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UNIVERSITY OF MINNESOTA
Department of Agriculture
and the
County Extension Services of
.Beltrami, Carlton, Clearwater, Hubbard,
Itasca, Koochiching and St. Louis Counties
Cooperating

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Fourth
Annual Report
of the
Farm Management Service
for
Farmers of Northern Minnesota
for the year
1934
(April 1, 1934 to April 1, 1935)

-- 0 --

Name: _____

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University Farm
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Third Annual Report of the Farm Management Service
of Beltrami, Carlton, Clearwater, Hubbard, Itasca, Koochiching and St. Louis
Counties for the Year April 1, 1934 to April 1, 1935

Prepared by W. P. Ranney, G. A. Pond, S. A. Engene, and J. B. McNulty

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INTRODUCTION

The Division of Agricultural Extension and the Division of Agricultural Economics of the University of Minnesota and the farm bureaus of Beltrami, Carlton, Clearwater, Hubbard, Itasca, Polk, St. Louis, and Wadena Counties organized early in 1931 the Farm Management Service Project, to operate in the above named counties, beginning April 1, 1931. There were no cooperators in Polk County in 1933 and 1934 and none in Wadena County in 1934; three cooperators from Koochiching County were included in 1934. This service is offered to men who desire to keep farm records, and to have these records summarized and analyzed in connection with those of other farmers. An annual fee of four dollars per record is charged to cover a part of the cost of the service.

The project is under the direction of S. A. Engene and J. B. McNulty of the Division of Agricultural Extension, and G. A. Pond and W. P. Ranney of the Division of Agricultural Economics, University of Minnesota. Hearty support and assistance have been rendered by the county agricultural agents of the above named counties, respectively: M. B. Taylor, Geo. Chambers, Howard Balk, William Olson, A. H. Frick, Robert Shaw, S. H. Rutford, Kenneth Ingwalson, Clement Chase.

RECORDS KEPT

The records kept by the cooperators included inventories at the beginning and end of the year, cash receipts and expenses, crop production, and a record of farm produce used by the farm family. Once or twice during the year and again at the end of the year, each farmer was visited by a representative of the University who checked the records for completeness and accuracy. The books were then taken to the central office at University Farm, where every entry was again checked and omissions were noted. Any discrepancies found were referred back to the farmers for correction. This double checking insured a high degree of accuracy and completeness in each individual record.

CLIMATE, SOIL AND TOPOGRAPHY

The growing season is a little shorter in the eastern part of the area included in this report, including the three counties Carlton, St. Louis, and Itasca, due to their nearness to Lake Superior. Otherwise the weather conditions normally are fairly uniform in the eight counties.

There is a wide variation in soil type on the farms included in this report, from the heavy red clay of some of the farms in Carlton and St. Louis counties to the Jack Pine sand of some of the farms of Hubbard and Beltrami counties. Certain of the farms of these latter counties and Itasca county have clay subsoil. The Clearwater farms have a black loam soil with a clay subsoil. The land is mostly level, or slightly rolling. Most of these farms were originally covered with timber. There is considerable land remaining to be cleared on some of them.

TYPE OF FARMING

There is a considerable variation in type of farming in these counties, altho in general, dairying is the most important enterprise. These farms, therefore, conform to the center type in this area, but are considerably above the average farm in size and quality of business. Altho some milk and cream is sold in Duluth and smaller cities, cream for manufacture into butter is the principal dairy product sold. This is marketed mostly through farmer owned cooperative creameries specializing in the manufacture of high quality butter. The skim milk is retained on the farm and fed to calves, hogs and poultry.

The principal crops grown are oats, barley, hay, and potatoes. Some truck crops are grown, especially in the area near the Duluth market. Sunflower silage in the eastern part of the area and corn silage and fodder in the western part are grown for additional roughage feed for cattle. Other crops include wheat, rye, flax, and in the western part of the area, some corn for grain and clover for seed.

This report shows that receipts from the sale of dairy products and dairy cattle, constituted approximately two-fifths of the average cash income of the 20 farmers included in this report. The receipts for crops constituted one-third of the total cash income.

PURPOSE OF PROJECT

The Farm Management Service renders assistance to the cooperators in keeping such records as will enable each operator to know the returns for his labor and management, the returns to capital and family labor, and the actual earnings from the farm that the family had to spend for living and personal use. The main purpose of the service is to secure such data and information, which when compared with that secured on other farms, will enable the cooperator to increase his efficiency in various enterprises and to organize his farm on a more profitable basis. For the latter purpose, it was necessary for all the cooperators, tenants, as well as owner operators to include the whole farm business in order that the results would be on a comparative basis. For the purpose of comparison, the earnings as shown in this report are computed as if each farm was owned by its operator; however, each tenant is supplied a statement of his earnings on the basis of the rental system under which he was operating.

ANALYSIS OF THE FARM BUSINESS

On pages six and seven are presented financial summaries of the year's business, showing the average results for the 20 farms on which the work was completed for the twelve months' period, April 1, 1934 to March 31, 1935, the average results for the highest one-half of the farms in respect to Operator's Labor Earnings, and the average for the lowest one-half. In the "your farm" column, in the copy sent to the farmer, the results of his individual farm business are inserted in order that he may compare his figures with the averages of the various groups.

