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1955 ANNUAL REPORT

VOCATIONAL AGRICULTURE

FARM MANAGEMENT SERVICE

NORTHWESTERN MINNESOTA

UNIVERSITY OF MINNESOTA

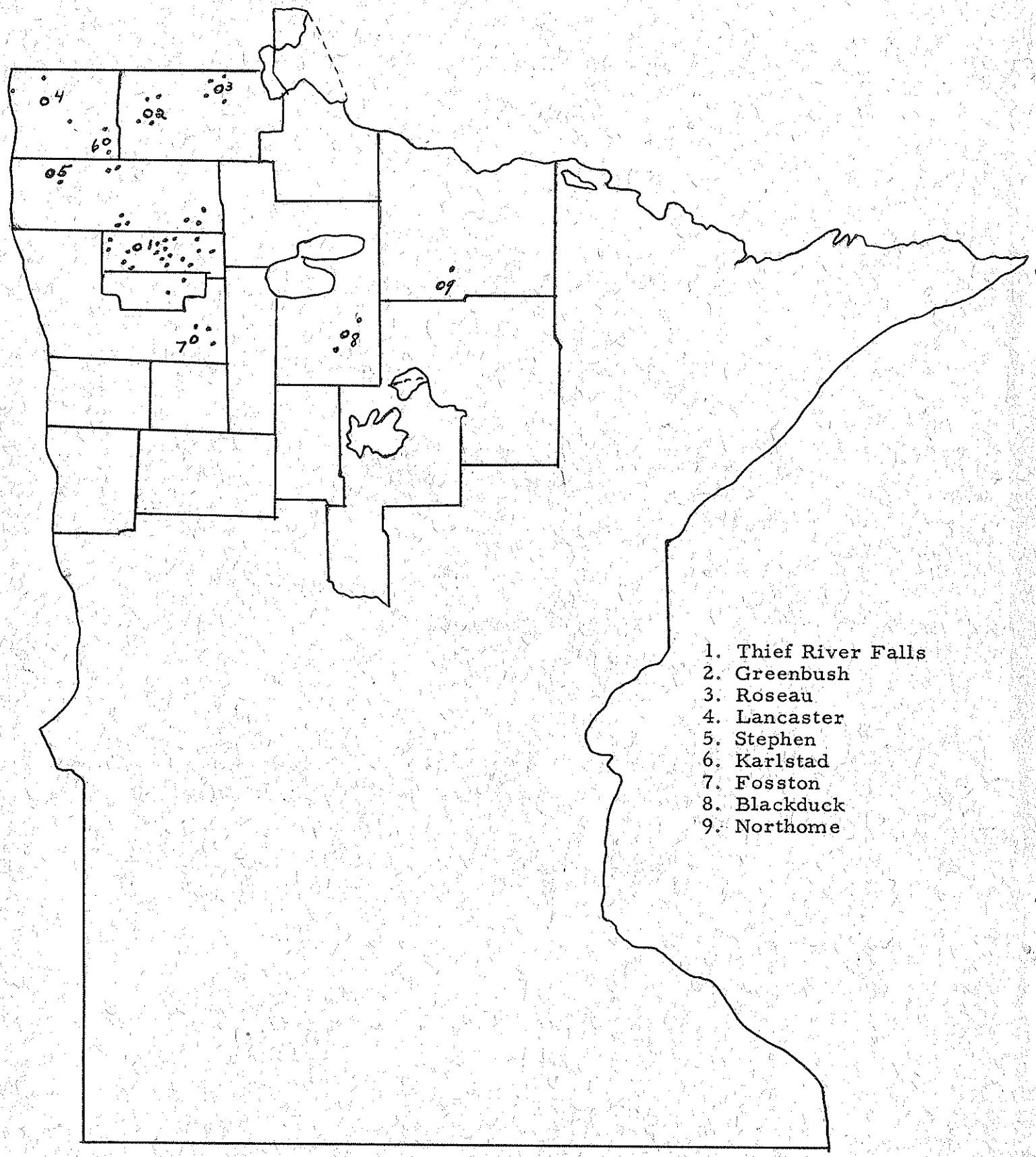
Institute of Agriculture
and
Vocational Division

MINNESOTA DEPARTMENT OF EDUCATION

and

AREA VOCATIONAL TECHNICAL SCHOOL
Thief River Falls, Minnesota
Cooperating

March, 1956



Schools cooperating

Farms participating

1955 REPORT OF THE FARM MANAGEMENT SERVICE FOR VOCATIONAL AGRICULTURE IN NORTHWESTERN MINNESOTA

Stan Nelson

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INTRODUCTION

The Departments of Agricultural Education and Agricultural Economics, the Thief River Falls Area Vocational-Technical School and the Agricultural Extension Service of the University of Minnesota are cooperating with the Vocational Division, Minnesota Department of Education in maintaining a farm management service. The service was initiated during 1955 and is available to farmers who are enrolled in adult or young farmer classes in the public schools.

The purpose of the project, as far as the schools are concerned, is (1) to give assistance to the instructors in the mechanics of keeping farm records and (2) to aid in the analysis of the farm business through the use of records as a basis for vocational guidance. The enrollment is on a voluntary basis, insofar as the number of school participating and the number of farmers enrolled in the service.

The analysis of the records and the preparation of the reports for Northwestern Minnesota are handled by Stan Nelson of the Area Vocational-Technical School located at Thief River Falls. The project is under the general direction of Milo Peterson and Lauren Granger of the University of Minnesota Department of Agricultural Education. The Department of Agricultural Economics was represented by T. R. Nodland and G. A. Pond and the Agricultural Extension Service by Harland Routhe and E. Hartmans. The State Department of Education was represented by S. K. Wick, Assistant Director of Vocational Education in charge of Area Vocational-Technical Schools and G. R. Cochran, State Surpervisor of Agricultural Education. Jon Metusalem of Thief River Falls and other agricultural instructors in the area assisted in closing the records.

