



AgEcon SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

ECONOMIC STUDY REPORT S72-3 OCTOBER 1972

1969-1971

**CATTLE FEEDING FARMS
IN SOUTHERN MINNESOTA**

**Truman R. Nodland
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**

CATTLE FEEDING FARMS IN SOUTHERN MINNESOTA
1969-1971

Truman R. Nodland and Janet B. Otis*

Table of Contents

	Page
Introduction	1
Capital Managed	3
Earnings Statements	3
The Cropping Program	13
Livestock Enterprises	14
Summary	19

Introduction

This report summarizes 1969-1971 farm business records of approximately 110 farmers who maintain fattening cattle as a major enterprise. The primary objectives of this study are (1) to present data in regard to total capital managed and to show costs and returns from the entire farm operation as well as from the cattle feeding enterprise and (2) to account for some of the differences in earnings among farmers. Individual farm records were secured from the Southwestern and Southeastern Minnesota Farm Management Associations and the Jackson, Mankato, Austin, Winona and Willmar vocational-technical schools.

Three types of cattle feeding operations are summarized in this report: (1) highly specialized cattle feeding farms, (2) feeder cattle and hog farms, and (3) feeder cattle and cash crop farms. In this study, a highly specialized

* The authors are indebted to Dorothy T. Spreck for her help in preparing the tables included in this report.

cattle feeding operation is one that receives 80 percent or more of its net cash income from the one enterprise (sales of cattle minus purchases of cattle). The two enterprise farms (feeder cattle and hogs and feeder cattle and cash crops) have 80 percent or more of the cash income from two enterprises, with a minimum of 20 percent from the smallest of the two.

The data in table 1 show the number of farms in each category for which averages were secured. Where the number of cases allows, each category is further divided into high and low earnings groups.

Simple arithmetic averages are used throughout the report. Calculations were made for each group or category each year and the results for each of the three years were averaged.

Table 1. Number of Farms Included in Feeder Cattle Study in Southern Minnesota, 1969-1971

Type	1969	1970	1971	Average 3 years
Feeder cattle	7	13	19	13
Feeder cattle and hogs	30	33	38	34
Feeder cattle and cash crops				
325 work units and over*	20	34	43	32
Less than 325 work units	<u>19</u>	<u>31</u>	<u>42</u>	<u>31</u>
Total	76	111	142	110

* For a discussion of work units, see Pherson, C. L. and T. R. Nodland, "Work Unit Estimates for Measuring Size of Business," Department of Agricultural Economics, University of Minnesota Report No. R68-4, September 1968.

Capital Managed

Average capital managed for the various classifications of cattle feeding farms is shown in table 2. These data represent values as reported by farmers in their farm business records. These values approximate current market values except for real estate. Land is valued at cost and has not been adjusted for the price inflation which has occurred since its purchase. Real estate improvements and machinery are valued at cost less annual depreciation based on length of life.

Both feeder cattle and crops are extensive enterprises which require large amounts of capital. The high earnings large feeder cattle and crop farms managed nearly \$300,000 of capital. Over one-half of the capital is in the form of real estate.

Average value of real estate (not including the farm dwelling) ranged from \$265 to nearly \$300 per acre. An additional \$100 to \$150 per acre would more nearly reflect current market prices of real estate. This would increase the total capital managed by approximately 20 percent.

Earnings Statements

Receipts, expenses and labor earnings are shown in table 3. Any landlord's share, in the case of rented farms, is included to make records comparable on a whole farm basis. Labor earnings is the amount that would remain as salary to the operator if he paid the customary wage rate to unpaid family labor and a charge of six percent for the use of all capital managed.

There are wide variations in earnings within each category. On feeder cattle and hog farms, the one-half of the farms with high earnings average \$20,494 compared to \$6098 for the one-half with low earnings. Similar differences occur among the feeder cattle and cash crop farms. The latter group of farms is also

Table 2. Average Capital Managed on Feeder Cattle Farms in Southern Minnesota, 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
1. Number of farms	13	17	34	17
2. Acres in farm	435	395	358	320
3. Number of work units	474	527	449	372
Average capital managed as of January 1				
4. Beef cattle	\$ 58713	\$ 42742	\$ 34387	\$ 26037
5. Hogs	1317	9131	8141	7164
6. Other livestock	128	88	189	287
7. Crops, seed, feed	24767	22694	18440	14254
8. Auto and truck (fm.sh.)	1928	2474	2212	1947
9. Tractors & crop machinery	17401	15587	13493	11420
10. Livestock equipment	3260	3815	2986	2176
11. Land	87740	79232	71990	64755
12. Buildings, fencing*	30266	27147	23528	20005
13. Total capital	\$225520	\$202910	\$175366	\$148045
Per acre values:				
14. Land	\$202	\$201	\$201	\$202
15. Buildings*	70	69	66	63
16. Total land & buildings*	\$272	\$270	\$267	\$275
Average capital managed as of December 31				
17. Total capital	\$240362	\$222028	\$186520	\$151404

* Not including farm dwelling.

divided into two parts on the basis of size of operation in terms of work units. The larger operations did yield higher earnings. However, there are great differences among farmers within each size group, which suggests a farmer should check his efficiency of operation before he increases the size of his business.