The data on pages 8 to 17 should suggest to each cooperator some possibilities for improvement in his production, control of expenses, and in his organization of the various enterprises and of the business as a whole. There are some variations in soil and climatic conditions and available markets in this area, which, of course, affect the choice of crops and classes of livestock. Each farm is an individual problem and has its particular advantages and limitations in respect to natural resources and markets. However, it is significant that the same general factors account for financial success in all of the eight counties.

CAPITAL INVESTMENT IN FARM BUSINESS

The data on page 5 shows that the average size of the farms in this report was 198 acres. The average farm inventory was \$8,900. This does not include the value of the house in which the operator lived. In 1934, 51 per cent of the average farm inventory consisted of land; 20 per cent of permanent improvements; 6 per cent of feeds and supplies; 11 per cent of machinery and equipment; and 12 per cent of livestock, of which about two-fifths or an average of \$457 was the average inventory value of milk cows.

RETURNS TO OPERATORS FOR THEIR LABOR AND MANAGEMENT

(See page 6)

The average cash receipts per farm were \$2,139. In addition, farm produce to the value of \$255 was consumed by the farm family and there was an average inventory increase of \$13 per farm. The total average receipts per farm were the sum of these three items, \$2,407. The average total expense per farm, \$1,031, includes \$993 cash expense and an estimated allowance of \$38 for board of hired labor. The difference between the total income and total expense figure is \$1,376. This is the return which the farmer received for his own labor and management, the services of members of his family and the use of his capital. After deducting a charge of 5 per cent on the average inventory valuation, \$445, for the services of capital, there remains \$931 for the services of the farmer and his family. The average value of family labor used, if computed at hired man's wages, was \$347. The average operator's labor earnings are the family earnings less their allowance of \$347, or \$584. This is the return to the farmer for his labor and management over and above a 5 per cent return for his capital and going wages for other members of the family.

This average return is undoubtedly considerably above the average for all farmers in these counties, for, as stated previously, these 20 farms represent, on the average, a higher type of organization and management than the average of all farms.

The average total value of farm produce used in the house, \$255, represents an important item in the farmer's income. This produce is figured at farm prices; if it was purchased at retail prices, the total value would be approximately double this figure. On many farms a saving could be made if more produce were raised on the farm rather than purchased. The table on page 17 shows the average amounts and values for each item included in the total of farm produce used in the house.

HOUSEHOLD AND PERSONAL EXPENSES

In the case of a farm with no debt, the family has, besides the operator's labor earnings, two other sources of income to expend for living and personal expense. One is the amount charged as interest on investment, and the other is the amount allowed for family labor. On the other hand, a farm with a heavy debt (some of these farmers had mortgages covering the full value of their farms and other debts in addition) must pay interest and in most cases at a higher rate than the 5 per cent charged. In these cases, the Operator's Labor Earnings and the allowance for family labor constitute practically the only sources of funds for family living; and if in these cases the farm shows a minus Operator's Labor Earnings more than enough to offset the allowance for family labor, it means that there is no income for family living expenses outside of the farm produce furnished by the farm for the household. These farmers and others, whose family incomes are not sufficient to cover household and personal cash expenses, must go deeper and deeper in debt, in order to meet these expenses.

It is important to know the family income and the reasons why it is not higher. It is also worth while to know the household and personal expenses and whether they are within the family income. Fifteen farmers included in this report kept a detailed record of personal and household expenses. The distribution of these expenses is shown on page 17, with averages for the 15 farms, and for the 7 most profitable and 7 least profitable in this group. Taking into consideration the number of members (adult equivalents)* in his family and the number in the average family, each farmer can compare his item of expense with those of the average.

* All members of the family including women and children are reduced to a full man equivalent on the basis of relative food consumption. The "other" adult equivalents as shown in the table on page 17, are the hired help boarded. They must be added to the adult equivalents as shown for the family in studying the food expense per adult person.

Summary of Farm Inventories

Items	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
Size of farm (acres)	_____	198	201	195
Size of business(days of prod. work)(1)	_____	494	507	481
Average farm inventory (without house)	_____	\$8900	\$8770	\$9031
Land	_____	4559	4745	4372
Farm improvements	_____	1775	1475	2076
Machinery & equipment (total)	_____	960	954	966
Gen. machinery & equipment	_____	653	689	617
Tractor	_____	155	102	208
Truck	_____	63	58	68
Auto (farm share)	_____	64	72	57
Gas engine (farm share)	_____	24	33	14
Electrical equipment (farm share)	_____	1	0	2
Feeds and seed	_____	\$519	\$558	\$480
Miscellaneous supplies	_____	34	31	38
Horses (total)	_____	262	260	264
Horses	_____	237	246	229
Colts	_____	25	14	35
Productive livestock (total)	_____	\$791	\$747	\$835
Cows	_____	457	435	479
Other cattle	_____	136	135	136
Hogs	_____	35	30	41
Sheep	_____	131	130	131
Poultry	_____	32	17	48

(1) Explanation of term, "Days of Productive Work."

The total "Days of Productive Work" for any one farm are a measure of size of that farm business. The average number of "ten-hour days" of man labor required per head of productive livestock and per acre of crops is used in combining the crops and the livestock in one single measure of size of business.

