Economic Information Report R72-5 August 1972

1971 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

1971 FARM BUSINESS SUMMARY BY TYPE OF FARMING FOR NORTHERN MINNESOTA

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

TABLE OF CONTENTS

INTRODUCTION

This report summarizes 1971 farm business records by type of farming for 390 northern Minnesota farmers. Farm records were supplied by area vocational-technical schools at Duluth and Thief River Falls. Except for 49 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 is determining the most profitable types of farming and provides information for farm planning.

---

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

The authors are indebted to Dorothy Spreck for her assistance in the preparation of this report.

800/8/72

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 three categories based on the average number of dairy cows maintained.

Table 1. Number of Farms by Type

Type	Number
Cash crops, Red River Valley	49
Cash crops, east of Valley	44
Dairy, under 25 cows	68
Dairy, 25-34 cows	91
Dairy, 35 cows and over	58
Dairy and cash crops	50
Beef breeding and cash crops	30
Total	390

Records included are for only one year. Farm earnings in 1971 were much higher than in 1970.[1] Excellent weather conditions resulted in above normal crop yields. Differences in climatic conditions as well as variation 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 1970, see Nodland, Truman, Edgar Persons and Janet B. Otis, "1970 Farm Business Summary by Type of Farming for Northern Minnesota," University of Minnesota Department of Agricultural and Applied Economics Economic Information Report R71-7. October 1971.

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. 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.

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, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops	Beef br., cash crops
1. Number of cases	49	44	68	91	58	50	30
2. Acres in farm	924	938	291	327	443	591	685
			Average capital managed as of January 1, 1971				
3. Dairy cows	$ 864	$ -	$ 5459	$ 8169	$13776	$ 7493	$ 25
4. Other dairy cattle	422	14	2976	4122	7748	3930	-
5. Beef cattle	6077	2267	205	361	359	760	15644
6. Hogs	835	144	157	135	62	197	9
7. Sheep	69	441	25	99	-	77	58
8. Other livestock	499	7	18	8	-	5	3
9. Total livestock	$ 8766	$ 2873	$ 8840	$12894	$21945	$12462	$15739
10. Crops, seed, feed	$22307	$ 6001	$ 2068	$ 2990	$ 6404	$ 5362	$ 6235
11. Auto & truck (fm.sh.)	$ 3282	$ 2197	$ 934	$ 1390	$ 1676	$ 1993	$ 1712
12. Tractors & crop mach.	18436	13606	4054	6420	11385	10495	10128
13. Livestock equipment	823	101	831	2301	4805	2052	265
14. Total equipment	$22541	$15904	$ 5819	$10111	$17866	$14540	$12105
15. Land	$139658	$59979	$15059	$19246	$27970	$52037	$43166
16. Buildings, fencing*	11580	8880	5441	7941	15039	11494	6787
17. Total capital	$204852	$93637	$37227	$53182	$89224	$95895	$84032
18. Value of bldgs. per acre	$ 13	$ 9	$ 19	$ 24	$ 34	$ 19	$ 10
19. Value of land per acre	151	64	52	59	63	88	63
20. Total value per acre*	$164	$ 73	$ 71	$ 83	$ 97	$107	$ 73
			Average capital managed as of December 31, 1971				
21. Total capital	$219784	$105343	$40510	$59006	$99742	$103250	$93711