Each farmer pays an annual fee which covers a portion of the cost. For the farmers in the Thief River Falls area, a portion of the cost of the analysis was contributed by the following organizations and business establishments: Thief River Falls Chamber of Commerce, Consumers Cooperative Oil Co., Farmers Cooperative Grain and Seed Association, Union State Bank, Northern State Bank, and the Thief River Falls Production Credit Association. The Farmers Home Administration and J. P. Rosengren, local County Supervisor, cooperated by encouraging clients to participate in the service. The bank located at Hallock contributed to the cost for farmers located in that area. Through a grant of funds from the Hill Family Foundation, Lauren Granger was employed by the Department of Agricultural Education as a co-ordinator for the project.

This report deals with farmers enrolled in 9 schools in Northwestern Minnesota. The following tabulation shows by schools the number of 1955 farm records submitted:

Thief River Falls	28	Karlstad	5
Greenbush	4	Fosston	3
Roseau	4	Blackduck	2
Lancaster	2	Northome	1
Stephen	1	Total	50

The records kept included farm inventories, cash receipts and expenses, feed consumed by the various classes of livestock, family living secured from the farm, household and personal expenses and receipts and the operators liabilities and assets other than farm capital.

FARM INVENTORIES

The Capital investment per farm varied from $8310 to $70,441. The average investment for all farms included in this report and for the ten high and the ten low in operator's labor earnings is shown in Table 1.

FARM EARNINGS

Operator's earnings is a measure of the relative financial success of a farmer as compared with other farmers and represents the returns above all farm expenses and a charge for the use of farm capital.

There are two methods of computing operator's earnings. Table 2 shows the earnings statement on a cash basis and Table 3 shows the earnings on an enterprise or accrual basis. The principal difference in the two statements is the method of handling the net increase or decrease in the value of farm capital. In the cash statement the net increase or decrease in farm capital is entered as one item. In the enterprise statement the net change in the inventory has been included in each enterprise in order to compute "total returns and net increases", or "total expenses and net decreases" by enterprises.

RETURNS TO CAPITAL

The return to capital and family labor represents the amount available to the operator for living expenses, payment on indebtedness and savings. These figures are found on Table 5.

Table 1. Summary of Farm Inventories, 1955

Items	Your farm Jan. 1	Your farm Dec. 31	Average of 50 farms Jan. 1	Average of 50 farms Dec. 31
Size of farm (acres)	_____		433	
Size of business (work units)*	_____		389.4	
Dairy and dual purpose cows	_____	_____	$ 1686	$ 1764
Other dairy & dual purpose cattle	_____	_____	775	892
Beef cattle (incl. feeders)	_____	_____	497	544
Hogs	_____	_____	108	59
Sheep (including feeders)	_____	_____	280	272
Poultry (including turkeys)	_____	_____	117	111
Productive livestock (total)	_____	_____	3463	3642
Horses	_____	_____	36	39
Crop, seed and feed	_____	_____	2772	2711
Auto & truck (farm share)	_____	_____	1124	964
Tractors & motors	_____	_____	1796	1898
Crop and general machinery	_____	_____	3531	3713
Livestock equipment	_____	_____	304	323
Machinery & equipment (total)	_____	_____	6755	6898
Miscellaneous	_____	_____	-	-
Land	_____	_____	8512	8655
Buildings, fences, etc.	_____	_____	4338	4300
Total farm capital	_____	_____	25876	26245

Items	10 most profitable farms Jan. 1	10 most profitable farms Dec. 31	10 least profitable Jan. 1	10 least profitable Dec. 31
Size of farm (acres)	516		495	
Size of business (work units)*	474.7		373.1	
Dairy and dual purpose cows	$ 1758	$ 2020	$ 1722	$ 1772
Other dairy & dual purpose cattle	826	963	723	1106
Beef cattle (incl. feeders)	929	1123	420	485
Hogs	145	114	89	2
Sheep (including feeders)	530	634	166	55
Poultry (including turkeys)	179	168	56	60
Productive livestock (total)	4367	5022	3176	3480
Horses	61	74	8	8
Crop, seed, and feed	4046	4962	2794	2213
Auto & truck (farm share)	1089	986	1368	1157
Tractors & motors	2124	2361	2709	2693
Crop & general machinery	3902	4604	4226	4012
Livestock equipment	204	320	324	258
Machinery & equipment (total)	7319	8271	8627	8120
Miscellaneous	-	-	-	-
Land	9097	9098	12772	12918
Buildings, fences, etc.	4958	4932	4926	4428
Total farm capital	29848	32359	32303	31167

* See page 8 for an explanation of "work units".

