

*1957 Annual Report*

# **FARM MANAGEMENT PROGRAM NORTHEASTERN MINNESOTA**

**Iron Range Resources and Rehabilitation  
Commission**

**In Cooperation with**

**Minnesota Department of Education  
Vocational Division**

**and**

**University of Minnesota  
Institute of Agriculture**

**and**

**Area Vocational – Technical School  
Duluth, Minnesota**

**April, 1958**

## FOREWORD

In 1956 the Iron Range Resources and Rehabilitation Commission initiated a farm income study in ten of the Northeast counties of Minnesota, an area commonly referred to as the cutover area. Although the project had a mid-year start, twenty-eight farm records were completed for the Summary Report.

The program continued in 1957 with increased interest and participation resulting in eighty-two farm records summarized in this report.

It has long been felt that the agricultural problems in this area are different from those in other parts of the state. In general, the farms are small and incomes are low.

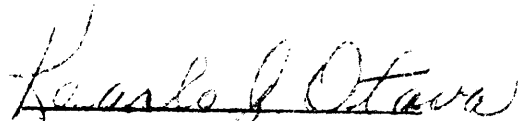
This study, the first of its kind in the cutover area, is therefore both timely and appropriate.

Field work for Iron Range Resources and Rehabilitation Commission was handled by August Neubauer with offices in the St. Louis County Court House, Virginia, Minnesota.

Special acknowledgement is made to Mr. Leo Keskinen, Vocational Agriculture Instructor at the Duluth Area Vocational Technical School, for his direction and supervision in the preparation of the Summary Report and his work on the analysis.

Vocational Agriculture Instructors and County Agents of the area have given freely of their time to assist farm participants in establishing adequate farm records. Instructors of Veterans Agriculture have also aided in the success of the program.

This farm management program is free to farm participants in the IRRRC area and it is hoped that the information published will be extensively used by people in public service, farmers of Northeast Minnesota, and others interested in bringing about an improved farm economy for the area.



Karlo J. Otava  
Commissioner



Hyron Sorenson  
Asst. Commissioner

1957 REPORT OF THE VOCATIONAL AGRICULTURE FARM MANAGEMENT  
PROGRAM IN NORTHWESTERN MINNESOTA

Leo Kaskinen  
Duluth Area Vocational School

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## INTRODUCTION

The main purposes of the program of farm analysis are: (1) to give assistance to instructors and county agents in the mechanics of farm record supervision, (2) to assist instructors, county agents, and cooperating farmers in farm accounting techniques, (3) to aid individual farmers in the study of their farm business through analysis reports, and (4) to provide case study materials that can be used by farmers and farm groups to study farm management problems.

The report and analysis of records were completed under the direction of Leo Keskinen, Vocational Agriculture Instructor, Duluth Area Vocational-Technical School. Clerical assistants were: Mrs. Nellie Hopper, Mrs. Marjorie Barron, Mrs. Esther Oman, and Mrs. Ruby Sweeney. Directing in a supervisory capacity were: Alvin T. Stolen, Superintendent of Duluth Public Schools, George Campaigne, Director of the Duluth Area Vocational-Technical School, G. R. Cochran, State Supervisor of Agricultural Education, and S. K. Wick, Acting Director of the Vocational Division, State Department of Education. Promotional and other assistance was provided by Milo Peterson, Head Professor of Agricultural Education, University of Minnesota, and Lauren Granger, State Coordinator for the Vo-Ag Farm Management Service. Acknowledgement is also made of the excellent professional assistance rendered by G. A. Pond, Truman Nodland, E. H. Hartmanns, and Harland Routhe, of the Institute of Agriculture, University of Minnesota.

Special acknowledgement is made for the direction, interest, and financial assistance provided by the Iron Range Resources and Rehabilitation Commission with Kaarlo Otava, Commissioner, and Hyron Sorenson, Assistant Commissioner. Field work and contacts with cooperators has been capably handled by August Neubauer, IRRRC Field Man. The IRRRC grant has financed the cost of the entire analysis project with the exception of several cooperators from an area not under IRRRC jurisdiction. These farmers (Todd County) have paid a set fee to cover their part of the analysis. The area covered by this report is outlined on the map inside of the front cover.

Special mention and thanks are due also to the Architectural Drafting Class of the Duluth Area Vocational-Technical School and to the Printing Classes of the Duluth Public Schools for their part in the publication of this report.

Agriculture Instructors submitting 1957 records for analysis were:

SCHOOL	INSTRUCTOR	SCHOOL	INSTRUCTOR
Alango	Robert Anderson	Littlefork	Wilho Kemp
Bagley	Kenneth Ostlund	Meadowlands	Leo Wilenius
Barnum	Robert Johnson	Loose Lake *	Sherrill Robinson
Bonidji	Dalton Seeling	Northome	Clayton Bray
Clarissa	Elmer Fragodt	Park Rapids	Robert Underwood
Embarrass	Ed Takala	Pillager	Martin Klingenberg
Grand Rapids	Gerhard Erickson	Pine River *	Dr. C. V. Williams
Hibbing	Sulo Ojakangas	Staples	William Guelker
Hinckley	Richard Mitton	Willow River	Erwin Pracher

(\* Veterans Ag Instructors)

County Agricultural Agents and Rural Development Agents submitting records were:

COUNTY	AGENT
Carlton	Sig Restad
Clearwater	Arnold Heikkila
Hubbard	John Eix
Itasca	Art Frick
Lake of the Woods	Robert Ashenan
West St. Louis	J. O. Jacobson

The above cooperating centers submitted records from eleven counties for analysis with some centers having participating farmers in more than one county. The number of farm records submitted from each county is shown below:

Beltrami	6	Koochiching	15
Carlton	5	Lake of the Woods	1
Cass	14	Pine	8
Clearwater	3	St. Louis	10
Hubbard	13	Todd *	4
Itasca	4		
		Total	82
		(* Not IRRRC Area)	

The records submitted included farm inventories, cash receipts, and expenses. Also included were feed consumed by the various classes of livestock, family living 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 \$7004 to \$56,544. The average investment for all farms included in this report and for the one-third high and the one-third low in operators' labor earnings is shown in Table I.

