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1970 Farm Business Summary

By Type of Farming for Northern Minnesota

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INTRODUCTION

This report summarizes 1970 farm business records by type of farming for 229 northern Minnesota farmers. Farm records were supplied by area vocational-technical schools at Duluth and Thief River Falls. Except for 32 cash crop farms in the Red River Valley, 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.

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

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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
Cash crops, Red River Valley	32
Cash crops, east of Valley	25
Dairy, under 25 cows	46
Dairy, 25-34 cows	54
Dairy, 35-44 cows	22
Dairy, 45 cows and over	21
Dairy and cash crops	29
Total	229

Records included are for only one year. Farm earnings in 1970 were lower than in 1969 because of adverse weather conditions. Differences in climatic conditions as well as variation in general price levels are factors which the farmer cannot control.

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 the price inflation or the increase in real value which occurred after many of the farms were purchased. Capital managed also includes the values of any assets furnished by landlords.

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. In this study, where cash crops are 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 3. 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.

Table 2. Summary of Inventories by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
1. Number of cases	32	25	46	54	22	21	29
2. Acres in farm	742	1281	292	363	355	471	549
			Average capital managed as of January 1, 1970				
3. Dairy cows	$ 384	$ -	$ 5390	$ 7965	$10075	$15094	$ 6832
4. Other dairy cattle	220	-	2617	4175	5643	8177	3561
5. Beef cattle	5891	2661	98	209	75	1048	1039
6. Hogs	1287	-	69	159	209	-	280
7. Sheep	96	679	131	108	-	18	77
8. Other livestock	652	-	13	20	-	-	10
9. Total livestock	$ 8530	$ 3340	$ 8318	$12636	$16002	$24337	$11799
10. Crops, seed, feed	$20819	$26910	$ 2580	$ 3186	$ 4431	$ 7407	$ 6478
11. Auto & truck (fm.sh.)	$ 3492	$ 3109	$ 1038	$ 1354	$ 1014	$ 2098	$ 1923
12. Tractors & crop mach.	17745	20846	4211	6586	8377	13410	12032
13. Livestock equipment	902	160	922	1960	3278	7371	2084
14. Total equipment	$22139	$24115	$ 6171	$ 9900	$12669	$22879	$16039
15. Land	$160545	$118466	$13514	$18576	$18722	$38300	$59326
16. Buildings, fencing*	12073	11503	5946	7643	10168	18358	9707
17. Total capital	$224106	$184334	$36529	$51941	$61992	$111281	$103349
18. Value of bldgs. per acre	$ 16	$ 9	$ 20	$ 21	$ 29	$ 39	$ 18
19. Value of land per acre*	216	92	46	51	52	81	108
20. Total value per acre*	$ 232	$ 101	$ 66	$ 72	$ 81	$ 120	$ 126
			Average capital managed as of December 31, 1970				
21. Total capital	$225182	$187426	$39295	$54997	$65511	$117780	$105672

* Not including farm dwelling.

Increases in farm capital are reported as a receipt and decreases in farm capital are reported as an expense in table 3. Increases or decreases are the differences in the average farm capital between January 1, 1970 and December 31, 1970, 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.