The number of days of productive work for each animal and each acre of crops, computed from labor data secured on detailed accounting routes conducted in Polk and Pine counties, is listed as follows:

Item	Per	No. of days: of prod. work	Item	Per	No. of days of prod. work
Cows	Cow	18.5	: Small grain	Acre	1.3
Other cattle	Animal unit*	7.2	: Corn (husked)	"	2.6
Sheep	Animal unit*	3.0	: Corn (fodder)	"	2.3
Poultry	100 hens	30.0	: Corn (silage)	"	3.1
Hogs	100 lbs. pork produced	.9	: Sunflower silage	"	3.6
Alfalfa	Acre	1.75	: Summer fallow	"	1.6
Tame hay	"	.8	: Potatoes	"	6.0
Wild hay	"	.6	: Rutabagas	"	9.0
Small grain hay	"	1.3	: Cabbage	"	10.0
Hay (seed crops)	"	1.0	: Beans	"	3.0

* Animal unit represents one cow, one bull, two head of young cattle, seven head of sheep, fourteen lambs, 5 hogs, 10 pigs, or 100 hens.

Summary of Farm Earnings

Items	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
Cash Expenses:				
Tractor (new and exp.)	\$ _____	\$ 83	\$ 46	\$ 119
Truck (new and exp.)	_____	76	135	17
Auto (new and exp.) (farm share)	_____	64	61	67
Gas engine (new and exp.) (farm share)	_____	7	11	3
Electricity (new and exp.) (farm share)	_____	1	0	3
Machinery and equipment (new)	_____	60	74	47
Machinery and equipment (exp.)	_____	28	30	26
Bldgs., fences, tiling (new)	_____	53	31	74
Bldgs., fences, tiling (exp.)	_____	20	19	20
Hired labor	_____	94	115	73
Feed for livestock	_____	154	165	144
Other expenses for livestock	_____	27	19	35
Horses bought	_____	31	23	38
Cows bought	_____	14	25	3
Other cattle bought	_____	6	3	10
Hogs bought	_____	9	6	12
Sheep bought	_____	9	18	1
Poultry bought	_____	8	3	13
Crop (seed, twine, spray)	_____	116	136	95
Taxes and insurance	_____	111	102	119
General farm	_____	22	15	28
(1) Total cash expense	\$ _____	993	1037	947
(2) Decrease in farm inventory	_____	-	-	105
(3) Board for hired labor	_____	38	55	22
(4) Total expense (sum of (1)(2)&(3))	_____	1031	1092	1074
Cash Receipts:				
Horses	\$ _____	\$ 1	\$ 3	\$ 0
Cows	_____	66	62	71
Dairy products	_____	819	1015	622
Other cattle	_____	59	53	64
Hogs	_____	100	93	107
Sheep	_____	112	100	123
Poultry	_____	35	6	64
Eggs	_____	53	29	77
Small grain	_____	244	352	137
Corn	_____	11	11	10
Hay	_____	55	78	31
Root crops	_____	159	226	93
Other crops	_____	284	304	263
Miscellaneous	_____	77	59	95
Income from work off the farm	_____	64	42	87
(5) Total cash receipts	\$ _____	\$ 2139	\$2433	\$ 1844
(6) Increase in farm inventory	_____	13	131	-
(7) Farm produce used in house	_____	255	288	222
(8) Total receipts (sum of (5)(6)&(7))	_____	2407	2852	2066
Total expenses (4)	_____	1031	1092	1074
(9) Ret. to cap. & fam. labor (8) minus (4)	_____	1376	1760	992
(10) Interest on farm inventory	_____	445	438	452
(11) Family labor earnings (9) minus (10)	_____	931	1322	540
(12) Unpaid family labor	_____	347	266	429
(13) Operator's labor earnings (11) minus (12)	_____	584	1056	111

Summary of Farm Earnings (A)

