FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension
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NO. 197 UNIVERSITY FARM ST. PAUL MAY 1939

Management Factors that Affect Farmer's Earnings

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Records kept by dairy farmers in southeastern Minnesota the past eleven years throw interesting light on the question as to why the earnings of farmers operating under substantially similar conditions vary so widely. The average earnings of these farmers are shown in Table 1. The earnings measure used is "operator's labor earnings." This is computed by subtracting from the gross income of the farm all farm costs including a 5 per cent charge for the use of capital and also a charge for family labor. It represents the farmer's return for his labor and management. Average earnings for each of the eleven years for the 20 per cent who were least successful financially, for the entire group, and for the 20 per cent whose earnings were highest, are presented. Approximately one hundred fifty farmers were included each year. There was some change in the farms from year to year, as some farmers dropped out and others were added. The average size of the farms was two hundred acres.

Table 1. Range in Earnings of Dairy Farmers in Southeastern Minnesota, 1928-1938

Year	Operator's Labor Earnings		
	Low 20%	Average	High 20%
1928	$ 156	$1,277	$2,534
1929	516	1,857	3,536
1930	—902*	243	1,370
1931	—2,164*	—622*	618
1932	—1,897*	—768*	213
1933	130	986	2,159
1934	529	1,855	3,716
1935	192	1,364	3,049
1936	1,042	2,914	5,500
1937	17	1,462	3,520
1938	—532*	1,024	3,439
Average	—265*	1,054	2,696

* Minus sign (—) denotes a loss, that is, the amount by which the gross income fell short of covering all the costs charged against business.

These farms were, with a few exceptions, located in eight adjoining counties. There is, of course, some variation in quality of land, in weather conditions, in market outlets, and in other factors that affect earnings among these farms. Still this area is as uniform as far as these factors are concerned as one could find within the state. Over an eleven-year period, the average effect of weather tends to be about the same over the whole area. Advantages in quality of soil and markets are at least partly offset by the increased interest charged for the higher-priced land. In spite of the uniformity of conditions under which these farmers were operating, there was a variation of over $2,000 each year between the 20 per cent with low earnings and the 20 per cent with high earnings. During five of the eleven years the difference exceeded $3,000; and in 1936 it was over $4,400. The average difference for the whole period was nearly $3,000. Obviously, variations among the earnings of individual farmers were much larger.

Although some of these differences were due to environmental factors outside the farmer's control, a considerable proportion was due to management factors more or less within his control. An analysis of the records of these farmers indicates that the factors shown in Table 2 had a significant relationship to earnings.

The farmers in the high earnings group during this eleven-year period had larger businesses, kept their crop and livestock production at a high level, chose their crops and livestock wisely, used their feed and labor efficiently, and kept down their overhead expense.

In all but one of the eight factors shown in Table 2,

Table 2. Factors Affecting the Earnings of Dairy Farmers in Southeastern Minnesota

Factor	Lower 20% in earnings	Average	Upper 20% in earnings
Size (work units)	686	733	973
Index of crop yields	90	100	108
Butterfat per cow, lb.	223	239	253
Index of crop selection	34.4	37.0	40.5
Livestock per 100 acres	18.8	19.9	21.6
Return over feed per unit of livestock	$20.98	$31.16	$44.93
Work units per worker	300	333	374
Overhead expense per work unit	$1.62	$1.39	$1.27

the farmers with lower earnings had a much less favorable rating each year than those with high earnings. The factor "size of business" was, however, less constant in its relationship to earnings. An analysis of the data for each year indicates that during most of the period the more profitable farms were in the larger size groups, but in years of exceedingly low prices, such as 1930 to 1932, this situation was reversed. When the farmer's business is on a losing basis, the more business he has, the worse off he is. In eight of the eleven years, however, the larger farm businesses, as long as they maintained a fair rating in the other seven factors, were more profitable. Size of business is an advantage only when associated with reasonable quality and balance. The other factors varied somewhat in their relative importance from year to year, but always operated to increase earnings as the farmer's relative ranking in them increased.

Table 3. Earnings of Farmers Grouped According to Number of Factors in Which Farmer Was Above Average, 1928-1939

No. Factors Above Average	Number Farms	Operator's Labor Earnings
		dollars
0	28	—139*
1	121	145
2	219	546
3	327	787
4	350	883
5	277	1,507
6	165	1,828
7	75	1,979
8	22	2,908

* Minus sign (—) denotes loss. See footnote, Table 1.