Table 3. Summary of Earnings - Cash Statement, by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 25-44 cows	Dairy, 45 cows & over	Dairy, cash crops
RECEIPTS							
1. Dairy cattle	$ 229	$ -	$ 2655	$ 4043	$ 4724	$ 6302	$ 3622
2. Dairy products	767	-	9157	15434	21808	35466	13605
3. Beef cattle	8073	1663	101	80	17	1599	612
4. Hogs	2894	19	174	241	363	-	384
5. Sheep	180	611	140	85	-	-	73
6. Other livestock	2786	11	23	57	-	80	51
7. Crops	29291	32815	652	687	1016	1434	8647
8. Other capital assets	422	780	140	144	146	483	478
9. Work off the farm	608	476	155	110	181	251	267
10. Misc. farm income	4537	5433	468	584	784	1013	1651
11. Total sales	$49787	$41808	$13665	$21465	$29039	$46628	$29390
12. Increase in capital	1076	3092	2766	3056	3519	6499	2323
13. Fam. liv. from farm	181	125	391	469	502	533	497
14. Total received	$51044	$45025	$16822	$24990	$33060	$53660	$32210
EXPENSES							
15. Dairy cattle bought	$ 87	$ -	$ 601	$ 530	$ 1514	$ 422	$ 1000
16. Beef cattle bought	4461	400	5	6	-	477	16
17. Hogs bought	131	93	46	25	-	13	130
18. Sheep bought	45	53	47	8	-	-	-
19. Other livestock bought	953	2	3	15	-	-	-
20. Misc. livestock expense	413	26	512	853	1308	2100	670
21. Feed bought	2823	174	1939	3357	4900	6928	1723
22. Fertilizer bought	3436	3977	339	540	756	1457	1301
23. Other crop expenses	4862	5028	402	522	1214	1520	1749
24. Custom work hired	636	828	710	1094	1328	2454	964
25. Gas, oil, grease bought	1657	2142	695	939	995	1388	1518
26. Rep. auto, truck, trac. & crop machinery	2268	2342	784	1218	1307	1923	1807
27. Repair of real estate	244	304	212	280	368	632	476
28. Repair of lvstk. equip.	224	22	202	225	347	548	230
29. Wages of hired labor	1458	1846	276	614	1070	2288	998
30. Electricity expense	241	196	266	371	493	638	370
31. Real estate taxes	1458	2078	365	512	542	983	884
32. General farm expense	758	971	282	464	524	745	622
33. Total cash expense	$26155	$20482	$ 7686	$11573	$16666	$24516	$14458
34. New power & machinery	4314	6226	1569	2700	2730	5371	2728
35. New lvstk. equipment	138	30	580	400	549	930	334
36. New buildings	1210	5839	1460	1910	1531	2402	2928
37. Total purchases	$31817	$32577	$11295	$16583	$21476	$33219	$20448
38. Decrease in farm cap.	-	-	-	-	-	-	-
39. Interest at 6 percent	13479	11152	2274	3207	3825	6872	6270
40. Unpaid family labor	975	760	938	918	514	1485	1039
41. Board for hired labor	54	47	48	39	87	162	29
42. Total expenses	$46325	$44536	$14555	$20747	$25902	$41738	$27786
43. Labor earnings	$ 4719	$ 489	$ 2267	$ 4243	$ 7158	$11922	$ 4424
44. Net cash income (line 11 - line 37)	$17970	$ 9231	$ 2370	$ 4882	$ 7563	$13409	$ 8942

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.

5. Depreciation on capital items.

6. Casualty losses.

About 50 percent of each dollar of sales is required to pay cash operating expenses (table 4). A relatively large proportion of the purchases per $100 of total sales on specialized crop farms was for crop expenses, including fertilizers. Purchased feeds were an important item on the dairy farms. Capital expenditures showed more variation. The amount remaining above all purchases, 36 percent in the case of the Red River Valley crop farms and 17 percent in the case of small dairy farms, is left for family living expenses, interest on money borrowed, debt retirement and other savings.