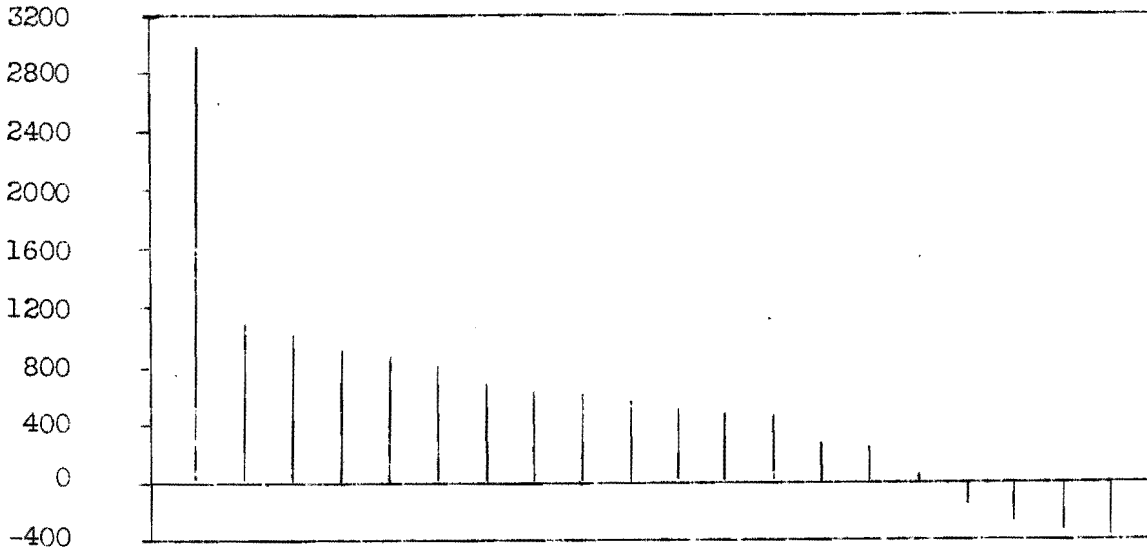
Items	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
EXPENSES AND NET DECREASES				
Total power machinery & equipment	\$ _____	\$ 208	\$ 230	\$ 187
Hired	_____	36	43	30
Tractor	_____	64	50	78
Truck	_____	32	65	0
Auto	_____	68	64	72
Gas engine	_____	6	8	4
Elec.plant or current (farm share)	_____	2	0	3
Gen. machinery and equipment	_____	114	126	102
Permanent improvements	_____	41	56	25
Hired labor	_____	94	115	73
Prod. livestock misc. expense	_____	19	17	21
Misc. horse expense	_____	3	3	3
Misc. crop expense	_____	66	69	63
Personal property taxes	_____	8	8	8
Real estate taxes	_____	87	79	95
Insurance	_____	16	15	16
General farm	_____	22	15	28
Crops and feeds	_____	-	-	-
Horses	_____	-	-	13
Board for hired labor	_____	38	55	22
Interest on farm inventory	_____	445	438	452
Unpaid family labor	_____	347	266	429
(1) Total expenses and net decreases	\$ _____	\$1508	\$1492	\$1537
RETURNS AND NET INCREASES				
Increase in crops and feeds	\$ _____	\$ 658	\$ 889	\$ 428
All productive livestock	_____	1380	1611	1149
Cows (including milk to other livestock)	_____	933	1166	699
Other cattle	_____	145	157	133
Hogs	_____	120	132	108
Sheep	_____	69	98	40
Poultry	_____	113	58	169
Increase in horses	_____	5	22	-
Miscellaneous	_____	10	7	14
Income from work off the farm	_____	70	48	91
(2) Total receipts and net increases	\$ _____	\$2123	\$2577	\$1682
(3) Milk produced and fed on farm	_____	31	29	34
(4) Tot. ret.& net incr.,(2)minus(3)	_____	2092	2548	1648
Total expenses (1)	_____	1508	1492	1537
(5) Operator's labor earn.,(4)minus(1)	_____	584	1056	111

(A) Cash receipts and expenses are adjusted for changes in inventory for each enterprise and for each item of expense in order to show gross returns and net increases, and total expense and net decreases. The operator's labor earnings are the same as those on page 6.

ANALYZING THE REASONS FOR DIFFERENCES IN OPERATOR'S EARNINGS

The financial statements on the preceding pages point out two important facts. One is that the average return to the farmer for his labor and management is very low. The other is that there is a wide variation in earnings, - from \$2993 to a loss of \$399, or a range of \$3392. The following diagram illustrates this fact:

Chart 1. Range of Earnings



Some of the causes for these differences in earnings may be beyond the control of the farmer. It is significant, however, that the data secured from the records on these 20 farms indicate that there are several very definite factors that enable some farmers to make a fair living even in a severe depression, while others fail to meet expenses. These factors and their relationship with earnings are the following:

Table 1. Relation of Dairy Production to Farm Earnings *

<u>Lbs. Butterfat Per Cow</u> Group	<u>Average</u>	<u>No. of</u> <u>Farms</u>	<u>Average</u> <u>Earnings</u>
260 and above	286	4	\$604
180 to 279	221	10	466
Below 180	126	4	225

* Two farms omitted from this table because their dairy herds were too small.

High production per cow lowers the cost of producing a pound of butterfat. This is very important on those farms on which butterfat sales are the major source of income.

Table 2. Relation of Feeding Efficiency to Farm Earnings.

<u>Returns Above Feed Cost per Animal</u> <u>Unit of Productive Livestock</u> Group	<u>Average</u>	<u>No. of</u> <u>Farms</u>	<u>Average</u> <u>Earnings</u>
\$35 and above	\$56	5	\$1038
5 to 34	16	10	564
Below 5	-3	5	168

These farms have, in addition to the dairy herd, quite an investment in other classes of productive livestock, as young cattle, hogs, sheep or poultry. Most or all of the feed raised is fed, and considerable additional feed is purchased. If the livestock itself or the methods of feeding and management are not efficient, the livestock returns may be too low even to cover the value of the feed. On the other hand, if the livestock returns a substantial margin above the value of feed without an increase in other costs such as labor, shelter, veterinary expense, etc., there will be an addition to the farm earnings.

Table 3. Relation of Amount of Productive Livestock to Farm Earnings

<u>Animal Units of Productive Livestock per 100 acres</u>		<u>No. of Farms</u>	<u>Average Earnings</u>
<u>Group</u>	<u>Average</u>		
18.0 and above	24.4	4	\$635
8.0 to 17.9	11.7	13	628
Below 8.0	5.6	3	321

If the livestock is yielding a net return, an increased amount of livestock adds to size of business and the opportunity to increase the farm earnings. Livestock produces manure and aids in keeping up the fertility of the land, and utilizes waste products on the farm. Livestock also helps to provide productive employment throughout the year. Any method that aids in utilizing the available resources to full and efficient capacity should add to the farm income.

Table 4. Relation of Crop Yields to Farm Earnings

<u>Per cent Crop Yields are of the Average for all the 20 farms</u>		<u>No. of Farms</u>	<u>Average Earnings</u>
<u>Group</u>	<u>Average</u>		
130 and above	152	2	\$1844
70 to 129	100	16	479
Below 70	53	2	161

High production per acre, up to certain limits, tends to lower the cost per bushel of grain or potatoes or per ton of hay. The prices of these products are very low. Any possible method of management that will increase crop yields and therefore lower cost of production more than the extra expense incurred in securing the higher yields should be given consideration.

