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1972

**Farm Business
Summary**

**By Type of Farming
for Northern Minnesota**

TRUMAN NODLAND – EDGAR PERSONS – JANET B. OTIS

**Department of Agricultural and Applied Economics
and the Department of Agricultural Education
Institute of Agriculture, University of Minnesota
St. Paul, Minnesota 55101**

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FOR NORTHERN MINNESOTA

Truman R. Nodland, Edgar A. Persons and Janet B. Otis*

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INTRODUCTION

This report summarizes 1972 farm business records by type of farming for 387 northern Minnesota farmers. Farm records were supplied by area vocational-technical schools at Duluth and Thief River Falls. All of the farms are located in the areas east of the Red River Valley. Fergus Falls, Staples and Pine City are on the southern edge of the territory covered.

The purpose of this publication is to present specific information concerning costs and returns from actual farming operations by types of farming, for use by farmers and individuals working with farmers. Information of this nature assists in determining the most profitable types of farming and provides information for farm planning.

* Agricultural Economics, Agricultural Education, and Agricultural Economics, respectively.

Records were obtained from three types of farming for this report (table 1). Farms were classified according to the proportion of cash income received from the various livestock enterprises and from the sale of crops.

The following classifications were used in this report:

1. Specialized farms - 80 percent or more of the cash income was from one enterprise or source.
2. Two enterprise farms - 80 percent of the income was from two enterprises, with a minimum of 20 percent from the smaller of the two.

Specialized dairy farms are further divided into four categories based on the average number of dairy cows maintained.

Table 1. Number of Farms by Type

Type	Number
Dairy, under 25 cows	88
Dairy, 25-34 cows	107
Dairy, 35-44 cows	37
Dairy, 45 cows and over	41
Dairy and cash crops	68
Beef breeding and cash crops	<u>46</u>
Total	387

Records included are for only one year. Farm earnings in 1972 were somewhat higher than in 1971.¹ Differences in climatic conditions as well as variations in general price levels are two important factors that cause farm income to vary widely from year to year and among types of farms.

1. For a comparison with 1971, see Nodland, Truman, Edgar Persons and Janet Otis, "1971 Farm Business Summary by Type of Farming for Northern Minnesota," University of Minnesota Department of Agricultural and Applied Economics Economic Information Report R72-5. August 1972.

CAPITAL MANAGED AND EARNINGS

The average value of capital used per farm for the various types of farming is shown in table 2. These data represent values as reported by farmers in their farm business records and deviate somewhat from current market values for assets with a long useful life, such as real estate. Real estate improvements are valued at cost and depreciated on the basis of estimated life. These book values tend to be below present market values because of changes in the price level. Also, land is valued at cost and has not been corrected for price inflation or for the increase in real value which has occurred since many of the farms were purchased. Thus, the value of land depends to a certain extent on date of purchase. Capital managed also includes the values of any assets furnished by landlords.

The data in table 3 show total and per acre investment in real estate based on "book values." Average per acre real estate values varied from \$85 per acre on the beef breeding herd-cash crop farms to \$125 per acre on large dairy farms. This compares with sales prices for 1972 as reported by Mandale and Raup¹ of \$105 per acre for northwestern Minnesota (including the Red River Valley) and \$77 for northeastern Minnesota.

Capital managed per farm varied widely between types of farming included in this study, in part because of differences in soils and climate. Ottertail and Todd counties, for example, have a rather large acreage in corn for grain. Only occasional fields of corn for grain can be found in the extreme northern counties.

1. Mandale, Maurice and Philip M. Raup, "The Minnesota Real Estate Market in 1972." Economic Study Report S73-1, Department of Agricultural and Applied Economics, Univerisity of Minnesota, April 1973.

