. The annual expense per tractor for motor oil in 1941 was about 60 per cent of the expense in 1924. The cost of repair parts per tractor in the latter year was about 50 per cent higher.

Building Repairs

The expenditures on materials used in the repairs of buildings and fences varied from a high of about 10 million dollars in 1919, to a low of 1.6 million dollars in 1932. Expenditures in 1941 were about four times those of 1932 (figure 22).

The volume of sales of lumber (the largest item in building repairs) to Minnesota farmers reached a peak in 1915-19 (table 7), and the lowest level in 1930-34, the volume in the latter period averaging only one third as large as in the former period. The volume has increased quite rapidly in recent years. Lumber prices were highest during 1920-24. From the latter period to 1930-34, prices declined about 20 per cent. Only moderate advances occurred from 1935 to 1940.

Machinery Repairs

Expenditures for the repair of farm machinery declined by more than 40 per cent from 1919 to 1925. They aver-

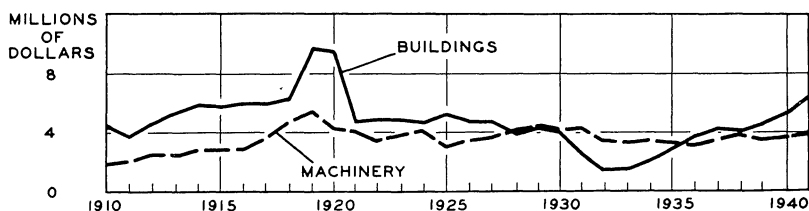


FIG. 22. Expenditures for building and machinery repairs.

Table 7. Indexes of Volume, Price, and Value of Sales of Lumber to Minnesota Farmers, 1910-1941 (1935-39 = 100)

	Index of Volume of Sales	Index of Price	Index of Value of Sales
1910-14	189	67	127
1915-19	206	85	175
1920-24	117	124	145
1925-29	105	112	118
1930-34	60	98	59
1935-39	100	100	100
1940	131	101	132
1941	138	112	154

aged more than 4 million dollars during the period 1928-31 but declined to around 3.2 million during the middle thirties (figure 22).

Other Production Expenses

The expenditure for this group of items which includes twine, sprays and seed treatments, sacks, and fertilizers is shown in figure 23. The most important item of the four is binder twine. The expenditure depends on the amount of grain to be harvested, the cost of twine, and the method of harvesting. The total cost of twine was around 1.6 million in 1933, as compared with 6.4 million in 1918, and 4.2 million in 1926. Although the total cost of twine has advanced in recent years, the advance has been retarded by the substitution of the combine for the binder. The expenditure for sprays and seed treatment materials has never been greater than three quarters of a million dollars and during the last few years has av-

eraged less than one half million dollars. Expenditure for sacks is also of minor importance. The sales of commercial fertilizers to Minnesota farmers have not been great. The volume of sales in 1941 was 21,300 tons and the value amounted to about \$830,000.

Miscellaneous Expenses

The expenditure for this group of items which includes fire, cyclone, and hail insurance, veterinary service, electricity, and telephones is shown in figure 23. The cost of fire, hail, and cyclone insurance has varied between 2.5 and 3.5 million dollars annually during the past 20 years. Expenditure for veterinary services has remained at fairly uniform levels following the increase during the period preceding 1920. The annual expenditure during the past 10 years has averaged around 2.6 million dollars. Expenditure for electrical service has shown a very great increase. About \$13,000 was

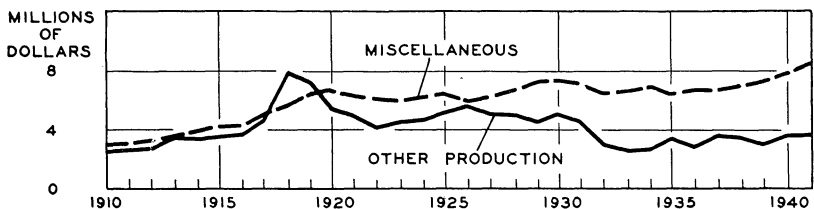


FIG. 23. Expenditures for other production and miscellaneous items.

spent on home plants and high line service in 1910. A steady increase brought the total to \$752,000 in 1930. In the latter year, about 10,000 farms possessed home plants and 13,000 obtained current from a high line. In 1940, the number of farms with home

plants had decreased slightly, but those receiving current from a power line had increased to more than 50,000. The expenditures for both types of service totaled 2.3 million in that year. The expenditure for telephone service was about \$543,000 in 1940.