There is some interrelationship between some of the factors shown in Table 2. The farmer who makes a wise choice of crops is likely also to have good yields. Efficiency in the use of labor and low overhead expense is more common on the larger farms. As indicated in Table 3, each of these factors, however, does affect earnings directly and independently. During the eleven years there were 28 instances of farmers who were below the average of the entire group in their ratings in each of the eight factors. These farmers fell $139 short of making any return for their labor and management. Another group who were low in all but one factor had the meager return of $145. Earnings increased steadily as the number of factors above average increased. In the 22 instances where individual farmers exceeded the average in each of the eight factors, the labor earnings were $2,908 or more than 2½ times the average of all farmers for the eleven years.

These factors suggest the importance of management as an element in profitable farming. The particular factors considered in this study are primarily adapted to dairy farms of the type prevailing in this area. Similar factors can be worked out for any type of farming in any locality. Insofar as these factors are within the control of the operator—and in most cases they are more or less so—they point to opportunities for increased earnings. They suggest to every farmer the usefulness of farm records as a guide in locating the factors that are limiting his earnings and in planning a more profitable organization of his business.

Grade of Minnesota Potatoes as Affected by Disease and Growth Conditions

D. C. Dvoracek, V. C. Norton, W. C. Waite[1]

Forty-five per cent of the defects that kept 11,400 lots out of 15,800 lots of Minnesota-inspected potatoes from grading U. S. No. 1 in the season of 1937-38 were due to disease, growth, and insect injury, according to a study of inspection certificates on these carloads. Forty-five per cent of the defects were due to injuries received in handling.

Potato growers are interested in knowing more about these defects in order that they may take steps to prevent or reduce the damage done, thereby improving the grade of potatoes marketed, and hence bid more effectively for the consumer's dollar. Thirty-one per cent of the defects were due to diseases such as scab, soft and dry rot. Twenty-two per cent of the defects were the result of growth conditions causing growth cracks, second growth, sunburn, misshapen potatoes, while 2 per cent of the defects were due to injury by insects such as white grubs and wireworms. The percentages of types of defects found in the potatoes failing to grade U. S. No. 1 from the various districts of the state are found in Table 1.

Table 1. Weighted Percentages of the Types of Defects in Potatoes Failing to Grade U. S. No. 1 in 1937-38

District	Handling	Disease	Growth Condition	Worm Injury
No. R. R. Valley	50	12	36	2
So. R. R. Valley	44	36	19	1
N.E. Minnesota	56	22	21	1
Sandland	48	35	15	2
Freeborn County	31	37	18	14
West Central	42	38	18	2
State	45	31	22	2

The percentages of the carloads of inspected potatoes that failed to grade U. S. No. 1, having specified disease and growth condition defects, from the various districts of the state and the state as a whole, are found in Table 2.

Table 2. Percentages of Carloads of Potatoes Failing to Grade U. S. No. 1, Having Specified Defects

District	No. of Carloads	Defects					
		Mis-shapen	Growth Cracks	Second Growth	Sun-burn	Scab	Worm Injury
No. R. R. Valley	2,083	59	29	32	52	16	8
So. R. R. Valley	6,558	9	29	19	18	55	3
West Central	123	18	21	38	25	85	11
Sandland	1,931	5	17	29	27	93	12
N.E. Minnesota	269	31	9	25	31	61	4
Freeborn County	395	11	8	9	38	55	53
State	11,405	18	26	23	27	55	8

The seriousness of these defects is indicated by the percentage of the carloads that failed to grade U. S. No. 1, for which the inspection certificate mentioned such defect.

[1] Assistance in the preparation of these materials was furnished by the personnel of Works Progress Administration, Official Project No. 465-71-3-350.

The percentage of carlots in which misshapen potatoes were mentioned ranged from 2 per cent in one county to 72 per cent in another. The percentage with growth cracks varied from 0 to 29 per cent. Second growth was mentioned in from 2.3 per cent to 55 per cent of the carloads below U. S. No. 1 grade, while the percentage of sunburn carloads ranged from 11.3 per cent to 55 per cent. Scab percentages were very much higher; the lowest county had 14 per cent, while the highest had 98 per cent. Worm injury is relatively unimportant; the highest rate found in any one county was 53 per cent. Hollow heart is a defect found in 50 per cent of the carloads of Cobblers failing to grade U. S. No. 1 in 1937-38, and in 45 per cent of the carloads of round white varieties. This defect was found in only 2 per cent of the carloads of other varieties.