Table 4. Purchases per $100 of Total Sales, by Type of Farming, 1970*

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
1. Dairy cattle bought	$ .17	$ -	$ 4.40	$ 1.94	$ 5.21	$ .91	$ 3.40
2. Beef cattle bought	8.97	.96	.04	.02	-	1.02	.05
3. Hogs bought	.26	.22	.34	.09	-	.03	.44
4. Sheep bought	.09	.13	.34	.03	-	-	-
5. Other livestock	1.88	-	.02	.05	-	-	-
6. Misc. livestock	.83	.06	3.75	3.12	4.50	4.50	2.28
7. Feed bought	5.67	.42	14.19	12.28	16.88	14.86	5.86
8. Fertilizer bought	6.91	9.51	2.48	1.98	2.60	3.12	4.43
9. Other crop expenses	9.76	12.03	2.94	1.91	4.18	3.26	5.95
10. Custom work hired	1.28	1.98	5.20	4.00	4.58	5.26	3.28
11. Gas, oil, grease bought	3.34	5.12	5.09	3.44	3.43	2.98	5.16
12. Rep. auto, truck, trac. & crop machinery	4.55	5.60	5.74	4.46	4.50	4.11	6.15
13. Repair of real estate	.49	.73	1.55	1.02	1.27	1.36	1.62
14. Repair livestock equip.	.45	.05	1.48	.82	1.19	1.18	.78
15. Wages of hired labor	2.94	4.42	2.02	2.25	3.68	4.91	3.40
16. Electric expense	.48	.47	1.95	1.36	1.70	1.37	1.26
17. Real estate taxes	2.94	4.97	2.67	1.87	1.87	2.11	3.01
18. General farm expense	1.52	2.32	2.06	1.70	1.80	1.60	2.12
19. Total operating exp.	$52.53	$48.99	$56.26	$42.34	$57.39	$52.58	$49.19
20. New power & machinery	8.66	14.89	11.48	9.88	9.41	11.52	9.28
21. New livestock equip.	.28	.07	4.24	1.46	1.89	1.99	1.14
22. New buildings & RE	2.43	13.97	10.68	6.99	5.27	5.15	9.96
23. Total purchases	$63.90	$77.92	$82.66	$60.67	$73.96	$71.24	$69.57

* Total purchases and sales are shown in table 3.

Table 5. Summary of Earnings - Enterprise Statement, by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
RECEIPTS AND NET INCREASES							
1. Milk cows	$ 770	$ -	$ 9524	$15866	$22337	$36192	$14265
2. Other dairy cattle	86	-	3021	4415	5215	8421	3481
3. Beef breeding herd	798	1136	49	99	22	140	300
4. Feeder cattle	3300	426	62	-	22	468	167
5. Hogs	2564	84	142	196	264	7	364
6. Sheep-farm flock	145	456	121	75	-	-	69
7. Other livestock	1918	83	28	55	-		48
8. Total product. lvstk.	$ 9581	$ 2185	$12947	$20706	$27860	$45228	$18694
9. Feed fed	6040	1231	5854	8892	12144	18770	8078
10. Return over feed	$ 3541	$ 954	$ 7093	$11814	$15716	$26458	$10616
11. Crops, seed, feed	24761	21395	3621	5230	6162	12431	11419
12. Income, work off farm	144	120	78	67	123	73	74
13. Misc. farm income	4537	5433	468	584	784	1031	1651
14. Total receipts	$32983	$27902	$11260	$17695	$22785	$39993	$23760
EXPENSES AND NET DECREASES							
15. Truck & auto (fm.sh.)	$ 2158	$ 1884	$ 1093	$ 1797	$ 1875	$ 2491	$ 1994
16. Electricity expense	241	196	266	371	493	638	370
17. Tractors & machinery	5557	6922	1762	2900	3288	6214	4688
18. Livestock equipment	369	61	353	600	767	1466	512
19. Buildings, fencing	1204	1254	679	953	1117	2082	1233
20. Misc. livestock exp.	413	26	512	853	1308	2100	670
21. Labor*	2627	2868	1410	1810	1889	4480	2134
22. Real estate taxes	1458	2078	365	512	542	983	884
23. General farm expense	758	972	281	464	523	745	622
24. Interest at 6 percent	13479	11152	2274	3207	3825	6872	6270
25. Total expenses	$28264	$27413	$ 8995	$13467	$15627	$28071	$19377
26. Labor earnings	$ 4719	$ 489	$ 2265	$ 4228	$ 7158	$11922	$ 4383

* 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 5 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 (autos