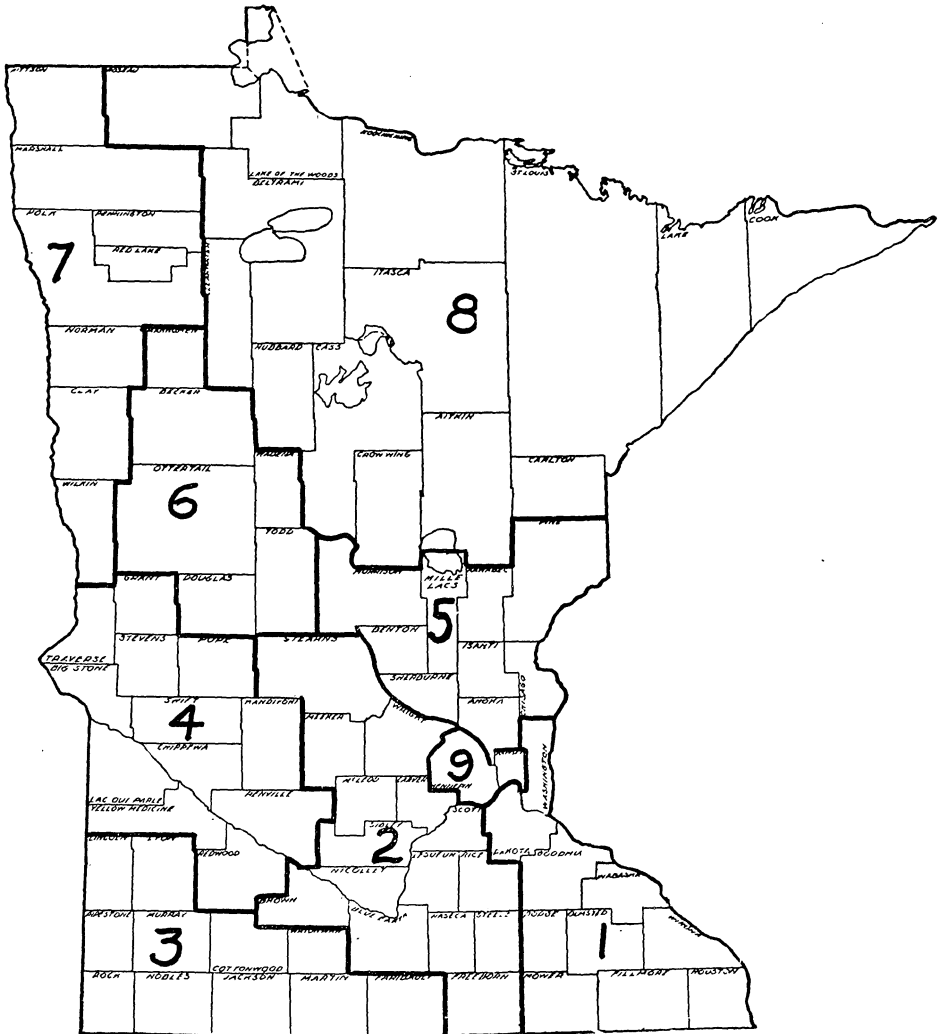


FIG. 24. Type-of-farming areas in Minnesota. For description of areas indicated see page 31.

Income and Expenses by State Areas

THE nine areas into which the state has been divided for the study of regional incomes and expenses are shown in figure 24. These areas have been developed in other studies and represent general differences in the types of farming practiced.

Area 1 includes the 10 counties located in the southeast corner of the state. It has the highest rainfall and the longest growing season of any area in the state. There is considerable rough land and in some sections erosion is a problem. It is predominantly an area of livestock production in which dairying is the principal enterprise. Some crops, largely small grains, are sold but most of the crops are fed to the livestock.

Area 2 includes the 15 counties in the south central portion of the state. This is also an area of rather intensive livestock production, particularly dairying. Crop yields are higher than in any other area in the state.

Area 3 includes the 11 counties in the southwest corner of the state, and is also an important livestock region. The production of livestock for meat, however, is more important relative to dairying than in the two previously described areas. A larger portion of the crops is also sold than in the regions toward the east.

Area 4 includes 12 counties in the west central portion of the state. Production is somewhat similar to Area 3, with a wide diversity of products contributing to the cash income. Crop yields are, however, somewhat more variable and the numbers of livestock somewhat smaller because of the difficulties of maintaining uniform quan-

ties of feed. There is somewhat less emphasis on corn and more on wheat.

Area 5 includes nine counties in the east central portion of the state. There is considerable sandy soil in the region. It is predominantly a dairying section with relatively small returns from other classes of livestock. Crop sales are not large but potatoes constitute an important source of supplementary income.

Area 6 includes six counties in the northwest central portion of the state. Much of the land was originally in forest and not all has been cleared. Dairying is important. There is more production of meat animals than in Area 5 to the east but less than in Area 4 to the south. Beef production in this area is of considerably greater importance than hog production.

Area 7 includes the eight counties in the Red River Valley. Crop sales are relatively of greater importance in this region than anywhere else in the state, and at times have furnished half of the income of the area.

Area 8 consists of the 14 counties in the northeastern part of the state. This is largely a cutover forest area. Dairying is the principal enterprise and hay the principal crop. A large portion of the necessary concentrated feeds is shipped in from other areas.

Area 9 includes the area immediately surrounding the Twin Cities. Fruits, vegetables, and market milk are the important enterprises.

The average cash sales and cash expenses⁹ for each of these areas for the

⁹ Interest on short-term loans has been omitted in the determination of the expenditures for the various areas because of the lack of necessary data.

Table 8. Average Annual Cash Income from the Sale of 19 Principal Farm Products, and Cash Expenditures by Type-of-Farming Areas in Minnesota, 1935-39

Area	Income	Expenses
	Thousand Dollars	
1.....	46,485	16,569
2.....	73,909	25,338
3.....	55,321	19,979
4.....	42,628	18,239
5.....	20,621	7,560
6.....	20,131	7,666
7.....	25,604	10,828
8.....	17,128	8,530
9.....	8,849	3,923
State Total	310,676	118,632

five years 1935-39 are given in table 8. It will be noted that areas 1, 2, 3, 4, and 9 which cover the southern half of the state are responsible for nearly two thirds of the cash sales of agricultural products during this period. The ratio of expenses to income tends to be higher in the northern and western parts of the state during this period.