Table 2. Summary of Farm Earnings (Cash Statement), 1955

Items	Your farm	Average of 50 farms	10 most profitable farms	10 least profitable farms
FARM RECEIPTS				
Dairy and dual-purpose cattle	_____	$ 613	$ 483	$ 561
Dairy products	_____	2305	3527	1575
Beef cattle (including feeders)	_____	361	510	291
Hogs	_____	227	339	224
Sheep and wool (including feeders)	_____	395	619	265
Horses	_____	10	-	-
Poultry	_____	56	72	13
Eggs	_____	417	650	254
Honey sold	_____	41	162	-
Corn	_____	1	3	-
Small grain	_____	3202	4766	3209
Other crops	_____	22	24	17
Mach. & equip. sold & gas tax ref.	_____	172	287	232
Income from work off the farm	_____	179	213	130
Miscellaneous	_____	214	228	188
(1) Total farm sales	_____	8214	11883	6959
(2) Increase in farm capital	_____	1282	2915	766
(3) Family living from the farm	_____	277	291	228
(4) Total farm receipts (1)+(2)+(3)	_____	9774	15089	7953
FARM EXPENSES				
Dairy and dual-purpose cattle bought	_____	$ 188	$ 313	$ 406
Beef cattle bought (incl. feeders)	_____	18	25	-
Hogs bought	_____	12	3	28
Sheep bought (incl. feeders)	_____	23	57	4
Horses bought	_____	8	-	-
Bees bought	_____	18	72	-
Poultry bought	_____	39	41	18
Misc. livestock expense	_____	177	264	174
Feed bought	_____	460	734	367
Fertilizers	_____	334	487	229
Other crop expenses	_____	567	764	745
Custom work hired	_____	327	485	263
Gas, oil & grease bot. (farm share)	_____	855	1064	902
Rep. of mechanical power (f. share)	_____	295	377	293
Rep. and upkeep of real estate	_____	116	204	57
Rep. & upkeep of crop & gen. mach.	_____	222	354	221
Rep. & upkeep of livestock equip.	_____	61	111	44
Wages of hired labor	_____	398	799	450
Electricity expense (farm share)	_____	152	190	130
Real estate & pers. prop. taxes	_____	370	413	414
General farm expense	_____	101	128	106
(5) Total cash operating expense	_____	4742	6885	4851
(6) Cap. purchases-mech. pow. (f. share)	_____	635	824	610
(7) " " -crop & gen. mach.	_____	803	1480	499
(8) " " -livestock equip.	_____	84	153	53
(9) " " -bldgs. & fencing	_____	450	237	276
(10) Total farm purchases (5) to (9)	_____	6713	9579	6289
(11) Decrease in farm capital	_____	912	404	1903
(12) Interest on farm capital	_____	1303	1555	1587
(13) Unpaid family labor	_____	140	106	203
(14) Board furnished hired labor	_____	76	171	88
(15) Total farm expenses (10) to (14)	_____	9145	11815	10070
(16) Labor earnings (4) - (15)	_____	629	3274	-2116

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Table 3. Summary of Farm Earnings (Enterprise Statement) 1955*

Items	Your farm	Average of 50 farms	10 most profitable farms	10 least profitable farms
RETURNS AND NET INCREASES				
Dairy and dual-purpose cows	_____	$ 2422	$ 3531	$ 1614
Other dairy & dual-purpose cattle	_____	812	844	811
Beef breeding herd	_____	297	619	226
Feeder cattle	_____	81	-	125
Hogs	_____	193	345	130
Sheep-farm flock	_____	361	666	151
Sheep-feeders	_____	3	-	-
Chickens	_____	476	722	280
All productive livestock	_____	Total 4645	6727	3337
Value of feed fed to livestock	_____	- 2563	3426	2112
Return over feed from livestock	_____	2082	3301	1225
Crops, seed, and feed	_____	4271	7130	3335
Income from labor off the farm	_____	95	76	110
Bees	_____	22	90	-
Agricultural conservation payments	_____	120	130	159
Miscellaneous	_____	94	98	30
(1) Total returns & net increases	_____	6684	10825	4859
EXPENSES AND NET DECREASES				
Horses	_____	$ -5	$ -13	$ -
Truck	_____	262	273	253
Auto (farm share)	_____	288	338	238
Tractor	_____	1080	1181	1293
Elec. & gas engine exp. (f. share)	_____	154	195	125
Hired power	_____	143	231	94
Total power	_____	1922	2205	2003
Crop and general machinery	_____	852	1133	990
Livestock equipment	_____	125	148	161
Buildings, fencing, and tiling	_____	461	466	684
Misc. productive livestock exp.	_____	177	264	174
Labor	_____	743	1239	857
Real estate taxes	_____	248	252	290
Personal property tax	_____	122	161	123
Insurance	_____	45	51	61
General farm	_____	57	77	45
Interest on farm capital	_____	1303	1555	1587
(2) Total expenses & net decreases	_____	6055	7551	6975
(3) Operator's earnings (1) - (2)	_____	629	3274	-2116

* Cash receipts and expenses are adjusted for changes in inventory for each enterprise and for each item of expense in order to show total receipts and net increases, and total expenses and net decreases. The operator's earnings are the same as those on page 4.

FAMILY LIVING FROM THE FARM

The family living from the farm is the estimated value of the farm produce used in the house and shelter furnished the farmer and his family by the farm. It is a part of the income of the farm and a part of the expenses of operating the household even though cash transactions are not involved. The omission of the farm produce used in the home results in an incomplete record of both farm income and personal expense.

The value of the family living as shown in Table 4 amounts to 2.8 per cent of the total farm receipts on these farms. The values assigned are a conservative market price on the farm. If these products had been purchased, the amount paid out would have been considerably higher.

Table 4. Family Living from the Farm, 1955

Items	Your farm	Average 50 farms	Your farm	Average 50 farms
Adult equiv. - family	_____	3.2		
- others	_____	.2		
Whole milk	_____	1310 qts.	_____	$ 92
Skim milk	_____	39 qts.	_____	1
Cream	_____	93 pts.	_____	21
Beef	_____	406 lbs.	_____	54
Hogs	_____	221 lbs.	_____	28
Lamb and mutton	_____	-	_____	-
Poultry	_____	78 lbs.	_____	17
Eggs	_____	97 doz.	_____	30
Potatoes	_____	3 bu.	_____	1
Vegetables & fruit			_____	27
Farm fuel			_____	6
Total			_____	277

HOUSEHOLD AND PERSONAL EXPENSES AND RECEIPTS

Household and personal accounts are important if the family is to manage its financial affairs wisely. The household and personal expenses and receipts are presented in Table 5. These farmers spent an average of $160 per month for family living in addition to the food, fuel and housing furnished by the farm.