Table 2. Summary of Inventories by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
1. Number of cases	88	107	37	41	68	46
2. Acres in farm	279	308	446	505	598	713
Average capital managed as of January 1, 1972						
3. Dairy cows	\$ 5490	\$ 9090	\$ 12083	\$ 19096	\$ 8481	\$ 191
4. Other dairy cattle	3061	4502	7240	9938	5286	101
5. Beef cattle	411	322	378	616	991	16943
6. Hogs	135	74	50	15	349	32
7. Sheep	27	33	-	-	65	102
8. Other livestock	8	9	119	-	11	-
9. Total livestock	\$ 9132	\$ 14030	\$ 19870	\$ 29665	\$ 15183	\$ 17369
10. Crops, seed, feed	\$ 2409	\$ 3885	\$ 6336	\$ 8414	\$ 7818	\$ 9841
11. Auto & truck (fm.sh.)	\$ 1186	\$ 1318	\$ 1682	\$ 2013	\$ 1966	\$ 2181
12. Tractors & crop mach.	4004	7265	9475	16506	11503	10930
13. Livestock equipment	930	2012	2955	7048	2096	313
14. Total equipment	\$ 6120	\$ 10595	\$ 14112	\$ 25567	\$ 15565	\$ 13424
15. Land	\$ 13490	\$ 18498	\$ 23568	\$ 34013	\$ 50751	\$ 46345
16. Buildings, fencing*	4971	8697	12792	22064	12974	7384
17. Total capital	\$ 36122	\$ 55705	\$ 76678	\$119723	\$102291	\$ 94363
18. Value of bldgs. per acre	\$ 18	\$ 28	\$ 29	\$ 44	\$ 22	\$ 10
19. Value of land per acre	48	60	53	67	85	65
20. Total value per acre*	\$ 66	\$ 88	\$ 82	\$111	\$107	\$ 75
Average capital managed as of December 31, 1972						
21. Total capital	\$ 40987	\$ 61154	\$ 86124	\$133051	\$108605	\$103472

* Not including farm dwelling.

Other factors contributing to the wide variation in capital managed are number of acres per farm, investment in livestock, and the buildings and equipment associated with each type of farm. Types of farming which can be classified as extensive require large amounts of capital. In this study, where cash crops are

Table 3. Average Investment in Real Estate, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy cash crops	Beef br., cash crops
Land	\$13490	\$18498	\$23568	\$34013	\$50751	\$46345
Farm buildings	4971	8697	12792	22064	12974	7384
Estimated investment in dwelling	<u>7000</u>	<u>7000</u>	<u>7000</u>	<u>7000</u>	<u>7000</u>	<u>7000</u>
Total investment in real estate	\$25461	\$34195	\$43360	\$63077	\$70725	\$60729
Number of acres	279	308	446	505	598	713
Average investment per acre	91	111	97	125	118	85

major enterprises, large amounts of capital are used. More intensive farms, such as those with dairy cattle, tend to have smaller investments in capital.

Earnings are presented on a cash basis in table 4. In order to make all farms comparable, receipts and expenses of landlords are included. "Labor earnings" is the amount that would be left as a salary to the farm operator if he paid hired man's wages for the labor of other members of the family and six percent interest on capital managed.

Increases in farm capital are reported as a receipt and decreases in farm capital are reported as an expense in table 4. Increases or decreases are the differences in the average farm capital between January 1, 1972 and December 31, 1972, as shown in table 2. This summarizes in one figure the net effect of the following changes:

1. Products produced but not sold during the year, so they are on the end of the year inventory.
2. Products that were produced during the previous year or years (on hand at the beginning of year) and sold this year.
3. Products bought but not fully used up during the year, such as fertilizer, depreciable assets, etc.