AREA 1

There was an estimated average annual cash income of 46.5 million dollars during the period from 1935 to 1939 in this area, or slightly more than \$2,000

per farm on the basis of the number of farms reported in the census of 1940. Expenses averaged 16.6 million dollars, or about \$725 per farm, resulting in a net cash income from the sales of agricultural products of about \$1,300. The income and expenses for the various years are shown in figure 25. The range of income has been from nearly 65 million dollars in 1926 and 1930 to less than 30 million dollars in 1932. Expenses reached a peak of 19.8 million dollars in 1928. The low of 12.7 million dollars was in 1933.

Nearly seven eighths of the income in this area was derived from the sale of animals or the products produced by them, as shown in table 9. The sales of butterfat and milk were the largest source of income, contributing about one third of the total. Sales of milk were nearly as large as those of butterfat because of the concentration of the cheese industry of the state in this area, and the considerable number of cities and towns providing a market for fluid milk. Hogs were the second item of importance, providing about one fourth of the total income, and cattle and calves with third rank provided about one sixth of the total.

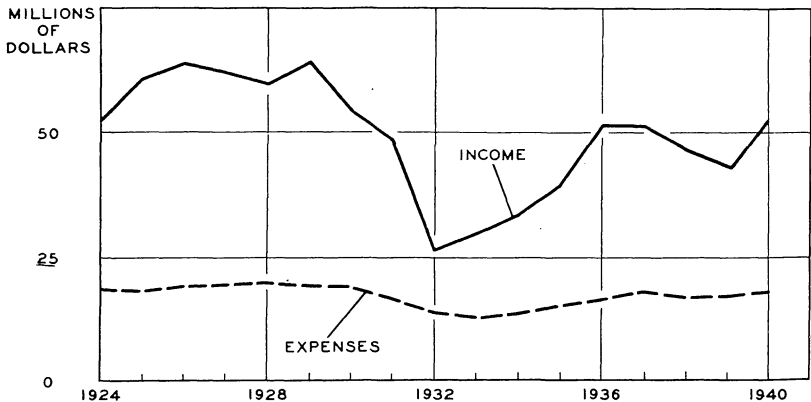


FIG. 25. Area 1. Income and expenditures.

Table 9. Area 1: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	46,485	100.0	Total	16,569	100.0
Crops	6,103	13.2	Fixed	5,590	33.7
Wheat	961	2.1	Taxes	3,208	19.3
Corn	1,626	3.5	Real Estate	2,852	17.2
Oats	756	1.6	Other	356	2.1
Barley	1,558	3.4	Interest	2,382	14.4
Rye	224	0.5	Current Operating	10,979	66.3
Flax	373	0.8	Labor	2,679	16.2
Potatoes	344	0.7	Feed	2,858	17.3
Hay	261	0.6	Automotive	2,983	18.0
Livestock	20,650	44.4	Automobiles	1,002	6.0
Hogs	11,427	24.6	Trucks	646	3.9
Cattle and Calves	8,144	17.5	Tractors	1,335	8.1
Sheep and Lambs	1,079	2.3	Building Repair	484	2.9
Dairy Products	14,884	32.0	Machinery Repair	506	3.1
Butterfat	8,115	17.4	Other Production Expenses	451	2.7
Milk	6,769	14.6	Miscellaneous Expenses	1,018	6.1
Other Livestock Products	4,848	10.4			
Chickens	1,550	3.3			
Eggs	2,607	5.6			
Turkeys	429	0.9			
Wool	262	0.6			

Fixed expenses, taxes and interest payable, accounted for about one third of the total expenses. The former was the more important, averaging three fifths of the fixed, and almost one fifth of the total expense. The expenses for labor, feed, and automotive power were about equal in importance, and the three items made up more than one half of the total expense.

AREA 2

The cash income in this area averaged 74 million dollars per year during the period from 1935 to 1939, or just about \$2,000 per farm on the basis of the number of farms reported in the census of 1940. Cash expenses averaged about 25 million dollars during this period or about \$680 per farm. The net cash income was about \$1,300 per farm. The income and expenses for the various years are shown in figure 26. Income ranged from 97 million dol-

lars in 1925 to 39 million dollars in 1932, while expenses ranged from 30 million dollars in 1928 to 20 million dollars in 1933.

The averages for certain items are shown for the five-year period 1935-39 in table 10. About five sixths of the income of this area was derived from the sale of livestock or the products produced by them. The sale of dairy products was the largest source of income, contributing nearly 30 per cent of the total. Hogs were second in importance, providing about one fourth of the income, and beef followed with about one seventh.

Fixed expenses accounted for less than one third of the total expense. Taxes made up almost one fifth of the total. Automotive power was the most important current operating expense, accounting for one fifth of the total expense. The costs of labor and feed were of about equal importance.