Table 5. Household and Personal Expenses for Those Farms Which Kept Complete Accounts of These Expenses, 1955

Items	Your farm	Average of 35 farms	10 most profitable farms	10 least profitable farms
Number of person - family	_____	4.6	4.1	4.5
Number of adult equiv. - family	_____	3.2	2.9	3.1
other*	_____	.2	.5	.3
Food and meals bought	_____	$ 758	$ 949	$ 817
Operating and supplies	_____	150	223	151
Furnishings and equipment	_____	133	299	122
Clothing and clothing materials	_____	207	254	215
Personal care, personal spending	_____	63	60	124
Education, recreation & development	_____	81	262	44
Gifts and special events	_____	76	101	37
Medical care and health insurance	_____	170	226	189
Church, welfare	_____	79	175	70
Personal share of auto & tr. exp.	_____	107	141	129
Operator's share of upkeep on dwelling	_____	25	2	12
Household share of electric & tele. exp.	_____	74	102	87
Total cash living expense	_____	1923	2794	1997
H.H. & pers. share of new auto	_____	79	115	120
New dwelling	_____	4	-	-
Taxes and other deductions	_____	38	119	39
Life insurance	_____	45	66	22
Other savings and investments	_____	20	17	-
Total household and personal cash exp.	_____	2109	3111	2178
Total family living from the farm	_____	277	248	261
Total cash exp. & perquisites	_____	2386	3359	2439
Receipts:				
Return to capital & family labor	_____	1830	4321	52
Miscellaneous income	_____	73	14	24
Income from investments	_____	101	159	4
Sale of outside investments	_____	17	-	70
		2021		
		277		
		2298		

* Hired help or others boarded.

NET WORTH

A net worth statement includes a listing of all the assets and liabilities as of a given date. The difference between the farmer's total assets and his liabilities is his net worth. A net worth statement is presented in Table 6. Both the farm and personal assets and liabilities are included.

The difference between the operator's net worth at the beginning and at the end of the year shows the gain in net worth. It represents the financial progress that has been made during the year.

Table 6. Net Worth Statement for Those Farmers Who Kept a Complete Record of All Assets and Liabilities, 1955

Items	Your farm Jan. 1	Your farm Dec. 31	50 farms Jan. 1	50 farms Dec. 31
Total acres in farm	_____		433	
Total farm capital	_____	_____	$25876	$ 26245
Stocks and bonds	_____	_____	204	145
Life insurance	_____	_____	242	248
Accounts receivable	_____	_____	55	5
Outside real estate	_____	_____	243	231
Shares in mktg. organizations	_____	_____	228	273
Pers. share of auto & truck	_____	_____	381	356
Dwelling	_____	_____	2668	2592
Cash on hand and in bank	_____	_____	396	364
Household goods and clothing	_____	_____	1519	1551
Total non-farm assets	_____	_____	5936	5765
TOTAL ASSETS	_____	_____	31812	32010
Federal Land Bank mortgage	_____	_____	425	461
FHA Real Estate mortgage	_____	_____	1294	1276
Other mortgage on land operated	_____	_____	2979	2731
Taxes	_____	_____	14	4
Production Credit Association	_____	_____	284	568
FHA Chattel mortgage	_____	_____	120	201
Crop loans	_____	_____	712	565
Other chattel mortgages	_____	_____	1969	2280
Notes payable	_____	_____	386	405
Accounts payable	_____	_____	490	678
TOTAL LIABILITIES			8673	9169
Farmer's net worth	_____	_____	23139	22841
Gain or decrease in net worth		_____		-298

EXPLANATION OF "WORK UNITS"

The total "work units" for any one farm is a measure of the size of that farm business. A work unit as used in this report is the average accomplishment of a farm worker, in a ten-hour day, working on crops and productive livestock at an average efficiency. The number of work units for each class of livestock and each acre of crop are presented in Table 7. Days of work off the farm for pay are not included in this report.

Table 7. Number of Work Units for Each Class of Livestock and Each Acre of Crop

Item	No. of work units	Item	No. of work units
Dairy & dual-purpose cows	10.0 per cow	Small grain	.7 per acre
Other dairy & du. pur. cattle	3.5 per an. unit*	Corn husked	1.1 per acre
Beef breeding herd	3.5 per an. unit*	Corn, silage	1.7 per acre
Feeder cattle	.25 per 100 lbs.	Corn, fodder	1.0 per acre
Sheep - farm flock	1.5 per an. unit*	Alfalfa hay	.9 per acre
Sheep - feeders	.3 per 100 lbs.	Other hay crops	.6 per acre
Hogs	.2 per 100 lbs.	Legume seed	1.0 per acre
Hens	20.0 per 100 hens	Grass silage	1.0 per acre
Potatoes	3.8 per acre		

* Animal unit represents one dairy cow or bull, two other dairy cattle, 1 1/4 beef cows or bull, 1 feeder steer or heifer, 3 1/3 other beef cattle, 7 sheep, 14 lambs, 2 1/2 hogs, 5 pigs, 50 hens or 1,100 pounds of turkeys produced.

RANGE IN EARNINGS

Every study of farm earnings shows a wide variation in earnings among farmers in a given year (figure 1). The average operator's earnings of those farmers ranking in the upper 20 per cent of the range according to earnings was $3274 and of those in the lower 20 per cent was $2116. This is a range of $5390 between the average earnings of these two groups. Some of the causes for these differences in earnings, such as weather, may be beyond the control of the individual farmer. Other factors are within his control. The more important management factors affecting earnings are as follows: These factors vary from year to year in their relative influence on earnings. 1/

1. Crop Yields
2. Choice of Crops
3. Return from Livestock
4. Amount of Livestock
5. Size of Business
6. Work Units per Worker
7. Control over Expenses