## FARM EARNINGS

Operators' earnings are a measure of 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 and family labor other than that of the operator.

There are two methods of computing labor earnings. Table II shows the earnings statement on a cash basis while Table III shows the earnings on an enterprise or accrual basis. The principal difference in the two statements is in the method of handling the net increase or decrease in 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.

A portion of the farm income in Northeastern Minnesota is obtained from the sale of forestry products. Fifteen farms out of the eighty-two represented in this report indicated some form of forestry income ranging from a low of \$69 to a high of \$4043 per farm. The average forestry income per farm (average of all 82 farms) amounted to \$161.34, or 2% of total farm income received. Forestry income is included as farm income in this report.

## NON-FARM INCOME

Numerous Northeastern Minnesota farmers, in addition to their farm income, are earning additional income by employment in full or part time work not related to farming. Records submitted for this report cannot be considered as completely reliable in respect to non-farm income as this entry can be frequently omitted from the farm account books. However, 47 farms of the 82 did show outside income in addition to farm labor earnings ranging from a low of \$8 to a high of \$4799 per farm involved. For those cooperators who showed non-farm income, the average non-farm income per farm (47 farms) was \$1109.95, or 7.3% of total income received by this group. This non-farm income is not included in this report as farm labor earnings.

TABLE I SUMMARY OF FARM INVENTORIES, 1957

Items	Your Farm		Average of 82 Farms	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Size of farm (acres)	-----	-----	259	
Size of business (work units)	-----	-----	329	
Dairy and dual purpose cows	-----	-----	\$ 2194	\$ 2366
Other dairy & dual purpose cattle	-----	-----	983	1058
Beef cattle (incl. feeders)	-----	-----	188	219
Hogs	-----	-----	167	269
Sheep (including feeders)	-----	-----	51	66
Poultry	-----	-----	19	18
Productive livestock (total)	-----	-----	3602	3996
Horses	-----	-----	19	12
Crop, seed and feed	-----	-----	1827	1899
Power machinery (farm share)	-----	-----	1920	1965
Crop and general machinery	-----	-----	2108	2168
Livestock equipment	-----	-----	867	894
Machinery and equipment (total)	-----	-----	4895	5027
Miscellaneous	-----	-----	---	---
Land	-----	-----	4634	4677
Buildings, fences, etc.	-----	-----	3936	4015
Total farm capital	-----	-----	18913	19626
<hr/>				
Items	27 most profitable		27 least profitable	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Size of farm (acres)	268		285	
Size of business (work units)	412		296	
Dairy and dual purpose cows	\$ 2675	\$ 2840	\$ 2062	\$ 2268
Other dairy & dual purpose cattle	1107	1300	888	890
Beef cattle (incl. feeders)	88	277	435	392
Hogs	252	393	43	145
Sheep (including feeders)	45	107	51	35
Poultry	17	18	28	17
Productive livestock (total)	4184	4934	3562	3746
Horses	20	10	9	9
Crop, seed, and feed	2429	2867	1780	1597
Power machinery (farm share)	2231	2394	1938	1900
Crop and general machinery	2619	2860	2145	2110
Livestock equipment	995	928	924	895
Machinery & equipment (total)	5845	6182	5007	4904
Miscellaneous	---	---	---	---
Land	4983	5100	4819	4829
Buildings, fences, etc.	4736	4801	4101	4109
Total farm capital	22197	23894	19278	19194

TABLE II SUMMARY OF FARM EARNINGS (CASH STATEMENT), 1957

Items	Your farm	Average of 82 farms	27 most profitable farms	27 least profitable farms
<u>FARM RECEIPTS</u>				
Dairy and dual-purpose cattle	_____	\$ 971	\$ 1157	\$ 774
Dairy products	_____	4470	5735	3552
Beef cattle (incl. feeders)	_____	88	39	228
Hogs	_____	495	908	144
Sheep and wool (incl. feeders)	_____	69	61	87
Horses	_____	12	13	---
Poultry	_____	10	6	18
Eggs	_____	54	86	65
Corn	_____	194	153	185
Small grain	_____	53	21	100
Other crops	_____	243	109	152
Mach. & eq. sold & gas tax refund	_____	177	223	77
Income from work off the farm	_____	463	321	336
Miscellaneous	_____	114	139	90
(1) Total farm sales	_____	7413	9476	5808
(2) Increase in farm capital	_____	713	1697	---
(3) Family living from the farm	_____	355	334	350
(4) Total farm receipts (1)+(2)+(3)	_____	8481	11507	6158
<u>FARM EXPENSES</u>				
Dairy & dual-purpose cattle bought	_____	240	185	242
Beef cattle bought (incl. feeders)	_____	---	---	---
Hogs bought	_____	62	84	75
Sheep bought (incl. feeders)	_____	19	56	3
Horses bought	_____	2	---	---
Poultry bought	_____	6	8	6
Bees	_____	1	---	2
Misc. livestock expense	_____	159	156	137
Feed bought	_____	876	934	776
Fertilizer	_____	137	137	110
Other crop expenses	_____	307	367	249
Custom work hired	_____	403	474	394
Gas, oil & grease bought (farm share)	_____	524	579	537
Rep. of mech. power (farm share)	_____	245	265	213
Repair & upkeep of real estate	_____	92	76	95
Repair & upkeep crop & gen. mach.	_____	153	203	122
Repair & upkeep livestock equip.	_____	54	80	53
Wages of hired labor	_____	223	178	178
Electricity expense (farm share)	_____	156	184	138
Real estate & pers. property taxes	_____	250	300	226
General farm expense	_____	111	139	96
(5) Total cash operating expense	_____	4020	4405	3652
(6) Cap. pur. mech. power (farm share)	_____	450	600	373
(7) " " crop & gen. mach.	_____	460	674	438
(8) " " livestock equip.	_____	120	39	74
(9) " " bldgs. & fencing	_____	303	326	253
(10) Total farm purch. (5) to (9)	_____	5353	6044	4790
(11) Decrease in farm capital	_____	---	---	84
(12) Interest on farm capital	_____	959	1152	949
(13) Unpaid family labor	_____	236	365	267
(14) Board furnished hired labor	_____	29	7	52
(15) Total farm exp. (10) to (14)	_____	6577	7568	6142
(16) Labor earnings (4) - (15)	_____	1904	3939	15