Table 2. Average Capital Managed on Feeder Cattle Farms in Southern Minnesota, 1969-1971 (continued)

	Feeder cattle and cash crops					
	325 work units and over			Less than 325 work units		
	1/2 high	Average	1/2 low	1/2 high	Average	1/2 low
	in earnings	in earnings	in earnings	in earnings	in earnings	in earnings
1.	16	32	16	15	31	15
2.	662	581	501	372	363	353
3.	517	453	388	254	244	234
Average capital managed as of January 1						
4.	\$ 36688	\$ 35643	\$ 34702	\$ 21027	\$ 19682	\$ 18233
5.	1375	1076	775	1404	1124	800
6.	138	178	218	292	173	44
7.	32942	28379	23858	18794	17188	15533
8.	2818	2638	2459	1918	2019	2129
9.	21151	20740	20325	13392	13265	13161
10.	3139	2852	2573	1558	1555	1546
11.	149872	135133	120352	88855	84579	79937
12.	31000	29353	27743	20306	19298	18272
13.	\$279123	\$255992	\$233005	\$167546	\$158883	\$149655
14.	\$226	\$233	\$240	\$239	\$233	\$226
15.	47	51	55	55	53	52
16.	\$273	\$284	\$295	\$294	\$286	\$278
Average capital managed as of December 31						
17.	\$297788	\$268884	\$240236	\$171511	\$161700	\$151309

Large quantities of feed were purchased by the specialized feeder cattle and feeder cattle and hog farms. The relatively small crop sales represent sale of soybeans and government diverted acre payments. Feeder cattle and cash crop farms were large in terms of acres and had a substantial sale of crops, including corn.

Table 3. Summary of Earnings - Cash Statement - on Feeder Cattle Farms in Southern Minnesota 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
RECEIPTS				
1. Beef cattle sold	\$129024	\$ 95917	\$ 70600	\$ 45310
2. Hogs sold	2432	25664	22517	19407
3. Other livestock sold	610	112	283	450
4. Crops sold - corn	1640	2536	1803	1081
5. - other	5386	5348	4468	3615
6. Other capital assets sold	521	361	328	295
7. Income from work off farm	905	567	604	635
8. Miscellaneous farm income	762	782	732	682
9. Total farm sales	<u>\$141280</u>	<u>\$131287</u>	<u>\$101335</u>	<u>\$ 71475</u>
10. Increase in farm capital	14842	19118	11154	3359
11. Family living from farm	521	442	448	452
12. Total farm receipts	<u>\$156643</u>	<u>\$150847</u>	<u>\$112937</u>	<u>\$ 75286</u>
EXPENSES				
13. Beef cattle bought	\$ 77180	\$ 63151	\$ 44023	\$ 24964
14. Hogs bought		752	907	1041
15. Other livestock bought	385	197	115	34
16. Miscellaneous livestock expense	1253	1686	1257	830
17. Feed bought	15598	20546	16809	13049
18. Fertilizer bought	4676	3941	3036	2150
19. Other crop expense	4296	3450	2732	2028
20. Custom work hired	2254	2251	1863	1476
21. Gas, oil, grease bought (fm.sh.)	1850	1651	1496	1344
22. Repair power & crop machinery	2387	2114	1857	1603
23. Repair real estate	638	659	634	611
24. Repair livestock equipment	471	480	436	393
25. Wages of hired labor	1475	1891	1486	1087
26. Electricity expense	397	435	391	347
27. Real estate taxes	2292	2061	1862	1665
28. General farm expense	753	745	716	687
29. Total operating expense	<u>\$115915</u>	<u>\$106010</u>	<u>\$ 79620</u>	<u>\$ 53309</u>
30. New power & machinery	7991	6586	5142	3738
31. New livestock equipment	646	1036	903	772
32. New buildings, etc.	5520	2983	2408	1835
33. Total farm purchases	<u>\$130072</u>	<u>\$116615</u>	<u>\$ 88073</u>	<u>\$ 59654</u>
34. Decrease in farm capital				
35. Interest on capital managed 6%	13976	12748	10857	8983
36. Unpaid family labor	661	886	684	485
37. Board for hired labor	130	104	85	66
38. Total expenses	<u>\$144839</u>	<u>\$130353</u>	<u>\$ 99699</u>	<u>\$ 69188</u>
39. Labor earnings	\$ 11804	\$ 20494	\$ 13238	\$ 6098