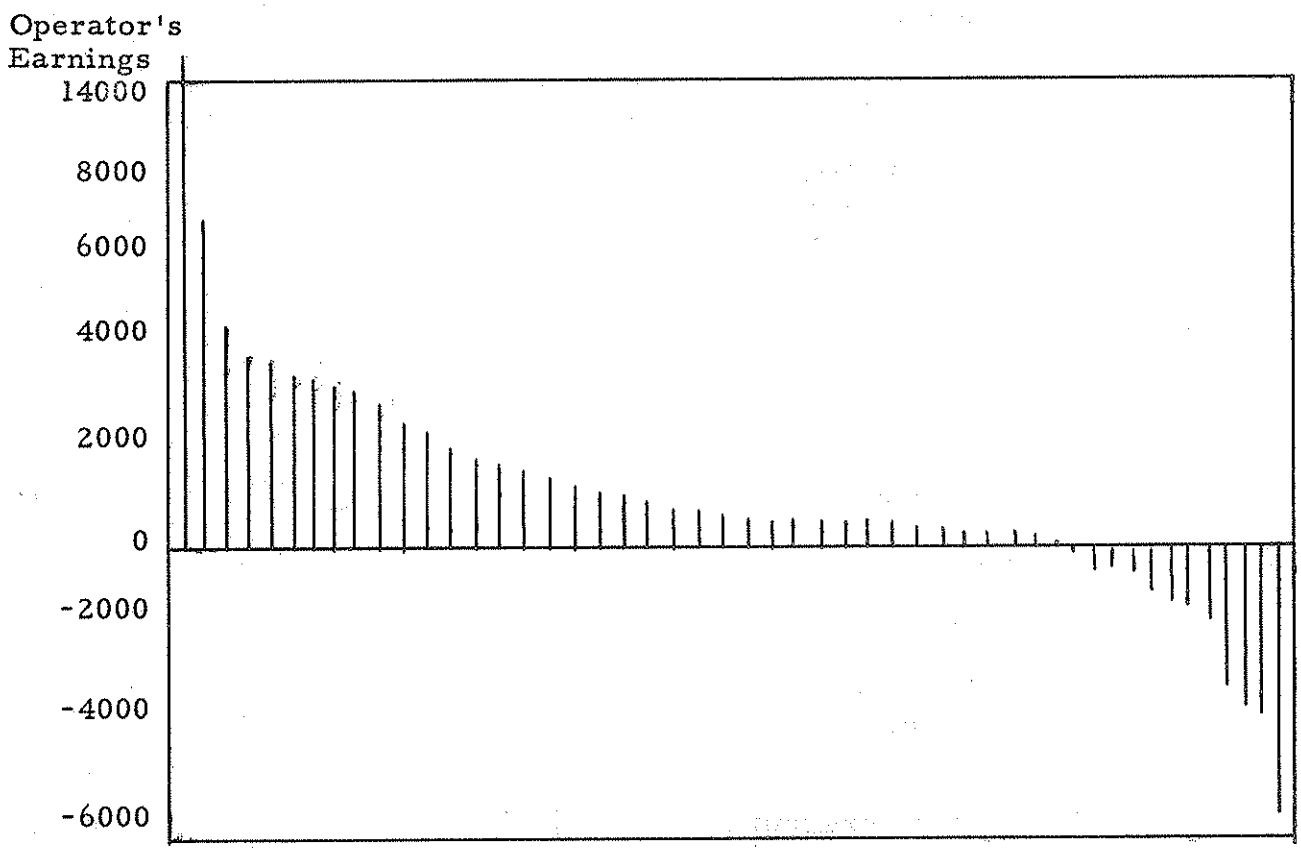

Fig. 1 Range in operator's earnings.
Each line represents the earning of one farmer.

1/ See Pond, G. A. "Why Farm Earnings Vary". Minn. Agri. Expt. Sta. Bul. 386, June, 1945.
Nodland, T. R. and Pond, G. A. "Some Factors Affecting the Earnings of Farmers in Southwestern Minnesota". Univ. of Minn., Dept. of Ag. Econ., Report No. 219, November, 1954.

Table 8. Measures of Farm Organization and Management Efficiency, 1955

Measures used in chart on page 11	Your farm	Average of 50 farms	10 most profitable farms	10 least profitable farms
Operator's earnings	$ _____	$ 629	$ 3274	$ -2116
(1) Crop yields*	_____	100	125	80
(2) Per cent tillable land in high return crops**	_____	48.6	46.6	51.4
(3) Ret. for $100 feed to prod. livestock***	_____	100	113	87
(4) Prod. livestock units per 100 A.****	_____	8.4	8.8	6.8
(5) Size of business-work units	_____	389	475	373
(6) Work units per worker	_____	270	305	251
(7) Pow., mach., equip., & bldg. exp. per work unit	_____	8.55	8.10	10.32

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Items related to some of the above measures:

(3) Index of ret. for $100 feed from:				
Dairy cattle (see pages 15&16)	_____	100	106	77
Beef cattle-breeding herd (see p. 18)	_____	100	98	109
Hogs (see page 19)	_____	100	90	117
Sheep-farm flock (see page 17)	_____	100	103	77
Chickens (see page 18)	_____	100	116	76
(4) Number of animal units	_____	30.6	8.8 \) 38.5 (4.37 x100 = 437 avg. for 4	26.3
(5) Work units on crops	_____	200	250	214
Work units on productive livestock	_____	190	225	160
(6) Number of family workers	_____	1.3	1.1	1.2
Number of hired workers	_____	.2	.5	.3
Total number of workers	_____	1.5	1.6	1.5
(7) Power expense per work unit $	_____	$ 4.90	$ 4.65	$ 5.30
Crop mach. exp. per work unit	_____	2.12	2.32	2.62
Livestock equip. exp. per work unit	_____	.36	.30	.59
Bldgs. & fencing exp. per work unit	_____	1.17	.83	1.81

* Given as percentage of the average.

** Crops are marked in table 9 as (A), (B), (C), and (D). All of acres in (A) crops, one-half of acres in (B) crops, and one-fourth of acres in (C) crops are used in calculating per cent of tillable land in high return crops.

*** An index weighted by the animal units of livestock.

**** Acres in timber not pastured, roads, waste and farmstead were not included.

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Using your figures from page10, locate your standing with respect to the various measures of farm organization and management efficiency. The averages for the 50 farms included in this summary are located between the dotted lines across the center of this page.