Table 4. Summary of Earnings - Cash Statement, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
RECEIPTS						
1. Dairy cattle	\$ 2823	\$ 4649	\$ 6176	\$ 7919	\$ 4887	\$ 306
2. Dairy products	9273	15956	21722	36032	14514	61
3. Beef cattle	154	324	309	625	829	8048
4. Hogs	237	137	74	45	712	68
5. Sheep	30	29	-	-	55	163
6. Other livestock	1	31	-	-	35	-
7. Crops	649	879	1611	1166	12707	10482
8. Other capital assets	112	197	128	492	1216	395
9. Work off the farm	179	140	148	373	447	339
10. Misc. farm income*	412	556	660	1644	1490	2145
11. Total farm sales	<u>\$13870</u>	<u>\$22898</u>	<u>\$30828</u>	<u>\$48296</u>	<u>\$36892</u>	<u>\$25007</u>
12. Increase in capital	4865	5449	9446	13328	6314	9109
13. Fam. liv. from farm	416	492	602	724	535	277
14. Total received	<u>\$19151</u>	<u>\$28839</u>	<u>\$40876</u>	<u>\$62348</u>	<u>\$43741</u>	<u>\$34393</u>
EXPENSES						
15. Dairy cattle bought	\$ 1205	\$ 1008	\$ 1687	\$ 1756	\$ 1058	\$ 47
16. Beef cattle bought	136	2	-	17	305	1615
17. Hogs bought	37	10	13	5	104	4
18. Sheep bought	6	2	-	-	41	-
19. Other livestock bought	1	14	2	-	5	4
20. Misc. livestock expense	512	879	1315	2324	922	227
21. Feed bought	1974	3471	4089	7024	2246	471
22. Fertilizer bought	264	533	1113	1498	1809	2296
23. Other crop expenses	365	512	1073	1167	2561	1832
24. Custom work hired	652	920	1622	2233	1160	578
25. Gas, oil, grease bought	731	870	1119	1642	1616	1407
26. Rep. auto, truck, tractor, & crop machinery	856	1153	1616	2420	2206	1906
27. Repair of real estate	268	342	522	786	568	512
28. Repair of lvstck. equip.	102	201	297	426	197	48
29. Wages of hired labor	370	526	988	2087	1395	865
30. Electricity expense	280	388	495	742	419	242
31. Real estate taxes	263	391	555	906	1010	841
32. General farm expense	357	466	544	935	843	601
33. Total cash expense	<u>\$ 8379</u>	<u>\$11688</u>	<u>\$17050</u>	<u>\$25968</u>	<u>\$18465</u>	<u>\$13496</u>
34. New power & machinery	2617	3312	4350	5490	6301	4903
35. New lvstck. equipment	404	595	525	1773	642	136
36. New buildings	1293	2079	3811	7335	2858	2116
37. Total purchases	<u>\$12693</u>	<u>\$17674</u>	<u>\$25736</u>	<u>\$40566</u>	<u>\$28266</u>	<u>\$20651</u>
38. Decrease in farm capital	-	-	-	-	-	-
39. Interest at 6 percent	2313	3505	4884	7583	6326	5935
40. Unpaid family labor	766	1002	991	1148	535	590
41. Board for hired labor	49	44	203	66	76	26
42. Total expenses	<u>\$15821</u>	<u>\$22225</u>	<u>\$31814</u>	<u>\$49363</u>	<u>\$35203</u>	<u>\$27202</u>
43. Labor earnings	\$ 3330	\$ 6614	\$ 9062	\$ 12985	\$ 8538	\$ 7191
44. Net cash income	\$ 1177	\$ 5224	\$ 5092	\$ 7730	\$ 8626	\$ 4356
(line 11 - line 37)						

* Includes receipts from diverted acre payments.

4. Products sold that were previously purchased, such as feeder pigs and feeder cattle.

5. Casualty losses.

More than 50 percent of each dollar of sales is required to pay cash operating expenses (table 5). Purchased feeds were an important item on the dairy farms. Capital expenditures showed more variation. The amount remaining above all purchases, 23 percent in the case of the dairy and cash crop farms and only 8 percent in the case of small dairy farms, is left for living expenses, interest on money borrowed, debt retirement, and other savings.