Table 3. Summary of Earnings - Cash Statement - on Feeder Cattle Farms in Southern Minnesota 1969-1971 (continued)

	Feeder cattle and cash crops					
	325 work units and over			Less than 325 work units		
	1/2 high in earnings	Average in earnings	1/2 low in earnings	1/2 high in earnings	Average in earnings	1/2 low in earnings
RECEIPTS						
1.	\$ 76379	\$ 71199	\$ 66231	\$ 41051	\$ 37441	\$ 33464
2.	3986	3280	2575	2897	2546	2122
3.	668	492	316	384	238	76
4.	13249	10750	8245	10311	9247	8154
5.	20638	16728	12852	12550	10960	9290
6.	494	569	644	508	394	275
7.	1547	1315	1080	341	438	545
8.	1341	1103	866	1004	777	542
9.	\$118302	\$105436	\$ 92809	\$ 69046	\$ 62041	\$ 54468
10.	18665	12892	7231	3965	2817	1654
11.	378	392	406	242	245	248
12.	\$137345	\$118720	\$100446	\$ 73253	\$ 65103	\$ 56370
EXPENSES						
13.	\$ 48020	\$ 44637	\$ 41401	\$ 24489	\$ 21669	\$ 18610
14.	780	753	726	548	606	658
15.	60	59	57	38	24	10
16.	837	841	849	441	434	429
17.	8488	7066	5654	4426	4207	3936
18.	5697	5096	4514	3260	3195	3140
19.	5812	5108	4408	3153	3176	3202
20.	1974	2072	2167	1618	1489	1347
21.	2316	2066	1819	1396	1379	1361
22.	3177	2870	2564	1824	1747	1667
23.	513	468	424	420	397	375
24.	276	273	270	156	164	172
25.	1774	1628	1478	701	601	491
26.	437	410	383	290	290	290
27.	3276	2954	2633	2123	2043	1961
28.	937	889	841	670	667	664
29.	\$ 84374	\$ 77190	\$ 70188	\$ 45553	\$ 42088	\$ 38313
30.	8449	7443	6430	5013	5250	5490
31.	617	659	704	425	333	239
32.	3719	3255	2802	1892	1671	1427
33.	\$ 97159	\$ 88547	\$ 80124	\$ 52883	\$ 49342	\$ 45469
34.						
35.	17307	15746	14197	10172	9617	9029
36.	1271	1117	969	240	342	454
37.	104	110	115	42	44	44
38.	\$115841	\$105520	\$ 95405	\$ 63337	\$ 59345	\$ 54996
39.	\$ 21504	\$ 13200	\$ 5041	\$ 9916	\$ 5758	\$ 1374

Table 4. Summary of Earnings - Enterprise Statement - on Feeder Cattle Farms in Southern Minnesota, 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
RECEIPTS AND NET INCREASES				
1. Beef breeding herd		\$ 629	\$ 472	\$ 317
2. Feeder cattle	\$56831	44019	32014	20088
3. Hogs	2011	26433	22975	19564
4. Other livestock	340	163	314	460
5. Total productive livestock	\$59182	\$71244	\$55775	\$40429
6. Feed fed	41686	42697	35086	27513
7. Return over feed	\$17496	\$28547	\$20689	\$12916
8. Crops, seed, feed	28360	25138	20592	16148
9. Income from labor off farm	329	248	276	301
10. Miscellaneous farm income	762	782	731	682
11. Total receipts	\$46947	\$54715	\$42288	\$30047
EXPENSES AND NET DECREASES				
12. Truck and auto	\$ 2216	\$ 1835	\$ 1570	\$ 1310
13. Electricity expense	397	435	391	347
14. Tractor & crop machinery expense	7192	6879	5905	4951
15. Livestock equipment	1000	1365	1125	891
16. Buildings, fencing	2987	2840	2490	2150
17. Miscellaneous livestock expense	1253	1686	1257	830
18. Labor*	3078	3627	2877	2135
19. Real estate taxes	2292	2061	1862	1665
20. General farm expense	753	745	716	687
21. Interest on capital managed	13940	12748	10857	8983
22. Total expenses	\$35108	\$34221	\$29050	\$23949
23. Labor earnings	\$11839	\$20494	\$13238	\$ 6098

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

Since capital purchases, such as machinery, equipment and buildings, are used for several years, only the annual depreciation enters into the calculation of labor earnings by showing increases in capital as a receipt and decreases as an expense. Increases or decreases are the differences in the average farm capital managed between the beginning and the end of the year, as shown in table 2. This summarizes in one figure the net effect of the following:

Table 4. Summary of Earnings - Enterprise Statement - on Feeder Cattle Farms in Southern Minnesota, 1969-1971 (continued)

	Feeder cattle and cash crops					
	325 work units and over			Less than 325 work units		
	1/2 high	Average	1/2 low	1/2 high	Average	1/2 low
	in earnings	in earnings	in earnings	in earnings	in earnings	in earnings
RECEIPTS AND NET INCREASES						
1.	\$ 869	\$ 556	\$ 249	\$ 301	\$ 182	\$ 54
2.	38167	32848	27683	18651	16597	14387
3.	2693	2336	1980	1625	1522	1392
4.	607	428	248	313	195	64
5.	<u>\$42336</u>	<u>\$36168</u>	<u>\$30160</u>	<u>\$20890</u>	<u>\$18496</u>	<u>\$15897</u>
6.	<u>27625</u>	<u>24625</u>	<u>21717</u>	<u>14189</u>	<u>13161</u>	<u>12029</u>
7.	<u>\$14711</u>	<u>\$11543</u>	<u>\$ 8443</u>	<u>\$ 6701</u>	<u>\$ 5335</u>	<u>\$ 3868</u>
8.	46477	38433	30493	26961	23414	19692
9.	593	542	488	162	196	235
10.	<u>1341</u>	<u>1103</u>	<u>866</u>	<u>1004</u>	<u>777</u>	<u>542</u>
11.	<u>\$63122</u>	<u>\$51621</u>	<u>\$40290</u>	<u>\$34828</u>	<u>\$29722</u>	<u>\$24337</u>
EXPENSES AND NET DECREASES						
12.	\$ 2496	\$ 2378	\$ 2258	\$ 1537	\$ 1515	\$ 1494
13.	437	410	383	290	290	290
14.	8528	8058	7589	5746	5603	5448
15.	906	848	792	376	413	450
16.	3076	2758	2443	2036	1907	1773
17.	837	841	849	441	434	429
18.	3818	3539	3264	1521	1475	1425
19.	3276	2954	2633	2123	2043	1961
20.	937	889	841	670	667	664
21.	<u>17307</u>	<u>15746</u>	<u>14197</u>	<u>10172</u>	<u>9617</u>	<u>9029</u>
22.	<u>\$41618</u>	<u>\$38421</u>	<u>\$35249</u>	<u>\$24912</u>	<u>\$23964</u>	<u>\$22963</u>
23.	\$21504	\$13200	\$ 5041	\$ 9916	\$ 5758	\$ 1374

1. Products bought but not fully used up during the year, such as depreciable farm assets and supplies bought for use next year.
2. Depreciation on capital assets.
3. Products produced but not sold during the year, so they are on the end of the year inventory.
4. Products that were produced during the previous year or years (on hand at the beginning of the year) and sold this year.
5. Products sold that were previously purchased for later resale, such as feeder cattle and feeder pigs.
6. Casualty losses.

Table 5. Enterprise Statement on a Per Feeder Animal and Per 100 Pounds Net Gain in Weight Basis for Specialized Feeder Cattle Farms in Southern Minnesota, 1969-1971

Item	Per head of cattle on feed	Per 100 pounds gain in weight
RECEIPTS AND NET INCREASES		
Feeder cattle	\$197	\$28.64
Other livestock	8	1.18
Total livestock	<u>\$205</u>	<u>\$29.82</u>
Less value of feed fed		
Purchased	54	7.86
Farm raised	<u>90</u>	<u>13.15</u>
Return over feed	\$ 61	\$ 8.81
Crop, seed, feed*	97	14.30
Other farm income	<u>4</u>	<u>.54</u>
Total receipts	<u>\$162</u>	<u>\$23.65</u>
EXPENSES AND NET DECREASES		
Truck and auto	\$ 8	\$ 1.12
Electricity	1	.20
Tractors and crop machinery	25	3.62
Livestock equipment	3	.50
Buildings and fencing	10	1.50
Miscellaneous livestock expenses	4	.63
Labor	11	1.56
Taxes	8	1.15
General farm expense	3	.38
Interest at 6 percent	<u>48</u>	<u>7.02</u>
Total expenses	<u>\$121</u>	<u>\$17.68</u>
Labor earnings	\$ 41	\$ 5.97

* Value of crops raised less cost of fertilizers and miscellaneous crop expenses.

