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1974

Farm Business Summary

By Type of Farming for Northern Minnesota

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INTRODUCTION

This report summarizes 1974 farm business records by type of farming for 616 northern Minnesota farmers. Farm records were supplied by area vocational-technical schools at Duluth and Staples. Fergus Falls, Staples, and Pine City are on the southern edge of the territory covered.

The purpose of this report is to present specific information concerning costs and returns from actual farming operations by types of farming. This information should be of use to farmers and individuals working with farmers in determining the most profitable types of farming and in providing information for farm planning.

Records were obtained from four 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 five categories based on the average number of dairy cows maintained.

Table 1. Number of Farms by Type, 1974

Type	Number
Dairy, under 25 cows	80
Dairy, 25-34 cows	89
Dairy, 35-44 cows	49
Dairy, 45-54 cows	24
Dairy, 55 cows and over	23
Dairy and cash crops	99
Beef breeding herd and cash crops	35
Cash crops	<u>217</u>
Total	616

Records included are for only one year. Farm earnings in 1974 were significantly lower than in 1973.¹ 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. The decrease in farm earnings in 1974 was due primarily to lower farm product prices and lower crop yields per acre. Crop yields were significantly reduced by a late spring planting season and an early September killing frost.

1. For a comparison with 1973, see Miller, Barbara, Janet Otis, Truman Nodland, and Edgar Persons, "1973 Farm Business Summary by Type of Farming for Northern Minnesota," University of Minnesota Department of Agricultural and Applied Economics Economic Report 74-5, July 1974.

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 which has occurred since the time when 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 \$92 per acre on the beef breeding herd-cash crop farms to \$164 per acre on large dairy farms. This compares with sales prices for 1974 as reported by Christianson and Raup¹ of \$199 per acre for northwestern Minnesota (including the Red River Valley) and \$144 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.

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. For example, where cash crops are

1. Christianson, Rod and Philip M. Raup, "The Minnesota Real Estate Market in 1974." Economic Report ER75-1, Department of Agricultural and Applied Economics, University of Minnesota, January 1975.

Table 2. Summary of Inventories by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
1. No. of farms	80	89	49	24	23	99	35	217
2. Acres in farm	255	316	401	432	526	537	561	849
Average capital managed January 1, 1974								
3. Dairy cows	\$ 7565	\$11759	\$15948	\$20119	\$30048	\$11381	\$ 161	\$ 169
4. Other dairy cattle	4362	7468	10249	12159	18052	7329	26	177
5. Beef cattle	1521	1204	1818	1902	1286	3414	19926	7765
6. Hogs	350	276	86	17	-	404	65	481
7. Other lvstk.	19	128	1	7	-	217	289	403
8. Total lvstk.	<u>\$13817</u>	<u>\$20835</u>	<u>\$28102</u>	<u>\$34204</u>	<u>\$49386</u>	<u>\$22745</u>	<u>\$20467</u>	<u>\$ 8995</u>
9. Crops, seed, feed	\$ 3609	\$ 6165	\$ 9603	\$12637	\$18928	\$18717	\$10722	\$53897
10. Auto & truck (fm. sh.)	\$ 1122	\$ 1692	\$ 1558	\$ 1570	\$ 2369	\$ 2340	\$ 2308	\$ 4943
11. Tractors & crop mach.	4507	8560	12568	15054	22121	14621	8943	20778
12. Lvstk. equip.	1226	3216	4299	6355	12204	2713	938	373
13. Total equip.	<u>\$ 6855</u>	<u>\$13468</u>	<u>\$18425</u>	<u>\$22979</u>	<u>\$36694</u>	<u>\$19674</u>	<u>\$12189</u>	<u>\$26094</u>
14. Land	\$13724	\$20658	\$30944	\$24719	\$42671	\$47208	\$37178	\$109698
15. Buildings, fencing*	<u>6147</u>	<u>10758</u>	<u>15283</u>	<u>21045</u>	<u>36468</u>	<u>13125</u>	<u>7380</u>	<u>9720</u>
16. Total capital	\$44152	\$71884	\$102357	\$115584	\$184147	\$121469	\$87936	\$208404
17. Value of bldgs. per acre*	\$ 24	\$ 34	\$ 38	\$ 49	\$ 69	\$ 24	\$ 13	\$ 11
18. Value of land per acre	<u>54</u>	<u>65</u>	<u>77</u>	<u>57</u>	<u>81</u>	<u>88</u>	<u>66</u>	<u>129</u>
19. Total value per acre*	\$ 78	\$ 99	\$115	\$106	\$150	\$112	\$ 79	\$140
Average capital managed December 31, 1974								
20. Total capital	\$46991	\$76048	\$110447	\$123372	\$198328	\$130657	\$89729	\$241705

