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1970

**SPECIALIZED BEEF COW OPERATIONS
IN NORTHERN MINNESOTA**

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TABLE OF CONTENTS

	Page
Introduction	1
Capital Managed and Earnings	2
Land Use and Crop Yields	7
Returns from Beef Cattle	9
Conclusion	10

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SPECIALIZED BEEF COW OPERATIONS
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INTRODUCTION

Many farmers in northern Minnesota have added beef cows as an enterprise on their farms. Some who have relatively poor soils are attempting to build a farming program around a herd of beef cows and the raising of roughages. Others are primarily grain farmers and maintain beef cows to harvest roughages from their non-tillable land.

This report summarizes 1970 business records from 29 farmers in northern Minnesota who maintain beef cows. Farm records were supplied by the area vocational-technical schools in Thief River Falls and Duluth. The records are divided into three groups--farms that sell beef calves, farms that feed out the calves before selling, and farms that maintain other livestock enterprises in addition to beef cows. The purpose of this publication is to present data in regard to capital managed, costs and returns, and some crop and livestock information for each of the three groups of farms mentioned above.

The records included in this report are for only one calendar year and reflect costs and returns resulting from the combination of general price levels and climate conditions which existed in 1970. When combined with data from other sources and from other years, one can secure a general idea in regard to the relative profitableness of the beef cow enterprise.

* The author is indebted to Janet Otis and Dorothy Spreck for making the calculations included in the tables and for typing the report.

CAPITAL MANAGED AND EARNINGS

Capital managed per farm was large for the two groups of farms on which beef cattle were the only livestock maintained (table 1). All of the farm assets are listed at approximate market values except real estate. Land and building values have not been corrected for the general inflation in prices which has occurred after many of these farms were purchased.

Cash receipts, expenses and earnings are shown in table 2. Average labor earnings were low for beef cow operations in 1970. Labor earnings is the amount that would be left as a salary to the farm operator if he paid wages to other members of the family who worked on the farm and paid a charge for the use of capital at the rate of six percent. Although the relative profitableness of various types of farms will vary from year to year, most studies show that returns received by farmers who rely on beef cows for a major portion of their income tend to be low.¹

Receipts, expenses and earnings on a per cow basis are shown in table 3 for the two classifications of farms that maintain beef cows as the only livestock enterprise. Farmers who fed out calves to market weight had higher gross income and higher expenses than farmers who sold calves at weaning time. A large portion of this difference in income and expenses was due to the larger acreage and higher yields on farms where calves were fed out. This will be further emphasized later in this report.

1. See Wells, A. R., S. A. Engene and T. R. Nodland, "Economics of Beef Cow Herds in Northeast Minnesota," University of Minnesota Department of Agricultural Economics Report No. S68-4, November, 1968; Bennet, Myron, "A Look at the Profitability of a Beef Cow Herd as a Supplemental Enterprise on Crop Farms," University of Missouri Extension Service Report FM70-13, October 1970.

Table 1. Capital Managed on Beef Cow Operations in Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
Number of farms	12	9	8
Acres per farm	1120	1082	661
Tillable acres per farm	706	909	423
Number of beef cows	93	90	52
Average capital managed as of January 1			
Beef cattle	\$24626	\$32002	\$17381
Other livestock	97	21	5703
Crops, seed, feed	13392	19416	5036
Auto and truck	2550	2326	928
Tractors and machinery	10400	16637	5494
Livestock equipment	315	828	445
Land	49446	88329	37134
Farm buildings*	<u>10100</u>	<u>12197</u>	<u>7168</u>
Total capital	\$110926	\$171756	\$ 79289
Average capital managed as of December 31			
Total capital	\$116811	\$173944	\$ 82493

* Not including value of farm dwelling.

The data in table 4 show earnings on an enterprise basis. Instead of stressing purchases and sales, the enterprise basis stresses net value produced and net expenses.¹ In the return from crops, credit is given to crops for feed raised on the farm and consumed by livestock. Return over feed represents value added by livestock or, in two of the groups of farms, it represents value added by beef cattle.