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 6). 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 5. 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 6. Proportion of Farm Income from Livestock, Crops, and Miscellaneous Sources, by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
Livestock (ret. over feed)	10.7	3.4	63.0	66.8	69.0	66.2	44.7
Crops (net increases)	75.1	76.7	32.2	29.6	27.0	31.1	48.1
Miscellaneous	14.2	19.9	4.8	3.6	4.0	2.7	7.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

LAND USE AND CROP YIELDS

Specialized dairy farms have a larger proportion of land in pasture, hay, and silage crops and a smaller proportion of tillable land than crop farms (table 7). Small grains (oats, barley, wheat, flax, and rye) are the predominant crops on cash crop farms. Some corn for grain and soybeans are raised on farms in the southern

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

Table 7. Distribution of Acres in Farm, by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
1. Rye	32.9	41.9	4.0	2.0	.4	2.7	18.7
2. Wheat	83.0	79.7	3.4	2.7	4.9	4.4	35.0
3. Oats for silage	.3	-	2.5	.3	-	6.0	.7
4. Oats for grain	105.1	329.6	36.0	48.7	39.0	53.4	102.6
5. Barley	89.4	103.8	.3	2.2	5.9	12.0	48.9
6. Flax	41.2	39.7	-	1.9	4.2	2.6	33.9
7. Other small grain	-	3.0	.3	-	.7	-	4.7
8. Total small grain	351.9	597.7	46.5	57.8	55.1	81.1	244.5
9. Sugar beets	38.7	-	-	-	-	-	-
10. Corn grain	34.0	14.7	3.7	5.2	4.7	28.9	11.9
11. Soybeans	61.0	1.8	-	-	.5	-	7.2
12. Corn silage	7.5	1.3	10.7	22.3	34.5	57.1	28.9
13. Other cultivated crops	35.1*	63.7*	2.1	.2	4.3	.2	5.9
14. Total cultivated crops	176.3	81.5	16.5	27.7	44.0	86.2	53.9
15. Alfalfa hay	23.4	22.6	49.4	66.0	68.5	118.6	54.9
16. Other legume hay	-	9.4	10.6	16.3	19.0	6.0	13.2
17. Other tame hay	-	-	.3	1.1	2.5	1.5	-
18. Annual hay	-	-	1.9	1.0	1.8	2.3	-
19. Legume seed	1.1	20.5	.7	.8	-	.4	3.6
20. Grass seed	2.5	26.3	1.1	-	2.1	2.7	-
21. Total till. land in hay	27.0	78.8	64.0	85.2	93.9	131.5	71.7
22. Alfalfa pasture	1.8	7.7	9.0	14.0	-	11.8	10.4
23. Other till. pasture	.3	4.8	10.5	9.5	9.3	1.2	7.3
24. Total till. land in pasture	2.1	12.5	19.5	23.5	9.3	13.0	17.7
25. Feed grain program	139.1	287.8	25.5	28.2	17.1	25.5	55.0
26. Till. land not cropped	3.3	39.4	1.0	4.9	9.4	6.0	10.5
27. Total tillable land	699.7	1097.7	173.0	226.3	228.8	343.3	453.3
28. Wild hay	.4	2.6	6.6	7.2	11.6	4.9	1.9
29. Non-tillable pasture	11.1	42.3	57.2	57.8	57.8	42.3	42.5
30. Timber not pastured	3.4	42.5	22.7	34.3	25.0	29.6	9.6
31. Waste and roads	22.8	80.5	26.2	29.2	24.8	42.7	33.0
32. Farmstead	4.7	15.8	6.3	8.0	6.9	8.6	8.3
33. Total acres in farm	742.1	1281.4	292.0	362.8	354.9	471.4	548.6
34. Percent land tillable	94.3	85.7	59.2	62.3	64.5	72.8	82.6

* Includes sunflowers for seed.

portion of the area.

Average crop yields are shown in table 8. Variations in average yields were large and, in part, reflect differences in soils and climate. In general, dairy farms had lower yields than the other groups.