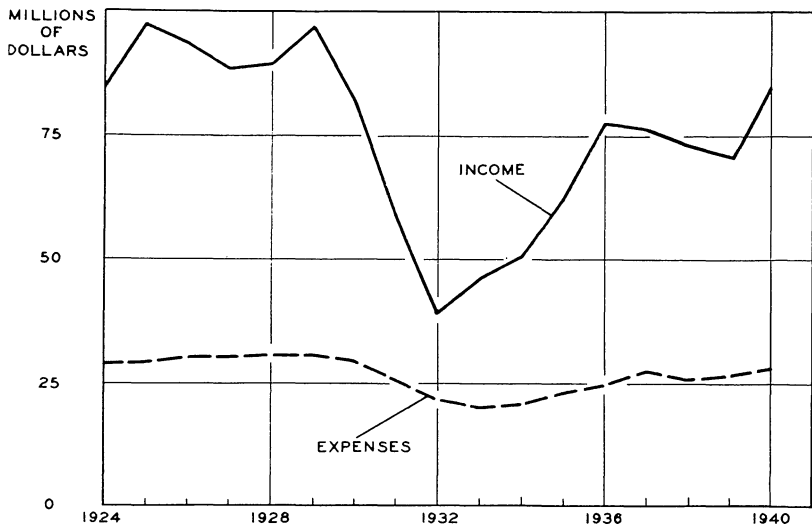


FIG. 26. Area 2. Income and expenditures.

Table 10. Area 2: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	73,909	100.0	Total	25,338	100.0
Crops	12,059	16.3	Fixed	7,943	31.3
Wheat	3,396	4.6	Taxes	4,873	19.2
Corn	2,885	3.9	Real Estate	4,235	16.7
Oats	1,314	1.8	Other	638	2.5
Barley	2,270	3.1	Interest	3,070	12.1
Rye	396	0.5	Current Operating	17,395	68.7
Flax	776	1.0	Labor	4,281	16.9
Potatoes	633	0.9	Feed	3,960	15.6
Hay	389	0.5	Automotive	5,054	20.0
Livestock	30,734	41.6	Automobile	1,728	6.8
Hogs	19,381	26.2	Trucks	1,025	4.1
Cattle and Calves	10,621	14.4	Tractors	2,301	9.1
Sheep and Lambs	732	1.0	Building Repair	941	3.7
Dairy Products	21,777	29.4	Machinery Repair	994	3.9
Butterfat	17,062	23.0	Other Production Expenses	571	2.3
Milk	4,715	6.4	Miscellaneous Expenses	1,594	6.3
Other Livestock Products	9,339	12.7			
Chickens	2,811	3.8			
Eggs	5,400	7.3			
Turkeys	939	1.3			
Wool	189	0.3			

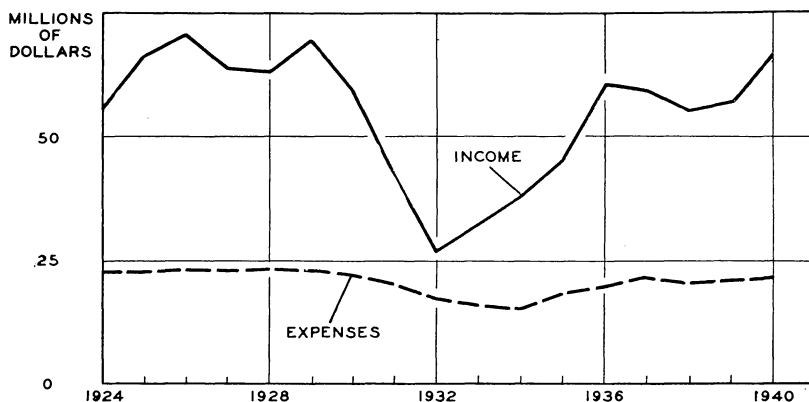


FIG. 27. Area 3. Income and expenditures.

AREA 3

The average annual income during the period 1935 to 1939 was about 55 million dollars in this area, or nearly \$2,600 per farm which was the largest of any area in the state. Cash expenses were about 20 million dollars during

these years, or about \$950 per farm, leaving a net cash income of around \$1,650 per farm. The income and expenditures for the various years are shown in figure 27. Income reached a peak of 70 million dollars in 1926 and 1929 and a low of 26 million dollars in 1932. Expenses have ranged from

Table 11. Area 3: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	55,321	100.0	Total	19,979	100.0
Crops	11,183	20.3	Fixed	7,159	35.8
Wheat	612	1.1	Taxes	3,790	19.0
Corn	3,585	6.5	Real Estate	3,193	16.0
Oats	1,360	2.5	Other	597	3.0
Barley	2,484	4.5	Interest	3,369	16.8
Rye	258	0.5	Current Operating	12,820	64.2
Flax	2,581	4.7	Labor	3,146	15.7
Potatoes	114	0.2	Feed	3,723	18.6
Hay	189	0.3	Automotive	3,232	16.2
Livestock	31,352	56.6	Automobiles	954	4.8
Hogs	18,198	32.9	Trucks	351	1.8
Cattle and Calves	11,930	21.5	Tractors	1,927	9.6
Sheep and Lambs	1,224	2.2	Building Repair	692	3.5
Dairy Products	6,681	12.1	Machinery Repair	512	2.6
Butterfat	6,184	11.2	Other Production Expenses	414	2.1
Milk	497	0.9	Miscellaneous Expenses	1,101	5.5
Other Livestock Products	6,105	11.0			
Chickens	1,972	3.6			
Eggs	3,055	5.5			
Turkeys	777	1.4			
Wool	301	0.5			

about 23 million dollars during the first six years to 15 million dollars in 1933.

The averages for the principal sources of income and expenditures are shown in table 11. In this area hogs contributed about one third of the total, while cattle and calves provided more than one fifth. Dairy products were only slightly more important than chickens and eggs, each contributing about one eighth of the income.