The data in table 4 show earnings on an enterprise basis. Instead of stressing farm sales and farm purchases, this arrangement stresses net value produced and net expense. Net increase in value produced includes sales, value of products used in the home, changes in inventories, and accounts for transfers between enterprises. The value of purchased livestock is subtracted so the result shows the value of livestock and livestock products added by the enterprise during the year.

In the calculation of value added by crops, credit is given to crops for feed raised on the farm and consumed by livestock. The return to crops, as shown in table 4, becomes the net value produced by crops for the year less cost of purchased seed, fertilizers and similar expenses.

Each category of expenses is calculated in the same manner. Depreciation, repairs, gas, oil, etc., are accounted for. This type of earnings statement more accurately reflects annual production for each productive enterprise and annual costs for each service enterprise.¹

Crops were the largest source of income for most of the categories of farms included in this study. Only in the case of feeder cattle and hog farms was the return over feed from livestock greater than the return from crops.

The largest item of expense is the interest charge of six percent on total capital managed. This amounts to 35 to 40 percent of the total expenses. Tractor and crop machinery expenses are the second largest item of expense.

In table 5, data in the earnings statement on an enterprise basis for specialized feeder cattle operations are expressed in terms of per head and per 100 pounds gain in weight. On these farms, the entire business is built around farm raised feed crops, additional purchased feeds and feeder cattle. The return over feed of \$61 per head or \$8.81 per 100 pounds gain in weight represents the value added by cattle. Even though most of the sales are in the form of cattle, crops contributed more to value added than that received from cattle.

1. For the method of calculation of income and expenses on an enterprise basis, see Nodland, Truman R., "Know Your Farm Business," University of Minnesota Agricultural Experiment Service Pamphlet 138, revised 1971.

Table 6. Average Acres per Farm on Feeder Cattle Farms in Southern Minnesota, 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
1. Oats for silage	9.1	4.3	2.6	1.0
2. Oats for grain	19.6	19.2	24.6	29.7
3. Other small grains	<u>10.4</u>	<u>4.5</u>	<u>4.8</u>	<u>5.2</u>
4. Total small grains and peas	39.1	28.0	32.0	35.9
5. Corn for grain	184.8	181.3	154.0	127.3
6. Soybeans	50.8	40.7	35.9	31.2
7. Corn silage	35.3	26.8	23.0	19.2
8. Other cultivated crops	<u>3.6</u>	<u>1.4</u>	<u>.7</u>	<u></u>
9. Total cultivated crops	274.5	250.2	213.6	177.7
10. Total tillable land in hay	45.4	30.8	29.2	27.7
11. Total tillable land in pasture	.3	7.1	6.6	6.0
12. Feed grain program	33.4	34.8	28.7	22.7
13. Tillable land not cropped	<u>1.9</u>	<u>2.6</u>	<u>1.5</u>	<u>.4</u>
14. Total tillable land	394.6	353.5	311.6	270.4
15. Non-tillable pasture & hay	11.4	17.1	22.8	28.3
16. Timber, waste, roads, farmstead	<u>28.7</u>	<u>24.4</u>	<u>23.1</u>	<u>21.8</u>
17. Total acres in farm	434.7	395.0	357.5	320.5
18. Percent land tillable	91	89	87	84

Total value added amounts to \$162 per head of cattle or \$23.65 per 100 pounds gain in weight. This can be considered as gross income or gross margin. Interest on capital managed, tractor and machinery expense, labor other than the operator's and buildings made up 75 percent of the expenses. Average labor earnings per head of cattle amounts to \$41.00 or approximately \$7.00 per 100 pounds gain in weight.

Table 6. Average Acres per Farm on Feeder Cattle Farms in Southern Minnesota, 1969-1971 (continued)

	Feeder cattle and crops					
	325 work units and over			Less than 325 work units		
	1/2 high	Average	1/2 low	1/2 high	Average	1/2 low
	in earnings	in earnings	in earnings	in earnings	in earnings	in earnings
1.	3.0	2.7	2.4	2.2	1.8	1.4
2.	25.1	23.0	20.9	9.9	11.7	13.5
3.	12.0	11.5	10.9	6.2	11.0	16.2
4.	40.1	37.2	34.2	18.3	24.5	31.1
5.	258.0	227.0	196.4	134.9	136.5	138.0
6.	150.5	128.1	105.8	102.4	86.4	69.7
7.	24.1	23.6	23.2	10.6	11.8	13.0
8.	2.2	4.1	6.0	1.3	2.4	3.6
9.	434.8	382.8	331.4	249.2	237.1	224.3
10.	24.8	26.7	28.5	12.4	15.4	17.7
11.	2.1	1.2	.3	.6	.4	.2
12.	101.1	78.0	55.2	48.4	43.4	37.9
13.	.4	2.4	4.4	.1	.1	.1
14.	603.3	528.3	454.0	330.0	320.9	311.3
15.	15.9	15.2	14.4	12.2	11.7	11.2
16.	41.8	37.4	32.9	30.2	30.6	30.8
17.	661.0	580.9	501.3	372.4	363.2	353.3
18.	91	91	91	89	88	88