These percentage figures present a general picture of the prevalence of these defects that are due to disease, growth, and insect injury. They should cause each potato grower to ask himself seriously how common these defects are in his own crop, and to what extent they affect the market value of his potatoes. If their presence is definitely noticeable, the farmer could well consider means of controlling those that are subject to control, and he should ask his county agent for suggestions.

Farm Mortgage Loans by Country Banks

G. L. Peterson

Commercial banks furnish a considerable volume of farm mortgage credit in Minnesota, though not so important a portion as a few years ago. Of the total amount of farm mortgage loans held by the three types of active lending institutions on January 1, 1938, commercial banks had seven per cent, insurance companies, 19.6 per cent, and the Federal Land Bank and Land Bank Comissioner, 73.4 per cent.[1] All state and national banks at that time held $17,374,000 of such loans. A study of the lending operations of 116 Minnesota state banks is being made currently by the Division of Agricultural Economics. These banks constitute one fourth of all the state banks in Minnesota, exclusive of those in Minneapolis, St. Paul, and Duluth. Their volume of first mortgage loans on farm real estate since 1920 is shown in Table 1. During the 12 years following 1920, the total of these loans remained relatively large and, with the exception of 1922, did not vary as much as 15 per cent from the 1920 amount until after the "banking holiday" in 1933. The volume of these loans declined very materially in both 1933 and 1934, and by December 1935 was lower than at any time in the 20 years for which these figures are available. At that time, the 116 banks had $3,030,419 invested in such loans, less than half of the 1920 amount.

Since 1935 there has, however, been a very substantial increase in the amount of farm mortgage lending by these banks. The same is true for all banks in Minnesota.[2] This general expansion indicates that farm mortgage loans are not a type of loan which bankers seek to avoid. At the end of 1938 the volume of these loans was 20 per cent greater than the low total of three years earlier. The increase was not uniform among banks of all sizes, the small banks tending to expand their volume relatively more than the large banks.

[1] Agricultural Finance Review, U.S.D.A. Vol. 1, No. 2, pp. 102-105.

[2] *Ibid.* p. 105.

Correction

As originally printed, the April number of *Farm Business Notes* erred in omitting from Table 1 (page 2) the caption "Thousands of pounds," thereby reducing by three ciphers the value of all figures given. As some copies were mailed before the error was corrected, we ask all readers to check their April copies and, if necessary, write in "Thousands of pounds" above the six columns of figures.

While the expansion in the volume of farm mortgage loans was very substantial, it was not so great as the expansion in the total of all loans held by these banks. The three years after 1935 was a period during which the use of bank credit in Minnesota was increasing and the total of all loans increased 30 per cent in this time, a somewhat more rapid rate of expansion than that of the farm mortgage loans.

Although the farm mortgage loans of these banks have increased substantially in the last three years, they have at the same time been becoming a less important part of the total loan portfolio than at any time since 1923. In December 1938 these loans constituted 17.6 per cent of the total loans held by the 116 banks, a slight excess over the 1923 proportion. During the period from 1920 to 1932, inclusive, there was, as pointed out earlier, little variation in the volume of these loans. There was, however, considerable variation in the total loans held, tending on the whole to decrease from year to year. Thus, during the entire period from 1923 to 1933, inclusive, farm mortgage loans became constantly a more important part of the total loan volume. The proportion was greatest after the reorganization in 1933, 27.6 per cent.

Table 1. Total Loans and Farm Mortgage Loans by 116 Minnesota State Banks

	Total loans	First mortgages on farm property			Total loans	First mortgages on farm property	
	Dollars	Dollars	% of total		Dollars	Dollars	% of total
	(000)	(000)	%		(000)	(000)	%
1920	35,911	6,384	17.7	1933	16,395	4,525	27.6
1923	33,581	5,896	17.5	1934	14,426	3,242	22.4
1926	32,774	6,574	20.0	1935	15,664	3,030	19.3
1929	31,956	6,727	21.0	1936	16,033	3,083	19.2
1931	28,358	6,476	22.8	1937	19,123	3,412	17.8
1932	24,524	5,976	24.3	1938	20,513	3,626	17.6

It should not be inferred from the above that these banks are furnishing the major portion of the funds necessary in the purchase of farm land. Data gathered from a more limited number of banks in 1936 indicate that their farm mortgage loans were being made on a very conservative basis and that, in many cases, they were made for some major improvement rather than for land purchase or refinancing. They, therefore, partake of the nature of personal loans secured by farm real estate as distinguished from the loans of the typical farm mortgage lending agencies and, as such, are good investments for country banks.