* Not including farm dwelling.

Table 3. Average Investment in Real Estate, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
Land (beg. of yr.)	\$13724	\$20658	\$30944	\$24719	\$42671	\$47208	\$37178	\$109698
Farm buildings	6147	10758	15283	21045	36468	13125	7380	9720
Est. investment in dwelling	7000	7000	7000	7000	7000	7000	7000	7000
Total investment in real estate	\$26871	\$38416	\$53227	\$52764	\$86139	\$67333	\$51558	\$126418
Number of acres	255	316	401	432	526	537	561	849
Average investment per acre	\$105	\$122	\$133	\$122	\$164	\$125	\$ 92	\$149

the major enterprise, large amounts of capital are used. More intensive farms, such as those with dairy cattle, tend to have smaller capital investments, except for those farms with large numbers of dairy cows.

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 and management earnings" (line 43) 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 all 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, 1974 and December 31, 1974, 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 the year) and sold this year.
3. Products bought but not fully used up during the year, such as fertilizer, depreciable assets, etc.
4. Products sold that were previously purchased, such as feeder pigs and feeder cattle.

Table 4. Summary of Earnings - Cash Statement, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
RECEIPTS								
1. Dairy cattle	\$ 2284	\$ 3332	\$ 4853	\$ 4876	\$ 9032	\$ 3948	\$ 99	\$ 196
2. Dairy products	12958	22110	32587	40219	63771	21175	251	196
3. Beef cattle	486	287	329	706	738	893	7196	2414
4. Hogs	408	323	190	19	-	673	70	766
5. Other livestock	18	107	-	47	-	237	173	392
6. Wheat, other sm gr	295	417	1190	1755	514	15347	8246	53383
7. Row crops	53	98	524	128	326	1466	19	16262
8. Other crops*	205	279	438	256	312	1295	1443	2052
9. Other cap assets	300	439	603	1219	1515	642	635	3295
10. Work off farm	238	236	225	167	155	574	545	705
11. Misc fm income	189	341	368	788	1501	634	607	2111
12. Total fm sales	\$17434	\$29969	\$41307	\$50180	\$77864	\$46884	\$19284	\$81772
13. Incr in capital	2839	4164	8090	7788	14181	9188	1793	33301
14. Fam liv fr fm	551	679	787	803	1002	807	393	163
15. Total received	\$20827	\$32812	\$50184	\$58771	\$93047	\$56879	\$21470	\$115236
EXPENSES								
16. Dairy cattle	\$ 1236	\$ 876	\$ 1283	\$ 1538	\$ 2893	\$ 1547	\$ -	\$ 42
17. Beef cattle	230	116	68	-	-	144	1432	1746
18. Hogs	27	6	9	3	-	60	10	113
19. Other lvstk.	9	31	2	5	-	24	8	5
20. Misc lvstk exp	569	1109	1535	2093	3108	1123	310	185
21. Feed	3525	4711	6884	7666	15098	3267	502	846
22. Fertilizer	326	927	1346	2008	2528	3103	2316	10520
23. Other crop exp	554	1005	1437	1829	2645	2732	1676	9225
24. Custom work hired	700	1176	1900	2096	2558	1350	470	1301
25. Gas, oil, grease	1019	1193	1672	2006	2697	2301	1649	3556
26. Rep auto, truck trac, crp mach	1068	1514	2367	2517	3192	2979	1686	4377
27. Rep real estate	256	448	747	670	1138	834	341	896
28. Rep lvstk equip	143	242	264	287	1116	279	86	65
29. Wages hired labor	322	707	1443	1897	3857	1754	649	3262
30. Elec expense	322	430	536	694	1061	485	224	253
31. Real est taxes	237	325	497	566	1082	770	459	1615
32. Gen farm exp	479	707	912	1164	2192	956	648	1437
33. Total cash exp	\$11022	\$15523	\$22902	\$27039	\$45165	\$23708	\$12466	\$39444
34. New pow & mach	2899	4606	6781	7348	9210	8426	4164	19698
35. New lvstk equip	681	723	1988	1766	3329	1670	244	306
36. New buildings	2889	2937	5643	6843	5642	6035	917	7360
37. Total purch	\$17491	\$23789	\$37314	\$42996	\$63346	\$39839	\$17791	\$66808
38. Decr in fm cap	-	-	-	-	-	-	-	-
39. Interest @ 6%	2734	4438	6384	7169	11474	7564	5330	13503
40. Unpd fam labor**	840	561	648	1336	1383	886	441	201
41. Board hired lab	42	51	253	286	128	77	-	55
42. Total expenses	\$21107	\$28839	\$44599	\$51787	\$76331	\$48366	\$23562	\$80567
43. Labor & mgmt earnings	\$ -280	\$ 3973	\$ 5585	\$ 6984	\$16716	\$ 8513	\$-2092	\$34669
44. Net cash income (lines 12-37)\$	-57	\$ 6180	\$ 4166	\$ 7184	\$14518	\$ 7045	\$ 1493	\$14964