The Cropping Program

Data in tables 6 and 7 show average acres per farm and yields of major crops for the various categories of farms included in this study. Corn is the major crop, since cattle feeding is a primary enterprise on all farms and hogs are an important enterprise on some of the farms. Soybeans are next in

Table 7. Average Crop Yields and Expenses per Acre on Feeder Cattle Farms in Southern Minnesota, 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
1. Oats for grain, bu.	78.3	64.7	63.4	62.2
2. Corn for grain, bu.	106.9	97.6	90.4	83.4
3. Soybeans, bu.	32.9	32.2	30.3	28.2
4. Corn silage, tons	16.9	15.7	15.1	14.6
5. Alfalfa hay, tons	4.3	4.2	4.0	3.7
6. Feed grain program, dollars	59	63	60	58
7. Fertilizer bought per till. A.	\$11.85	\$11.14	\$ 9.74	\$ 7.95
8. Other crop expense per til. A.	10.89	9.76	8.77	7.50
9. Tractor & machinery expense per crop acre	19.91	22.12	21.34	20.37

importance and land in the feed grain program represents the third major use of land. Since a large proportion of the land is tillable and the various categories of farms range from one to two sections in size, these farms are adapted to the production of grains for feeding cattle and hogs.

Crop yields do not seem to be related to size of business. The better managers (farmers in high earnings groups) reported the higher average yields. Most of the groups exceeded 100 bushels per acre of corn and 30 bushels per acre of soybeans.

Livestock Enterprises

Production and some costs are shown for feeder cattle and hogs in tables 8 and 9. Home grown feeds have been charged to livestock at current market prices during the year, while purchased feeds have been charged at cost. The number of head of feeder cattle represents the average number on hand at

Table 7. Average Crop Yields and Expenses per Acre on Feeder Cattle Farms in Southern Minnesota, 1969-1971 (continued)

	Feeder cattle and crops					
	325 work units and over			Less than 325 work units		
	1/2 high in earnings	Average	1/2 low in earnings	1/2 high in earnings	Average	1/2 low in earnings
1.	70.3	66.6	63.1	67.6	63.4	61.0
2.	108.9	106.6	104.3	110.1	105.5	100.7
3.	32.4	31.6	30.8	32.6	31.5	30.2
4.	16.5	16.7	16.9	15.8	15.1	14.3
5.	4.4	4.0	3.6	4.1	4.0	3.9
6.	65	64	63	64	64	64
7.	\$ 9.44	\$ 9.65	\$ 9.71	\$ 9.88	\$ 9.96	\$10.09
8.	9.63	9.67	9.71	9.55	9.90	10.28
9.	17.02	17.97	19.16	20.34	20.13	19.88

the beginning of each month. For example, one head may be one feeder kept for a full year or two kept for six months each.

Average gain in weight per head of feeder cattle is the total pounds of beef produced during the year divided by the average number of head. Pounds gain in weight per day is calculated by dividing gain in weight per head by 365. Death losses are automatically accounted for in the calculation of net gain in weight.

High earnings farms show the largest net increase in value for feeder cattle, the lowest feed cost, the greatest gain in weight per head and the greatest gain in weight per day. Variations in average prices paid and received are relatively small. Since these data are on a calendar year basis, price paid for cattle bought in 1968 and sold in 1969 is not included. Likewise, the price received for cattle bought in 1971 and sold in 1972 is not included.

Table 8. Average Feed Costs and Returns from Feeder Cattle on Feeder Cattle Farms in Southern Minnesota, 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
1. Pounds of beef produced	198447	147876	112335	76995
2. Average number of head for year	289	220	171	122
3. Pounds gain in weight per head *	687	672	657	631
4. Pounds gain in weight per day **	1.89	1.84	1.80	1.73
5. Net increase in value of feeders per cwt. of beef produced	\$29.58	\$28.94	\$27.86	\$26.80
Feed cost per cwt. of beef produced				
6. Concentrates	\$15.61	\$14.13	\$14.20	\$14.28
7. Roughages and pasture	4.97	4.37	5.16	5.93
8. Total feed cost	\$20.58	\$18.50	\$19.36	\$20.21
9. Return above feed cost per cwt. beef produced	\$ 9.00	\$10.44	\$ 8.50	\$ 6.59
10. Return for \$100 of feed	\$144	\$156	\$144	\$133
11. Miscellaneous costs per cwt. of beef produced***	\$0.63	\$0.60	\$0.61	\$0.61
Feeds per cwt. beef produced, lbs.				
12. Corn and small grains	709	576	585	594
13. Commercial feeds	47	50	50	51
14. Total concentrates	756	626	635	645
15. Total hay	221	190	234	277
16. Silage	772	601	689	778
17. Price paid per cwt. for beef bought	\$33.12	\$33.93	\$33.58	\$33.24
18. Price received per cwt. for feeder cattle sold	\$29.71	\$29.38	\$29.05	\$28.72

* Total pounds of beef produced divided by the average number of head.

