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DAIRY FARMERS' EARNINGS IN SOUTHEASTERN MINNESOTA

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The University of Minnesota and the United States Department of Agriculture have been cooperating with a group of dairy farmers in southeastern Minnesota since January 1, 1928, in studying the factors and methods of management affecting farm earnings. For the fiscal year, January 1, 1929, to January 1, 1930, there were one hundred seventy-two farmers in Dodge, Freeborn, Goodhue, Rice, Steele and Waseca Counties, who completed account book records,--an increase of 40% over the previous year.

The farms included in this study are dairy farms with hogs ranking next to the cow in importance as a source of income. They are fairly typical of the dairy system of farming in southeastern Minnesota. The principal cash income is from the sale of dairy products, mainly as cream to farmer-owned cooperative creameries specializing in the manufacture of high quality butter. The data secured in 1929 show that the average receipts from the sale of dairy products constitute 33% of the average cash income for the farms studied, dairy cattle 16%, hogs 26%, poultry and eggs 8%, other livestock 2%, crops 10%, and miscellaneous and outside 5%. The cash crops include wheat, potatoes, flax, sugar beets, and canning crops. Most of the feed for livestock is grown on these farms, and includescorn, silage, oats, barley and hay.

The average size of the farms studied in 1929 was 176 acres in size and the average farm inventory of $25,494, not including the value of the operator's house, was distributed as follows: Land 55%, permanent improvements 16%, feeds and supplies 8%, machinery and equipment 7%, cows 6%, and other livestock 8%.

The average receipts and net increases for these farms was $4431 from productive livestock, $610 from crops and feeds, and $101 from miscellaneous receipts and outside work, making an average gross return of $5142, or $29 per acre. The expenses, net decreases and other deductions included the following items: Buildings, fencing, and tiling, $156; machinery and equipment $467; horses $7; general livestock $68; taxes and insurance $312; crop expense $198; hired labor $293; board for hired labor $110; unpaid family labor $361; general farm expense $30; and interest at 5% on the investment $1275; making the average total deductions $3277, or $19 per acre. After making these deductions the net return to the proprietor for his labor and management, or operator's labor earnings, averaged $1865, which consisted of $326 for farm produce used in the house, an increase in inventories of $255, and realized cash receipts of $684. These earnings are higher than can be expected for the average of all farmers in these counties, because of the better practices in effect on most of the farms studied.

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There was an increase of $594 in the average earnings for 1929 over those for 1928. Twenty-two farmers dropped the work at the end of 1928 and seventy others joined the group of 102 who were in the project both years. The result of these changes was an increase of thirteen acres in the average size of the farms, and an increase of $1839 in the average investment. Expenses per acre were approximately the same both years, but the gross returns were $2.60 per acre higher in 1929. This increase in gross returns accounted for approximately $460 of the increased earnings, and the increase in size of farms for about $130. Part of the increase in gross returns was due to higher net cash receipts, due mainly to the higher average price received for hogs sold in 1929 and higher crop yields which more than offset lower prices for butterfat and wool. However, an increase in the amount of feeds and livestock on hand at the end of the year as compared with the beginning of the year accounted for the greater part of the increase in gross returns and operator's labor earnings.

As in 1928, the records showed a wide range in the financial returns, amounting to nearly $6500 in 1929. Some farmers not only received no monetary pay for their work but their records showed considerable losses. The more important reasons for these variations in earnings are presented in the following tables and discussion.

1. A large business not only provides a larger volume of salable products but also makes possible a more efficient use of labor, power and equipment.

Table I. Relation of Size of Business to Farm Earnings

Work Units per Farm* Group	Average	No. of Farms	Average Earnings
900 and above	1120	13	$2948
700 - 899	793	24	2837
500 - 699	588	67	1780
300 - 499	402	56	1515
100 - 299	230	12	849

*To measure size of business on these dairy farms, "productive man work units" are used; these are based on the amount of man labor required for the livestock and crops, using standards developed from Steele County Farm Accounting Route data, (1920-1924).

2. Increasing the amount of livestock per 100 acres increases the size of business and to that extent tends to increase earnings. The fact that the second group in the accompanying table shows slightly higher earnings than the group having the largest number of livestock units per 100 acres may be due to the presence of several large farms in the second group; or perhaps some of the farms in the top group have reached a limit beyond which more livestock tend to unbalance the farm business sufficiently to offset the advantage of size which they contribute.

Table II Relation of Amount of Productive Livestock to Farm Earnings

Livestock Units per 100 Acres Group	Average	No. of Farms	Average Earnings
27.0 and above	31.4	11	$2405
22 - 26.9	24.2	34	2459
17 - 21.9	19.3	64	1722
12 - 16.9	14.3	52	1667
Below 12	9.6	11	1253

3. As a rule, high crop yields tend to reduce the cost of production under the usual practices in this area, and tend to increase earnings.