* 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, 1971 and December 31, 1971, 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, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops	Beef br., cash crops
RECEIPTS							
1. Dairy cattle	$ 605	$ 5	$ 2757	$ 3811	$ 6259	$ 3720	$ -
2. Dairy products	1555	61	9025	15886	29239	12845	16
3. Beef cattle	6360	1142	208	253	292	711	6493
4. Hogs	2081	234	218	262	111	492	3
5. Sheep	112	425	23	77	3	44	71
6. Other livestock	1101	18	12	30	-	22	4
7. Crops	37743	26263	680	909	1550	10350	12534
8. Other capital assets	484	1489	107	228	338	321	221
9. Work off the farm	889	609	180	112	317	377	503
10. Misc. farm income*	5724	5468	780	1136	1849	3380	3357
11. Total sales	$56654	$35714	$13990	$22704	$39958	$33262	$23204
12. Increase in capital	14932	11706	3283	5824	10518	7355	9679
13. Fam. liv. from farm	143	131	571	444	603	461	200
14. Total received	$71729	$47551	$17844	$28972	$51079	$41078	$33083
EXPENSES							
15. Dairy cattle bought	$ 94	$ 271	$ 422	$ 968	$ 704	$ 929	$ -
16. Beef cattle bought	3013	228	239	144	-	253	1360
17. Hogs bought	108	33	36	16	5	56	-
18. Sheep bought	31	11	1	2	3	3	-
19. Other livestock bought	38	4	2	8	-	2	3
20. Misc. livestock expense	518	42	451	881	1708	819	184
21. Feed bought	2525	309	2075	3861	6213	2073	423
22. Fertilizer bought	4600	4329	315	629	1457	1956	2215
23. Other crop expenses	4654	3834	437	582	1301	2018	1905
24. Custom work hired	1113	1220	571	1004	1907	1122	687
25. Gas, oil, grease bot	2532	1867	746	891	1391	1668	1531
26. Rep. auto, truck, trac. & crop machinery	3171	2421	778	1195	1675	2182	2017
27. Repair of real estate	383	392	209	331	487	498	399
28. Repair of lvstk. equip.	117	16	71	149	268	159	49
29. Wages of hired labor	2440	1271	283	598	2017	1114	664
30. Electricity expense	321	169	262	371	637	392	207
31. Real estate taxes	2154	1578	368	531	898	1181	1131
32. General farm expense	985	615	299	442	697	694	559
33. Total cash expense	$28797	$18610	$ 7565	$12603	$21368	$17119	$13334
34. New power & machinery	8179	6815	1755	2652	6712	4220	2986
35. New lvstk. equipment	407	154	251	636	1139	422	65
36. New buildings	3723	4203	1390	2059	4496	3582	2585
37. Total purchases	$41106	$29782	$10961	$17950	$32715	$25343	$18970
38. Decrease in farm cap.	-	-	-	-	-	-	-
39. Interest at 6 percent	12739	5969	2332	3366	5669	5974	5332
40. Unpaid family labor	129	196	776	914	1022	420	427
41. Board for hired labor	48	49	23	55	228	66	87
42. Total expenses	$54022	$35996	$14092	$22285	$39634	$31803	$24816
43. Labor earnings	$17707	$11555	$ 3752	$ 6687	$11445	$ 9275	$ 8267
44. Net cash income (line 11 - line 37)	$15548	$ 5932	$ 3029	$ 4754	$ 7243	$ 7919	$ 4234

* Includes receipts from diverted acre payments.

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.

6. Casualty losses.

A little more than 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, 27 percent in the case of the Red River Valley crop farms and 17 percent in the case of crop farms east of the Valley, is left for living expenses, interest on money borrowed, debt retirement and other savings.

Table 4. Purchases per $100 of Total Sales, by Type of Farming, 1971*

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops	Beef br., cash crops
1. Dairy cattle bought	$ .16	$ .76	$ 3.02	$ 4.26	$ 1.76	$ 2.79	$ -
2. Beef cattle bought	5.32	.64	1.71	.63	-	.76	5.86
3. Other livestock	.31	.13	.27	.12	.01	17	-
4. Misc. livestock expense	.91	.11	3.23	3.88	4.28	2.46	.79
5. Feed bought	4.46	.87	14.83	17.01	15.55	6.23	1.82
6. Fertilizer bought	8.12	12.12	2.25	2.77	3.65	5.88	9.55
7. Other crop expenses	8.21	10.74	3.13	2.56	3.26	6.07	8.22
8. Custom work hired	1.96	3.42	4.08	4.42	4.77	3.37	2.96
9. Gas, oil, grease bot	4.47	5.23	5.33	3.93	3.48	5.02	6.60
10. Rep. auto, truck, trac. & crop machinery	5.60	6.78	5.56	5.26	4.19	6.56	8.69
11. Rep. of real estate	.68	1.10	1.49	1.46	1.22	1.50	1.72
12. Rep. of livestock equip.	.21	.04	.51	.66	.67	.48	.21
13. Wages of hired labor	4.31	3.56	2.02	2.63	5.05	3.35	2.86
14. Electricity expense	.57	.47	1.87	1.63	1.59	1.18	.89
15. Real estate taxes	3.80	4.42	2.63	2.34	2.25	3.55	4.88
16. General farm expense	1.74	1.72	2.14	1.95	1.75	2.09	2.41
17. Total operating exp.	$50.83	$52.11	$54.07	$55.51	$53.48	$51.46	$57.46
18. New power & machinery	14.43	19.08	12.55	11.68	14.29	12.69	12.87
19. New livestock equip.	.72	.43	1.79	2.80	2.85	1.27	.28
20. New buildings & RE	6.57	11.77	9.94	9.07	11.25	10.77	11.14
21. Total purchases	$72.55	$83.39	$78.35	$79.06	$81.87	$76.19	$81.75

* Total purchases and sales are shown in table 3.