TABLE III SUMMARY OF FARM EARNINGS (ENTERPRISE STATEMENT) 1957 \*

Items	Your farm	Average of 82 farms	27 most profitable farms	27 least profitable farms
<u>RETURNS AND NET INCREASES</u>				
Dairy and dual-purpose cows	\$ 4812	\$ 6243	\$ 3899	
Other dairy & dual purp. cattle	962	1229	748	
Beef breeding herd	71	89	126	
Feeder cattle	53	109	54	
Hogs	629	983	178	
Sheep-farm flock	65	67	69	
Chickens	93	117	106	
All productive livestock	6685	8337	5180	
Value of feed fed to livestock	3045	3564	2865	
Return over feed from livestock	3640	5273	2315	
Crop, seed and feed	2183	2753	1889	
Income from labor off the farm	424	772	313	
Agricultural conservation payments	34	25	40	
Miscellaneous	82	117	51	
(1) Total returns & net increases	6363	8940	4608	
<u>EXPENSES AND NET DECREASES</u>				
Horses	2	- 6	10	
Truck	205	232	207	
Auto (farm share)	249	157	282	
Tractor	612	729	639	
Elec & gas engine exp. (Farmshare)	103	111	90	
Hired power	403	474	395	
Total power	1574	1697	1623	
Crop and general machinery	526	627	580	
Livestock equipment	143	185	153	
Buildings, fencing & tiling	248	195	329	
Misc. productive livestock exp.	159	156	137	
Labor	489	550	499	
Real Estate taxes	160	185	149	
Personal property taxes	90	115	77	
Insurance	41	43	50	
General farm	70	96	46	
Interest on farm capital	959	1152	949	
(2) Total expenses & net decreases	4459	5001	4592	
(3) Operator's earnings (1)-(2)	1904	3939	15	

\* 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 5.

# 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 expense 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 IV amounts to 4 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 IV. FAMILY LIVING FROM THE FARM, 1957

Items	Your Farm	Average 62 Farms	Your Farm	Average 62 Farms
Adult equiv. - family	-----	2.9		
- Others	-----	-		
Whole milk	-----	1203 qts.	-----	103
Skim Milk	-----	130 qts.	-----	5
Cream	-----	60 pts.	-----	13
Beef	-----	510 lbs.	-----	90
Hogs	-----	96 lbs.	-----	17
Lamb and Mutton	-----	1 lb.	-----	
Poultry	-----	47 lbs.	-----	21
Eggs	-----	58 doz.	-----	18
Potatoes	-----	6 bus.	-----	7
Vegetables and Fruit	-----		-----	33
Farm Fuel	-----		-----	46
Total	-----		-----	\$ 353

\* 62 farmers reported complete records on family living from the farm.

# 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 V. These farmers spent an average of \$161 per month for family living in addition to the food, fuel and housing furnished by the farm.

Table V. HOUSEHOLD AND PERSONAL EXPENSES FOR  
THOSE FARMS WHICH KEPT COMPLETE ACCOUNTS OF THESE EXPENSES, 1957

Items	Your Farm	Average of 40 Farms	12 most Profit. Farms	12 least Profit. Farms
Number of persons - family	_____	4.0	3.8	3.2
Number of Adult equiv. - family	_____	2.9	2.9	2.1
other *	_____	-	-	-
Food and meals bought	_____	663	674	655.
Operating and supplies	_____	130	106	136
Furnishings and equipment	_____	135	133	215
Clothing and clothing materials	_____	201	199	204
Personal care, personal spending	_____	66	64	76
Education, recreation and development	_____	100	72	117
Gifts and special events	_____	85	86	62
Medical care and health insurance	_____	252	284	262
Church, welfare	_____	76	123	27
Personal share of auto expense	_____	116	147	112
Operator's share of upkeep on dwelling	_____	23	17	24
Household share of electric expense	_____	81	88	72
Total cash living expense	_____	1928	1993	1962
M.H. & pers. share of new auto	_____	168	223	272
New Dwelling	_____	152	17	83
Taxes and other deductions	_____	57	23	119
Life insurance	_____	77	113	69
Other savings and investments	_____	16	9	15
Total household & personal cash exp.	_____	2398	2378	2520
Total family living from the farm	_____	392	352	384
Total cash expenses & perquisites	_____	2790	2730	2904
Receipts:				
Return to capital and family labor	_____	2687	5026	270
Miscellaneous income	_____	659	198	1190
Income from investments	_____	107	4	234