Table 5. Relation of Crop Selection to Farm Earnings

<u>Per cent of Tillable Land in High Return Crops*</u>		<u>No. of Farms</u>	<u>Average Earnings</u>
<u>Group</u>	<u>Average</u>		
45.0 and above	54.1	5	\$ 944
25.0 to 44.9	33.4	10	553
Below 25.0	18.1	5	303

* Legume hay, seed, and pasture, potatoes and truck crops.

On most of these northern Minnesota farms it is a problem to find a sufficient amount of productive work, in order profitably to utilize available labor. The more intensive crops such as potatoes and truck crops utilize a greater amount of labor and in most cases give higher returns for that labor than would less intensive crops.

The choice of cash crops depends on a number of factors, such as access to good markets, ability to produce special quality products, such as certified seed that command special prices, soil, climate, transportation facilities, available labor, and a general balance with the livestock program and cropping system.

As stated before, efficient productive livestock is another means for employing labor profitably. It is quite important to have the very best pasture crop so as to reduce grain and roughage feeding as much as possible. Also, as hay is bulky, necessitating high freight charges, if shipped in, it is important to raise all the hay needed and purchase concentrates, if necessary to supplement it.

There are also differences in the amount of feed produced per acre, in the value of that feed, and in the effect on soil fertility, among different hay crops. Legumes furnish more protein, which is an expensive feed to buy, and also add nitrogen to the soil. Among the legumes, alfalfa, where it can be grown successfully, yields more nutrients per acre than other legumes. There is considerable variation in the adaptability of these crops, and it is important for each farmer to determine the kind of crops best adapted to his farm, those that will give the highest net returns, taking into consideration livestock feed requirements, the value of crop as a feed, yields per acre, the development of a good crop rotation, and expenses of production.

Table 6. Relation of Expenses to Farm Earnings*

Expense**		No. of Farms	Average Earnings
Per Day of Productive Work Group	Average		
Below \$2.00	\$1.68	4	\$525
\$2.00 to \$3.39	2.60	9	445
\$3.40 and above	4.77	4	88

* Three farms omitted from this table because of non-typical expenses.

**Includes building, fencing, tiling and other land improvements, general machinery and equipment, and power machinery expense, depreciation and interest on the investment in these items, and horse expense, such as interest on investment, feed cost, depreciation and miscellaneous cash costs; hired labor and its board, and family labor other than the operator; and taxes, insurance, general farm expense, and miscellaneous crop and livestock expense.

The expense factor shows a higher relation with earnings when prices are very low than when they are high. In 1934 earnings were greatly reduced on 20% of the farms included in this report because of excessive expenses in proportion to the size of the business. Some of the cash expenses can be kept down by careful management, by making repairs and overhauling before spring work begins and on rainy days or other spare time. The depreciation and interest charges per day of productive work can be kept down by utilizing the equipment as nearly to capacity as possible. Reducing the number of horses to the minimum required for efficient operation of the farm helps reduce the horse expense. In some cases farmers can offset some or all of the depreciation and interest charge by using the machinery for outside work, or by making necessary repairs and improvements with the farm labor available rather than by hiring extra help.

More days of productive work accomplished per worker reduce the labor expense per day of work. More days of productive work per acre of land reduce the real estate tax per day of work. Hence, if expensive equipment is not made necessary, an increase in the amount of productive livestock, of intensive crops, or of outside work tends to lower these miscellaneous expenses per day of work and to increase earnings.

Table 7. Relation of Size of Business (days of productive work) to Farm Earnings

<u>Days or Productive Work Group</u>	<u>Average</u>	<u>No. of Farms</u>	<u>Average Earnings</u>
600 and above	759	6	\$642
300 to 599	443	11	608
Below 300	152	3	379

Size of business tends to be a disadvantage to those who show a loss, for greater size is a factor serving to increase the loss. On the other hand, a farmer who is making a profit, could make a larger profit if he increased his size of business without at the same time, lowering materially the efficiency in some branch of the business. This fact leads to another factor that is very important, - well balanced efficiency.

EFFECT OF WELL BALANCED EFFICIENCY ON FARM PROFITS

It is quite evident from this report that few farmers have a monopoly on efficiency. Quite often farm operators show efficient management in one part of the farm business, which is offset by poor results in other phases. These farmers get medium returns while those who fall down all along the line get the lowest returns and those few who can manage to get high all around efficiency receive returns well above the average. This is well illustrated in Table 8.

Table 8. Relation of Operator's Labor Earnings to the Number of Factors in Which the Farmer is Above the Average

<u>No. of Factors in Which Farm Excels</u>	<u>No. of Farms</u>	<u>Your Farm</u>	<u>The length of the shaded lines are in proportion to the average Operator's labor earnings</u>	<u>Average Operator's Earnings</u>
Four or more	10	_____	xx	\$924
Three or less	10	_____	xxxxxxx	244

The array in Table 8 suggests that it will be worth while for each cooperator to study carefully his ranking on pages 12 and 13, and learn through his standing in respect to each of the above factors the elements of strength and weakness in his farm business.