Fixed expenses, which accounted for more than one third of the total expenses, were relatively higher in this area than other areas, because of the larger interest payable on farm mortgages. Feed was the most important among the items of current operation, exceeding both labor and automotive power. These three items made up more than one half of the total.

AREA 4

The total cash farm income in this area averaged about 43 million dollars in the years between 1935 and 1939, or about \$1,850 per farm. The cash expenses were 18.2 million dollars or about \$790 per farm. The net cash income thus averaged slightly over

\$1,000 per farm. The cash income and expenditures for this area are shown in figure 28 for the 17-year period. The largest income of 67.5 million dollars was received in 1925. The recovery of income following the depression was less rapid in this area than in others and the drouth year of 1934 resulted in an income of 22.4 million dollars which was even lower than that of 1932. Expenses were around 21 to 22 million dollars during the first seven years and the low was 14.6 in 1933.

Crop sales make up over 30 per cent of the income of this area which is the largest proportion of income from this source outside of the Red River Valley (table 12). Wheat and flax contribute more than half of the crop income while potatoes are of little importance. Hogs are the most important single source of income, providing nearly one fourth of the total, with cattle and calves surpassing dairy products in importance.

This area closely approached Area 3 in the importance of taxes and interest payable, the two items making up more than one third of the total expense. Automotive power exceeded labor and feed in importance, accounting for one

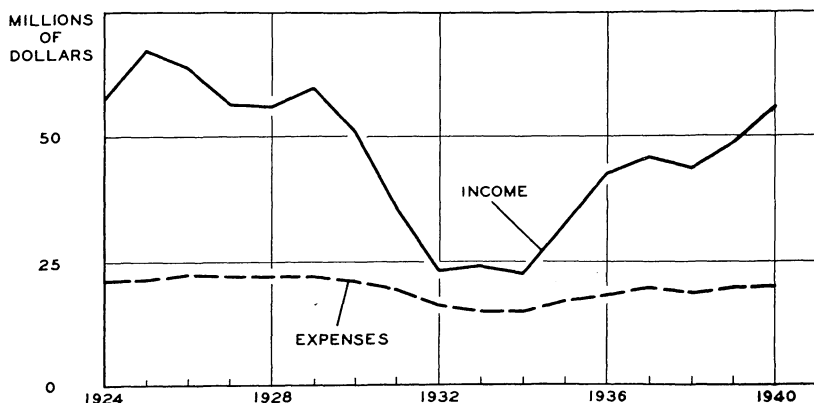


FIG. 28. Area 4. Income and expenditures.

Table 12. Area 4: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	42,628	100.0	Total	18,239	100.0
Crops	13,249	31.1	Fixed	6,455	35.4
Wheat	4,874	11.4	Taxes	3,534	19.4
Corn	2,159	5.1	Real Estate	2,939	16.1
Oats	1,208	2.8	Other	595	3.3
Barley	1,379	3.2	Interest	2,921	16.0
Rye	435	1.0	Current Operating	11,784	64.6
Flax	2,938	6.9	Labor	2,931	16.0
Potatoes	23	0.1	Feed	2,465	13.5
Hay	233	0.6	Automotive	3,705	20.3
Livestock	18,203	42.7	Automobiles	1,006	5.5
Hogs	9,426	22.1	Trucks	413	2.3
Cattle and Calves	7,845	18.4	Tractors	2,286	12.5
Sheep and Lambs	932	2.2	Building Repair	595	3.3
Dairy Products	6,090	14.3	Machinery Repair	580	3.2
Butterfat	5,661	13.3	Other Production Expenses	528	2.9
Milk	429	1.0	Miscellaneous	980	5.4
Other Livestock Products	5,086	11.9			
Chickens	1,735	4.1			
Eggs	2,547	6.0			
Turkeys	584	1.3			
Wool	220	0.5			

fifth of the total. The cost of labor made up one sixth, and feed almost one seventh of the total expense. The cost of tractor operation was more than twice that of automobiles.

AREA 5

The cash farm income received from the sale of agricultural products in this area averaged about 21 million dollars during the period 1935 to 1939. Cash farm expenses were about 7.5 million

dollars. On the basis of the number of farms reported for the area in the 1940 census this would amount to a gross cash farm income of about \$1,100 per farm, \$390 for expenses, and a net income of about \$710. The variations in the total income and expenditures of the area in the 17-year period from 1924 to 1940 are shown in figure 29. The peak income was 28.5 million dollars in 1926; the low was 11.4 million in 1932. Expenses ranged from 9.8 million in 1927 to 6.0 million in 1933.

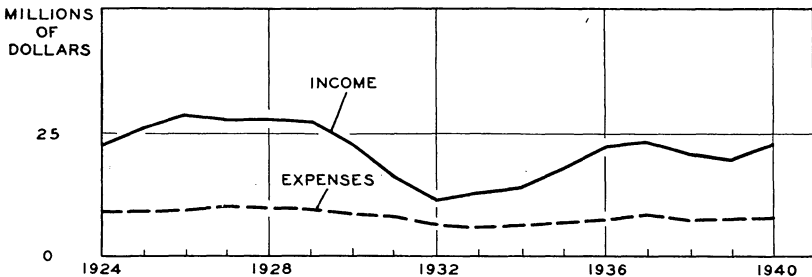


FIG. 29. Area 5. Income and expenditures.