Table III. Relation of Crop Yields to Farm Earnings

Index of Crop Yields Group	Average	No. of Farms	Average Earnings
123 and above	131	15	$2928
108 - 122	114	42	2025
93 - 107	101	53	1914
78 - 92	86	44	1718
Below 78	69	18	821

4. High butterfat production per cow affects farm earnings just as do increased crop yields. This is especially important on these farms since butterfat sales are the major source of income.

Table IV. Relation of Dairy Production to Farm Earnings

Lbs. Butterfat per Cow Group	Average	No. of Farms	Average Earnings
320 and above	346	12	$2595
270 - 319	289	45	2163
220 - 269	244	61	1887
170 - 219	198	47	1516
Below 170	153	7	841

5. Efficient feeding has a very important bearing on the earnings on farms receiving 85% of the receipts from livestock.

Table V. Relation of Feeding Efficiency to Farm Earnings

Returns Above Feed Cost per Unit of Livestock** Group	Average	No. of Farms	Average Earnings
$105 and above	117	18	$2982
85 - $104	92	36	2159
65 - 84	75	59	1873
45 - 64	56	43	1530
Below 45	37	16	816

**Unit of livestock here represents amount of productive livestock which in 1929 on these farms gave the same average return above feed cost as one cow.

6. Labor is one of the most important elements of cost in farm production. Even though most of the labor on these farms is contributed by the farmer and his family, farm earnings are increased materially by using it effectively.

Table VI. Relation of Labor Efficiency to Farm Earnings

Work Units per Worker Group	Average	No. of Farms	Average Earnings
400 and above	459	20	$2788
325 - 399	354	34	2257
250 - 324	285	63	1808
175 - 249	214	44	1471
100 - 174	159	11	875

There are other factors of minor importance in general, but of vital importance in a number of individual cases. Keeping down overhead expenses is an example for the year 1929. A few farmers were low in earnings, due primarily to high expenses. In a year of unusually low earnings for all farmers, expenses would

undoubtedly show up as a more important factor in general. Prices received for products sold (affected by quality of product and time and place of sale) and the selection of high profit crops are other factors worth mentioning.

Probably no other fact pointed out by this study for both 1928 and 1929, is of more significance than the effect of a well balanced business on farm earnings. Although a high degree of success in one enterprise may overbalance low returns in other departments, the more factors in which a farmer excels, or ranks above the average of a group of farms, the more likely his return will rank high. This is well illustrated in the following table, using the six factors presented in Table I to VI inclusive.

Table VII. Effect of Well Balanced Business on Farm Earnings in Southeastern Minnesota

No. of Factors Above the Average	No. of Farms in Each Group	Average Earnings
6	7	$3654
5	19	3178
4	35	2174
3	31	1898
2	46	1410
1	23	1119
0	11	842

This study brings out some of the more important factors affecting farm earnings in this area and explains in part, at least the wide range in financial success attained by these farmers. Accidents, sickness, misfortunes, and lack of capital are factors in some cases although some farmers succeed in spite of these handicaps. Although each farm is a distinct problem in itself, there are general principles of management brought out in this study, that appear to aid in securing higher earnings, when they are put into practice intelligently. A comparison of the 1929 records with those of 1928 presents numerous examples of farmers who increased their relative earnings by going up the ladders in the various factors of management, and several examples of those who made relatively lower incomes because their efficiency fell down in several points.

MINNESOTA FARM PRICES FOR APRIL 1930

The index number of Minnesota farm prices for the month of April 1930 was 100.9. When the average of farm prices of the three Aprils of 1924-25-26 is represented by 100, the indexes for April of each year from 1924 to date are as follows:

April 1924 - 82.4
" 1925 - 105.9
" 1926 - 112.4
" 1927 - 110.4
" 1928 - 106.2
" 1929 - 111.3*
" 1930 - 100.9*

*Preliminary

The price index of 100.9 for the past month is the net result of increases and decreases in the prices of farm products in April 1930 over the average of April 1924-25-26 weighted according to their relative importance. These increases ranged from approximately 40 per cent to 1, and the decreases from 30 per cent to 2. The products ranked according to the size of their percentage increases or decreases in this comparison are shown in the following list:

Principal Farm Products which Showed Price Increases and Decreases in April 1930 when Compared with Average Prices in April 1924-25-26
(arranged in descending order of percentage change)

Increases	Decreases	No Change
Cattle	Wheat	Corn
Potatoes	Lambs-Sheep	
Calves	Barley	
Flax	Rye	
Milk	Butterfat	
	Hogs	
	Hay	
	Eggs	
	Oats	
	Chickens	

Although the Minnesota index for April 1930, does not measure price changes from March 1930, a comparison of month to month changes in price has been made. The increases range from 9 per cent to 1, and the decreases from 8 per cent to 5. The products ranked according to the size of their percentage increase or decrease in April 1930 over March 1930, are shown in the following list:

Principal Farm Products which Showed Price Increases and Decreases in April 1930 when Compared with March 1930
(arranged in descending order of percentage change)

Increases	Decreases	No Change
Potatoes	Calves	Wheat
Chickens	Lambs-Sheep	Barley
Corn	Hogs	Rye
Butterfat		Flax
Eggs		
Oats		
Hay		
Cattle		
Milk		

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