\* 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 for owners, part owners and owners renting additional land is presented in Table VI. 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 VI NET WORTH STATEMENT FOR THOSE FARMERS WHO KEPT A COMPLETE  
RECORD OF ALL ASSETS AND LIABILITIES, 1957 (Operator's Share)

Items	Your farm		73 Owners *	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Total acres in farm			258	
Owned			223	
Rented			35	
Total farm capital			\$ 18979	19747
Stocks and bonds			452	436
Life insurance			294	377
Accounts receivable			--	--
Outside real estate			209	207
Other outside investments			50	60
Total outside investments			1005	1080
Dwelling			2578	2718
Cash on hand and in bank			326	314
Other household and personal assets			1372	1442
Total cash, H H & personal assets			5283	5553
TOTAL ASSETS			24267	25300
Federal Land Bank Mortgage			355	331
Other mortgage on land operated			2260	2057
Crop Loans			--	--
Other chattel mortgages			1152	1233
Notes payable			898	959
Accounts payable			387	549
TOTAL LIABILITIES			5053	5129
Farmers' net worth			19214	20171
Gain in net worth				957

5 Part Owners  
and Renters

Items	Jan. 1	Dec. 31
Total acres in farm	229	
Owned	131	
Rented	98	
Total farm capital	\$ 9568	\$ 9336
Stocks and bonds	--	--
Life insurance	--	--
Accounts receivable	--	--
Outside real estate	--	--
Other outside investments	38	38
Total outside investments	38	38
Dwelling	875	875
Cash on hand and in bank	125	81
Other househ & personal assets	865	1430
Total cash, H H and personal assets	1903	2424
TOTAL ASSETS	11471	11760
Federal Land Bank Mortgage	--	--
Other mortgages on land operated	1435	1100
Crop loans	--	--
Other chattel mortgages	493	463
Notes payable	125	73
Accounts payable	--	259
TOTAL LIABILITIES	2053	1895
Farmer's net worth	9418	9865
Gain in net worth		447

\* 28 owners rented additional land

TABUL VII. SUMMARY OF FARM EARNINGS BY TYPE, 1957 (Operator's Share)

Items	Your Farm	73 Owners	Part Owners & Renters
<u>FARM RECEIPTS</u>			
Dairy and Dual Purpose Cows		947	266
Dairy products		4392	2731
Beef Cattle		92	-
Hogs		596	42
Sheep and Wool		71	-
Poultry		5	30
Eggs		41	245
Horses		14	26
Corn		144	32
Small Grain		55	4
Other Crops		310	37
Mach. & Equip. sold & gas tax refund		165	270
Income from work off the farm		483	57
Miscellaneous		114	111
(1) Total farm sales		7429	4601
(2) Increase in farm capital		768	-
(3) Family living from the farm		353	343
(4) Total farm receipts (1) - (2) - (3)		8550	4944
<u>FARM EXPENSES</u>			
Dairy and Dual Purpose Cows bought		217	419
Beef Cattle bought		6	-
Hogs bought		65	16
Sheep bought		20	-
Horses bought		-	31
Poultry bought		6	11
Miscellaneous livestock expense		158	110
Feed bought		849	963
Fertilizer bought		156	125
Other crop expenses		291	188
Custom work hired		403	260
Gas, oil & grease bought (farm share)		522	449
Repair of mech. power (farm share)		236	377
Repair & upkeep of real estate		91	87
Rep. & upkeep of crop & gen. mach.		149	203
Rep. & upkeep of livestock equip.-		55	17
Wages of hired labor		226	127
Electricity expense (farm share)		158	103
Real Estate & Pers. Property Tax		248	110
Cash Rent		66	33
General farm expense		112	78
Interest paid		158	103
(5) Total cash operating expense		4192	3810
(6) Capital purchase-mech. power (f. share)		469	50
(7) Capital purchases-crop & gen. mach.		467	432
(8) Capital purchases-livestock equip.		125	18
(9) Capital purchases-bldg. & fencing		311	-
(10) Total farm purchases (5) to (9)		5564	4310
(11) Decrease in farm capital			232
(12) Interest on farm capital		964	473
(13) Unpaid family labor		241	95
(14) Board furnished Hired labor		28	14
(15) Total farm expenses (10) to (14)		6797	5154
(16) Labor earnings (4) - (15)		1753	- 210
(17) Return to capital & family labor		2958	358
(16) - (12) - (13)			

## RETURNS TO CAPITAL AND FAMILY LABOR

The return to capital and family labor represents the amount available to the operator for living expenses, payment on indebtedness, and savings. The landlord's expenses and receipts are not included.

The average return to capital and family labor for 73 owners and 5 part owners is shown in Table VII. The statement includes only the operator's share of the earnings of the partnership. The earnings as shown in Table VII are on an actual basis as compared to the full-owner basis in Tables II and III.

### RANGE IN EARNINGS

Every study of farm earnings shows a wide variation in earnings among farmers in a given year. The average operator's earnings of farmers ranking in the upper third of the range according to earnings was \$3939 and of those in the lower third was \$15. This is a range of \$3924 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.