	Labor earnings	Crop yields	High return crops	Return from productive livestock	Pr. L. S. units per 100 A.	Volume of Business. Work units	Work units per worker	Pow., Mach. eq., & bldgs. exp. per work unit
-	4500	145	66.5	136	26.0	615	360	$4.00
-	4100	140	64.5	132	24.0	590	350	4.50
-	3700	135	62.5	128	22.0	565	340	5.00
-	3300	130	60.5	124	20.0	540	330	5.50
-	2900	125	58.5	120	18.0	515	320	6.00
-	2500	120	56.5	116	16.0	490	310	6.50
-	2100	115	54.5	112	14.0	465	300	7.00
-	1700	110	52.5	108	12.0	440	290	7.50
-	1300	105	50.5	104	10.0	415	280	8.00
-	900	100	48.5	100	8.0	390	270	8.50
-	500	95	46.5	96	6.0	365	260	9.00
-	100	90	44.5	92	4.0	340	250	9.50
-	-300	85	42.5	88	2.0	315	240	10.00
-	-700	80	40.5	84	.0	290	230	10.50
-	-1100	75	38.5	80		265	220	11.00
-	-1500	70	36.5	76		240	210	11.50
-	-1900	65	34.5	72		215	200	12.00
-	-2300	60	32.5	68		190	190	12.50
-	-2700	55	30.5	64		165	180	13.00

Table 9. Distribution of Acres in Farm, 1955

	Crop ratings*	Your farm	Average of 50 farms
Flax	A	_____	38.0
Barley	B	_____	61.4
Wheat	B	_____	19.0
Oats & oat mixtures	C	_____	60.0
Rye, millet	D	_____	1.0
Total small grain		_____	179.4
Potatoes	A	_____	3.4
Corn grain	C	_____	1.8
Corn fodder	D	_____	.3
Corn silage	C	_____	7.6
Total cultivated crops		_____	13.1
Grass silage	A	_____	1.5
Alfalfa and Alfalfa mixture	A	_____	39.4
Alfalfa seed	B	_____	1.0
Red or alsike clover hay	B	_____	2.4
Red or alsike clover seed	B	_____	4.0
Sweet clover hay	C	_____	1.5
Sweet clover seed	C	_____	2.9
Other legumes and legume mixture hay	C	_____	3.9
Brome and timothy grass seed	C	_____	3.9
Brome or timothy hay	D	_____	3.8
Wild hay	D	_____	6.8
Annual hay	D	_____	.2
Total tillable land in hay		_____	71.3
Alfalfa pasture	A	_____	6.1
Other legumes and mixtures	C	_____	15.4
Other tillable pasture	D	_____	4.5
Total tillable land in pasture		_____	26.0
Tillable land not cropped	D	_____	29.0
Total tillable land		_____	318.8
Wild hay		_____	9.0
Non-tillable pasture		_____	35.1
Timber (not pastured)		_____	25.8
Roads and waste		_____	36.7
Farmstead		_____	10.5
Total acres in farm		_____	435.9
Percent land tillable		_____	73.0
Percent tillable land in high return crops		_____	48.6

155A - 48.6
318.8

* The crops are classified as A, B, C, or D crops on the basis of their average net returns per acre.

Table 10. Crop Yields Per Acre, 1955

Crop	Your farm	Average of farms growing each crop
Flax, bu.	_____	7.4
Barley, bu.	_____	19.9
Wheat, bu.	_____	18.4
Oats, bu.	_____	39.8
Rye, bu.	_____	31.0
Potatoes, bu.	_____	200.0
Corn Grain, bu.	_____	44.0
Corn Fodder, tons	_____	5.6
Corn Silage, tons	_____	6.6
Alfalfa Hay, tons	_____	1.6
Alfalfa Seed, lbs.	_____	34.3
Red or alsike clover hay, tons	_____	1.4
Red or alsike clover seed, lbs.	_____	188.3
Sweet clover hay, tons	_____	2.8
Sweet clover seed, lbs.	_____	176.8
Other legumes and legume mixture hay, tons	_____	1.0
Brome or timothy seed, lbs.	_____	119.0
Brome or timothy hay, tons	_____	.7
Wild hay, tons	_____	.6
Annual hay, tons	_____	.5
Grass silage, tons	_____	6.0

POWER AND MACHINERY EXPENSES

Power and machinery expense per crop acre is an indication of the economy with which capital is invested in these items. The crop acres per farm ranged from 100 to 689 with an average of 297 (Table 11). The expenses are high on the farms with a small acreage. In some cases, low expenses for labor might be offset by high power and equipment costs. The farmer is interested in operating at the lowest cost for power, machinery and labor combined.

Table 11. Power and Machinery Expenses Per Crop Acre, 1955

Items	Your farm	Average of 50 farms	10 most profitable farms	10 least profitable farms
Crop acres per farm	_____	262	327	284
Tractor expense per crop acre	_____	$4.23	$ 3.75	$ 4.60
Crop & gen. mach. exp. per crop acre	_____	3.53	3.40	3.70

AMOUNT OF LIVESTOCK

The farmers cooperating in this study are predominantly livestock farmers. 90% of these farmers maintained dairy cattle, 64% kept poultry, 32% raised sheep, 21% kept beef cattle and 41% raised one or more hogs.

Table 12. Amount of Livestock, 1955

	Your farm	Average of 50 farms	10 most profitable farms	10 least profitable farms
Number of milk cows	_____	11.9	13.1	10.1
Number of other dairy cattle	_____	15.7	17.5	13.5
Number of beef cattle (incl. feeders)	_____	6.4	10.1	5.8
Number of ewes	_____	15.3	26.7	9.2
Number of hens	_____	85	151	53
Litters of pigs raised	_____	2	3.2	2.3
Pounds of hogs produced	_____	1725	3216	1041

TOTAL FEED COSTS AND RETURNS FROM YOUR LIVESTOCK ENTERPRISES

The total "return over feed costs" for each class of livestock is shown in Table 13. This differs from the "return over feed" shown in the enterprise statement in that it is the total for each class of livestock instead of a return "per head" "per unit" or "per 100 pounds". These data indicate the relative importance of different classes of livestock as a source of income and as a market for feed. The total return is the same as the returns and net increases shown on page 5. The value of milk consumed by calves is included in the total returns from dairy or dual purpose cows and in the total feed cost for other dairy or other dual purpose cattle. The value of milk consumed by calves is not included in either the total returns or the feed cost of "all dairy" or "all dual purpose" cattle. The return over feed is not a net return, but rather the amount available from the gross income, after paying the feed bill, to cover the outlay for hired labor, power, equipment, taxes, insurance, interest and veterinary bills and to provide a return for the use of family labor and capital.