Table 8. Crop Yields per Acre, by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
1. Wheat, bu.	33.0	25.7	26.3	17.9	26.4	28.6	26.5
2. Oats silage, ton	*	-	4.3	*	*	4.2	*
3. Oats grain, bu.	57.8	44.9	31.7	34.5	43.6	43.4	52.9
4. Rye, bu.	36.9	24.4	*	*	*	*	*
5. Barley, bu.	41.3	36.0	*	28.6	*	*	41.8
6. Flax, bu.	**	9.6	*	*	*	*	12.0
7. Corn grain, bu.	46.0	56.5	42.4	57.5	*	66.0	44.0
8. Soybeans, bu.	19.6	21.9	-	-	*	-	*
9. Corn silage, ton	7.4	*	5.3	7.0	7.9	9.5	7.6
10. Alfalfa hay, ton	2.4	2.4	2.1	2.2	2.5	3.0	2.4
11. Other legume hay	-	1.6	1.9	1.7	1.9	*	2.4

* Less than 5 cases.
** Yield per acre not available.

RETURN FROM LIVESTOCK

Feed costs, returns and some related factors are shown for dairy cattle in tables 9 through 11. 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.

Average return over feed per cow varied from $269 for small herds to $372 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. Price was a significant factor in total returns to the dairy cow. If, for example, small herds (less than 25 cows) had received the same price per cwt. of milk as did dairy herds with over 45 cows, their per cow income would have been $65 greater.

Table 9. Factors of Costs and Returns from Dairy Cows, by Type of Farming, 1970

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
Number of cows	20	30	40	60	29
Pounds of milk per cow	10496	11130	11440	11838	10600
Percent butterfat in milk	3.4	3.9	3.6	4.0	3.4
Pounds butterfat per cow	362	438	407	476	361
Price received per pound of butterfat	$1.31	$1.22	$1.38	$1.30	$1.38
Price received per cwt. of milk	4.52	4.80	4.91	5.14	4.69
Value of produce per cow:					
Dairy product sales	$457.85	$516.19	$552.10	$599.68	$481.72
Dairy produce used in home	7.35	5.79	4.25	3.17	6.87
Milk fed to livestock	9.35	10.40	4.78	4.80	8.66
Net increase in value of cows	1.65	-1.74	4.35	3.94	7.39
Total value produced	$476.20	$530.64	$565.48	$611.59	$504.64
Feeds per cow, lbs.:					
Corn	561	1058	1149	1731	1170
Small grain and complete dairy ration	3042	3139	3067	2789	3034
Protein, salt, mineral	395	491	1079	556	304
Total concentrates	3998	4688	5295	5076	4508
Total hay	9002	7195	7876	7320	7786
Silage	8840	8994	12427	14984	12614
Feed cost per cow:					
Concentrates	$102.00	$119.16	$126.18	$121.16	$101.62
Roughages	97.10	85.22	106.05	113.15	87.90
Pasture	7.81	7.22	4.81	5.22	6.72
Total feed cost	$206.91	$211.60	$237.04	$239.53	$196.24
Return above feed cost per cow	$269.29	$319.04	$328.44	$372.06	$308.40
Return for $100 of feed	$230	$251	$239	$255	$257
Feed cost per pound of butterfat	$ .57	$ .48	$ .58	$ .51	$ .54
Feed cost per cwt. milk produced	1.97	1.90	2.07	2.02	1.85

The return for $100 of feed ranged from $230 to $257. 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 an 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 pound of

Table 10. Feed Costs and Returns from Other Dairy Cattle, by Type of Farming, 1970

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
Number of head	25	38	47	71	34
Net increase in value per head	$121.46	$117.42	$110.25	$122.88	$106.48
Feed per head, lbs.:					
Concentrates	559	609	600	689	766
Hay	3477	3073	3190	2640	2326
Silage	2309	3114	3698	4646	4805
Whole milk	183	194	94	109	163
Total feed cost per head	$59.11	$61.97	$58.35	$61.24	$56.02
Return above feed cost per head	$62.35	$55.45	$51.90	$61.64	$50.46
Returns for $100 of feed	$205	$189	$189	$201	$190