Measures of Farm Organization and Management Efficiency

	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
Operator's labor earnings	\$ _____	\$584	\$1056	\$111
Lbs. of butterfat per cow	_____	202	225	201
Returns over feed (productive livestock)	\$ _____	\$ 21	\$ 31	\$ 12
Productive livestock units per 100 acres	_____	13.3	13.1	13.5
Crop yields	_____	100	109	92
Per cent high return crops	_____	34.8	37.7	31.9
Expense per day of productive work	\$ _____	\$ 2.90	\$ 2.66	\$ 3.14
Size of business - days of productive work	_____	494	507	481

The above seven factors are those that show a high relation with earnings, and are used on the opposite page, in finding the weak links in the farm business. Below are additional factors that help to explain some of the seven factors shown above.

Per cent of fall freshening	_____	43	50	36
Eggs per hen	_____	111	119	105
Pigs per litter	_____	6.0	7.1	5.0
Per cent lamb crop	_____	101	127	66
Price rec. per lb. of B.F. sold as Mfg. cream - cents	_____	29.3	28.9	29.7
Price rec. per lb. of B.F. sold as milk or retail cream - cents	_____	51.6	55.0	49.2
Price rec. per cwt. of hogs sold*	\$ _____	\$ 6.61	\$ 7.02	\$ 5.85
Price rec. per doz. eggs sold - cents	_____	17.0	16.9	17.0
Price rec. per lb. of wool sold - cents	_____	21.7	22.6	20.3
Power exp. per day of productive work	\$ _____	\$.77	\$.79	\$.75
Machinery exp. per day of prod. work	_____	.35	.37	.33
Bldg. exp. per day or productive work**	_____	.36	.29	.42
Total power, mach., & bldg. exp. per day of productive work	_____	1.48	1.45	1.50
Miscellaneous exp. per day of prod. work	_____			
No. of tractors	_____	10	4	6
No. of family workers	_____	1.9	1.7	2.2
No. of hired workers	_____	.3	.4	.2
Total Number of workers	_____	2.2	2.1	2.4

* Part of the variation in hog prices is due to variations in the age and weight of hogs sold. Some sold only market hogs whereas others sold weanling pigs.

**Includes all the farm permanent improvements.

Find Your Weak Links

Using your figures from page 12, locate your standing with respect to the various measures of farm organization and management efficiency. The averages for the 20 farms included in the summary are located between the two lines across the center of the page.

	Oper. labor earn.	Lbs. B.F. per cow	Ret. over feed; prod. livestock	Prod. livestock units per 100 acres	Crop yields	Per cent high return crops	Expenses per day of prod. work	Days of productive work
High	\$2993	307	\$113	32.6	154	63.3	\$1.59	1177
	1184	287	41	20.8	130	49.8	1.90	744
	1064	270	37	19.3	124	46.8	2.10	694
	944	253	33	17.8	118	43.8	2.30	644
	824	236	29	16.3	112	40.8	2.50	594
	704	219	25	14.8	106	37.8	2.70	544
Aver.	584	202	21	13.3	100	34.8	2.90	494
	434	185	17	12.1	94	31.8	3.10	434
	284	168	13	10.9	88	28.8	3.30	374
	134	151	9	9.7	82	25.8	3.50	314
	-16	134	5	8.5	76	22.8	3.70	254
	-166	117	1	7.3	70	19.8	3.90	194
Low	-399	88	-10	2.4	43	8.0	6.94	106

Distribution of Acres in Farm

Crop	No. of farms growing this crop	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
Wheat	7	_____	1.0	.8	1.2
Oats	17	_____	14.8	15.6	14.0
Barley	11	_____	6.9	5.0	8.8
Rye	2	_____	1.4	.8	2.0
Flax	1	_____	.2	.4	.0
Oats and wheat	3	_____	.7	.3	1.1
Oats and barley	3	_____	4.8	4.7	5.0
<u>Total grain</u>			29.8	27.6	32.1
Corn, grain	3	_____	.7	.9	.5
Corn, fodder	7	_____	4.0	4.0	3.9
Corn, silage	6	_____	3.7	2.6	4.8
Sunflower silage	1	_____	.4	.0	.8
Potatoes	17	_____	5.9	8.6	3.3
Truck crops	5	_____	1.2	1.8	.6
<u>Total cultivated crops</u>			15.9	17.9	13.9
Alfalfa	7	_____	10.4	10.2	10.6
Sweet clover	2	_____	.9	.9	.8
Clover	3	_____	2.9	5.8	.0
Clover and timothy	9	_____	9.1	9.2	9.0
Other legume mixtures	3	_____	4.1	.1	8.0
Timothy	6	_____	5.6	9.2	2.0
Miscellaneous hay	7	_____	3.9	2.7	5.1
Wild hay (non-tillable land)	3	_____	1.1	1.8	.5
Clover seed	5	_____	2.1	3.9	.2
<u>Total hay and seed</u>			40.1	43.8	36.2
<u>Total crop acreage</u>			85.8	89.3	82.2
Sweet clover pasture	2	_____	1.7	1.6	1.7
Miscellaneous legume pasture	5	_____	3.3	3.9	2.6
Other tillable pasture	2	_____	1.3	.4	2.2
Non-tillable pasture	19	_____	65.4	63.1	67.9
<u>Total pasture</u>			71.7	69.0	74.4
Tillable land not cropped	6	_____	4.1	1.2	7.0
Timber and brush (not pastured)	10	_____	24.6	31.1	18.1
Roads and waste		_____	8.0	6.6	9.5
Farmstead		_____	3.6	3.4	3.8
<u>Total acres in farm</u>			197.8	200.6	195.0
<u>Per cent of land tillable</u>			51.7	50.2	53.2