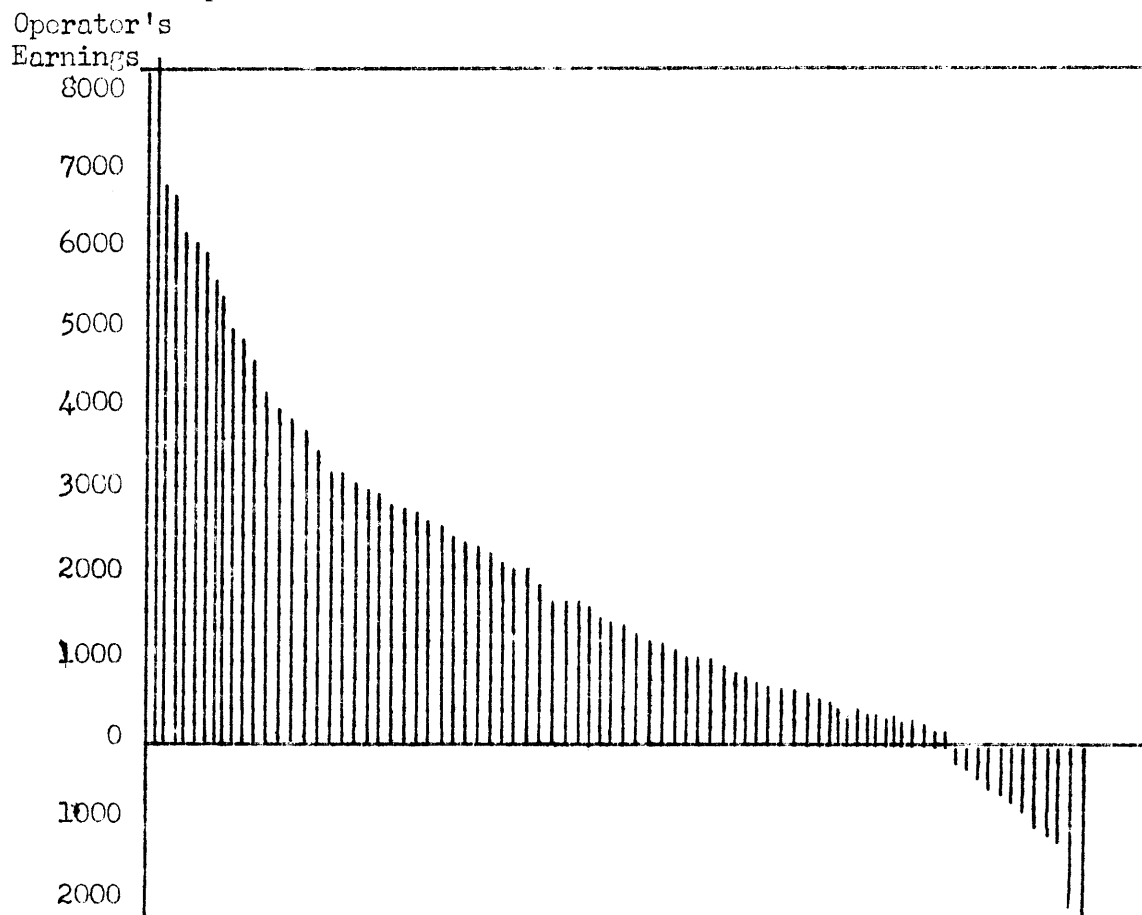


Fig. 1. Range in operator's earnings. Each line represents the earnings of one farmer.

1/ See Pond, G. A. "Why Farm Earnings Vary". Minn. Agri. Expt. Sta. Bul. 386 June, 1945.

# 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, or ten hours of work off the farm for pay. The number of work units for each class of livestock and each acre of crop are presented in Table VIII below.

Table VIII: NUMBER OF WORK UNITS FOR EACH CLASS OF LIVESTOCK AND CROP ACRE

Item	No. of Work Units
Dairy and dual purpose cows	10.0 per cow
Other dairy and dual purp. cattle	3.5 per animal unit*
Beef Breeding herd	3.5 per animal unit*
Feeder cattle	.25 per cwt.
Sheep - farm flock	1.5 per animal unit*
Sheep - feeders	.3 per cwt
Hogs	.2 per cwt.
Turkeys	.5 per cwt.
Hens	20.0 per 100 hens
Canning peas	.5 per acre
Soybeans for grain	.5 per acre
Potatoes	4.0 per acre
Small grain	.5 per acre
Sugar beets	1.5 per acre
Sweet corn	.7 per acre
Corn, husked	.7 per acre
Corn, hogged	.4 per acre
Corn, shredded	1.5 per acre
Corn, silage	1.0 per acre
Corn, fodder	1.0 per acre
Silage, other than corn	1.0 per acre
Alfalfa hay	.6 per acre
Soybean hay	.8 per acre
Other hay crops	.4 per acre

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

TABLE IX. MEASURES OF FARM ORGANIZATION AND MANAGEMENT EFFICIENCY, 1957.

Measures Used in Chart on Page 14	Your farm	Average of 82 farms	27 most profitable farms	27 least profitable farms
Operator's Labor Earnings	.....	\$ 1904	\$ 3939	\$ 15
(1) Crop Yields *	.....	100	104	104
(2) % Till. land in High Ret. Crops **	.....	33.5	34.3	35.6
(3) Ret per \$100 feed to prod. livestock ***	.....	100	121	79
(4) Prod. Livestock units per 100 acres ****	.....	19.4	21.2	14.2
(5) Size of business - work units	.....	329	412	297
(6) Work units per worker	.....	226	261	192
(7) Power, mach., equip., & bldg. expense per work unit	.....	\$8.33	\$6.65	\$10.60

Items related to some of the above measures:

(3) Index of return for \$100 feed from:				
Dairy cattle (see pp 19-20)	.....	100	118	81
Beef cattle-breeding herd (p21)	.....	100	133	67
Hogs (see page 18)	.....	100	103	85
Sheep -farm flock (see pg 21)	.....	100	70	75
Chickens (see page 22)	.....	100	120	80
(4) Number of animal units	.....	32.0	37.7	27.7
(5) Work units on crops	.....	68	75	67
Work units on prod. livestock	.....	215	259	187
Other work units	.....	46	78	42
(6) Number of family workers	.....	1.4	1.5	1.5
Number of hired workers	.....	.1	.1	.1
Total number of workers	.....	1.5	1.6	1.6
(7) Power expense per work unit	.....	5.33	4.30	6.65
Crop mach. expense per work unit	.....	1.74	1.50	2.20
Livestock equip. exp. per work unit	.....	.42	.40	.55
Bldg. & fencing exp. per work unit	.....	.84	.45	1.20

\* Given as a percentage of the average.