Table 5. Purchases per \$100 of Total Sales, by Type of Farming, 1972*

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
1. Dairy cattle bought	\$ 8.70	\$ 4.40	\$ 5.47	\$ 3.64	\$ 2.87	\$.19
2. Beef cattle bought	.98	.01	-	.03	.83	6.46
3. Other livestock bought	.32	.11	.05	.01	.41	.03
4. Misc. livestock expense	3.69	3.84	4.27	4.81	2.50	.91
5. Feed bought	14.24	15.15	13.27	14.54	6.09	1.88
6. Fertilizer bought	1.90	2.33	3.61	3.10	4.90	9.18
7. Other crop expenses	2.63	2.24	3.48	2.42	6.94	7.33
8. Custom work hired	4.71	4.02	5.26	4.62	3.14	2.31
9. Gas, oil, grease bought	5.27	3.80	3.63	3.40	4.38	5.63
10. Rep. auto, truck, tractor, & crop machinery	6.18	5.04	5.25	5.01	5.98	7.62
11. Rep. of real estate	1.93	1.49	1.69	1.63	1.54	2.05
12. Rep. of livestock equip.	.74	.88	.96	.88	.53	.19
13. Wages of hired labor	2.67	2.30	3.20	4.32	3.78	3.46
14. Electricity expense	2.02	1.68	1.61	1.54	1.14	.97
15. Real estate taxes	1.90	1.71	1.80	1.88	2.74	3.36
16. General farm expense	2.53	2.04	1.76	1.94	2.28	2.40
17. Total operating exp.	\$60.41	\$51.04	\$55.31	\$53.77	\$50.05	\$53.97
18. New power & machinery	18.87	14.46	14.11	11.37	17.08	19.61
19. New livestock equip.	2.91	2.60	1.70	3.67	1.74	.54
20. New buildings & RE	9.32	9.08	12.36	15.19	7.75	8.46
21. Total purchases	\$91.51	\$77.18	\$83.48	\$84.00	\$76.62	\$82.58

* Total purchases and sales are shown in table 3.

Table 6. Summary of Earnings - Enterprise Statement, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
RECEIPTS AND NET INCREASES						
1. Milk cows	\$ 9622	\$16470	\$22185	\$35700	\$14981	\$ 135
2. Other dairy cattle	3676	5986	8440	11457	5983	37
3. Beef breeding herd	30	157	122	314	378	10493
4. Feeder cattle	35	38	214	242	183	189
5. Hogs	205	120	70	78	568	48
6. Sheep - farm flock	7	38	-	-	58	123
7. Other livestock	3	28	11	-	37	-
8. Total produc. livestock	\$13578	\$22837	\$31042	\$47791	\$22188	\$11025
9. Feed fed	6015	9264	14044	19775	9236	4590
10. Return over feed	\$ 7563	\$13573	\$16998	\$28016	\$12952	\$ 6435
11. Crops, seed, feed	4630	5742	10376	12388	16011	15603
12. Income, work off farm	126	89	47	215	173	202
13. Misc. farm income*	412	556	660	1644	1490	2145
14. Total receipts	\$12731	\$19960	\$28081	\$42263	\$30626	\$24385
EXPENSES AND NET DECREASES						
15. Truck & auto (fm.sh.)	\$ 1180	\$ 1486	\$ 1852	\$ 2660	\$ 2058	\$ 1437
16. Electricity expense	280	388	495	742	419	242
17. Tractors & machinery	2074	2980	4333	6504	6233	4864
18. Livestock equipment	244	469	835	1400	592	119
19. Buildings, fencing	851	1015	1633	2364	1491	1330
20. Misc. livestock expense	512	879	1315	2324	922	227
21. Labor**	1327	1767	2573	3860	2194	1598
22. Real estate taxes	263	391	555	906	1010	841
23. General farm expense	357	466	544	935	843	601
24. Interest at 6 percent	2313	3505	4884	7583	6326	5935
25. Total expenses	\$ 9401	\$13346	\$19019	\$29278	\$22088	\$17194
26. Labor earnings	\$ 3330	\$ 6614	\$ 9062	\$12985	\$ 8538	\$ 7191

* Includes diverted acre payment.

** Includes wages paid and value of board to hired labor, unpaid family labor and part of the payment for custom work hired.

The data in table 6 report earnings on an enterprise basis. On the enterprise basis, the value of livestock and livestock products produced includes the difference between sales and purchases of livestock, sale of products, value of livestock and products used in the home, changes in inventories, and an accounting of transfers between enterprises. The resulting figure represents value of livestock and livestock products added by the enterprise. Costs of operating each service enterprise

(auto and trucks, tractors and crop machinery, etc.) are calculated in a similar manner. Credit is given to crops for feed raised on the farm and consumed by livestock. Thus, while earnings statements on an enterprise basis do not show purchases and sales, such a statement more truly shows the value produced for the productive enterprises and the expenses for each of the service enterprises.¹

Crops are a major source of income on all farms when credit is given to crops for feed raised on the farm and consumed by livestock (table 7). Even on the highly specialized dairy farms, approximately 30 percent of the income is from crops. The proportion of farm income from livestock, crops and miscellaneous sources is based on receipts and net increases, as shown in table 6. Return over feed is the amount of income added by livestock and the return to crops represents the value of crops produced during the year.