* Includes receipts from diverted acre payments.

** Includes a charge for partner's labor above one full time individual.

5. Depreciation on capital assets.

6. Casualty losses.

Approximately 50 to 65 percent of each dollar of sales was required to pay cash operating expenses (table 5). Purchased feeds were an important item on the dairy farms, fertilizer purchases the largest single expense on cash crop farms. Capital expenditures showed more variation. The amount of net cash income above all purchases was 0 to 19 percent. This is the amount available for living expenses, interest on money borrowed, debt retirement, and other savings.

Table 5. Purchases per \$100 of Total Sales, by Type of Farming, 1974*

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
1. Dairy cows	\$ 7.09	\$ 3.14	\$ 3.11	\$ 3.06	\$ 3.72	\$ 3.30	\$ -	\$.05
2. Beef cattle	1.32	.41	.16	-	-	.31	7.43	2.14
3. Other lvstk	.21	.13	.03	.02	-	.18	.09	.14
4. Misc lvstk exp	3.26	3.96	3.72	4.16	3.99	2.40	1.61	.23
5. Feed	20.22	16.84	16.66	15.28	19.39	6.97	2.60	1.03
6. Fertilizer	1.87	3.31	3.26	4.00	3.25	6.62	12.01	12.86
7. Other crp exp	3.18	3.60	3.48	3.64	3.40	5.83	8.69	11.28
8. Cust work hired	4.02	4.20	4.60	4.18	3.28	2.88	2.43	1.59
9. Gas, oil, gr	5.84	4.27	4.05	4.00	3.46	4.90	8.55	4.35
10. Rep auto, truck, tractor, crop machinery	6.12	5.41	5.73	5.02	4.10	6.35	8.74	5.35
11. Rep real estate	1.46	1.60	1.80	1.34	1.46	1.78	1.77	1.10
12. Rep lvstk equip	.82	.87	.64	.57	1.43	.60	.45	.08
13. Wages of hired labor	1.85	2.53	3.49	3.78	4.95	3.74	3.37	3.99
14. Electricity exp	1.85	1.54	1.30	1.38	1.36	1.03	1.16	.31
15. Real est taxes	1.36	1.16	1.20	1.13	1.39	1.64	2.38	1.98
16. Gen farm exp	<u>2.75</u>	<u>2.53</u>	<u>2.21</u>	<u>2.32</u>	<u>2.82</u>	<u>2.04</u>	<u>3.36</u>	<u>1.76</u>
17. Total operating expense	\$63.22	\$55.50	\$55.44	\$53.88	\$58.00	\$50.57	\$64.64	\$48.24
18. New power and machinery	16.63	16.47	16.42	14.64	11.82	17.97	21.59	24.09
19. New livestock equipment	3.90	2.58	4.81	3.52	4.28	3.56	1.27	.37
20. New buildings	<u>16.57</u>	<u>10.50</u>	<u>13.66</u>	<u>13.64</u>	<u>7.25</u>	<u>12.87</u>	<u>4.76</u>	<u>9.00</u>
21. Total purch	\$100.32	\$85.05	\$90.33	\$85.68	\$81.35	\$84.97	\$92.26	\$81.70