\*\* Crops are marked in Table X 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 not included.



# THERMOMETER CHART

Using your figures from page 13, locate your standing with respect to the various measures of farm organization and management efficiency. The averages for the 82 farms included in this summary are located between the dotted lines across the center of the page.

	Labor earn- ings	Crop yields	High return crops	Return from pro- ductive livestock	Pr.L.S. units per 100 A.	Work units per worker	P M E. & B Exp per W. U.
\$5800	180	50	180	35	570	345	4.50
5300	170	48	170	33	540	330	5.00
4800	160	46	160	31	510	315	5.50
4300	150	44	150	29	480	300	6.00
3800	140	42	140	27	450	285	6.50
3300	130	40	130	25	420	270	7.00
2800	120	38	120	23	390	255	7.50
2300	110	36	110	21	360	240	8.00
1800	100	34	100	19	330	225	8.50
1300	90	32	90	17	300	210	9.00
800	80	30	80	15	270	195	9.50
300	70	28	70	13	240	180	10.00
- 200	60	26	60	11	210	165	10.50
- 700	50	24	50	9	180	150	11.00
-1200	40	22	40	7	150	135	11.50

TABLE X. DISTRIBUTION OF ACRES IN FARM, 1957

	Crop Ratings*	Your Farm	Average of 32 Farms
Flax	B	_____	1.1
Barley	C	_____	.6
Oats and oat mixtures	C	_____	19.5
Oat silage	C	_____	1.1
Wheat	C	_____	.3
Rye	D	_____	.7
Soybeans	C	_____	.4
Total small grain		_____	<u>23.7</u>
Garden - seed Potatoes	A	_____	.1
Potatoes	B	_____	1.4
Corn Silage and Sorghum Silage	C	_____	7.7
Corn Grain	C	_____	15.5
Corn Fodder	D	_____	.5
Total cultivated crops		_____	<u>25.2</u>
Alfalfa and mixtures	A	_____	27.2
Other legumes and mixtures	B	_____	8.4
Grass Silage	C	_____	3.3
Legumes for seed	B	_____	2.2
Timothy and/or bromo	D	_____	3.6
Other annual hay	D	_____	17.9
Wild hay on tillable land	D	_____	1.4
Total tillable land in hay		_____	<u>61.0</u>
Alfalfa & alfalfa mixture pasture	A	_____	.4
Other legume & mixture pasture	C	_____	.6
Other tillable pasture	D	_____	8.9
Total tillable pasture		_____	<u>9.9</u>
Tillable land not cropped	D	_____	3.1
Soil bank	A	_____	1.4
Total tillable land		_____	<u>127.3</u>
Wild hay - non-tillable		_____	3.9
Non-tillable pasture		_____	60.3
Timber (not pastured)		_____	53.3
Roads and waste		_____	12.5
Farmstead		_____	3.7
Total acres in farm		_____	<u>261.0</u>
Per cent of land tillable		_____	47.6
Per cent of land in high return crops		_____	33.6

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

TABLE XI. CROP YIELDS PER ACRE, 1957

Crop	Your farm	Average of farms growing each crop
Wheat, bu.	_____	2
Barley, bu.	_____	30.3
Wheat, bu.	_____	30.4
Oats, bu.	_____	36.4
Rye, bu.	_____	21.1
Oat silage, ton	_____	5.8
Potatoes, bu.	_____	110.9
Corn Silage and sorghum silage, ton	_____	6.6
Corn Fodder, ton	_____	2.0
Corn Grain, bu.	_____	35.3
Legumes for seed, lbs.	_____	68.7
Soybeans, bu.	_____	10.7
Alfalfa hay, ton	_____	1.7
Other legumes & mixtures, ton	_____	1.8
Timothy or brome, ton	_____	1.8
Other annual hay, ton	_____	1.5
Wild hay	_____	1.1
Grass silage, ton	_____	5.7

#### 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. Expenses are high on the farms with a small acreage. In some cases, low expense for labor might be offset by higher equipment costs. The farmer is interested in operating at the lowest cost for power, machinery, and labor combined.

TABLE XII. POWER AND MACHINERY EXPENSES PER CROP ACRE, 1957

	Your farm	Avg. of 82 farms	27 most prof. farms	27 least prof. farms
Crop acres per farm	_____	125	114	128
Tractor and horse exp. per crop acre	_____	\$5.22	\$5.25	\$5.47
Crop & Gen. Mach. exp. per crop acre	_____	4.90	4.81	5.14

#### AMOUNT OF LIVESTOCK

A large proportion of the farmers maintained some dairy cattle with smaller numbers maintaining hogs and poultry.