The enterprise statement is shown on a per cow basis in table 5 for the two groups of farms with only beef cattle. Feeding out the calves added \$13

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

Table 2. Earnings, Cash Statement, Beef Cow Operations in Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
RECEIPTS			
Beef cattle sold	\$10226	\$18029	\$10045
Other livestock sold	398	62	8452
Crops sold	10843	19791	2412
Work off the farm	225	48	7
Miscellaneous farm income	<u>1541</u>	<u>3806</u>	<u>1148</u>
Total sales	\$23233	\$41726	\$22064
Increase in farm capital	5885	2188	3204
Family living from the farm	<u>236</u>	<u>303</u>	<u>494</u>
Total receipts	\$29354	\$44217	\$25762
EXPENSES			
Beef cattle bought	\$ 963	\$ 3681	\$ 1540
Other livestock bought	238	12	767
Miscellaneous livestock expense	343	425	597
Feed bought	758	685	2812
Fertilizers	1933	3279	1618
Other crop expense	1143	3316	857
Custom work hired	845	1049	919
Gas, oil, grease	1543	2282	1190
Repair of auto, tractor, machinery	1701	2713	1386
Repair of real estate	204	335	127
Repair of livestock equipment	128	232	93
Wages to hired labor	1340	2336	542
Electricity expense	229	230	244
Real estate taxes	1291	1611	843
General farm expense	<u>605</u>	<u>671</u>	<u>408</u>
Total cash operating expenses	\$13264	\$22857	\$13943
New power and machinery	3934	5160	2040
New livestock equipment	77	44	127
New buildings	<u>1524</u>	<u>1657</u>	<u>873</u>
Total purchases	\$18799	\$29718	\$16983
Interest on capital managed at 6%	6832	10371	4853
Unpaid family labor	676	725	375
Board for hired labor	<u>294</u>	<u>200</u>	<u>19</u>
Total expenses	\$26601	\$41014	\$22230
Labor earnings	\$ 2753	\$ 3203	\$ 3532

Table 3. Cash Statement on a Per Cow Basis for Beef Cow Operations in Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves
Number of cows	93	90
RECEIPTS		
Beef cattle sold	\$110	\$200
Other livestock sold	4	1
Crops sold	117	220
Work off the farm	2	1
Miscellaneous farm income	17	42
Total sales	<u>\$250</u>	<u>\$464</u>
Increase in farm capital	63	24
Family living from the farm	3	3
Total receipts	<u>\$316</u>	<u>\$491</u>
EXPENSES		
Beef cattle bought	\$ 10	\$ 41
Other livestock bought	3	-
Miscellaneous livestock expense	4	5
Feed bought	8	8
Fertilizers bought	21	36
Other crop expense	12	37
Custom work hired	9	12
Gas, oil, grease bought	17	25
Repair of auto, tractor, machinery	18	30
Repair of real estate	2	4
Repair of livestock equipment	1	3
Wages of hired labor	15	26
Electricity expense	2	2
Real estate taxes	14	18
General farm expense	7	7
Total cash operating expenses	<u>\$143</u>	<u>\$254</u>
New power and machinery	42	57
New livestock equipment	1	1
New buildings	16	18
Total purchases	<u>\$202</u>	<u>\$330</u>
Interest on capital managed	74	115
Unpaid family labor	7	8
Board for hired labor	3	2
Total expenses	<u>\$286</u>	<u>\$455</u>
Labor earnings	\$ 30	\$ 36

Table 4. Earnings, Enterprise Basis, on Beef Cow Operations in Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
RECEIPTS AND NET INCREASES			
Beef cow herd	\$13796	\$11273	\$ 6624
Feeder cattle	-	5443	3111
Other livestock	203	24	9601*
Total livestock	\$13999	\$16740	\$19336
Value of feed fed	7376	9193	9460
Return over feed	\$ 6623	\$ 7547	\$ 9876
Crops, seed, feed	13950	20357	6162
Income from labor off farm & misc. income	1294	3514	950
Total receipts	\$21867	\$31418	\$16988
EXPENSES AND NET DECREASES			
Truck and auto	\$ 1720	\$ 2456	\$ 1388
Electricity expense	229	230	244
Tractors and crop machinery	4474	7210	3242
Livestock equipment	186	413	164
Buildings and real estate improvements	977	1372	649
Miscellaneous livestock expense	343	425	597
Labor**	2457	3456	1068
Real estate taxes	1291	1611	843
General farm expense	605	671	408
Interest on capital managed	6832	10371	4853
Total expenses	\$19114	\$28215	\$13456
Labor earnings	\$ 2753	\$ 3203	\$ 3532

* Six had dairy cattle, 2 had sheep, and one sold feeder pigs.