Table 13. Area 5: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	20,621	100.0	Total	7,560	100.0
Crops	2,943	14.3	Fixed	2,370	31.3
Wheat	234	1.1	Taxes	1,418	18.7
Corn	416	2.0	Real Estate	1,272	16.8
Oats	250	1.2	Other	146	1.9
Barley	157	0.8	Interest	952	12.6
Rye	716	3.5	Current Operating	5,190	68.7
Flax	13	0.1	Labor	890	11.8
Potatoes	1,002	4.9	Feed	1,839	24.3
Hay	155	0.7	Automotive	1,293	17.1
Livestock	5,610	27.2	Automobiles	637	8.4
Hogs	1,933	9.4	Trucks	211	2.8
Cattle and Calves	3,314	16.1	Tractors	445	5.9
Sheep and Lambs	363	1.7	Building Repair	229	3.0
Dairy Products	9,397	45.5	Machinery Repair	227	3.0
Butterfat	6,979	33.8	Other Production Expenses	224	3.0
Milk	2,418	11.7	Miscellaneous Expenses	488	6.5
Other Livestock Products	2,671	13.0			
Chickens	678	3.3			
Eggs	1,509	7.3			
Turkeys	405	2.0			
Wool	79	0.4			

Nearly half of the income in this area is derived from the sale of dairy products (table 13). Cattle and calves are second in importance, providing one sixth of the income, and chickens and eggs which furnish about one tenth of the income are third in importance.

Taxes were one and one-half times as important as interest payable, the two items accounting for more than three tenths of the total. Feed was the most important current operating expense, making up almost one fourth of the total. The cost of this item was more than twice as large as that of labor and one and one-half times that of automotive power. Tractor expense was about three fourths that of automobiles.

AREA 6

The gross cash income in this area averaged about 20 million dollars annually during the period 1935 to 1939,

or about \$1,000 per farm. Cash expenses totaled about 7.7 million dollars or nearly \$400 per farm, resulting in a net farm income exceeding \$600. The cash income and cash expenses for the various years are shown in figure 30. Income was around 29 million dollars during the period from 1925 to 1929 and declined to 11.4 in 1932. Expenses in the former period were about 9.6 million dollars and declined to 6.1 million dollars in 1933.

The income derived from, and the expenditure for, certain items are shown for the five-year period 1935-39 in table 14. Dairy products provide about 36 per cent of the income in this area and livestock about 30 per cent, with the income from cattle and calves exceeding that from hogs. Turkeys, although one of the less important sources of income, are relatively of more importance in this area than in any other in the state.

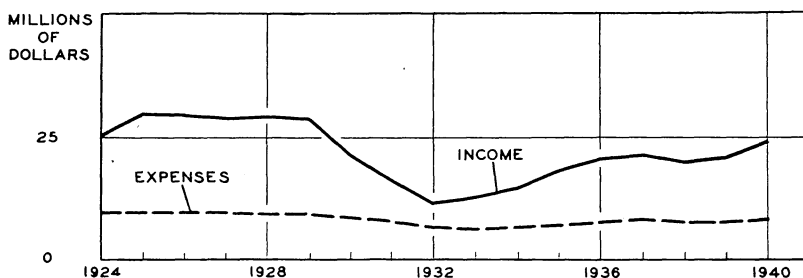


FIG. 30. Area 6. Income and expenditures.

Fixed expenses constituted one third of the total expense. The amount of taxes was about one and one-fourth times that of interest. Feed expense and automotive expense were of equal importance, each accounting for about one fifth of the total. The cost of labor was about two thirds that of either feed or automotive power. The cost of tractor operation was about the same as that of automobiles.

AREA 7

The gross cash income in this area averaged about 26 million dollars a year during the period from 1935 to 1939. This was about \$1,550 per farm. The cash expenses during the same period averaged about 11 million dollars or \$650 per farm. The net cash income was thus about \$900 per farm. The income and expenses for the entire area

Table 14. Area 6: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	20,131	100.0	Total	7,666	100.0
Crops	3,585	17.9	Fixed	2,468	32.2
Wheat	1,007	5.0	Taxes	1,362	17.8
Corn	435	2.2	Real Estate	1,230	16.1
Oats	413	2.1	Other	132	1.7
Barley	483	2.4	Interest	1,106	14.4
Rye	315	1.6	Current Operating	5,198	67.8
Flax	327	1.6	Labor	983	12.8
Potatoes	407	2.0	Feed	1,525	19.9
Hay	198	1.0	Automotive	1,455	19.0
Livestock	6,522	32.4	Automobiles	668	8.7
Hogs	2,211	11.0	Trucks	176	2.3
Cattle and Calves	3,617	18.0	Tractors	611	8.0
Sheep and Lambs	694	3.4	Building Repair	255	3.3
Dairy Products	7,271	36.1	Machinery Repair	216	2.8
Butterfat	7,007	34.8	Other Production Expenses.....	249	3.3
Milk	264	1.3	Miscellaneous	515	6.7
Other Livestock Products	2,753	13.6			
Chickens	647	3.2			
Eggs	1,142	5.7			
Turkeys	793	3.9			
Wool	171	0.8			