Table 5. Summary of Earnings - Enterprise Statement, by Type of Farming, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy 35 cows & over	Dairy cash crops	Beef br., cash crops
RECEIPTS AND NET INCREASES							
1. Milk cows	$ 1596	$ 28	$ 9464	$16242	$29642	$14023	$ 17
2. Other dairy cattle	414	34	3087	4757	8485	4845	5
3. Beef breeding herd	1841	782	40	113	78	268	8974
4. Feeder cattle	3064	103	81	8	130	145	635
5. Hogs	1999	230	170	268	70	494	2
6. Sheep - farm lock	86	282	24	72	1	58	50
7. Other livestock	586	37	14	27	-	23	3
8. Total product. lvstk.	$ 9586	$ 1496	$12880	$21487	$38406	$19856	$ 9636
9. Feed fed	5526	1096	5813	9112	16353	7776	3948
10. Return over feed	$ 4060	$ 400	$ 7067	$12375	$22053	$12080	$ 5738
11. Crops, seed, feed	40267	24438	4348	6067	10199	13704	14932
12. Income, work off farm	361	308	148	49	197	128	324
13. Misc. farm income*	5724	5468	780	1136	1849	3380	3357
14. Total receipts	$50412	$30614	$12343	$19627	$34298	$29292	$24351
EXPENSES AND NET DECREASES							
15. Truck & auto (fm.sh.)	$ 2663	$ 1446	$ 1018	$ 1495	$ 2182	$ 1975	$ 1544
16. Electricity expense	321	169	262	371	637	392	207
17. Tractors & machinery	4550	6377	1842	2760	4883	5086	4652
18. Livestock equipment	386	104	197	459	956	555	101
19. Buildings, fencing	1608	967	629	850	1584	1552	1035
20. Misc. livestock exp.	518	42	451	881	1708	819	184
21. Labor**	2781	1792	1193	1785	3639	1789	1339
22. Real estate taxes	2154	1578	368	531	898	1181	1131
23. General farm expense	985	615	299	442	697	694	559
24. Interest at 6 percent	12739	5969	2332	3366	5669	5974	5332
25. T tal expenses	$32705	$19059	$ 8591	$12940	$22853	$20017	$16084
26. Labor earnings	$17707	$11555	$ 3752	$ 6687	$11445	$ 9275	$ 8267

* 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 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, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops	Beef br., cash crops
Livestock (ret. over feed)	8.0	1.3	57.3	63.1	64.3	41.2	23.6
Crops (net increases)	79.9	79.8	35.2	30.9	29.7	46.8	61.3
Miscellaneous income	12.1	18.9	7.5	6.0	6.0	12.0	15.1
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 portion of the area.

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, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy 35 cows & over	Dairy, cash crops	Beef br., cash crops
1. Rye	40.0	83.5	1.5	4.1	2.6	27.5	21.1
2. Wheat	204.3	199.6	10.1	8.3	12.3	74.3	90.1
3. Oats for silage	.4	-	.6	.4	2.5	.2	-
4. Oats for grain	99.6	174.3	35.2	41.0	50.0	117.6	137.8
5. Barley	149.3	69.9	5.3	4.8	9.1	45.2	46.3
6. Other small grain	44.3	21.0	3.7	1.2	3.9	23.6	23.2
7. Total small grain	537.9	548.3	56.4	59.8	80.4	288.4	318.5
8. Sugar beets	28.0	-	-	-	-	-	-
9. Corn grain	37.7	22.0	7.9	11.8	31.9	18.8	8.0
10. Soybeans	50.9	3.4	.1	.1	-	5.2	.5
11. Corn silage	6.2	1.0	13.6	20.0	33.9	21.9	13.7
12. Other cultivated crops*	57.3	53.1	.6	1.9	5.1	12.7	8.3
13. Total cultivated crops	180.3	79.5	22.2	33.8	70.9	58.6	30.5
14. Alfalfa hay	26.6	24.8	30.1	43.1	71.4	59.6	64.8
15. Other legume hay	-	1.1	21.6	28.2	30.8	14.0	16.3
16. Other tame hay	-	2.4	2.1	5.7	5.2	6.0	5.7
17. Annual hay	-	1.1	2.0	.3	1.4	1.4	-
18. Legume seed	3.1	5.5	.4	.2	-	2.9	14.5
19. Grass seed	4.2	66.7	-	.4	-	4.5	3.1
20. Total till land in hay	33.9	101.6	56.2	77.9	108.8	88.4	104.4
21. Alfalfa pasture	.8	6.3	4.1	9.9	9.7	18.3	39.5
22. Other till. pasture	10.7	.7	12.6	12.0	11.2	8.9	36.3
23. Total till. land in pasture	11.5	7.0	16.7	21.9	20.9	27.2	75.8
24. Feed grain program	80.4	71.5	8.2	8.9	20.6	33.0	28.7
25. Till land not cropped	1.8	10.8	3.9	4.0	5.5	1.4	5.6
26. Total tillable land	845.8	818.7	163.6	206.3	307.1	497.0	563.5
27. Wild hay	1.4	9.0	6.0	7.5	8.8	5.4	5.8
28. Non-tillable pasture	24.3	21.6	59.9	50.9	48.7	33.8	55.3
29. Timber not pastured	6.9	43.8	27.5	29.2	29.5	10.5	19.0
30. Waste and roads	34.6	34.9	28.2	25.6	38.4	33.6	32.1
31. Farmstead	10.6	10.0	6.1	7.4	10.5	11.3	9.2
32. Total acres in farm	923.6	938.0	291.3	326.9	443.0	591.6	684.9
33. Percent land tillable	91.6	87.3	56.2	63.1	69.3	84.0	82.3