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

in return over feed cost per cow. Since farmers who fed out the calves had larger farms than the other group, much of the difference in receipts was due to their greater income from crops. Larger receipts on the part of farmers who fed out calves was offset to quite an extent by greater expenses. The net result was \$6 per cow difference in labor earnings in favor of the farmers who fed out their calves.

Table 5. Enterprise Statement on a Per Cow Basis for Beef Cow Operations in Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves
RECEIPTS AND NET INCREASES		
Beef cow herd	\$148	\$125
Feeder cattle	-	61
Other livestock	2	-
Total livestock	\$150	\$186
Value of feed fed	79	102
Return over feed	\$ 71	\$ 84
Crops, seed, feed	150	226
Income from labor off farm & misc. income	14	39
Total receipts	\$235	\$349
EXPENSES AND NET DECREASES		
Truck and auto	\$ 19	\$ 27
Electricity expense	2	2
Tractors and crop machinery	48	81
Livestock equipment	2	5
Buildings and real estate improvements	10	15
Miscellaneous livestock expense	4	5
Labor	26	38
Real estate taxes	14	18
General farm expense	6	7
Interest on capital managed	74	115
Total expenses	\$205	\$313
Labor earnings	\$ 30	\$ 36

LAND USE AND CROP YIELDS

A large proportion of the tillable land was devoted to pasture, hay and silage crops (table 6). In addition, most farms had a large acreage in non-tillable pasture. Oats, barley, wheat and income from land placed in the feed grain program was the source of cash income from crops. Few farmers raised corn or soybeans for grain.

Average crop yields tend to be low (table 7). Average yields of oats were less than 50 bushels per acre and barley yields were less than 35 bushels per acre. Yields of alfalfa hay, on the other hand, were relatively high.

Table 6. Acres Farmed, Beef Cow Operations, Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
Wheat	29	57	22
Oats for grain	138	148	60
Barley	16	58	22
Other small grains	<u>43</u>	<u>97</u>	<u>30</u>
Total small grain	226	360	134
Corn silage	10	32	21
Other cultivated crops	<u>-</u>	<u>57</u>	<u>-</u>
Total cultivated crops	10	89	21
Alfalfa hay	98	106	71
Other legumes for hay	62	8	42
Other hay and grass seed	<u>76</u>	<u>35</u>	<u>44</u>
Total tillable land in hay	236	149	157
Total tillable pasture	115	113	64
Tillable land not cropped*	<u>119</u>	<u>198</u>	<u>47</u>
Total tillable land	706	909	423
Non-tillable pasture	316	78	145
Timber, waste, roads, farmstead	<u>98</u>	<u>95</u>	<u>93</u>
Total acres farmed	1120	1082	661
Percent land tillable	63	84	64

* Including feed grain program.

Table 7. Crop Yields Per Acre on Farms with Beef Cow Operations, Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
Wheat, bu.	22.9	27.5	21.9
Oats for grain, bu.	43.8	47.7	28.2
Barley, bu.	30.9	34.4	*
Corn silage, tons	*	9.5	6.5
Alfalfa hay, tons	2.2	3.4	3.0

* Less than four cases.

RETURNS FROM BEEF CATTLE

Costs and returns from beef cows are shown in table 8, and similar data for feeder cattle are shown in table 9. In general, the returns from these two classes of livestock were relatively high. The return over feed cost and the return for \$100 of feed give an indication of the success of each livestock enterprise, since feed is the largest single item of expense in livestock production. Return over feed is the amount available to the farmer to pay for labor, housing, equipment, power, interest and miscellaneous cash costs.