Yield of Crops

Crop	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
Wheat, bu.	_____	22.7	26.3	17.9
Oats, bu.	_____	40.2	47.1	32.4
Barley, bu.	_____	32.0	31.6	32.4
Rye, bu.	_____	10.3	13.0	7.5
Flax, bu.	_____	5.7	5.7	-
Oats and wheat, bu.	_____	32.8	48.0	25.2
Oats and barley, bu.	_____	44.7	48.0	38.0
<hr/>				
Corn, grain, bu.	_____	21.7	30.0	17.5
Corn, fodder, tons	_____	1.5	1.5	1.6
Corn, silage, tons	_____	5.9	6.6	5.6
Sunflower silage, tons	_____	3.3	-	3.3
Potatoes, bu.	_____	112.4	113.4	111.0
Cabbage, tons	_____	5.1	5.1	-
Rutabagas, tons	_____	8.5	6.3	15.0
<hr/>				
Alfalfa, tons	_____	1.4	1.3	1.4
Sweet clover, tons	_____	1.2	1.3	1.0
Clover, tons	_____	.6	.6	-
Clover and timothy, tons	_____	1.0	1.0	1.1
Oat hay, tons	_____	1.0	.9	1.2
Timothy, tons	_____	1.2	1.2	1.2
Wild hay (non-tillable) tons	_____	1.7	1.4	1.9
<hr/>				
Clover seed, lbs.	_____	165.9	165.9	-
Alfalfa seed	_____	375.5	600.0	151.0
<hr/>				
Alfalfa for hay, tons	_____	.8	.4	1.1
and seed, lbs.	_____	25.2	61.4	7.1

Livestock Summary

	Your farm	Average of 20 farms	10 most profitable farms	10 least profitable farms
No. of cows	_____	11.8	11.5	12.0
No. of cows per worker	_____	5.3	5.1	5.6
Head of other cattle	_____	9.1	9.9	8.2
Litters of pigs raised	_____	1.5	1.1	1.8
Pounds of pork produced	_____	1367.0	1747.5	986.5
Head of sheep	_____	25.4	25.4	25.3
No. of hens	_____	47.6	31.5	63.7
Total no. of prod. livestock animal units	_____	21.9	22.0	21.8
% of total prod. livestock units that are cows	_____	52.7	46.1	59.3
% of total prod. livestock units that are other cattle	_____	25.8	28.8	22.8
% of total prod. livestock units that are hogs	_____	3.1	3.2	3.0
% of total prod. livestock units that are sheep	_____	14.1	18.1	10.0
% of total prod. livestock units that are hens	_____	4.3	3.8	4.9

Farms Without Tractors

	Your farm	Average of 10 farms	5 most profitable farms	5 least profitable farms
No. of horses	_____	2.3*	3.2	1.5*
No. of colts	_____	.3	.3	.2

Farms With Tractors

	Your farm	Average of 10 farms	5 most profitable farms	5 least profitable farms
No. of horses	_____	3.5*	3.0*	3.9
No. of colts	_____	.7	.4	.9

* One of these farms had no horses.

Distribution of Farm Produce Used in House

	Quantities		Values	
	Your farm	Average 20 farms	Your farm	Average 20 farms
Skimmilk	___ qts.	164 qts.	\$___	\$.52
Whole milk	___ qts.	1207 qts.	___	42.90
Cream	___ pts.	304 pts.	___	36.05
Farm-made butter	___ lbs.	63 lbs.	___	18.33
Eggs	___ doz.	140 doz.	___	24.40
Poultry	___ head	23 head	___	9.49
Cattle	___ lbs.	474 lbs.	___	16.43
Hogs	___ lbs.	339 lbs.	___	18.35
Sheep	___ lbs.	30 lbs.	___	1.83
Potatoes	___ bu.	31 bu.	___	15.06
Vegetables and fruit	___	-	___	32.76
Farm fuel	___ cds.	21 cds.	___	38.66
Total			\$___	\$254.78

	Your farm	Average 20 farms
Average value of farm dwelling	\$___	\$1487
Interest and depreciation on farm dwelling	___	106

Distribution of Household and Personal Expenses for Those Farms Which Kept Complete Accounts of These Expenses 1934

	Your farm	Average 15 farms	7 most profitable	7 least profitable
Number of persons,) Family adult equivalent) Other*	___	3.9 .4	3.5 .6	4.3 .2
Food	\$___	\$231.43	\$196.80	\$273.89
Operating and supplies	___	30.72	36.44	22.98
Furnishings and equipment	___	42.22	59.18	24.60
Clothing and materials	___	85.16	81.36	84.00
Health	___	30.89	49.44	15.78
Development and recreation	___	55.62	40.87	73.19
Personal	___	44.89	20.68	69.98
Life insurance and savings	___	60.54	82.19	30.62
Personal share of auto expense	___	50.18	45.11	58.11
Housing	___	4.10	2.47	4.80
Total Household and Personal Cash Exp.	\$___	\$633.75	\$614.54	\$657.95
Food furnished by the farm	\$___	\$225.16	\$269.43	\$194.84
Fuel furnished by the farm	___	38.13	44.72	35.29
Interest and deprec. on farm dwelling	___	99.29	101.13	103.41
Interest and deprec. on misc. items**	___	28.05	28.07	29.73
Total Household and Personal Exp.	\$___	\$1026.38	\$1057.89	\$1021.22

* Hired help or others boarded.