Table 7. Proportion of Farm Income from Livestock, Crops, and Miscellaneous Sources, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
Livestock (ret. over feed)	59.4	68.0	60.5	66.3	42.3	26.4
Crops (net increases)	36.4	28.8	37.0	29.3	52.3	64.0
Miscellaneous income	<u>4.2</u>	<u>3.2</u>	<u>2.5</u>	<u>4.4</u>	<u>5.4</u>	<u>9.6</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0

Rate earned on capital managed is increasingly becoming a factor to consider, particularly when the contribution of capital managed to earnings is greater than the value of the operator's labor. Small dairy farms received a modest return to labor and no return on capital. Large dairy farms, on the other hand, yielded a return to capital managed of 10.7 percent and \$7000 return to the farm operator. (See table 8.)

1. For the method of calculation, see Nodland, Truman R., "Know Your Farm Business, University of Minnesota Agricultural Extension Pamphlet 138, Revised 1971.

Table 8. Rate Earned on Capital Managed, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
1. Labor earnings	\$ 3330	\$ 6614	\$ 9062	\$12985	\$ 8538	\$ 7191
2. Interest on capital managed	2313	3505	4884	7583	6326	5935
3. Total (2 + 3)	5643	10119	13946	20568	14864	13126
4. Estimated wage for operator	7000	7000	7000	7000	7000	7000
5. Return to capital (4 - 5)	-1357	3119	6946	13568	7864	6126
6. Average capital managed	38554	58430	81404	126387	105448	98918
7. Rate earned on capital managed	0%	5.3%	8.5%	10.7%	7.5%	6.2%

LAND USE AND CROP YIELDS

Specialized dairy farms have a large proportion of land in pasture, hay, and silage crops (table 9). Small grains (oats, barley, and wheat) are the predominant small grains. Some corn for grain and soybeans are raised on farms in the southern portion of the area.

Average crop yields are shown in table 10. Variations in average yields were large and, in part, reflect differences in soils and climate. Small dairy farms had lower yields than the other groups.

Table 9. Distribution of Acres in Farm, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
1. Rye	3.1	.9	-	8.6	10.3	10.9
2. Wheat	3.7	4.4	4.6	10.2	60.9	87.3
3. Oats for silage	-	.6	2.4	2.7	.9	.3
4. Oats for grain	27.5	35.4	48.6	50.0	82.8	115.9
5. Barley	3.9	4.6	.8	6.1	43.4	42.4
6. Other small grain	.8	.1	-	.8	16.1	10.1
7. Total small grain	<u>39.0</u>	<u>46.0</u>	<u>56.4</u>	<u>78.4</u>	<u>214.4</u>	<u>266.9</u>
8. Sugar beets	-	-	-	-	-	-
9. Corn grain	7.7	10.7	26.1	26.8	27.1	5.2
10. Soybeans	.1	-	.3	.3	8.9	.3
11. Corn silage	11.7	21.2	40.2	46.8	23.5	7.9
12. Other cultivated crops*	.3	.7	.5	3.7	17.1	4.6
13. Total cultivated crops	<u>19.8</u>	<u>32.6</u>	<u>67.1</u>	<u>77.6</u>	<u>76.6</u>	<u>18.0</u>
14. Alfalfa hay	22.2	31.2	40.9	70.2	40.4	33.5
15. Other legume hay	28.6	36.9	58.7	59.9	37.0	65.6
16. Other tame hay	3.5	3.4	2.9	.5	1.2	3.0
17. Annual hay	.8	2.5	.7	2.8	2.4	1.3
18. Legume seed	1.1	.2	.8	-	2.4	13.7
19. Grass seed	.1	-	.3	.4	1.1	21.8
20. Total till. land in hay	<u>56.3</u>	<u>74.2</u>	<u>104.3</u>	<u>133.8</u>	<u>84.5</u>	<u>138.9</u>
21. Alfalfa pasture	6.8	13.5	19.4	9.6	20.3	59.7
22. Other tillable pasture	<u>12.4</u>	<u>10.1</u>	<u>2.8</u>	<u>9.3</u>	<u>4.6</u>	<u>4.6</u>
23. Total till. land in pasture	19.2	23.6	22.2	18.9	24.9	64.3
24. Feed grain program	14.8	16.5	28.2	34.2	77.4	70.7
25. Till. land not cropped	<u>4.7</u>	<u>5.2</u>	<u>5.5</u>	<u>6.5</u>	<u>11.8</u>	<u>19.2</u>
26. Total tillable land	153.8	198.1	283.7	349.4	489.6	578.0
27. Wild hay	6.6	2.8	10.0	5.2	.9	8.0
28. Non-tillable pasture	50.2	52.9	66.5	57.8	40.1	66.9
29. Timber not pastured	37.1	23.2	31.7	30.8	17.9	23.3
30. Waste and roads	25.6	24.4	45.9	51.3	39.1	27.4
31. Farmstead	<u>5.8</u>	<u>6.8</u>	<u>8.1</u>	<u>10.6</u>	<u>9.9</u>	<u>9.3</u>
32. Total acres in farm	279.1	308.2	445.9	505.1	597.5	712.9
33. Percent land tillable	55.1	64.3	63.6	69.2	81.9	81.1