* Total purchases and sales are shown in table 4.

Table 6. Summary of Earnings - Enterprise Statement, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
RECEIPTS AND NET INCREASES								
1. Milk cows	\$12459	\$21549	\$31903	\$39079	\$63859	\$20832	\$ 213	\$ 174
2. Other dairy cattle	1435	2507	3852	3082	8324	2840	16	10
3. Beef breed herd	19	123	26	160	93	95	5037	400
4. Feeder cattle	-157	0	22	49	87	27	-288	202
5. Hogs	151	188	163	19	-	493	54	426
6. Other lvstk	26	51	21	55	-	160	194	126
7. Total produc livestock	\$13933	\$24418	\$35987	\$42444	\$72363	\$24447	\$ 5226	\$ 1338
8. Feed fed	10072	16050	23879	28573	42953	17497	6574	4200
9. Value added by livestock	\$ 3861	\$ 8368	\$12108	\$13871	\$29410	\$ 6950	\$-1348	\$-2862
10. Crops, seed feed	7055	11142	17121	20181	29747	27592	13739	72518
11. Misc farm inc*	189	341	368	788	1501	634	607	2111
12. Total value added	\$11105	\$19851	\$29597	\$34840	\$60658	\$35176	\$12998	\$71767
EXPENSES AND NET DECREASES								
13. Truck & auto (fm sh)	\$ 1200	\$ 1637	\$ 2183	\$ 2171	\$ 3298	\$ 2516	\$ 1067	\$ 3284
14. Electricity	322	430	536	694	1061	485	224	253
15. Tractors & mach	2716	3932	6058	7015	9618	7517	4894	13110
16. Lvstk equipment	389	644	985	1414	3069	965	181	146
17. Bldgs, fencing	790	1300	1915	2081	3666	1874	934	1938
18. Bare land**	738	-99	173	-517	-669	191	0	-1953
19. Misc lvstk exp	569	1109	1535	2093	3108	1123	310	185
20. Labor***	1211	1456	2834	4007	6043	2703	1043	3579
21. R E taxes	237	325	497	566	1082	770	459	1615
22. Gen farm exp	479	707	912	1164	2192	956	649	1438
23. Interest @ 6%	2734	4437	6384	7168	11474	7563	5329	13503
24. Total expenses	\$11385	\$15878	\$24012	\$27856	\$43942	\$26663	\$15090	\$37098
25. Labor & mgmt earnings	\$ -280	\$ 3973	\$ 5585	\$ 6984	\$16716	\$ 8513	\$-2092	\$34669

* Includes diverted acre payment.

** Negative values on bare land show gains or net increases in land values; positive values are decreases in land values. Such values generally are the result of selling land at a greater (-) or lesser (+) value than the land was carried on the depreciation schedule.