Table 13. Total Feed Costs and Returns From Your Livestock Enterprises, 1955

	Dairy or dual purpose cattle			Beef breeding herd
	Cows	Other	All	
Total returns	_____	_____	_____	_____
Total feed cost	_____	_____	_____	_____
Total return over feed	_____	_____	_____	_____
	Feeder cattle	Hogs	Farm flock of sheep	Chickens
Total returns	_____	_____	_____	_____
Total feed cost	_____	_____	_____	_____
Total return over feed	_____	_____	_____	_____

Feed is the largest single item of cost for all classes of livestock. However, the proportion of the total cost represented by feed varies considerably between classes of livestock. Feed makes up approximately 45 per cent of the total costs of maintaining dairy cattle and poultry, 50 per cent in the case of a farm flock of sheep, and 75 to 90 per cent for hogs, feeder cattle and feeder lambs. Consequently, it is necessary to secure a relatively higher return over feed from dairy cattle and poultry than from the other livestock enterprises in order to be able to cover all the costs other than feed.

DAIRY AND DUAL PURPOSE CATTLE

The quantity of feed consumed, value of feeds and returns from dairy cattle are presented in Tables 14, 15, and 16. The return over feed cost per cow varied from $-20.27 to $194.06 among the 45 herds covered by this study. Some of the important factors that affected the return over feed were:

1. Rate of production (pounds butterfat per cow)
2. Price received for butterfat
3. Feeding efficiency
4. Quality of ration
5. Economy of ration (Feed cost per pound butterfat)

1 LB.F/DAY

Table 14. Factors of Cost and Returns from Dairy Cows, 1955

Items	Your farm	Average of 45 farms	10 farms highest in butterfat per cow	10 farms lowest in butterfat per cow
Pounds of butterfat per cow	_____	250	338	171
Price rec. per lb. B.F. sold (cents)	_____	73.0	88.6	68.0
Feeds per cow, lbs.:				
Corn	_____	99	289	-
Small grain	_____	1640	1803	841
Commercial feeds	_____	221	389	61
Legume hay	_____	5627	6269	5861
Other hay	_____	1312	629	1412
Fodder and stover	_____	506	-	-
Total concentrates	_____	1960	2481	901
Total dry roughage	_____	7445	6898	8191
Silage	_____	5915	4937	7816
Feed cost per cow:				
Concentrates	_____	$34.26	$ 53.71	$ 17.00
Roughages	_____	50.88	50.99	55.52
Pasture	_____	7.60	7.87	7.70
TOTAL FEED COSTS	_____	92.74	112.57	80.22
Value of produce per cow:				
B.F. sales	_____	$178.52	$280.64	$ 103.99
Dairy produce used in house	_____	11.31	7.74	16.17
Milk to livestock	_____	9.24	10.81	8.31
Net increases in value of cows	_____	-9.20	-12.66	-12.27
TOTAL VALUE PRODUCED	_____	189.87	286.53	116.20
RETURNS ABOVE FEED COST PER COW	_____	97.13	173.96	35.98
RETURNS FOR $100 OF FEED	_____	$205	$255	$145
Feed cost per lb. B.F. (cents)	_____	38.6	33.9	48.0
Number of cows	_____	13.6	15.7	11.6

2481 / 328 = 7.56

287.00

255 MOR 35

112 | 286 | 224 | 620 | 560 | 600

1.24

205 | 255 | 205 | 500 | 410 | 900

~~282~~ 92.74

Table 15. Feed costs and Returns from Other Dairy and Dual Purpose Cattle, 1955

Items	Your farm	Average of 45 farms	10 farms highest in butterfat per cow	10 farms lowest in butterfat per cow
Feeds per head, lbs.:				
Concentrates	_____	297	378	111
Hay and fodder	_____	2910	2801	3362
Silage	_____	1684	1462	1928
Skim milk	_____	607	547	630
Whole milk	_____	20	241	212
Feed cost per head:				
Concentrates	$ _____	$ 8.16	$ 10.46	$ 3.97
Roughages	_____	17.69	17.14	20.15
Milk	_____	8.76	9.83	8.98
Pasture	_____	3.80	3.97	3.84
TOTAL FEED COSTS PER HEAD	_____	38.41	41.40	36.94
Net inc. in value of other cattle	_____	58.91	65.95	53.90
RETURNS ABOVE FEED COST PER HEAD	_____	20.50	24.55	16.96
RETURNS FOR $100 OF FEED	_____	$153	$159	$146
Number of head of other cattle	_____	17.9	16.9	15.1

Table 16. Feed Costs and Returns from All Dairy and Dual Purpose Cattle, 1955

Items	Your farm	Average of 45 farms	10 farms highest in butterfat per cow	10 farms lowest in butterfat per cow
Feeds per animal unit, lbs.:				
Concentrates	_____	1463	1894	640
Hay and fodder	_____	6435	5647	7616
Silage	_____	4919	4197	6160
TOTAL FEED COSTS PER ANIMAL UNIT	$_____	$ 80.24	$94.83	$ 70.31
Value of produce per animal unit:				
Dairy products	_____	$121.04	$190.84	$ 74.11
Net. inc. in val. of dairy cattle	_____	35.88	33.25	32.74
TOTAL VALUE PRODUCED	_____	156.92	224.09	106.85
RETURNS ABOVE FEED PER ANIMAL UNIT	$_____	76.68	129.26	36.54
RETURNS PER $100 OF FEED	$_____	$195	$236	$152
Animal units of cattle	_____	22.2	24.3	19.1