TABLE XIII. AMOUNT OF LIVESTOCK, 1957

	Your farm	Avg. of 82 farms	27 most prof. farms	27 least prof. farms
Number of milk cows	_____	16.7	20.1	14.4
Number of other dairy cattle	_____	17.8	19.1	15.8
Number of beef cattle	_____	2.3	2.0	4.9
Number of sheep	_____	5.0	4.9	5.3
Number of hens	_____	22.7	23.6	22.8
Litters of pigs raised	_____	3.5	7.0	1.6
Pounds of hogs produced	_____	2927	5368	537

# TOTAL FEED COSTS AND RETURNS FROM YOUR LIVESTOCK ENTERPRISES

The total "return over feed costs" for each class of livestock is shown in Table XIV. 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 lbs.". 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 p. 6. 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 XIV. TOTAL FEED COSTS AND RETURNS FROM YOUR LIVESTOCK ENTERPRISES

	Dairy or dual purpose cattle		
	Cows	Other	All
Total returns	_____	_____	_____
Total feed cost	_____	_____	_____
Total return over feed	_____	_____	_____
	Hogs		
	Hogs	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 between classes of livestock. Feed makes up approximately 45 per cent of the total costs of maintaining dairy cattle and poultry, 50 per cent for 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.

## HOGS

The return over feed cost per cwt. of hogs produced varied from almost breaking even for those farmers in the lower one-third in feeding efficiency to a return of \$15.86 for those in the highest one-third. Responsible factors affecting return over feed were:

1. Quantity of feed required to produce 100 pounds of pork.
2. Price received.
3. Number of pigs born per litter.
4. Number of pigs weaned per litter.

TABLE XV. FEED COSTS AND RETURNS FROM HOGS, 1957

Items	Your farm	Avg. of 26 farms	9 farms highest in returns above feed	9 farms lowest in returns above feed
Feed per cwt. hogs produced, lbs.				
Corn		271	162	395
Small grains		222	336	171
Commercial feeds		48	75	30
Total concentrates & alfalfa		541	573	596
Skin milk and buttermilk		353	130	889
Silage		6	18	-
Feed cost per cwt. hogs produced				
Concentrates (incl. Alf.)	\$	\$11.34	\$12.66	\$12.36
Skin milk and buttermilk	\$	1.94	.50	4.30
Pasture	\$	.27	.49	.22
Silage	\$	.17	.50	-
TOTAL FEED COSTS	\$	\$13.62	\$14.29	\$16.89
Net increase in val. per cwt. hogs produced		\$21.50	\$30.15	\$16.05
RETURNS ABOVE FEED COST PER CWT. HOGS PRODUCED	\$	7.88	15.86	-.84
RETURNS FOR \$100 OF FEED	\$	\$184	\$224	\$118
Price received per cwt. hogs sold	\$	22.92	26.74	21.26
No. of spring litters raised		7.4	9.8	5.2
No. of fall litters raised		3.8	5.0	2.2
Total no. of litters raised		11.2	14.8	7.4
No. of pigs born per litter		9.0	10.5	8.5
No. of pigs weaned per litter		7.3	7.7	7.0
Pounds of hogs produced		6530	6314	3664

#### DAIRY AND DUAL PURPOSE CATTLE

The quantity of feed consumed, value in feeds and returns from dairy cattle are presented in Tables XVI, XVII, and XVIII. The statements include several herds which were classified as dual purpose cattle. The return over feed cost per cow varied from \$11 to \$31.2 among the 71 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. Economy of ration (Feed cost per pound butterfat)

TABLE XVI. FACTORS OF COSTS AND RETURNS FROM DAIRY COWS, 1957

Items	Your farm	Average of 71 farms	24 farms highest in butterfat per cow	24 farms lowest in butterfat per cow
Pounds of butterfat per cow		283	353	215
Price rec. per lb. B.F. sold (cents)		91	96	63
Feed per cow, lbs.:				
Corn		535	647	211
Small grain		866	821	786
Commercial feeds		696	1212	376
Legume hay		3165	3291	3130
Other hay		2996	3271	2748
Vodder and Stover		57	-	125
Total concentrates, lbs.		2037	2880	1373
Total dry roughage, lbs.		6218	6562	6003
Silage		5636	5579	6057
Feed cost per cow:				
Concentrates		\$ 48.40	\$ 72.12	\$ 31.09
Roughages		58.08	63.97	56.35
Pasture		7.26	7.36	6.83
TOTAL FEED COST		\$113.74	\$143.45	\$ 94.27
Value of produce per cow:				
Butterfat sales		\$242.85	\$325.53	\$163.71
Dairy produce used in house		8.58	7.33	9.92
Milk to livestock		13.24	9.88	14.00
Net increases in value of cows		6.38	2.73	12.78
TOTAL VALUE PRODUCED		\$271.05	\$345.47	\$200.41
RETURNS ABOVE FEED COST PER COW		\$157.31	\$202.02	\$106.14
RETURNS PER \$100 SPENT FOR FEED		\$263	\$270	\$239
Feed cost per lb. B.F. (cents)		40	42	44
Number of cows*		17.9	20.9	16.0

\* All dairy cows which have at some time in the past freshened are included in the dairy herd, and affect the average number of cows used in computing this table. There is some variation in the number of months of dry period per cow; however, this variation is small for the majority of farms.