* Includes sunflowers grown for seed.

Table 10. Crop Yields per Acre, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
1. Wheat, bu.	23.5	24.8	32.9	31.4	31.4	31.6
2. Oats grain, bu.	44.8	47.7	47.9	52.0	53.5	56.9
3. Rye, bu.	49.0	*	-	*	32.7	28.9
4. Barley, bu.	26.6	37.4	*	40.9	44.5	38.7
5. Corn grain, bu.	52.0	68.7	64.9	74.3	69.0	44.5
6. Corn silage, ton	8.9	8.7	8.8	10.4	10.0	8.7
7. Alfalfa hay, ton	2.6	2.6	2.6	3.2	2.6	2.2

* Less than 5 cases.

RETURN FROM LIVESTOCK

Feed costs, returns and some related factors are shown for dairy cattle in tables 11 through 13. Home grown feeds have been charged to livestock at current market prices during the year. Purchased feeds were charged at cost. The number of head represents the average number on hand at the beginning of each month.

As shown in table 11, average return over feed per cow varied from \$286 for small herds to \$352 for large herds. The large dairy herds had the highest production per cow and the highest price received per 100 pounds of milk sold. They also had the highest total feed costs per cow. The larger herds had a slight price advantage, selling milk from 7 to 21 cents more per hundred pounds than the smallest herds.

The return for \$100 of feed ranged from \$225 to \$246. Feed is the largest single item of cost for all classes of livestock and, in the case of dairy cattle, makes up about 50 percent of the total cost. Thus, on the average, a return of about \$200 for each \$100 of feed is necessary in order to break even, with

average equipment, buildings, and labor. The same kind of analysis can be used with feed cost per 100 pounds of milk produced. The average producer will need to secure a price which is twice the cost of feed per unit of product produced in order to cover all costs, including modest amounts for labor.

Feed costs and returns from other dairy cattle are shown in table 12. These are mostly replacements for the milking herd. Return over feed cost per head and return for \$100 of feed are not related to size of herd as was true for dairy cows, as shown in the previous table. The information in table 13 shows feed costs and returns from the entire dairy herd on a per cow basis. The information presented in this table is especially valuable for planning a dairy operation or for expanding an existing herd, since it includes replacement stock. A typical dairy herd averages about 1.3 head of young stock per cow.

Feed costs and returns from beef cows are shown in table 14. The average return over feed cost per cow or \$138.46 and return for \$100 of feed of \$248 received in 1972 is much higher than one normally expects from a beef cow operation. The return for \$100 of feed is approximately the same as that received from dairy cattle. Costs of shelter, equipment and labor, however, are considerably greater for dairy cattle than for beef cow herds. The relative profitability of beef cows in 1972 is largely a matter of favorable prices for beef cattle.