** Pounds gain in weight per head divided by 365 days in a year.

*** Miscellaneous costs include items such as veterinary expenses and purchased bedding.

Table 8. Average Feed Costs and Returns from Feeder Cattle on Feeder Cattle Farms in Southern Minnesota, 1969-1971 (continued)

	Feeder cattle and cash crops					
	325 work units and over			Less than 325 work units		
	1/2 high in earnings	Average	1/2 low in earnings	1/2 high in earnings	Average	1/2 low in earnings
1.	126217	112632	99457	62969	57083	50710
2.	182	169	157	97	92	85
3.	694	666	633	649	620	597
4.	1.90	1.82	1.73	1.78	1.70	1.64
5.	\$30.62	\$29.73	\$28.85	\$30.32	\$29.93	\$29.50
6.	\$15.98	\$15.93	\$15.88	\$16.35	\$16.72	\$17.11
7.	3.99	4.43	4.86	3.92	4.51	5.14
8.	\$19.97	\$20.36	\$20.74	\$20.27	\$21.23	\$22.25
9.	\$10.65	\$ 9.37	\$ 8.11	\$10.05	\$ 8.70	\$ 7.25
10.	\$154	\$146	\$139	\$150	\$141	\$133
11.	\$0.62	\$0.73	\$0.82	\$0.68	\$0.91	\$1.17
12.	681	672	664	674	672	669
13.	49	50	50	52	59	66
14.	730	722	714	726	731	735
15.	156	190	225	199	214	233
16.	623	655	686	521	646	778
17.	\$32.19	\$32.67	\$33.12	\$32.77	\$32.18	\$31.63
18.	\$29.52	\$29.38	\$29.23	\$29.17	\$29.28	\$29.32

Table 9. Average Feed Costs and Returns from Hogs on Feeder Cattle and Hogs Farms in Southern Minnesota, 1969-1971

Item	Feeder cattle and hogs		
	1/2 high in earnings	Average	1/2 low in earnings
1. Pounds produced	120551	107170	93957
Per cwt. produced:			
2. Net increase in value	\$21.47	\$21.28	\$21.11
3. Feed cost	12.36	12.61	12.84
4. Return above feed cost	\$ 9.11	\$ 8.67	\$ 8.27
5. Return for \$100 of feed	\$174	\$169	\$164
6. Price received per cwt. sold	\$21.45	\$21.28	\$21.11
7. Weight per hog sold	240	235	230
8. Miscellaneous cost per cwt. produced*	\$0.52	\$0.47	\$0.41
Feed per cwt. produced, lbs.:			
9. Corn	265	266	267
10. Small grain	33	37	42
11. Commercial feeds**	135	127	119
12. Total concentrates	433	430	428
13. Total number of litters raised	62	60	59
14. Number pigs born prr litter	9.2	9.1	8.8
15. Number pigs weaned per litter	8.0	7.5	7.1
16. Number of feeder pigs bought	14	7	
17. Total weight of pigs bought	478	246	
18. Price paid per feeder pig	\$12.96	\$11.48	

* Miscellaneous costs include items such as veterinary expenses, purchased bedding, breeding fees, registration fees, etc.

** This includes protein feed and the purchase of complete hog feeds which have not been divided between corn, small grain and protein.

Costs and returns from the hog enterprise on feeder cattle and hog farms are shown in table 9. High earnings farms reported the largest number of pigs weaned per litter and the lowest feed cost per 100 pounds gain in weight. Since the quantity of feed consumed per 100 pounds gain in weight was about the same, the lower feed cost reported by the most profitable farms is probably due to differences in the price paid for purchased feeds.

Summary

Data in table 10 summarizes some of the characteristics of southern Minnesota farms that include cattle feeding as a major enterprise. Farmers in the various low earnings groups earned less than a five percent return on capital managed as compared to 7.1 to 11.9 percent for high earnings farms. Anyone earning less than about eight percent probably would experience difficulty in paying interest and even modest amounts on the principal of large sums of borrowed capital.