TABLE XVII. FEED COSTS AND RETURNS FROM OTHER DAIRY AND DUAL PURPOSE CATTLE, 1957

Items	Your farm	Average of 71 farms	24 farms highest in butterfat per cow	24 farms lowest in butterfat per cow
Feeds per head, lbs.:				
Concentrates	_____	260	337	145
Hay and fodder	_____	2282	2133	2329
Silage	_____	1642	1647	2023
Milk	_____	545	586	606
Feed cost per head:				
Concentrates	_____	\$7.38	\$11.68	\$ 2.96
Roughages	_____	19.66	19.69	20.82
Milk	_____	10.31	10.05	8.85
Pasture	_____	2.92	3.25	2.39
TOTAL FEED COST PER HEAD	_____	\$40.27	\$44.67	\$35.02
Net increase in value of other cattle	_____	\$55.75	\$63.96	\$46.83
RETURNS ABOVE FEED COST PER HEAD	_____	15.48	19.29	11.81
RETURNS FOR \$100 OF FEED	_____	\$154	165	152
Number of head of other cattle	_____	18.5	19.6	18.7

TABLE XVIII. FEED COSTS AND RETURNS FROM ALL DAIRY AND DUAL PURPOSE CATTLE, 1957

Feeds per animal unit, lbs.				
Concentrates	_____	1531	2173	1026
Hay and fodder	_____	5516	5743	5328
Silage	_____	4873	4627	5626
TOTAL FEED COSTS PER ANIMAL UNIT	_____	\$ 95.76	\$118.84	\$ 82.16
Value of produce per animal unit:				
Dairy products	_____	\$170.21	\$228.06	\$119.49
Net increase in value	_____	41.30	44.14	40.42
TOTAL VALUE PRODUCED	_____	\$211.51	\$272.20	\$159.91
RETURNS ABOVE FEED PER ANIMAL UNIT	_____	\$115.75	\$153.36	\$ 77.75
RETURNS PER \$100 OF FEED	_____	234	254	218
Animal units of cattle	_____	27.4	30.9	25.5

TABLE XIX. FEED COST AND RETURNS FROM BEEF BREEDING HERD, 1957

Items	Your farm	Average of 4 farms
Beef breeding herd: No. of farms		4
Feeds per animal unit, lbs.:		
Concentrates		205
Legume		7170
Other hay		3247
Silage		7515
Whole milk		38
Feed cost per animal unit:		
Concentrates	\$	\$ 2.69
Roughages		94.46
Pasture		12.82
Milk		1.33
TOTAL FEED COSTS	\$	\$111.30
Value of produce per animal unit:		
Dairy products	\$	\$ - -
Net increase in value of animals		121.94
TOTAL VALUE PRODUCED	\$	\$121.94
RETURNS ABOVE FEED COST PER ANIMAL UNITS	\$	\$ 10.64
RETURNS FOR \$100 OF FEED	\$	\$116.00
Number of animal units in the herd		14.8

TABLE XX. FEED COST AND RETURNS FROM SHEEP, 1957

Items	Your farm	Average of 6 farms
Feeds per head, * lbs.:		
Concentrates		52
Legume hay		1906
Other hay		81
Silage		503
Feed cost per head:		
Concentrates	\$	\$ 1.53
Roughages		4.70
Pasture		4.18
TOTAL FEED COSTS	\$	\$ 10.41
Value of produce per head:		
Wool	\$	\$ 3.64
Net increase in value of sheep		13.17
TOTAL VALUE PRODUCED	\$	\$ 16.81
RETURNS ABOVE FEED COST PER HEAD	\$	\$ 6.40
RETURNS FOR \$100 OF FEED	\$	\$181.00
Number of head of sheep*		45.8

\* Two lambs under six months of age considered as one head.



# CHICKENS

Eighteen farmers raising chickens submitted reports with enough detail for analysis. Information on chicks raised, death loss, and pounds produced was too incomplete to be included in the averages. Table XXI shows the averages for the eighteen farmers.

Some of the important factors that affect the return over feed are:

1. Quantity of feed required per hen.
2. Price received per dozen eggs sold.
3. Eggs laid per hen.
4. Per cent of hens that are pullets.
5. Percentage death loss of hens.

TABLE XXI. FEED COSTS AND RETURNS FROM CHICKENS, 1957 \*

Items	Your farm	Average of 18 farms	6 farms highest in return over feed	6 farms lowest in return over feed
Feed per hen, lbs.				
Grain		65	70	74
Commercial feeds		62	52	69
Total concentrates		127	122	143
Milk		12	4	32
TOTAL FEED COST PER HEN		\$ 3.75	\$ 3.50	\$ 4.08
Value of produce per hen:				
Eggs sold and used in house		\$ 3.00	\$ 2.69	\$ 2.39
Net increase in value of chickens		4.66	6.13	2.95
TOTAL VALUE PRODUCED		\$ 7.66	\$ 8.82	\$ 5.34
RETURNS ABOVE FEED COST PER HEN		\$ 3.91	5.32	1.26
RETURNS FOR \$100 OF FEED		\$215	\$285	\$125
Price rec'd per doz. eggs sold (cents)		\$ .32	\$ .31	\$ .34
Eggs laid per hen		112	125	103
Average number of hens during year		71	77	45

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

Thirteen farms that submitted farm record books for analysis of 1956 operations are also included in the 1957 study. Two of these books were partially incomplete and not considered as entirely valid for purposes of comparison. A comparison of labor earnings of the eleven farms submitting complete records in both years is shown below:

TABLE XXII COMPARISON OF LABOR EARNINGS, 1956-1957

FARM	1956 LABOR EARNINGS	1957 LABOR EARNINGS	INCREASE
1	\$ 1023	\$ 2760	\$ 1737
2	1584	5040	3456
3	1851	4799	2948
4	1014	1985	971
5	3630	2688	(-942)
6	(-189)	1598	1787
7	1231	2513	1282
8	737	2571	1834
9	987	3350	2363
10	3576	6705	3129
11	50	1003	953
TOTAL (11 FARMS)	\$15494	\$35012	\$19518
AVERAGE (11 FARMS)	\$ 1408	\$ 3183	\$ 1775