Table 11. Factors of Costs and Returns from Dairy Cows, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
Number of cows	19	29	39	59	31
Pounds of milk per cow	10374	10785	10962	11808	10582
Percent butterfat in milk	3.5	4.1	3.6	3.6	3.4
Pounds butterfat per cow	368	442	391	428	362
Price received per pound of butterfat	\$1.40	\$1.26	\$1.47	\$1.47	\$1.50
Price received per cwt. of milk	4.96	5.20	5.24	5.31	5.13
Value of produce per cow:					
Dairy product sales	\$495.86	\$542.72	\$562.75	\$614.50	\$530.46
Dairy produce used in home	7.80	5.99	5.00	4.22	6.11
Milk fed to livestock	10.68	11.16	5.91	7.30	5.33
Net increase in value of cows	<u>.63</u>	<u>.31</u>	<u>1.09</u>	<u>-15.98</u>	<u>4.80</u>
Total value produced	\$514.97	\$560.18	\$574.75	\$610.04	\$546.70
Feeds per cow, lbs.:					
Corn	1066	1168	1999	2277	1534
Small grain and complete dairy ration	3388	3205	3301	2667	3029
Protein, salt, mineral	447	389	315	923	422
Total concentrates	4901	4762	5615	5867	4985
Total hay	8143	8325	7520	7488	7838
Silage	6967	8506	11719	10871	10097
Feed cost per cow:					
Concentrates	\$126.91	\$125.61	\$140.28	\$151.06	\$121.44
Roughages	94.08	95.75	115.05	105.21	92.42
Pasture	<u>8.27</u>	<u>5.95</u>	<u>4.87</u>	<u>1.84</u>	<u>5.42</u>
Total feed cost	\$229.26	\$227.31	\$260.20	\$258.11	\$219.28
Return above feed cost per cow	\$285.71	\$332.87	\$314.55	\$351.93	\$327.42
Return for \$100 of feed	\$225	\$246	\$221	\$236	\$249
Feed cost per pound of butterfat	\$.62	\$.51	\$.66	\$.60	\$.60
Feed cost p r cwt. milk produced	2.21	2.11	1.95	2.18	2.07

Table 12. Feed Costs and Returns from Other Dairy Cattle, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
Number of head	23	35	54	66	41
Net increase in value per head	\$157.61	\$170.66	\$157.46	\$174.32	\$156.12
Feed per head, lbs.:					
Concentrates	737	718	950	914	727
Hay	2783	3053	2911	2845	2771
Silage	1802	2711	3639	2842	3724
Whole milk	175	191	85	128	91
Total feed cost per head	\$ 63.47	\$ 68.40	\$ 70.56	\$ 68.76	\$ 63.56
Return above feed cost per head	\$ 94.14	\$102.26	\$ 86.90	\$105.56	\$ 92.56
Returns for \$100 of feed	\$248	\$250	\$223	\$254	\$245

Table 13. Feed Costs and Returns from All Dairy Cattle, on a per Cow Basis, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy cash crops
Value of produce per cow:					
Dairy products	\$514.40	\$559.90	\$573.63	\$626.01	\$541.90
Net increase in value	<u>193.72</u>	<u>203.91</u>	<u>219.74</u>	<u>180.09</u>	<u>213.99</u>
Total value produced	\$708.12	\$763.81	\$793.37	\$806.10	\$755.89
Feed per cow, lbs.:					
Concentrates	5826	5637	6946	6908	5947
Hay	11553	11952	11562	10692	11552
Silage	9175	11760	16772	14066	15087
Total feed cost per cow	\$307.02	\$308.98	\$358.19	\$335.46	\$304.44
Returns above feed cost per cow	\$401.10	\$454.83	\$435.18	\$470.64	\$451.45
Returns for \$100 of feed	\$230	\$247	\$221	\$240	\$248
Miscellaneous livestock expenses/cow	\$17.75	\$19.49	\$22.46	\$25.52	\$21.21
Veterinary expenses per cow	8.22	10.41	11.30	13.48	10.95