The following are some of the characteristics of the most profitable farms as compared to the least profitable farms:

1. More total acres and more tillable acres.
2. Higher yields of corn and soybeans.
3. Little difference in number of workers.
4. Much larger work units per worker (work accomplished per worker).
5. More capital managed in total and per worker.
6. Larger business in terms of work units.
7. More cattle on feed
8. Greater return per \$100 of feed fed to cattle.
9. Less expense per work unit.

Except for the type of farming which included hogs, well over 50 percent of the value added came from the crop enterprise. Yields of crops were lower on farms maintaining hogs, probably because the hog enterprise interfered with the timeliness of the cropping program.

Many of the differences between high and low earnings farms are the result of differences in efficiency of production and size of business. Since there are great variations in earnings within groups of farms of approximately the same size an increase in size does not guarantee larger earnings.

Table 10. Some Characteristics of Feeder Cattle Farms, Southern Minnesota 1969-1971

Item	Feeder cattle	Feeder cattle and hogs		
		1/2 high in earnings	Average	1/2 low in earnings
Earnings				
1. Net cash income	\$11208	\$14672	\$13262	\$11821
2. Labor earnings	11804	20494	13238	6098
3. Interest on capital managed	13976	12748	10857	8983
4. Total (2 + 3)	\$25780	\$33242	\$24095	\$15081
5. Estimated charge for operator's labor	8000	8000	8000	8000
6. Return to capital managed	\$17780	\$25242	\$16095	\$ 7081
7. Rate earned on capital	7.6	11.9	8.9	4.7
Land				
8. Total acres	435	395	358	320
9. Tillable acres	395	354	312	270
10. Percent tillable land in - corn	46.8	51.3	49.4	47.1
11. - soybeans	12.9	11.5	11.5	11.5
12. Yield per acre, bu. - corn	107	98	90	83
- soybeans	33	32	30	28
Labor				
14. Number of workers	1.6	1.7	1.6	1.5
15. Work units per worker	296	310	281	248
Capital				
16. Total capital managed	\$232941	\$212469	\$180943	\$149724
17. Capital managed per worker	145588	124981	113089	99816
Size of business				
18. Total work units	474	527	449	372
19. Net value produced	\$46947	\$54715	\$42288	\$30047
Feeder cattle				
20. Pounds produced	198447	147876	112335	76995
21. Average number of head	289	220	171	122
22. Return for \$100 of feed	\$144	\$156	\$144	\$133
Percent of gross value from				
23. Livestock	37.3	52.2	48.9	43.0
24. Crops	60.4	45.9	48.7	53.7
25. Miscellaneous income	2.3	1.9	2.4	3.3
Expenses				
26. Power, machinery, equipment, and building expense per work unit	\$29.10	\$25.34	\$25.57	\$25.94

Table 10. Some Characteristics of Feeder Cattle Farms, Southern Minnesota 1969-1971

	Feeder cattle and cash crops					
	325 work units and over			Less than 325 work units		
	1/2 high in earnings	Average	1/2 low in earnings	1/2 high in earnings	Average	1/2 low in earnings
Earnings						
1.	\$21143	\$16889	\$12685	\$16163	\$12699	\$ 8999
2.	21504	13200	5041	9916	5758	1374
3.	17307	15746	14197	10172	9617	9029
4.	\$38811	\$28946	\$19238	\$20088	\$15375	\$10403
5.	8000	8000	8000	8000	8000	8000
6.	\$30811	\$20946	\$11238	\$12088	\$ 7375	\$ 2403
7.	10.7	8.0	4.7	7.1	4.6	1.6
Land						
8.	661	581	501	372	363	353
9.	603	528	454	330	321	311
10.	42.8	43.0	43.3	40.9	42.5	44.3
11.	24.9	24.2	23.3	31.0	26.9	22.4
12.	109	107	104	110	106	101
13.	32	32	31	33	32	30
Labor						
14.	1.7	1.7	1.7	1.3	1.3	1.3
15.	304	266	228	195	188	180
Capital						
16.	\$288456	\$262438	\$236620	\$169528	\$160292	\$150482
17.	169680	154375	139188	130406	123302	115755
Size of business						
18.	517	453	388	254	244	234
19.	\$63122	\$51621	\$40290	\$34828	\$29722	\$24337
Feeder cattle						
20.	126217	112632	99457	62969	57083	50710
21.	182	169	157	97	92	85
22.	\$154	\$146	\$139	\$150	\$141	\$133
Percent of gross value from						
23.	23.3	22.4	20.9	19.2	17.9	15.9
24.	73.6	74.4	75.7	77.4	78.8	80.9
25.	3.1	3.2	3.4	3.4	3.3	3.2
Expenses						
26.	\$29.87	\$31.90	\$34.70	\$39.31	\$39.87	\$40.41