Table 11. Feed Costs and Returns from All Dairy Cattle, on a Per Cow Basis, by Type of Farming, 1970

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	$474.55	$532.37	$561.14	$607.63	$497.25
Net increase in value	152.70	145.92	136.38	144.32	130.34
Total value produced	$627.25	$678.29	$697.52	$751.95	$627.59
Feed per cow, lbs.:					
Concentrates	4618	5368	5663	5747	5386
Hay	13197	10985	11696	10496	10552
Silage	10355	12345	15510	20167	17208
Total feed cost per cow	$278.58	$288.87	$304.31	$307.70	$258.90
Returns above feed cost per cow	$348.67	$389.42	$393.21	$444.25	$368.69
Returns for $100 of feed	$225	$235	$229	$244	$242
Miscellaneous expenses per cow	$24.90	$28.20	$32.91	$35.63	$23.13

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 10. 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 11 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.

CONCLUSION

A summary of earnings, resources used, size of business, and expenses is presented in table 12. Cash crop farms east of the Red River Valley had the lowest labor earnings and the large dairy farms had the highest. A six percent charge on the large investment of about $185,000 for the cash crop farms east of the Red River Valley affected labor earnings. Operators of small dairy farms received the lowest return on investment--they had only $4541 available to pay for the operator's labor and capital. Large dairy farms, on the other hand, yielded a return large enough to provide $7000 for labor performed by the operator and yield 10.3 percent return on 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 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 1.3 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 684 productive man work units. Small dairy farms and the dairy-cash crop farms had relatively few work units in total and per worker.

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. While large dairy farms reported the highest labor earnings and cash crops east of the Red River Valley reported the lowest labor earnings in 1970, the factors mentioned above may place some other type of farm in the high and low categories in another year.

Table 12. Earnings, Resources Utilized, Size of Business, and Expenses, by Type of Farming, 1970

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35-44 cows	Dairy, 45 cows & over	Dairy, cash crops
Earnings							
1. Net cash income	$17970	$ 9231	$ 2370	$ 4882	$ 7563	$13409	$ 8942
2. Labor earnings	4719	489	2267	4243	7158	11922	4424
3. Int. on cap. managed	13479	11152	2274	3207	3825	6872	6270
4. Total (2 + 3)	18198	11641	4541	7450	10983	18794	10694
5. Est. wage for operator	7000	7000	7000	7000	7000	7000	7000
6. Return to capital	11198	4641	-2459	450	3983	11794	3694
7. Rate earned on invst.	5.0	2.5	-	.8	6.2	10.3	3.5
Resources used							
8. Acres per farm	742	1281	292	363	355	471	549
9. Acres tillable	700	1098	173	226	229	343	453
10. Capital managed	$224644	$185880	$37912	$53469	$63752	$114530	$104510
11. Number of workers	1.6	1.8	1.3	1.5	1.5	2.1	1.6
12. Capital managed per worker	$140402	$103267	$29163	$35646	$42501	$54538	$65319
13. Work units per worker	254	230	195	241	302	326	168
Size of business							
14. Total farm sales	$49787	$41808	$13665	$21465	$29039	$46628	$29390
15. Total work units	406	414	253	362	453	684	268
Expenses							
16. Total oper. expense	$26155	$20482	$7686	$11573	$16666	$24516	$14458
17. Purchase of capital items	$5662	$12095	$3609	$5010	$4810	$8703	$5990
18. Power, machinery, equipment & building expense per WU	$23.47	$24.92	$16.42	$18.29	$16.64	$18.85	$32.82
19. Tractor & machinery expense per crop acre	$10.00	$9.10	$13.19	$16.30	$16.07	$20.46	$12.60