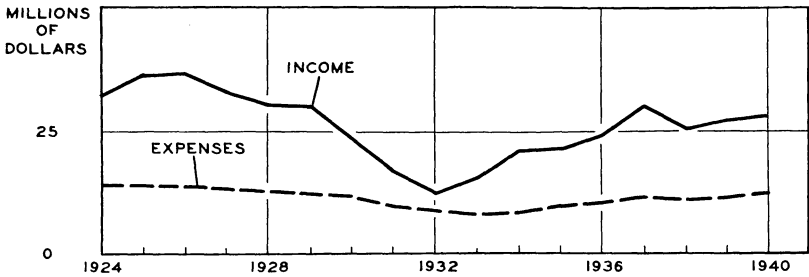


FIG. 31. Area 7. Income and expenditures.

are shown by years in figure 31. Comparison with the areas in the southern part of the state will show that this area did not share in the rise of income in 1929 and 1930, but experienced a continuous decline in income from 1926 to 1932. Expenses were in consequence curtailed somewhat earlier than in the other areas and began declining in 1927, although the greatest decrease started with the 1930's.

This area derived a larger portion of

its income from the sale of crops than any other area of the state, crops furnishing over two fifths of the total income (table 15). Dairy products supply only about one fifth of the income. Hogs are not of great importance, providing about one third as much income as cattle and calves and slightly more than chickens and eggs.

Taxes were almost twice as important as interest. These two items constituted about three tenths of the total

Table 15. Area 7: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	25,604	100.0	Total	10,828	100.0
Crops	11,183	43.7	Fixed	3,292	30.4
Wheat	4,928	19.2	Taxes	2,112	19.5
Corn	269	1.1	Real Estate	1,835	16.9
Oats	565	2.2	Other	277	2.6
Barley	1,339	5.2	Interest	1,180	10.9
Rye	269	1.1	Current Operating	7,536	69.6
Flax	1,644	6.4	Labor	2,257	20.9
Potatoes	1,912	7.5	Feed	1,054	9.7
Hay	257	1.0	Automotive	2,556	23.6
Livestock	6,627	25.9	Automobiles	601	5.5
Hogs	1,458	5.7	Trucks	312	2.9
Cattle and Calves	3,962	15.5	Tractors	1,643	15.2
Sheep and Lambs	1,207	4.7	Building Repair	273	2.5
Dairy Products	5,328	20.9	Machinery Repair	291	2.7
Butterfat	4,598	18.0	Other Production Expenses	599	5.5
Milk	730	2.9	Miscellaneous Expenses	506	4.7
Other Livestock Products	2,466	9.5			
Chickens	497	1.9			
Eggs	856	3.3			
Turkeys	796	3.1			
Wool	317	1.2			

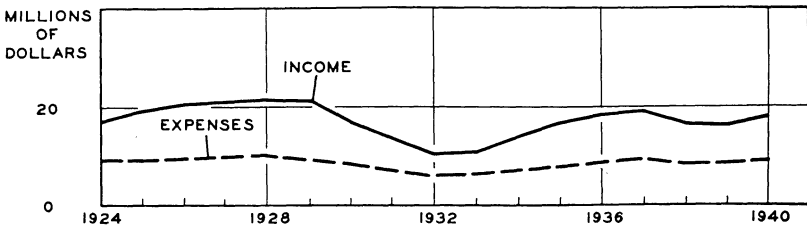


FIG. 32. Area 8. Income and expenditures.

expense. Automotive power was the most important current operating expense, making up almost one fourth of the total. Tractors have been used extensively in the small grain area for many years. The cost of tractor operation, which was three times that of automobiles, accounted for almost one seventh of the total expense.

AREA 8

The average annual gross cash income in this area was about 17 million

dollars during the period 1935 to 1939, or about \$530 per farm. Farm cash expenses averaged 8.5 million dollars for the same years, or a net income per farm of about \$265. The variation of the income and expenditures for the area is shown by years in figure 32. Income was around 20 million dollars in the years 1926 to 1929 but declined to about 10 million dollars in 1932. Expenses were about 9.6 million dollars in the earlier period and around 6.1 in 1932 and 1933.

Dairy products are the most im-

Table 16. Area 8: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	17,128	100.0	Total	8,530	100.0
Crops	2,512	14.7	Fixed	1,665	19.5
Wheat	276	1.6	Taxes	1,046	12.3
Corn	107	0.6	Real Estate	948	11.1
Oats	197	1.2	Other	98	1.2
Barley	153	0.9	Interest	619	7.2
Rye	103	0.6	Current Operating	6,865	80.5
Flax	506	3.0	Labor	1,064	12.5
Potatoes	890	5.2	Feed	2,844	33.3
Hay	280	1.6	Automotive	1,862	21.8
Livestock	4,983	29.1	Automobiles	790	9.3
Hogs	863	5.0	Trucks	376	4.4
Cattle and Calves	3,022	17.7	Tractors	696	8.1
Sheep and Lambs	1,098	6.4	Building Repair	370	4.3
Dairy Products	7,528	43.9	Machinery Repair	128	1.5
Butterfat	5,624	32.8	Other Production Expenses	123	1.5
Milk	1,904	11.1	Miscellaneous Expenses	474	5.6
Other Livestock Products	2,105	12.3			
Chickens	516	3.0			
Eggs	956	5.6			
Turkeys	394	2.3			
Wool	239	1.4			