*** Includes wages paid and value of board to hired labor, unpaid family labor, a charge for partners above one full time individual, and the labor 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 differences 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 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 49 to 64 percent of the income is from crops in this year of high crop prices and low livestock prices. 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, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
Livestock (return over feed)	34.8	42.2	40.9	39.8	48.5	19.8	-10.4	-4.0
Crops (net in- creases)	63.5	56.1	57.8	57.9	49.0	78.4	105.7	101.0
Miscellaneous income	<u>1.7</u>	<u>1.7</u>	<u>1.3</u>	<u>2.3</u>	<u>2.5</u>	<u>1.8</u>	<u>4.7</u>	<u>3.0</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

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 \$2454 as a return for the operator's labor, management and capital. Large dairy farms, on the other hand, yielded a return to capital managed of 10.6 percent and \$8000 return to the farm operator for his labor and management. (See table 8). Cash crop farms reported even higher returns on capital managed. However, if current market prices are applied to real estate in lieu of "book" values, rate earned on capital would be considerably smaller. Also, crop prices in 1974 were unusually high relative to the previous years.

Table 8. Rate Earned on Capital Managed, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
1. Labor earnings	\$ -280	\$ 3973	\$ 5585	\$ 6984	\$16716	\$ 8513	\$-2092	\$34669
2. Interest on capital mgd	<u>2734</u>	<u>4437</u>	<u>6384</u>	<u>7168</u>	<u>11474</u>	<u>7563</u>	<u>5329</u>	<u>13503</u>
3. Total (1+2)	\$ 2454	\$ 8410	\$11969	\$14152	\$28190	\$16076	\$ 3237	\$48172
4. Est wage for operator	<u>8000</u>	<u>8000</u>	<u>8000</u>	<u>8000</u>	<u>8000</u>	<u>8000</u>	<u>8000</u>	<u>8000</u>
5. Return to capital (3-4)	\$-5546	\$ 410	\$ 3969	\$ 6152	\$20190	\$ 8076	\$-4763	\$40172
6. Ave capital managed	\$45572	\$73966	\$106402	\$119478	\$191238	\$126063	\$38832	\$225054
7. Rate earned on capital mgd	0%	0.6%	3.7%	5.2%	10.6%	6.4%	0%	17.8%

LAND USE AND CROP YIELDS

Specialized dairy farms have a large proportion of land in pasture, hay, and silage crops (table 9). Wheat, barley and oats are the predominant small grains. Some corn for grain and soybeans are raised on farms in the southern portion of the area. Sugar beets and sunflowers are important on cash crop farms. Farms which depend on cash crops as a source of income generally have a higher proportion of their land that is tillable than

do farms with dairy as a major enterprise. Average crop yields are shown in table 10. Variations in average yields were large and, in part, reflect differences in soils and climate. Dairy and cash crop farms tend to have higher average yields than the other groups.

Table 9. Distribution of Acres in Farm, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
1. Barley	1.7	.9	4.1	4.8	4.7	27.7	18.1	75.9
2. Oats	25.2	28.4	39.5	47.7	32.5	62.4	36.2	27.6
3. Wheat	1.2	3.8	9.0	22.5	6.7	81.2	51.0	296.4
4. Flax	-	-	.5	.1	.5	9.0	1.5	15.4
5. Other sm grains	<u>.1</u>	<u>.1</u>	<u>.7</u>	<u>3.1</u>	<u>-</u>	<u>4.2</u>	<u>.7</u>	<u>17.8</u>
6. Total sm grains	28.2	33.2	53.8	78.2	44.4	184.5	107.5	433.1
7. Corn grain	3.0	10.3	15.6	16.9	35.8	12.1	3.0	9.9
8. Corn silage	13.7	25.3	36.2	46.9	82.8	26.7	7.0	6.7
9. Soybeans	.5	.2	.9	-	.5	2.4	-	7.0
10. Sunflowers*	-	-	-	-	-	.5	-	18.0
11. Sugar beets	-	-	-	-	-	-	-	26.2
12. Other cult crops	<u>-</u>	<u>.2</u>	<u>.2</u>	<u>-</u>	<u>-</u>	<u>.9</u>	<u>-</u>	<u>7.4</u>
13. Total cult crops	17.2	36.0	52.9	63.8	119.1	42.6	10.0	75.2
14. Alfalfa hay	9.6	22.6	28.8	30.0	59.7	19.4	10.6	4.9
15. Other leg hay	39.2	46.2	66.0	69.6	2.2	90.8	87.5	36.2
16. Other hay	2.1	10.1	5.3	5.5	13.8	6.5	13.7	6.4
17. Grass seed	<u>-</u>	<u>.6</u>	<u>2.5</u>	<u>1.2</u>	<u>-</u>	<u>5.6</u>	<u>9.2</u>	<u>17.1</u>
18. Total till land in hay	50.9	79.5	102.6	106.3	75.7	122.3	121.0	64.6
19. Total till land in pasture	28.0	18.8	25.6	19.0	60.8	21.4	66.3	26.6
20. Till land not cropped	<u>4.3</u>	<u>8.9</u>	<u>12.8</u>	<u>30.4</u>	<u>10.0</u>	<u>61.8</u>	<u>58.1</u>	<u>129.9</u>
21. Total tillable land	128.6	176.4	247.7	297.7	310.0	432.6	362.9	729.4
22. Non-till land	<u>126.5</u>	<u>139.5</u>	<u>152.9</u>	<u>134.4</u>	<u>215.9</u>	<u>104.6</u>	<u>197.8</u>	<u>119.4</u>
23. Total acres in farm	255.1	315.9	400.6	432.1	525.9	537.2	560.7	848.8
24. Percent land tillable	50.4%	55.8%	61.7%	68.9%	59.0%	80.5%	64.7%	85.9%