Table 14. Feed Costs and Returns from Beef Cows, 1972

Item	Average of 46 herds
Number of beef cows	49
Number of other beef cattle	43
Value produced per cow	\$231.86
Feed per cow, lbs.:	
Concentrates	630
Hay	7768
Silage	6264
Feed cost per cow:	
Concentrates	\$ 14.49
Roughages	65.57
Pasture	13.34
Total feed cost per cow	\$ 93.40
Return above feed cost per cow	\$138.46
Return for \$100 of feed	\$248
Net gain in weight produced, lbs.	23098
Pounds of beef produced per cow	471
Price received per 100 lbs. sold	\$37.41
Average weight per head sold, lbs.*	569
Percent death loss	3.7
Miscellaneous costs per cow	\$4.55

* Includes sale of cull cows as well as young stock.

CONCLUSION

A summary of earnings, resources used, size of business, and expenses is presented in table 15. Small dairy farms showed the lowest earnings. They had only \$5643 available to pay for the operator's labor and capital managed. Large dairy farms yielded a return large enough to provide \$7000 for labor performed by the operator and yield 10.7 percent return on the "book value" of capital managed.

Farms which have cash crops as a major enterprise generally use large amounts of capital and involve large acreages. This is an extensive enterprise and is best suited where labor is scarce as compared to land and capital. Dairying tends to be located on relatively small farms where there is non-tillable land and where it is desirable, because of erosion and other factors, to include a considerable amount of hay and pasture in the rotation. Dairying is an intensive enterprise and is adapted to situations where labor is plentiful in comparison to land.

Dairy farms tend to have had less capital invested per worker than did the other types of farms included in this study. Most of the farm classifications had 1.5 to 2.0 workers. Small dairy farms had only 1.4 workers and large dairy farms had an average of 2.1 workers.

In terms of work units, large dairy farms had the largest business, with 662 productive man work units. Small dairy farms and the beef cow-cash crop farms had relatively few work units in total and per worker. Work units are defined as the average accomplishment of a farm worker in a ten hour day, working on crops and productive livestock at average efficiency, or ten hours off-the-farm work for pay.

It is important to bear in mind that the records included in this report are for only one year. Similar data for a different year would show

variations in the data presented. Variations between years, in the main, are caused by differences in climatic conditions and general price levels-- factors which the individual farmer cannot control. Furthermore, price levels do not rise or fall in unison. Some prices may rise while others are falling, or some may change faster than others. For these reasons, the relative earning levels of the various types of farms may change from year to year.

Table 15. Earnings, Resources Utilized, Size of Business, and Expenses, by Type of Farming, 1972

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops	Beef br., cash crops
Earnings						
1. Net cash income	\$ 1177	\$ 5224	\$ 5092	\$ 7730	\$ 8626	\$ 4356
2. Labor earnings	3330	6614	9062	12985	8538	7191
3. Rate earned on investment	0	5.3	8.5	10.7	7.5	6.2
Resources used						
4. Acres per farm	279	308	446	505	598	713
5. Acres tillable	154	198	284	349	490	578
6. Capital managed	\$38554	\$58430	\$81401	\$126387	\$105448	\$98918
7. Number of workers	1.4	1.5	1.8	2.1	2.0	1.4
8. Capital managed per worker	\$27538	\$38953	\$45223	\$60184	\$52724	\$70656
9. Work units per worker	161	223	257	315	223	192
Size of business						
10. Total farm sales	\$13870	\$22898	\$30828	\$48296	\$36892	\$25007
11. Total work units	225	334	463	662	446	269
Expenses						
12. Total oper. expense	\$8379	\$11688	\$17050	\$25968	\$18465	\$13496
13. Purchase of capital items	\$4314	\$ 5986	\$ 8686	\$14598	\$ 9801	\$ 7155
14. Power, machinery, equipment and bldg. expense per WU	\$19.68	\$18.98	\$19.76	\$20.65	\$24.20	\$29.71
15. Tractor & machinery expense per crop acre	\$17.04	\$19.15	\$18.22	\$22.05	\$16.55	\$11.26
16. Total operating expense per \$100 sales	\$60.41	\$51.04	\$55.31	\$53.77	\$50.05	\$53.97