* Includes sunflowers grown for seed.

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, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops	Beef br., cash crops
1. Wheat, bu.	44.7	39.6	29.9	35.5	36.0	35.2	39.4
2. Oats grain, bu.	76.9	71.0	58.2	65.7	67.2	67.1	68.2
3. Rye, bu.	46.7	45.0	*	*	*	47.5	51.0
4. Barley, bu.	59.5	51.4	34.2	76.0	57.0	50.0	59.0
5. Corn grain, bu.	68.6	58.2	54.7	68.0	69.9	58.1	57.9
6. Corn silage, ton	11.8	*	8.3	9.9	11.7	10.9	10.1
7. Alfalfa hay, ton	2.8	2.0	2.6	2.3	2.9	2.3	1.9

* Less than 5 cases.

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 $260 for small herds to $359 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 24 to 49 cents more per hundred pounds than the smallest herds. The higher price coupled with more production combined to provide more income per cow for the larger herds.

The return for $100 of feed ranged from $224 to $254. 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 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.

Feed costs and returns from beef cows are shown in table 12. The average return over feed cost per cow of $103.78 and return for $100 of feed of $251 received in 1971 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 1971 is largely a matter of favorable prices for beef cattle.

Table 9. Factors of Costs and Returns from Dairy Cows, by Type of Farming, 1971

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy 35 cows & over	Dairy, cash crops
Number of cows	20	30	49	29
Pounds of milk per cow	10069	11147	11608	10377
Percent butterfat in milk	3.5	3.5	3.6	3.5
Pounds butterfat per cow	352	389	415	362
Price received per pound of butterfat	$1.36	$1.42	$1.46	$1.42
Price received per cwt. of milk	4.73	4.97	5.22	4.96
Value of produce per cow:				
Dairy product sales	$458.14	$536.69	$593.08	$496.35
Dairy produce used in home	7.34	5.51	4.34	6.11
Milk fed to livestock	10.80	8.92	6.98	9.06
Net increase in value of cows	-6.48	-2.43	-3.14	-9.10
Total value produced	$469.80	$548.69	$601.26	$502.42
Feeds per cow, lbs.:				
Corn	445	771	1401	775
Small grain & complete dairy ration	3387	3562	3377	3187
Protein, salt, mineral	407	410	625	396
Total concentrates	4239	4743	5403	4358
Total hay	7897	7312	7743	7673
Silage	45466	8102	11150	10529
Feed cost per cow:				
Concentrates	$108.59	$127.33	$136.53	$102.92
Roughages	93.67	92.80	103.87	90.56
Pasture	7.29	5.64	2.23	4.58
Total feed cost	$209.55	$225.77	$242.63	$198.06
Return above feed cost per cow	$260.25	$322.92	$358.63	$304.36
Return for $100 of feed	$224	$243	$248	$254
Feet cost per pound of butterfat	$ .60	$ .58	$ .58	$ .55
Feed cost per cwt. milk produced	2.08	2.03	2.09	1.91

Table 10. Feed Costs and Returns from Other Dairy Cattle, by Type of Farming, 1971

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops
Number of head	26	36	61	37
Net increase in value per head	$124.84	$135.42	$140.25	$136.65
Feed per head, lbs.:				
Concentrates	622	638	764	741
Hay	2738	2899	3169	2449
Silage	1783	2289	3501	2771
Whole milk	196	192	119	165
Total feed cost per head	$57.17	$61.23	$67.61	$53.63
Return above feed cost per head	$67.67	$74.19	$72.64	$83.02
Returns for $100 of feed	$218	$221	$207	$255