* Includes sunflowers grown for seed.

Table 10. Crop Yields per Acre, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
1. Barley, bu.	32.8	30.4	49.7	39.9	31.9	35.2	25.3	39.8
2. Oats grain, bu.	25.4	33.6	37.2	36.6	43.1	42.0	35.0	38.4
3. Wheat, bu.	24.7	20.1	23.5	15.1	*	26.0	29.1	28.9
4. Flax, bu.	-	-	*	*	*	8.7	*	9.8
5. Corn grain, bu.	33.1	44.2	43.9	42.6	46.2	48.1	19.4	40.3
6. Corn silage, T.	7.3	7.7	8.4	9.5	8.8	8.7	7.0	6.7
7. Soybeans, bu.	*	*	*	-	*	17.9	-	**
8. Sugar beets, T.	-	-	-	-	-	-	-	11.4
9. Alfalfa hay, T.	2.4	2.7	2.7	2.9	3.3	2.8	1.9	2.6
10. Other leg. hay, T.	1.8	2.2	2.0	2.2	2.2	2.4	1.8	1.9

* Less than 5 cases.

** Not available.

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 \$270 for small herds to \$423 for large herds. The three large dairy herd categories had the highest production per cow and the highest price received for 100 pounds of milk sold. They also had relatively high total feed costs per cow. The largest herd category had a price advantage of 52 cents more per hundred pounds than the smallest herd category.

The return for \$100 of feed fed ranged from \$174 to \$192. Feed is the largest single item of cost for all classes of livestock and, in the case of dairy cattle, usually 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. The negative return over feed cost is attributed to the low prices received for dairy cull calves and dairy steers which were kept as part of the other dairy cattle herd. 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. Attention must be given in planning, however, to the unusual price relationships for other dairy in 1974. 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 number of beef cattle per farm is small (43 cows and 41 head of other beef cattle). A total of 194 acres of silage, hay and pasture was used to provide roughages. This amounts to about 4.5 acres per cow, including young stock.