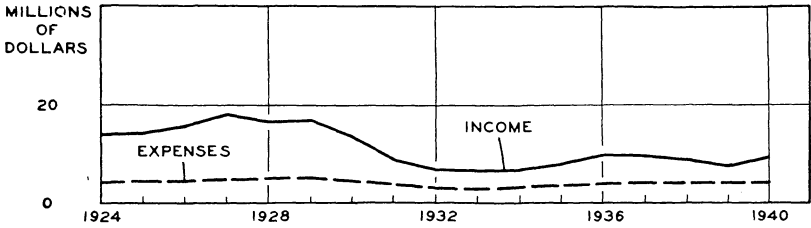


FIG. 33. Area 9. Income and expenditures.

portant single source of income in the area, providing over two fifths of the cash receipts (table 16). Cattle and calves are second in importance, furnishing about one sixth of the income. This is the only area in which the income from sheep and lambs exceeds that from hogs. Among the crops, potatoes are of chief importance, furnishing about one twentieth of the total income.

Both taxes and interest were lower relatively in this area than in any other. Taxes were about one and three-fourths times that of interest payable. Feed is the most important item of expense in this area and constitutes one third of the total. It is almost three times that for labor. Automotive power made up about one fifth of the total expense.

AREA 9

This area is relatively small in size, and in consequence the average cash income from the products included in our estimates amounted to only about 9 million dollars annually during the period 1935 to 1939. The income per farm was about \$1,700. The estimated annual expenses were about 4 million dollars or \$770 per farm. The net cash income per farm was thus about \$1,000. This is a considerable understatement of the income of the farms in the area

because some of the items which we have omitted in our estimate are very important as a source of income in this area. Thus there is a large amount of truck gardening, fruit raising, and sale of horticultural specialties. These are relatively unimportant for the state as a whole but of great importance in this area. The variation in the income of the area is shown by years in figure 33. The income was around 17 million in the years 1927 to 1929 and dropped to about 6.7 in the years 1932 to 1934. For the same periods, expenses were about 5 million dollars and 3 million dollars, respectively.

The various sources of income and the expenses are shown for the period 1935 to 1939 in table 17. More than three fourths of the income of the area is derived from dairy products and no other source provides more than 7 per cent toward the total.

Taxes and interest averaged one fourth of the total expense. Taxes were twice as important as interest. This is the only area in which labor expense exceeded feed and automotive expense, and made up more than one fourth of the total. The cost of feed exceeded that of automotive power, accounting for more than one fifth of the total. This is also the only area in which the truck expense was larger than either automobile or tractor expense.

Table 17. Area 9: Income and Expenses, Average, 1935-39

INCOME			EXPENSES		
Item	Thousand Dollars	Per Cent	Item	Thousand Dollars	Per Cent
Total	8,849	100.0	Total	3,923	100.0
Crops	691	7.8	Fixed	986	25.1
Wheat	98	1.1	Taxes	666	17.0
Corn	94	1.0	Real Estate	617	15.7
Oats	33	0.4	Other	49	1.3
Barley	52	0.6	Interest	320	8.1
Rye	32	0.4	Current Operating	2,937	74.9
Flax	1	.....	Labor	1,003	25.6
Potatoes	354	4.0	Feed	836	21.3
Hay	27	0.3	Automotive	641	16.3
Livestock	1,115	12.6	Automobiles	195	5.0
Hogs	627	7.1	Trucks	275	7.0
Cattle and Calves.....	467	5.3	Tractors	171	4.3
Sheep and Lambs.....	21	0.2	Building Repair	123	3.1
Dairy Products	6,399	72.3	Machinery Repair	38	1.0
Butterfat	3,264	36.9	Other Production Expenses.....	83	2.1
Milk	3,135	35.4	Miscellaneous Expenses	213	5.5
Other Livestock Products	644	7.3			
Chickens	201	2.3			
Eggs	390	4.4			
Turkeys	47	0.5			
Wool	6	0.1			

Summary

BOTH World War I and the present conflict have found Minnesota's agriculture well adapted to supplying the agricultural products needed. In World War I, demands were especially great for grains while in the present war they are large for meats and dairy products. Prior to and during World War I, Minnesota was primarily a crop-selling region, but between the two wars a great shift took place toward the production of livestock and livestock products, and in the period 1935-39 about four fifths of the total sales were of these products.

Both wars have profoundly influenced income because of their effect upon prices, and this becomes especially true if the depression of the 1930's is considered as an aftermath of the first war. Gross cash sales reached 450 million dollars in 1918 compared with 160 million dollars in 1910 and 1932. Gross cash incomes in the present war are exceeding their 1918 total.

Cash expenses were increased greatly by World War I, rising from 56 million dollars in 1910 to 175 million dollars in 1920. Fixed expenses, that is interest payable on farm mortgages and taxes, continued to rise after the war and reached a peak in 1924. They were reduced considerably during the depression, but there has since been some increase in taxes.

Farmers were able to make a rapid adjustment of their current operating expense following World War I. These expenses which amounted to 123 million dollars in 1920 were reduced to 89 million dollars in 1921. Further reduction was achieved during the depression. While it cannot be measured exactly, every indication points to a very great increase in the efficiency of productive operations during the period studied.

The type of farming varies considerably over the state. The southern part is predominantly intensive livestock production, while in the northwest section crops are more important. There is more dairying in the eastern than in the western part of the state. Hogs are more important than cattle in the southern part of the state while the reverse is true in the north. In a state as varied as this the influence of the war on farmers is likely to differ considerably among areas.