Table 17. Feed Cost and Returns from a Farm Flock of Sheep, 1955

Items		Your farm	Average of 13 Farms
Feeds per head, * lbs.			
Concentrates		_____	42
Legume hay		_____	444
Other hay		_____	143
Silage		_____	57
Feed cost per head:			
Concentrates	$	_____	$ .80
Roughages		_____	3.24
Pasture		_____	1.10
TOTAL FEED COSTS	$	_____	5.14
Value of produce per head:			
Wool	$	_____	$ 2.58
Net increase in value of sheep		_____	10.16
TOTAL VALUE PRODUCED	$	_____	12.74
RETURNS ABOVE FEED COST PER HEAD	$	_____	$ 7.60
RETURNS FOR $100 OF FEED	$	_____	$ 248
Price per cwt. of lambs sold	$	_____	$ 17.48
Price per lb. wool sold (cts.)		_____	43.0
Pounds of wool per sheep sheared		_____	9.0
Number of ewes kept for lambing		_____	47
Per cent lamb crop**		_____	127
Per cent death loss**		_____	6.1
Pounds of sheep produced		_____	4963

* Two lambs under six months of age considered as one head.
** Lambs which die during month of birth are not included.

CHICKENS

Sixty-four per cent of the farmers cooperating in this analysis kept some chickens. In most cases poultry is a very minor enterprise, providing eggs and poultry meat for family consumption plus a small additional amount of cash income.

Some of the important factors that affected the return over feed were:

1. Quantity of feed required per hen
2. Price received per dozen eggs sold
3. Eggs laid per hen
4. Percentage death loss of hens

Table 18. Feed Costs and Returns from Chickens, 1955*

Items	Your farm	Average of 24 farms	6 farms highest in return above feed	6 farms lowest in return above feed
Feed per hen, lbs.:				
Grain	_____	84	83	83
Commercial feeds	_____	43	47	50
Total concentrates	_____	127	130	133
Skim milk and buttermilk	_____	3	12	-
TOTAL FEED COST PER HEN	$ _____	$ 3.37	$ 3.17	$ 3.82
Value of produce per hen:				
Eggs sold and used in house	$ _____	$ 4.19	$ 4.68	$ 3.76
Net inc. in value of chickens	$ _____	.54	1.32	.07
TOTAL VALUE PRODUCED	$ _____	4.73	6.00	3.83
RETURNS ABOVE FEED COST PER HEN	$ _____	$ 1.36	$ 2.82	$ .01
RETURNS FOR $100 OF FEED	$ _____	$ 140	$ 189	$ 100
Price rec'd per doz. egg sold (cts.)	_____	32.5	34.7	33.3
Eggs laid per hen	_____	162	163	141
Ave. no. hens on farm during year	_____	170	145	136
Per cent death loss of hens	_____	9	8	9

* Includes feeds and returns from laying flock and rearing flock.

Table 19. Feed Costs and Returns from Beef Cattle, 1955

Items	Your farm	Average of all farms
Beef breeding herd: No. of farms:		7
Feeds per animal unit, lbs.:		
Concentrates	_____	518
Legume	_____	6656
Other hay	_____	1486
Fodder and stover	_____	-
Silage	_____	4017
Feed cost per animal unit:		
Concentrates	$ _____	$ 12.78
Roughages	_____	49.74
Pasture	_____	8.72
TOTAL FEED COSTS	_____	71.24
Value of produce per animal unit:		
Dairy products	$ _____	$ 5.52
Net increase in value of animals	_____	68.97
TOTAL VALUE PRODUCED	_____	74.49
RETURNS ABOVE FEED COST PER ANIMAL UNIT	$ _____	$ 3.25
RETURNS FOR $100 OF FEED	$ _____	$ 104
Number of cows and herd bulls	_____	13.9
Number of animal units in the herd	_____	18.9

HOGS

Raising hogs is a minor livestock enterprise on most farms in Northwestern Minn. The hog enterprise in this area varies in size from raising one or two for home butchering to the raising of a number of litters per year. In most cases the pigs were sold at time of weaning, keeping only two or three to be fed out to slaughter weights. The feeding of one or two hogs on a farm usually resulted in feeding of large amounts of refuse and cheap feeds and this fact together with the selling of most pigs at weaning age resulted in a very low average feed cost per hundred lbs. of pork produced. A commercial hog producer raising hogs to slaughter weights could not feed hogs at the cost per hundred weight shown in Table 20.

Table 20. Feed costs and Returns from Hogs, 1955

Items	Your farm	Average of 19 farms	6 farms highest in returns above feed	6 farms lowest in returns above feed
Feed per cwt. hogs produced, lbs.:				
Corn	_____	13	40	3
Small grain	_____	261	285	418
Commercial feeds	_____	9	16	12
Alfalfa	_____	11	37	-
Total concentrates	_____	294	378	433
Skim milk and buttermilk	_____	5130	429	435
Feed cost per cwt. hogs produced:				
Concentrates & alfalfa	$ _____	$5.54	$ 6.40	$8.08
Skim milk and buttermilk	_____	1.09	1.50	1.52
TOTAL FEED COSTS	$ _____	6.63	7.90	9.60
Net increase in val. per cwt. hogs prod.	_____	$8.49	$ 13.45	$ 8.95
RETURNS ABOVE FEED COST PER CWT. HOGS PRODUCED	$ _____	$1.86	$ 5.55	$ -.65
RETURNS FOR $100 OF FEED	$ _____	$ 127	$ 170	$ 93
Price received per cwt. hogs sold	$ _____	$ 15	$ 16	$ 16
No. of spring litters raised	_____	3.0	6.2	2.3
No. of fall litters raised	_____	1.3	3.3	.9
Total no. of litters raised	_____	4.3	9.5	3.2
No. of pigs born per litter	_____	9.4	8.7	10.6
No. of pigs weaned per litter	_____	7.2	7.0	7.3
Pounds of hogs produced	_____	3631	6352	3369