Table 11. Factors of Costs and Returns from Dairy Cows, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops
Number of cows	20	30	40	50	72	31
Pounds of milk per cow	9485	10319	11302	10910	11641	9920
Percent butterfat in milk	3.6	3.7	3.6	3.6	3.7	3.6
Pounds of butterfat per cow	339	377	404	392	425	354
Price received per pound of BF	\$2.00	\$2.03	\$2.09	\$2.09	\$2.10	\$2.08
Price received per cwt. of milk	\$7.17	\$7.44	\$7.48	\$7.52	\$7.69	\$7.42
Value of produce per cow:						
Dairy product sales	\$657.77	\$741.95	\$827.08	\$805.99	\$880.81	\$716.63
Dairy produce used in home	9.85	7.72	7.31	5.53	5.75	9.87
Milk fed to livestock	11.47	14.70	9.95	8.88	6.41	10.10
Net increase in value of cows	<u>-46.65</u>	<u>-41.28</u>	<u>-34.62</u>	<u>-37.25</u>	<u>-10.95</u>	<u>-34.58</u>
Total value produced	\$632.44	\$723.09	\$809.72	\$783.15	\$882.02	\$702.02
Feed per cow, lbs.:						
Corn	862	1345	1579	1586	2686	938
Small grain & complete dairy ration	4623	2604	2981	2357	2805	2824
Protein, salt, mineral	263	256	325	499	368	386
Total concentrates	5748	4205	4885	4442	5859	4148
Total hay	9201	7829	6970	6146	6411	7923
Total silage	5787	9403	10240	13206	13442	9022
Feed cost per cow:						
Concentrates	\$199.09	\$200.63	\$240.27	\$237.44	\$250.85	\$199.67
Roughages	154.42	177.05	180.05	188.66	205.41	173.66
Pasture	<u>9.34</u>	<u>7.15</u>	<u>6.65</u>	<u>4.37</u>	<u>2.42</u>	<u>10.36</u>
Total feed cost	\$362.85	\$384.83	\$426.97	\$430.47	\$458.68	\$383.69
Return above feed cost per cow	\$269.59	\$338.26	\$382.75	\$352.68	\$423.34	\$318.33
Return for \$100 of feed	\$174	\$188	\$189	\$182	\$192	\$183
Feed cost per pound of butterfat	\$1.07	\$1.02	\$1.06	\$1.10	\$1.08	\$1.08
Feed cost per cwt. milk produced	\$3.83	\$3.73	\$3.78	\$3.95	\$3.94	\$3.87

Table 12. Feed Costs and Returns from Other Dairy Cattle, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops
Number of head	24	39	51	57	86	43
Net increase in value per head	\$60.74	\$65.84	\$70.24	\$54.07	\$96.34	\$66.78
Feed per head, lbs.:						
Concentrates	486	429	692	632	621	676
Hay	2611	2950	2617	2518	2461	2925
Silage	1426	2720	2968	3748	4075	3764
Whole milk	146	171	102	108	82	105
Total feed cost per head	\$83.62	\$98.37	\$108.15	\$108.36	\$105.03	\$109.51
Return above feed cost per head	\$-22.88	\$-32.53	\$-37.91	\$-54.29	\$ -8.69	\$-42.73
Returns for \$100 of feed	\$73	\$67	\$65	\$50	\$92	\$61

Table 13. Feed Costs and Returns from All Dairy Cattle, on a per Cow Basis, by Type of Farming, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops
Value of produce per cow:						
Dairy products	\$679.09	\$764.36	\$844.37	\$820.40	\$892.98	\$736.57
Net increase in value	26.19	42.89	63.15	24.51	104.02	54.31
Total value produced	\$705.28	\$807.25	\$907.52	\$844.91	\$997.00	\$790.88
Feed per cow, lbs.:						
Concentrates	6359	4801	5915	5177	6609	5078
Hay	12506	11718	10868	9022	10400	11882
Silage	7492	13184	15014	17486	18305	14095
Total feed cost per cow	\$465.74	\$517.01	\$590.00	\$554.19	\$584.00	\$532.06
Return above feed cost per cow	\$239.54	\$290.24	\$317.52	\$290.72	\$413.00	\$258.82
Returns for \$100 of feed	\$151	\$156	\$154	\$153	\$171	\$149
Misc livestock expenses per cow	\$20.30	\$25.27	\$25.66	\$28.74	\$29.46	\$23.66
Veterinary expenses per cow	8.78	11.21	13.02	13.17	14.67	11.24
Custom work hired per cow*	28.88	29.33	32.87	32.55	28.65	30.36
Lvstk equip expense per cow	18.92	21.02	24.33	27.46	42.47	31.09

* Includes milk and livestock hauling and feed grinding.