Table 8. Feed Costs and Returns from Beef Cows, Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
Average number of cows	93	90	52
Average number of calves and replacements	72	59	34
Total value produced per cow	\$144.61	\$123.22	\$136.85
Feed cost per cow:			
Concentrates	\$ 8.59	\$ 4.73	\$ 8.56
Roughages	56.76	57.39	51.77
Pasture	12.55	8.86	10.00
Total	\$ 77.90	\$ 70.98	\$ 70.33
Return above feed cost per cow	\$ 66.71	\$ 52.24	\$ 66.52
Return for \$100 feed	\$186	\$174	\$195
Miscellaneous costs per cow	\$3.03	\$2.43	\$3.35
Feed per cow, lbs.:			
Concentrates	512	249	340
Hay	8138	6019	5997
Silage	1534	3529	3247
Total pounds of beef produced	37299	40558	23416
Average pounds of beef produced per cow	401	451	450

Table 9. Feed Costs and Returns from Feeder Cattle, Northern Minnesota, 1970

Item	Beef cows, feed out calves
Pounds of beef produced	20634
Average number of head	46
Net increase in value per cwt. produced	\$27.81
Feed cost per cwt. produced:	
Concentrates	\$ 9.22
Roughages	6.50
Pasture	.54
Total	<u>\$16.26</u>
Return above feed cost	\$11.55
Return per \$100 of feed	\$171
Feed per cwt. beef produced, lbs.:	
Grain	419
Commercial feed	31
Hay	495
Silage	907
Price paid per cwt. feeders bought	\$43.69
Price received per cwt. feeders sold	30.45

CONCLUSION

A summary of earnings, resources used, size of business and other factors is presented in table 10. Average earnings were low. If \$7000 is deducted as a wage for the operator, these farm operators would earn, as an average, less than four percent on their capital managed. Making payments on borrowed capital would be difficult with these low returns to capital.

Farm resources used in terms of either acres or capital managed are large. These farms, however, are family farms with less than two workers per farm, including family as well as hired labor.

It was pointed out earlier in this report that the records included are for only one calendar year. Additional information is necessary before one can determine the future profitability of maintaining beef cows in northern Minnesota.

Table 10. Earnings, Resources Used, and Size of Business on Beef Cow Operations in Northern Minnesota, 1970

Item	Beef cows, sell calves	Beef cows, feed out calves	Beef cows plus other livestock
Earnings			
1. Net cash income	\$ 4434	\$12008	\$ 5081
2. Labor earnings	\$ 2753	\$ 3203	\$ 3532
3. Interest on capital managed	6832	10371	4853
4. Return to operator's labor and capital	\$ 9585	\$13574	\$ 8385
5. Estimated wage for operator	7000	7000	7000
6. Return to capital managed	\$ 2585	\$ 6574	\$ 1385
7. Rate earned on capital managed	2.3%	3.8%	1.7%
Land			
8. Total acres	1120	1082	661
9. Tillable acres	706	909	423
Labor			
10. Number of workers	1.5	1.7	1.3
11. Work units per worker	248	274	296
Capital			
12. Total capital managed	\$113868	\$172850	\$80891
13. Capital managed per worker	75912	101676	62224
Size of business			
14. Total work units	372	466	385
15. Total farm sales	\$23233	\$41726	\$22064
Beef cows			
16. Number of beef cows	93	90	52
17. Return for \$100 feed	\$186	\$174	\$195
18. Pounds beef produced per cow	401	451	450
Source of gross income			
19. Percent from livestock	30.3	24.0	58.1
20. Percent from crops	63.8	64.8	36.3
21. Percent from miscellaneous sources	5.9	11.2	5.6
Expenses			
22. Fertilizer expense per crop acre*	\$4.10	\$5.48	\$5.18
23. Tractor and crop machinery expense per crop acre	\$9.06	\$12.06	\$10.39
24. Power, machinery, equipment and building expense per work unit	\$20.40	\$25.07	\$14.77

* Acres in small grains, cultivated crops, hay and grass seed.