** Personal share of auto, gas engine, and electric plant, and household goods.

Comparisons of Various Items with Previous Year

	1931	1932	1933	1934
Number of farms	55	44	30	20
Farm inventory (not including house)	\$10,664	\$8,110	\$7,867	\$8,900
Acres in farm	199	184	182	198
Crop acres per farm	97	78	79	86
Per cent of land tillable	49	42	45	52
Per cent of tillable land in high return crops*	50	56	48	35
No. of work horses	3.4	2.8	3.0	2.9
No. of colts	.3	.3	.4	.5
No. of cows	11.6	10.4	10.5	11.8
No. of head of other cattle	11.2	9.9	10.1	9.1
No. of litters of pigs raised	2.0	1.5	2.0	1.5
Pounds of pork produced	2961.0	2147.0	1738.0	1367.0
Head of sheep	12.5	9.6	16.0	25.4
No. of hens	62.0	57.0	48.0	47.6
Productive livestock units per 100 acres	12.3	11.4	13.3	13.3
Lbs. of B.F. per cow	238.	233.	225.	202.
No. of pigs per litter	7.	6.3	7.3	6.0
No. of eggs laid per hen	121.	120.	119.	111.
Price rec'd. per lb. B.F. sold (mfg. cream)	\$.26	\$.19	\$.23	\$.29
Price rec'd. per cwt. hogs sold	5.17	3.29	4.87	6.61
Price rec'd. per lb. wool sold	.12	.08	.27	.21
Price rec'd. per doz. eggs sold	.16	.15	.15	.17
Returns above feed cost per animal unit of productive livestock	\$19.00	\$11.00	\$14.00	\$21.00
Fover and equip. exp. per day of prod. work	1.46	1.12	1.17	1.48
Misc. exp. per day of prod. work	1.41	1.09	1.24	1.42
Yield per acre, wheat, bu.	19.5	17.1	17.1	22.7
" " " oats, bu.	41.3	33.5	33.7	40.2
" " " barley, bu.	24.7	23.0	20.3	32.0
" " " oats & barley, bu.	37.7	33.2	33.2	44.7
" " " flax, bu.	10.8	6.8	7.5	5.7
" " " corn, bu.	24.4	22.9	26.9	21.7
" " " corn silage, tons	6.7	5.3	4.9	5.9
" " " clover & timothy, tons	1.6	1.4	1.3	1.0
" " " potatoes, bu.	155.5	133.2	115.4	112.4
" " " rutabagas, tons	8.2	13.5	13.8	8.5

* In 1931 and 1932 all the acreage in hay was given the same weight; in 1933, non-legume hay was given a weight of one-half; and in 1934 non-legume hays were not included in with the high return crops.

Comparison of Farm Earnings With Previous Year

	1931	1932	1933	1934
<u>Cash Expenses</u>				
Tractor (new and exp.)	\$77	\$35	\$30	\$83
Truck (new and exp.)	36	85	64	76
Auto (new and exp.) (farm share)	94	69	73	64
Gas engine (new and exp.) (farm share)	11	10	6	7
Electricity (new and exp.) (farm share)	8	1	3	1
Machinery and equipment (new)	52	23	40	60
Machinery and equipment (exp.)	36	21	25	28
Bldgs., fences, tiling (new)	22	18	40	53
Bldgs., fences, tiling (exp.)	12	15	25	20
Hired labor	144	60	86	94
Feed for livestock	155	110	197	154
Other expenses for livestock	24	29	26	27
Horses bought	27	14	15	31
Cows bought	10	7	7	14
Other cattle bought	10	8	10	6
Hogs bought	9	2	3	9
Sheep bought	16	6	13	9
Foultry bought	11	9	6	8
Crop (seed, twine, spray)	122	70	73	116
Taxes and insurance	173	125	104	111
General farm	22	12	15	22
(1) Total cash expense	1071	729	861	993
(2) Decrease in farm inventory	93	281	-	-
(3) Board for hired labor	62	32	39	38
(4) Total expense - Sum of (1),(2)&(3)	1226	1042	900	1031
<u>Cash Receipts</u>				
Horses	17	3	24	1
Cows	57	35	56	66
Dairy products	745	438	575	819
Other cattle	84	49	48	59
Hogs	112	60	60	100
Sheep	37	44	53	112
Poultry	56	49	75	35
Eggs	76	86	53	53
Small grain	62	32	43	244
Corn	1	0	1	11
Hay	24	29	32	55
Root crops	307	82	245	159
Other crops	104	101	105	284
Miscellaneous	58	127	158	77
Income from work off the farm	82	144	128	64
(5) Total cash receipts	1822	1279	1656	2139
(6) Increase in farm inventory	-	-	61	13
(7) Farm produce used in house	253	211	193	255
(8) Total receipts - sum of (5),(6)&(7)	2075	1490	1910	2407
Total expenses (4)	1226	1042	900	1031
(9) Ret. to cap. & fam. labor (8) minus (4)	849	448	1010	1376
(10) Interest on farm inventory	533	405	393	445
(11) Family labor earnings (9) minus (10)	316	43	617	931
(12) Unpaid family labor	260	248	268	347
(13) Operator's labor earnings (11) minus (12)	56	-205	349	584