** Includes the fixed costs of depreciation and the variable costs of repairs and upkeep.

Table 14. Feed Costs and Returns from Beef Cows, 1974

Item	Average of 35 herds
Number of beef cows	43
Number of other beef cattle	41
Value produced per cow	\$121.89
Feed per cow, lbs.:	
Concentrates	626
Hay	6855
Silage	3514
Feed cost per cow:	
Concentrates	\$ 23.97
Roughages	103.90
Pasture	21.48
Total feed cost per cow	\$149.35
Return above feed cost per cow	\$-27.46
Return for \$100 of feed	\$82
Net gain in weight produced, lbs.	24017
Pounds of beef produced per cow	555
Price received per 100 lbs. sold	\$32.23
Average weight per calf sold or transferred to feed lot	457
Percent death loss	3.4
Miscellaneous livestock expense per cow	\$4.76
Veterinary expense per cow	2.42

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 \$2454 available to pay for the operator's labor and capital managed. Large dairy farms yielded a return large enough to provide \$8000 for labor performed by the operator and yield 10.6 percent return on the "book" value of capital managed. Cash crop farms yielded even higher returns on capital managed.

Table 15. Some Characteristics of Various Types of Farms, Northern Minnesota, 1974

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45-54 cows	Dairy, 55 cows & over	Dairy, cash crops	Beef br., cash crops	Cash crops
Earnings								
1. Net cash income	\$ -57	\$ 6180	\$ 4166	\$ 7184	\$14518	\$ 7045	\$ 1493	\$14964
2. Labor & mgmt. earnings	\$ -280	\$ 3973	\$ 5585	\$ 6984	\$16716	\$ 8513	\$-2092	\$34669
3. Rate earned on investment	0	0.6	3.7	5.2	10.6	6.4	0	17.8
Land								
4. Acres per farm	255	316	401	432	526	537	561	849
5. Tillable acres	129	176	248	298	310	433	363	729
6. % till land in								
Small grain	22	19	22	26	14	43	29	59
Cult crops	14	20	21	22	39	10	3	10
Hay & pasture	61	56	52	42	44	33	52	13
Not cropped	3	5	5	10	3	14	16	18
Labor								
7. No. of workers	1.4	1.4	1.7	2.2	2.9	1.7	1.3	1.7
8. Work units per worker	166	243	266	248	263	251	382	193
Capital								
9. Total capital managed	\$45572	\$73966	\$106402	\$119478	\$191238	\$126063	\$88832	\$225054
10. Capital managed per worker	\$32551	\$52833	\$ 62589	\$ 54308	\$ 65944	\$ 74155	\$68332	\$132385
Size of business								
11. Total work units	233	341	452	545	764	427	497	328
12. Net value added								
% by livestock	35	42	41	40	49	20	-10	-4
% by crops	63	56	58	58	49	78	106	101
% by miscel.	2	2	1	2	2	2	4	3
Expenses								
13. Total oper exp	\$11022	\$15523	\$22902	\$27039	\$45165	\$23708	\$12466	\$39444
14. Purch of capital items	\$ 6469	\$ 8266	\$14412	\$15957	\$18181	\$16131	\$ 5325	\$27364
15. Pow, mach, equip, & bldg exp/WU	\$26.42	\$23.00	\$26.22	\$23.59	\$26.23	\$31.73	\$14.69	\$51.15
16. Trac & mach exp per crop acre	\$28.20	\$26.44	\$28.94	\$28.25	\$40.21	\$21.51	\$20.52	\$22.88
17. Total operating exp per \$100 of sales	\$63.22	\$55.50	\$55.44	\$53.88	\$58.00	\$50.57	\$64.64	\$48.24

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 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 1.3 to 1.7 workers. Small dairy farms had only 1.4 workers and large dairy farms had an average of 2.9 workers.

In terms of work units, large dairy farms had the largest business, with 764 productive man work units. Small dairy 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 earnings levels of the various types of farms may change from year to year.