Minnesota Farm Prices for April 1939

Prepared by W. C. WAITE and W. B. GARVER

The index number of Minnesota farm prices for the month of April 1939 was 67. When the average of farm prices of the three Aprils 1924, 1925, and 1926 is represented by 100, the indexes for April of each year from 1924 to date are as follows:

1924— 82	1928—106	1932— 46	1936— 84
1925—106	1929—112	1933— 40	1937— 99
1926—112	1930—101	1934— 53	1938— 76*
1927—110	1931— 71	1935— 92	1939— 67*

* Preliminary.

The price index of 67 for the past month is the net result of increases and decreases in the prices of farm products in April 1939 over the average of April 1924, 1925, and 1926 weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, April 15, 1939, with Comparisons*

	April 15, 1939	Mar. 15, 1939	April 15, 1938		April 15, 1939	Mar. 15, 1939	April 15, 1938
Wheat	$0.60	$0.60	$0.84	Cattle	$6.90	$6.90	$6.40
Corn	.35	.34	.44	Calves	8.40	8.60	7.70
Oats	.22	.22	.22	Lambs-sheep	7.73	7.35	7.02
Barley	.35	.35	.50	Chickens	.12	.12	.14
Rye	.30	.30	.48	Eggs	.14	.14	.14
Flax	1.66	1.67	1.81	Butterfat	.23	.24	.29
Potatoes	.50	.49	.40	Hay	4.26	4.41	6.00
Hogs	6.80	7.20	7.90	Milk	1.30	1.35	1.70

* These are the average prices for Minnesota as reported by the United States Department of Agriculture.

The index showed a one point rise over March. Changes in prices of individual commodities were greatest for hogs and butterfat. Seasonally there is normally no change from March to April in hog prices, but for April the farm price dropped from $7.20 for March to $6.80 for April. Butterfat dropped 1 cent from 24 cents for March. Changes for the month in the crop items were relatively minor, with corn gaining 1 cent to an average of 35 cents for April, and potatoes moving up 1 cent to 50 cents for the month's average. Flax declined 1 cent to $1.66 for the month. Chickens were up from the previous month, with eggs lower, both movements being largely seasonal in character.

Indexes and Ratios of Minnesota Agriculture*

	April 1939	Mar. 1939	April 1938	Average April 1924-26
U. S. farm price index	64.0	64.5	67.6	100
Minnesota farm price index	67.3	66.3	75.6	100
U. S. purchasing power of farm products	83.8	83.9	84.9	100
Minnesota purchasing power of farm products	88.1	86.2	95.0	100
Minn. farmer's share of consumer's food dollar	.....	42.7	45.9	52.9
U. S. hog-corn ratio	14.5	16.0	14.7	12.4
Minnesota hog-corn ratio	19.4	21.2	18.0	15.5
Minnesota egg-grain ratio	17.2	17.8	14.1	12.7
Minnesota butterfat-farm-grain ratio	33.7	35.4	36.2	36.8

* Explanation of the computation of these data may be had upon request.

The Butter Situation

Butter is now entering the season of largest production. During the early part of 1939 production has been larger than in the corresponding period of 1938. Production conditions now do not appear quite so favorable as a year ago and it is probable that unless unusually favorable conditions develop, the output during the flush period may be less than the abnormally large volume of last year. However, supplies of feed on farms are larger than a year ago, and if pastures this summer are average or better, dairy production will continue large. The reports of the American Butter Institute, which represent largely the centralizer territory of the Southwest, and the Pacific Coast reports of the Bureau of Agricultural Economics, as well as current market receipts indicate that production now may be running slightly below that of a year ago.

Ordinarily prices are near the low point of the year by the middle of May and do not change greatly before the usual seasonal rise which begins in August. Wholesale prices of 92-score butter at New York in early May have been about 23 cents, or 3¾ cents below those of a year ago. The trade does not anticipate much lower prices.

On April 1 the DPMA and relief agencies held 72,355,000 pounds of butter. At the rate of distribution prevailing during the winter, these stocks will not be exhausted until October. Because of these public holdings, storage stocks were the largest on record for April 1. Although private storage holdings are increasing, the rate is below last year.

Purchases by consumers have been stimulated by the low retail prices and trade output is exceeding that of last year, but total expenditures in dollars by consumers for butter have been less than last year because of the much lower prices.

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UNIVERSITY FARM, ST. PAUL, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Division and United States Department of Agriculture, Cooperating, P. E. Miller, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.