Table 11. Feed Costs and Returns from All Dairy Cattle, on a Per Cow Basis, by Type of Farming, 1971

Item	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops
Value of produce per cow:				
Dairy products	$476.28	$551.11	$604.40	$511.53
Net increase in value	150.00	158.28	168.99	163.30
Total value produced	$626.28	$709.39	$773.39	$674.83
Feed per cow, lbs.:				
Concentrates	5016	5520	6355	5311
Hay	11374	10729	11632	10754
Silage	47603	10802	15447	13985
Total feed cost per cow	$280.75	$298.11	$325.61	$265.74
Returns above feed cost per cow	$345.53	$411.28	$447.78	$409.09
Returns for $100 of feed	$223	$238	$238	$254
Miscellaneous livestock expenses per cow	$15.88	$20.64	$24.44	$18.78
Veterinary expenses per cow	6.73	8.65	10.16	9.86

Table 12. Feed Costs and Returns from Beef Cows, 1971

Item	Average of 30 herds
Number of beef cows	55
Number of other beef cattle	46
Value produced per cow	$172.58
Feed cost per cow:	
Concentrates	$ 13.56
Roughages	46.89
Pasture	8.35
Total	$ 68.80
Return above feed cost per cow	$103.78
Return for $100 of feed	$251
Feed per cow, lbs.:	
Concentrates	807
Hay	5734
Silage	4808
Net gain in weight produced, lbs.	31855
Pounds of beef produced per cow	579
Price received per 100 lbs. sold	$31.03*
Average weight per head sold, lbs.	609
Percent death loss	2.2
Miscellaneous costs per cow	$3.33

* 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 13. Average labor earnings of the Red River Valley farmers were much higher than that received by farmers in the other groups included in this study. Small dairy farms showed the lowest earnings. They had only $6084 available to pay for the operator's labor and capital managed. Red River Valley farms yielded a return large enough to provide $7000 for labor performed by the operator and yield 11.0 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 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 1.9 workers.

In terms of work units, large dairy farms had the largest business, with 569 productive man work units. Small dairy farms and the beef cow-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

Table 13. Earnings, Resources Utilized, Size of Business, and Expenses, by Type of Farming, 1971

Item	Cash crops, Valley	Cash crops, E of Val.	Dairy, under 25 cows	Dairy, 25-34 cows	Dairy, 35 cows & over	Dairy, cash crops	Beef br., cash crops
Earnings							
1. Net cash income	$15545	$ 5932	$ 3029	$ 4754	$ 7243	$ 7919	$ 4234
2. Labor earnings	17707	11555	3752	6687	11445	9275	8267
3. Int. on cap. managed	12738	5969	2332	3365	5668	5974	5332
4. Total (2 + 3)	30445	17524	6084	10052	17113	15249	13599
5. Est. wage for operator	7000	7000	7000	7000	7000	7000	7000
6. Return to capital	23445	10524	-916	3052	10113	8249	6599
7. Rate earned on invest.	11.0	10.6	-	5.4	10.7	8.3	7.4
Resources used							
8. Acres per farm	924	938	291	327	443	592	685
9. Acres tillable	846	819	164	206	307	497	564
10. Capital managed	$212318	$99490	$38868	$56094	$94483	$99572	$88872
11. Number of workers	1.6	1.4	1.3	1.5	1.9	1.5	1.3
12. Capital managed per worker	$132699	$71064	$29898	$37396	$49728	$66381	$68363
13. Work units per worker	272	227	187	229	299	291	216
Size of business							
14. Total farm sales	$56654	$35714	$13990	$22704	$39958	$33262	$23204
15. Total work units	436	318	243	344	569	436	281
Expenses							
16. Total oper. expense	$28797	$18610	$ 7565	$12603	$21368	$17119	$13334
17. Purchase of capital items	$12309	$11172	$ 3396	$ 5347	$11347	$ 8224	$ 5846
18. Power, machinery, equipment & building expense per WU	$31.03	$28.50	$16.25	$17.25	$18.00	$21.93	$26.83
19. Tractor & machinery expense per crop acre	$11.35	$11.58	$13.08	$15.42	$18.16	$11.54	$10.13
20. Total operating expense per $100 sales	$50.83	$52.11	$54.07	$55.51	$53.48	$51.46	$57.46

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 the Red River Valley farms reported the highest labor earnings and small dairy farms reported the lowest labor earnings in 1971, the factors mentioned above may place some other type of farm in the high and low categories in another year.